AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE	OF	PAGES
	1		127

2. AMENDMENT/MODIFICATION NUMBER	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NUMBER	5. PROJECT NUMBER (If applicable)
0001	07/05/2026		

6. ISSUED BY — CODE 36C786

NATIONAL CEMETERY ADMIN (786)
NATIONAL CEMETERY ADMINISTRATION
DEPT OF VETERANS AFFAIRS
18434 JOPLIN RD.
TRIANGLE, VA 22172

7. ADMINISTERED BY (If other than Item 6) — CODE

8. NAME AND ADDRESS OF CONTRACTOR (Number, street, country, state and ZIP Code)

CODE — FACILITY CODE

(X)

X

9A. AMENDMENT OF SOLICITATION NUMBER
36C78626R50138

9B. DATED (SEE ITEM 11)
06/12/2026

10A. MODIFICATION OF CONTRACT/ORDER NUMBER

10B. DATED (SEE ITEM 11)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers [ ] is extended, [X] is not extended,

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing items 8 and 15, and returning __1__copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NUMBER AS DESCRIBED IN ITEM 14.

CHECK ONE	
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NUMBER IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [☑] is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Grounds maintenance services at Miramar National Cemetery. Purpose of this amendment 0001 is to publish answers to vendors' questions, the vendor site visit sign-in sheet, and to publish a revised performance work statement and attach a past performance questionnaire based on vendor questions received. The deadline for proposals remains 07/13/2026.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA By (Signature of Contracting Officer)	16C. DATE SIGNED

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PERFORMANCE WORK STATEMENT
Grounds Maintenance – Miramar National Cemetery

1. GENERAL INFORMATION:

1.1. **DESCRIPTION OF SERVICE**: This requirement is a non-personal services contract in which the contractor shall provide all personnel, materials, equipment, and maintenance necessary to ensure that grounds maintenance and improvement services are performed at for Miramar National Cemetery located in San Diego, California hereby known as "the Cemetery". The Government shall not exercise any supervision or control over the contract service providers performing the services herein. Such service providers shall be accountable solely to the Contractor who, in turn, is responsible to the Government.

1.2 **BACKGROUND**: The Department of Veterans Affairs, National Cemetery Administration, honors Veterans with a final resting place and lasting memorials that commemorate their service to our nation. There are approximately 155 National Cemeteries in 41 states that receive visitors, hold ceremonies and conduct committal services on an ongoing basis. Because of the special significance and attention our National Cemeteries receive from the public, strict adherence to specifications is essential.

The 313-acre national cemetery in San Diego, CA, will serve Veterans' needs well into the 21st century. It is located about 15 miles north of downtown San Diego at the northwest corner of Marine Corps Air Station Miramar. The main entrance to the cemetery is on Nobel Drive between Miramar Road and Interstate 805.

Miramar National Cemetery includes both gravesite and columbarium facilities, providing a full range of burial alternatives to approximately 235,000 Veterans in San Diego County. Nearby Fort Rosecrans National Cemetery closed to first interment casketed burials in 1966, though it continues to provide casketed interments of family members of those currently interred and inurnments of cremated remains.

1.3 **OBJECTIVE:** The basic service objective is to maintain the cemeteries' esteemed grounds with care resulting in aesthetically pleasing landscape, care for burial sections, and memorial sites to honor those who have served our nation.

1.4 **SCOPE OF WORK**: The Contractor shall provide all labor, equipment, materials, and supervision of its employees to perform the service requirements under this contract for Miramar National Cemetery. Service requirements include:

- Headstone Services
- Gravesite Maintenance
- Turf and Grasses Maintenance
- Pest Control
- Tree, Shrub, Planting, and Bed Maintenance
- Irrigation System Services
- Drainage System Maintenance
- Trash & Debris Removal
- Pavement Sweeping and Cleaning
- Structure Cleaning and Light Maintenance

1.5 **PERIOD OF PERFORMANCE**: The contract shall be a twelve (12) month base year plus two (2) twelve-month option years if exercised.

1.6 **PLACE OF PERFORMANCE**:

Miramar National Cemetery
5795 Nobel Drive
San Diego, CA 92122

1.7 **TYPE OF CONTRACT**: The Government will award a hybrid fixed price Indefinite Delivery, Indefinite Quantity (IDIQ) contract consisting of services subject to the Service Contract Act (SCA) and construction efforts subject to the Davis Bacon Act (DBA). Multiple funded task orders incorporating this PWS will be issued based on the Government's requirements, each incorporating SCA or DBA components as applicable to their terms and conditions.

1.8 **GENERAL INFORMATION**:

1.8.1.0 QUALITY CONTROL: The Contractor shall develop and maintain an effective quality control program to ensure services are performed in accordance with this PWS. The contractor shall develop and implement procedures to identify, prevent, and ensure non-recurrence of defective services. The Contractor's quality control program is the means by which he assures himself that his work complies with the requirement of the contract. At a minimum, the Contractor shall develop quality control procedures that address the Performance Requirements identified in Quality Assurance Surveillance Plan (QASP). After acceptance of the quality control plan, the Contractor shall receive the contracting officer's acceptance in writing of any proposed change to his QC system. The Quality Control Plan (QCP) shall be submitted with the proposal in draft form. A formal QCP shall be delivered within 30 days after contract award and within five (5) working days following each update. The QCP and any proposed update is subject to approval by the Contracting Officer prior to

implementation. The formal QCP and all updates shall be provided to the Contracting Officer and COR electronically.

1.8.1.1 QUALITY ASSURANCE: The Government will monitor the Contractor's performance under this contract using the Quality Assurance Surveillance Plan (QASP). All work performed under this contract will be subject to inspection at all times by the Government.

1.8.1.2 PROGRESS MEETINGS: The Contracting Officer may require the Site Manager to meet with the Contracting Officer, Contracting Officer Representative (COR), and other Government personnel as deemed necessary. Written minutes of such meetings may be recorded by the Government and signed by the Site Manager and the Contracting Officer or COR and distributed within five (5) workdays after the meeting. The Contractor may request a meeting with the Contracting Officer or COR when the Contractor believes such a meeting is necessary. Written minutes of such meetings may be recorded by the Contractor and signed by the Site Manager and the Contracting Officer or COR and distributed within five (5) workdays after the meeting. In either case, if the Contractor does not concur with any portion of the minutes, recorded by the Government or the Contractor, such non-concurrence shall be provided in writing to the Contracting Officer within two (2) calendar days following receipt of the minutes.

1.8.1.3 NORMAL HOURS OF OPERATION: The Contractor shall perform work during the hours of 8:00 AM – 4:30 PM (local time) Monday through Friday at the Cemetery. Funerals and ceremonies occur regardless of weather conditions. The Contractor is responsible for access to all work areas during these hours. The Cemetery is open to the public daily from sun rise to sun set and Memorial Day from 6:00 AM to 7:00 PM. The Government facility may be closed to the public, at times, due to local or national emergencies, administrative closings, or similar Cemetery directed facility closings, as authorized.

1.8.1.4 RECOGNIZED FEDERAL HOLIDAYS: Work is normally not conducted on Federal holidays unless otherwise authorized by the COR. The following is a list of the Federal holidays:

January	New Year's Day
January	Martin Luther King Jr.'s Birthday
February	Washington's Birthday
May	Memorial Day
June	Juneteenth
July	Independence Day
September	Labor Day
October	Columbus Day
November	Veterans Day
November	Thanksgiving Day
December	Christmas

When a holiday falls on Sunday, the following Monday will be observed as a Federal Holiday. When a holiday falls on a Saturday, the preceding Friday will be observed as a Federal Holiday by U.S. Government Agencies. Also included would be any day specifically declared by the President of the United States of America as a Federal Holiday.

1.8.1.5 OTHER THAN NORMAL HOURS OF OPERATION: At the Contractor's request, and with the written permission of the COR, work may also be permitted to be scheduled for weekends and Holidays. The Government must not compensate the Contractor for any alternate work schedules needed for the Contractor to complete all contract work within the specified project duration. No work will be permitted during Memorial Day or Veteran's Day weekend activities. Notwithstanding, if any work under this contract will be required outside of the VA's normal working hours (8:00 a.m. to 4:30 p.m. Monday through Friday), the Contractor must request for a deviation in writing to the COR at least 24 hours in advance.

The Contractor shall provide personnel support outside their expected normal hours of operation (4:31 PM – 7:59 AM) as needed, typically including holidays, special events or ceremonies, and during certain weather events, to support the Cemetery mission as authorized by the COR. The Site Manager or the Alternate Site Manager shall be available after normal duty hours or on working holidays to serve as the central point of contact for Contractor operations.

1.8.1.6 INTERFERENCE WITH GOVERNMENT OPERATIONS: Performance of work by the Contractor personnel under the terms of this contract shall not interfere with regularly scheduled Government operational activities.

1.8.1.7 SECURITY REQUIREMENTS: Contractor personnel or any representative of the Contractor entering the Cemetery shall abide by all security rules and regulations. The Contractor shall maintain a current list of all individuals working onsite. The Contractor shall maintain a list of all vehicles onsite, whether company-owned or employee-owned private vehicles.

1.8.1.8 PHYSICAL SECURITY: The Contractor shall safeguard all Government property provided for Contractor use. At the close of each work period. Government facilities, equipment, and materials shall be secured.

1.8.1.9 CEMETERY ACCESS: The Contractor shall be responsible for ensuring that all personnel authorized to perform work under this contract obtain cemetery access. Within ten (10) workdays after contract award, the Contractor shall submit to the Contracting Officer and COR the names of ALL personnel working under this contract. Changes of the Contractor personnel list shall be submitted within 24 hours of the change taking place. All Contractor employees shall have on them, at all times, positive, photographic identification.

1.8.1.10 KEY/LOCK CONTROL AND REPORTING**:** The Contractor shall be responsible for keys/locks provided by the Government. Keys/locks shall not be duplicated by Contractor personnel, nor

used by unauthorized Contractor personnel. The Contractor shall develop and implement procedures to ensure that keys/locks issued to the Contractor by the Government are safeguarded. The Contractor developed procedures covering key/lock control shall be included in the Quality Control Plan. Such procedures shall include turn-in of any issued keys/locks by personnel who no longer require access to locked areas.

The Contractor shall report any occurrence of duplicated, misplaced, or lost keys/locks to the Contracting Officer and COR within 24 hours after discovery of occurrence and submit a written report to the Contracting Officer by close of business the next workday. The written report shall provide complete details relating to duplication, misplacement, or loss.

In the event a key is duplicated, misplaced, or lost, all locks and keys for that system will be replaced at the discretion of the Government. The Contractor shall reimburse the Government for replacement of locks or rekeying required as a result of keys being duplicated, misplaced, or lost by Contractor or Contractor personnel. The Contractor shall also reimburse the Government for any government property lost or stolen as a result of unauthorized key duplication, misplaced key, or loss of key by the Contractor or Contractor personnel.

The Contractor shall prohibit the use of Government issued keys/codes by any persons other than the Contractor's employee, The Contractor shall prohibit the opening of locked areas by Contractor employees to permit entrance of persons other than Contractor employees engaged in the performance of assigned work in those areas, or personnel authorized entrance by the Contracting Officer.

1.8.1.11 CONSERVATION OF UTILITIES: The Contractor shall instruct employees in utilities conservation practices. The Contractor shall be responsible for operating under conditions that preclude the waste of utilities, which include turning off the water faucets or valves.

1.8.1.12 PERSONNEL: The Contractor shall provide a work force possessing the skills, knowledge, and training satisfactorily perform the services required by this contract. Personnel performing work under this work statement shall remain employees of the Contractor and will not be considered employee of the Government.

1.8.1.13 PESTICIDE AND/OR HERBICIDE APPLICATION: In addition to providing certification/license information, contractor shall report applications to the San Diego County Agriculture Commissioners Office when required. All Contractor personnel shall be trained on environmental issues such as ground water contamination, wetland protection, and be consistent and fully compliant with all applicable Federal, State, County and City laws, ordinances, Right-to-Know laws, EPA guidelines, and regulations.

1.8.1.14 LAND SURVEY WORK: Only licensed land surveyors are permitted to reset grid or sectional monuments disturbed during raise & realignment of headstones.

1.8.1.15 CONFLICT OF INTEREST: The Contractor shall not employ any person who is an employee of the United States Government, either military or civilian, if such employment would create a conflict of interest or be contrary to the policies contained in the Joint Ethics Regulation.

1.8.1.16 CONDUCT OF PERSONNEL: The Contracting Officer may require the Contractor to remove from the job site, any employee working under this contract for reasons of misconduct, security, or found to be under the influence or alcohol drugs, or other incapacitating agents. Contractor employees shall be subject to dismissal from the premises upon determination by the Contracting Officer that such action is necessary in the interest of the Government. The removal from the job site or dismissal from the premises shall not relieve the Contractor of the requirement of providing sufficient personnel to perform the services as required by this contract.

1.8.1.17 SPECIAL QUALIFICATIONS: The Contractor is responsible for ensuring all employees possess required state motor vehicle licenses for operating equipment and vehicles used in the execution of this contract. Anyone applying pesticides must be trained and certified in the appropriate pesticide applicator categories by the state of California. A pesticide technician is not a valid substitute for a state certified applicator. Use of any chemicals shall meet Environmental Protections Agency (EPA) Guidelines and State of California Law for licensed applicator requirements and shall not be used without prior review through a pre-application submittal and consent of the COR.

SITE MANAGER: The On-site manager must have a minimum of two (2) years' experience as a direct supervisor of commercial Landscape Maintenance/Installation operations and be accredited by the Landscape Contractors Association, or equivalent accreditation program, (e.g., PLANET). They shall speak and write fluent English. Provide licenses/certificates regarding capabilities at time of contract award and annually when an Option Year is exercised. The Contractor must provide the on-site manager with mobile phone(s) and radio(s) (same channel/frequency as the cemetery). The on-site manager must immediately communicate to the COR, by radio, and by cell phone after hours) when an alternate on-site manager has been placed in charge. The Contractor shall provide a Site Manager who shall be responsible for the performance of the work. The Site Manager shall have – degree, experience in scope and complexity. Skillset necessary for performing job requirements. The name of this person and an alternate who shall have full authority to act for the Contractor when the Site Manager is absent shall be designated in writing to the Contracting Officer.

ALTERNATE SITE MANAGER: Shall have similar qualifications as the Site Manager, and the alternate can be a key personnel position other than the Site Manager. The Site Manager or alternate shall have full authority to act for the Contractor on all contract matters relating to daily operation of this contract, and either the Site Manager or his/her alternate will be on job site during normal operation hours. The Site Manager – and in his or her absence, an alternate shall be available by phone 24 hours a day, 7 days a week, and shall also have an email address which shall be checked for information from the Cemetery, prior to 7:00am and

after 2:00pm each day Monday through Sunday, as the Cemetery anticipates messaging up to twice daily. The Site Manager is to report daily with the COR prior to 7:00am when work is being performed. Additionally, the Site Manager or an alternate must be available to meet the COR onsite within 12 hours' notice, if requested by the COR. Also, the COR must be informed less than 24 hours in advance, anytime the Site Manager will be offsite for extended periods of time. One (1) resume and one letter of commitment from the individual proposed for: Site Manager.

1.8.1.18 POST AWARD CONFERENCE/PERIOD PROGRESS MEETINGS: The Contractor agrees to attend any post award conference convened by the Contracting Activity in accordance with Federal Acquisition Regulation Subpart 42.5. The Contracting Officer, COR, and other Government personnel, as appropriate, may meet periodically with the Contractor to review the Contractor's performance. At these meetings, the Contracting Officer will apprise the Contractor of how the Government views the Contractor's performance and the Contractor will apprise the Government of problems, if any, being experienced. Appropriate action shall be taken to resolve outstanding issues. These meetings shall be at no additional cost to the Government.

1.8.1.19 CONTRACTING OFFICER REPRESENTATIVE (COR): The COR will be nominated by the requiring activity and appointed by the Contracting Officer by separate letter. A copy of the COR's appointment letter will also be sent to the awarded Contractor, identifying the designated duties and limitations of the COR. The COR's designated duties will describe the level of responsibility and what technical or administrative aspects of the contract are to be monitored. The COR's oversight responsibilities are not limited to the QASP. Since all listed contract requirements or tasks are expected to be met by the contractor at all times, the COR is authorized to conduct oversight on any and all tasks or requirement and report observations to the Contracting Officer. The COR is not authorized to change any terms or conditions in the contract that pertain to cost, schedule, performance, quality, quantity, or other legal aspects of the resulting order.

1.8.1.20 IDENTIFICATION OF CONTRACTOR EMPLOYEES: All Contractor personnel attending meetings and working in other situations where their Contractor status is not obvious to third parties are required to identify themselves as such to avoid creating an impression in the minds of members of the public that they are Government officials. They must also ensure that all documents or reports produced by the Contractor are suitably marked as Contractor products or that Contractor participation is appropriately disclosed.

1.8.1.21 PHASE IN/PHASE OUT: To minimize any decreases in productivity and to prevent possible negative impacts on additional services, the Contractor shall have personnel on board, during the phase in/phase out periods. The phase in period will begin on the first business day after the contract is awarded. During the phase in period, the Contractor shall become familiar with performance requirements in order to commence full performance of the services on the contract start date, submit lists of employees working under this contract, and move and stage all needed equipment, materials, and supplies onto the designated contractor area at

Miramar National Cemetery. It is expected that this task will take no less than two weeks and no more than four weeks.

2. DEFINITIONS & ACRONYMS

2.1 DEFINITIONS: (See the "Glossary" of the National Cemetery Administration, Operational Standards and Measure Guidebook for a list of cemetery-specific definitions.)

2.1.1 **Animal:** any living that is not human being or a plant.

2.1.2 **Backflow Preventer**: A device which prevents any fluid from back-siphoning into the source water such as hydrants, spigots, pipes, or other water sources. Contractor shall ensure such devices are employed whenever watering, filling water or pesticide mix tanks, or mixing pesticides or any other product with water.

2.1.3 **Clean**: Free of all foreign matter.

2.1.4 **Cleaning Agents**: Products and substances (usually liquids, pastes, powders, sprays, or granules) used to remove dirt and detritus, including dust, stains, oxidation on surfaces.

2.1.5 **Cleaning Equipment:** Devices, tools, and machines designed for specific cleaning tasks, including pads and cloths.

2.1.6 **Contract Administrator**: The official Government representative delegated authority by the Contracting Officer to administer a contract. This individual is normally a member of the appropriate Contracting/Procurement career field and advises on all technical contractual matters.

2.1.7 **Contracting Officer's Representative (COR):** A representative from the requiring activity appointed by the Contracting Officer to perform surveillance and to act as liaison to the Contractor.

2.1.8 **Crown Raising:** The removal of the lower branches of a tree to provide clearance for buildings, signs, vehicles, pedestrians and vistas, also known as "limbing up" and "lifting". Do not "limb up" coniferous trees.

2.1.9 **Crown Thinning:** The selective removal of dead, diseased, broken or weakly attached branches (Crown Cleaning) and: the removal of branches to increase light penetration and air movement through the crown; thinning towards the branch tip to reduce the wind-sail effect of foliar clumps in the crown; and thinning to relieve the weight of heavy limbs. Only 25 percent of a tree's leaf area can be removed at any one time.

2.1.10 **Crown Cleaning**: The selective removal of dead, diseased, broken or weakly attached branches. This constitutes regular landscape maintenance pruning that will correct small growth problems before they become larger, more costly problems.

2.1.11 **Crown Reduction**: Pruning to reduce the size of the tree.

2.1.12 **Cycle:** The completion on one unit of work, from beginning to end, that involves a give distance or length of time (For example, picking up all trash once a week, or an edging of all curbs along all Cemetery roads).

2.1.13 **Deadwood Pruning**: Pruning to remove deadwood and/or broken branches that pose a potential risk that could result in personal injury or property damage. This category is used

for any tree with broken, hanging, dead, or otherwise potentially dangerous limbs or those trees with a significant number of dead branches that require removal.

2.1.14 **Decomposed Granite:** Fine, crushed, screened, naturally friable granite rock, 1/4-inch minus material to match existing. Gradation as determined by ASTM C 136 with 50 to 100 percent passing the No. 4 sieve, with 5 to18 percent passing the No. 200 sieve. Approved material: 'Gail's Gold' decomposed granite as available from Gail Materials, Tel.: (951)667-6106; (or equivalent material as approved by the COR).

2.1.15 **Defective Service**: A service output that does not meet the standard of performance associated with it in the PWS.

2.1.16 **Deliverable**: Anything that can be physically delivered, but may include non-manufactured things such as meeting minutes or reports.

2.1.17 **Drip Zone Assembly**: Assembly consisting of remote control valve, drip filter, drip pressure regulator, unions, shut-off valve, nipples, pipe, and valve box or vault.

2.1.18 **Evapotranspiration:** The combined loss of water from soil through evaporation and plant transpiration.

2.1.19 **First Interment Area:** Areas within the burial sections where the government is actively assigning new gravesites and conducting new interments.

2.1.20 **Foreign Matter:** Dirt, marks, stains which can be removed with reasonable cleaning effort and appropriate cleaning agents and equipment. Feces of all types.

2.1.21 **Full Sun Areas:** Areas receiving more than 5 hours of direct sunlight per day.

2.1.22 **Government Furnished Equipment (GFE):** Equipment in the possession of, or directly acquired by, the Government and subsequently made available to the Contractor.

2.1.23 **Government Furnished Property (GFP) or Government Property (GP):** Property in the possession of, or directly acquired by, the Government and subsequently made available to the Contractor.

2.1.24 **Ground cover:** Low growing plants growing over an area of ground. Ground covers include grasses, shrubs, and herbaceous plants.

2.1.25 **Grounds and Boundaries**: All developed land including turf, walks, beds, planter beds, drainage ditches, roads, steps, plazas, and parking lots within the property line of the Cemetery.

2.1.26 **Headstone:** Including upright headstones and flat markers. The term headstone is synonymous with marker.

2.1.27 **"Hot Spot":** An isolated patch of turf as evident by dry soil, hydrophobic soil, and brownish or yellowing leaf color.

2.1.28 **Inorganic Mulch**: Decomposed granite, path fines, gravel, pebbles, cobblestones, rip-rap, boulders, artificial bark mulch.

2.1.29 **Interseeding:** The practice of seeding the same species into itself for the purpose of increasing stand density and recovery of lost grass.

2.1.30 **Irrigated Turf:** Lawn that has permanent irrigation system installed.

2.1.31 **Height of Turf:** Height, if not readily obvious, shall be determined by the COR (in the presence of the Site Manager) by measuring the height of the turf plants with a yardstick in four locations – randomly selected by the COR – within the burial section or Highly Prominent area in question. The COR will then determine the average height of those measurements.

2.1.32 **Irrigation Hours:** Period of time during which landscape irrigation is permissible and does not interfere with visitation and cemetery operations; typically between 8:00pm and 5:00am.

2.1.33 **Master Valves:** Mainline remote control valves controlling flow of water to mains. Master valves may be normally open supplying water under pressure to mains, or normally-closed shutting off water under pressure to mains when not irrigating.

2.1.34 **Mulch Bed:** Any area containing primarily organic and/or inorganic mulches.

2.1.35 **Non-irrigated Turf:** Low Maintenance Lawn, Slow-Growth Area, "Green" Burial Section. Lawn that does not have a permanent irrigation system installed and is allowed to go dormant during extremes of heat and cold.

2.1.36 **Non-pressure Piping**: Lateral line pipe that is not under water pressure until the control valves are opened. Pipe that is typically downstream of the control valve.

2.1.37 **Organic Mulch:** Decorative tree bark, compost, nut shells.

2.1.38 **Overseeding:** The practice of seeding another species over an existing stand to produce viable turf when the existing stand has become dormant.

2.1.39 **Part Sun Areas:** Areas receiving less than 5 hours of direct sunlight per day normally due to shade from tree canopies.

2.1.40 **Pest**: Any plant or animal detrimental to humans or human concerns including weeds, fungi, molds, vertebrates, and invertebrates.

2.1.41 **Pesticide:** Includes herbicides, insecticides, horticultural oils, fungicides, poisonous baits, and fumigants.

2.1.42 **Planting Bed:** Any area planted with trees, shrubs, and ground covers.

2.1.43 **Posting Signs:** Industry standard warning signs stating that a pesticide application has been applied.

2.1.44 **Performance Work Statement:** The PWS is a detailed set of verifiable performance or quality standards for everything the Contractor is required to perform or produce. Performance- based statements of work (referred to as a PWS) are the preferred method of stating needs in terms of performance outputs. A performance based statement of work structures all aspects of an acquisition around the purpose of the work to be performed and does not dictate how the work is to be accomplished. It maximizes Contractor control of work processes and allows for innovation in approaching various work requirements.

2.1.45 **Pressure Piping:** Mainline and submain pipe that is constantly under water pressure. Pipe that is typically upstream of the control valve.

2.1.46 **Outlets:** Sprinkler heads, drip emitters, drip flush valves, drip air relief valves, including pipe risers and swing joints.

2.1.47 **Polished:** Smooth and shiny as a result of being rubbed. Free of oxidation.

2.1.48 **Quality Assurance Surveillance Plan (QASP):** An organized written document specifying the surveillance methodology to be used for surveillance of Contractor performance.

2.1.49 **Quality Assurance:** A procedure or set of procedures taken by the Government to ensure that services under development (before work is complete, as opposed to afterwards) meets specified requirements of the PWS.

2.1.50 **Quality Control:** A procedure or set of procedures implemented by the Contractor to ensure that the performed service adheres to and meets the requirements of the PWS.

2.1.51 **Reasonable Cleaning Effort:** Commercially reasonable amount of time and expenditure of physical effort needed to clean an element utilizing commercially available equipment and products designed specifically for that task.

2.1.52 **Remote Control Valve Assembly:** Assembly consisting of remote control valve, unions, shut-off valve, nipples, pipe, and valve box or vault.

2.1.53 **Removal:** The transport of identified material, such as trash and debris, from the area it was found to a place of final repository – such as a dumpster or off the Cemetery grounds.

2.1.54 **Routine Pruning:** Regular maintenance to reduce the development of future problems or correct minor problems that could increase if not corrected. This primarily includes trees with minor amounts of deadwood less than two inches in diameter or with correctable structural problems. Trees with growth patterns that will eventually obstruct or interfere with understory plant growth and health, pedestrian or vehicular traffic clearance, and lines of sight are also included in this category.

2.1.55 **RTF:** Rhizomatous Tall Fescue. Turf-type tall fescue which produces rhizomes, underground stems that penetrates laterally through the soil to spread the plant while sending shoots up to the soil surface, forming a new plant.

2.1.56 **Submaster Valves:** Submain remote control valves controlling flow of water to submains. Master valves may be normally-open supplying water under pressure to submains, or normally-closed shutting off water under pressure to mains when not irrigating.

2.1.57 **Training Pruning:** Prune young or small trees less than 20 feet in height in order to reduce the development of future structural problems. Trees with growth patterns that will eventually obstruct or interfere with understory plant growth and health, pedestrian or vehicular traffic clearance, and lines- of-sight are also included in this category.

2.1.58 **Stabilizer:** A water-based polymer or organic powdered binder solidifying emulsion specifically manufactured to harden decomposed granite. The solidifying emulsion shall not alter the gravel color. A copy of the manufacturer's product sheets and instructions for application shall be furnished to the COR for approval.

2.1.59 **Topsoil:** ASTM D 5268; natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles, conforming to USDA classification for Loam or Sandy Loam; friable, pervious, and compatible in texture with the existing soil to prevent a perched water table; ECe less than 3 mmhos/cm; a minimum of 2 percent/maximum of 10 percent organic material content; pH range between 6 and 8; reasonably free of subsoil, clay lumps, gravel, rocks and other objects more than 13 mm (1/2-inch) in any dimension; and free of weeds, roots, and other extraneous materials harmful to plant growth.

2.1.60 **Trash and Debris:** Any item, material or foreign object not permanently attached to or planted within the grounds and boundaries. Items include – but are not limited to – fallen twigs and branches that are under ten (10) inches in diameter at their widest point, paper products, cigarette butts, glass and metal products, plastic and any other synthetic item, plus loose rock and stone three (3) inches in diameter or greater that are not the apparent result of an interment within the past 30 days. Not included are stains, loose soil, smaller stones, or leaves. Exception: Loose soil, smaller stones and leaves are included when part of blowing off a roadway or walk, and when performing a clean-up prior to a major ceremony. Any item, material or foreign object not permanently attached to or planted within cemetery grounds and boundaries. Items include, but are not limited to leaves, needles, flowers, seedpods, twigs, branches of all sizes, feces, paper products, cigarette butts, gum, glass and metal products, plastic and any other synthetic items, gravel, asphalt, concrete, loose rock and stones over two inches (2") in diameter, and soils that are a result of interment operations.

2.1.61 **Turf:** Turfgrass, grass, lawn. Any ground cover consisting primary of cultivated turfgrass species, such as perennial ryegrass and tall fescue.

2.1.62 **Valves:** Backflow prevention devices, isolation valves, pressure regulating valves, automatic valves, hydrometers, master valves, air and vacuum release valves, remote control valves, blow-off valves, hose bibs, quick couplers.

2.1.63 **Vegetation:** All plant material including weeds.

2.1.64 "**Water-Wise" burial section:** is an interment area with a ground surface consisting of non-living groundcover material such as a mineral mulch. The mineral mulch is typically a crushed aggregate surfacing such as decomposed granite, or other COR-approved 1/4-inch minus crushed aggregate material.

2.1.65 **Water-wise cemetery** is surfaced with a layer of sand or mineral-based ground cover, (e.g., decomposed granite).

2.1.66 **Weed**: Any non-desirable plant material, including escaped and invasive ornamental plants

2.1.67 **Wildflowers:** Annual and perennial flowering ground cover plants grown by sowing seeds.

2.1.68 **Windrows of Turf Clippings**: Any accumulation of turf clippings which cover or block sunlight from reaching the newly-mowed or trimmed turf area.

2.2 ACRONYMS:

AM	ante meridiem
CO	Contracting Officer
COR	Contracting Officer Representative
EMS	Environmental Management System
e.g.	for example
EA	Each
FY	Fiscal Year
IAW	In accordance with
i.e.	that is
IPM	Integrated Pest Management
JB	Job
JER	Joint Ethics Regulation
lbs	pounds
LMR	Land Mobile Radio
MO	Months
mph	miles per hour
NCA	National Cemetery Administration
NIOSH	National Institute of Occupational Safety and Health
OSHA	Occupational Safety and Health Act
OPT	Option
PWS	Performance Work Statement
PM	post meridiem
QTY	Quantity
QC	Quality Control
QASP	Quality Assurance Surveillance Plan
SSD	Security and Safety Directorate
SWPPP	Stormwater Pollution Prevention Plan
SF	Square Feet
TE	Technical Exhibit
VA	Department of Veteran's Affairs

3. GOVERNMENT FURNISHED PROPERTY, EQUIPMENT, AND SERVICES

3.1 **GENERAL INFORMATION:** The Government will provide the property and services listed below. The Contractor shall not use the property or services provided by the Government for any purpose other than in the performance of this contract. All requests for Government furnished property and services shall be approved by the COR and Contracting Officer in writing.

3.2 **FACILITIES:** The Government shall furnish a parking and staging area for vehicles and equipment with no guarantee of security for the designated area or any assurances of utilities or phone lines. A temporary storage area for tree branches, sticks, and leaves will be provided. Maintenance of equipment must be conducted offsite (no hazardous materials), unless light routine repairs are needed, such as changing flat tires, blade sharpening, etc.

3.3 **EQUIPMENT:** None provided.

3.4 **UTILITIES:** Water will be available at various areas as designated by the COR through in-ground water sources throughout the cemetery. Electric, gas, or phone lines are not guaranteed for the Contractor in designated staging areas. The Contractor shall instruct employees in utilities conversation practices. The Contractor shall be responsible for operating under conditions that preclude the waste of utilities. If abuse or waste is suspected, the Government reserves the right, at any time during the contract performance period, to provide utilities to the Contractor on a few-for-use basis.

3.5 **HEADSTONES AND MARKERS:** The Government shall provide new and replacement headstones and markers to the contractor for installation, ensuring proper wording and spelling.

3.6 **FLORAL VASES:** Floral vases for public use and stocking by the Contractor.

4. CONTRACTOR FURNISHED ITEMS, SERVICES & REQUIREMENTS

4.1 **GENERAL INFORMATION**: The Contractor shall furnish all supplies, equipment, facilities, and services required to perform work under this contract that are not listed under Section 2 of this PWS. The Contractor shall also provide transportation and permits necessary to perform the requirements of this contract. This includes having roll-off dumpsters for trash, debris, headstones and soil removal.

4.1.1 EQUIPMENT GUIDELINES: The Contractor's equipment shall be commercial grade equipped with protective and safety features that is in good repair, and clean. The Contractor shall submit,

to the Contracting Officer, and equipment list which includes, but is not limited to, quantities and descriptive data for all equipment prior to its use on CEMETERY grounds. The Contractor shall inform the Contracting Officer, in writing, of any equipment list changes prior to implementing the changes. The equipment and supplies the Contractor uses shall not cause damage to ground areas, headstones, monuments, walkways, trees, or any other part of the landscape. It is expected that the Contractor will take preventative measures when entering soft grounds with equipment, such as the use of boards, to prevent ruts.

4.1.2 COMPREHENSIVE GROUNDS MANAGEMENT PLAN: A comprehensive Grounds Management Plan (GMP) submitted to the COR within 30 workdays following contract award. The GMP shall identify every task, frequency, and planned duration required under this contract. Changes to the plan must be approved by the COR prior to implementation and prior to any updates. Pesticide and fertilizer applications must include a legend indicating the specific product, application rate (quantity and active ingredient per acre or 1000 square feet).

4.1.3 WEEKLY WORK PLAN: Weekly electronic notification to the COR Team outlining the work planned during the following workweek no later than noon on the final workday of each week. The plan shall include sufficient detail by day and area to allow meaningful quality control by the Contractor and quality assurance by the COR Team.

4.1.4 COMPLETED WORK REPORT: Daily electronic notification to the COR Team detailing what work was completed during the workweek no later than 3:00 p.m., on the final workday of each week. The report will detail all work completed, by day and area during the week, including specifics regarding marker settings, alignments, et cetera.

4.1.5 PESTICIDE DISPERSAL EQUIPMENT: The Contractor shall furnish pesticide dispersal equipment without visible deterioration or leaks in any component and shall operate the equipment IAW the manufacturer's recommendations. All pesticide tanks of powered dispersal equipment shall be clearly and plainly labeled "Contaminated with Pesticides." All tanks of powered pesticide equipment dispersal equipment shall also have a license decal that is attached in a conspicuous location and contains an identification number and the name of the issuing agency.

4.1.6 COMPOST, SOIL AMENDMENTS, FERTILIZER LIST: A list of all proposed compost, soil amendments, fertilizers with the proposal and the following samples and/or reports for review and approval by the COR and Pacific District Agronomist within ten (10) workdays after contract award. Changes must be approved by the COR prior to use.

4.1.7 VEHICLES: The Contractor shall provide vehicles for the performance of services on this contract. Contractor and Contractor employees shall abide by all speed limitations while operating a vehicle at the Cemetery. The speed limit at the Cemetery is 15 mph on cemetery roads and 10 mph when passing pedestrians. The Contractor shall be responsible for all maintenance and repair of Contractor furnished vehicles.

4.1.8 VEHICLE SAFETY EQUIPMENT: Contractor vehicles used to transport herbicides shall house a National Institute of Occupational Safety and Health (NIOSH) approved spill and decontamination kit and shall be equipped with a fire extinguisher which has an ABC rating with minimum capacity of pounds.

4.1.9 COMMUNICATION DEVICES: The Key Personnel and vehicle drivers shall have communication devices turned on during normal operating hours as to be available to communicate with the COR at any time. Any employees performing during outside of normal operating hours (as authorized by the COR) shall also be available to communicate during those times. The Contractor shall be available by mobile phone 24 hours a day, 7 days a week in the even they need to be contracted regarding an emergency, significant weather event, etc. All cost related to providing wireless communication devices are the responsibility of the Contractor.

4.1.10 STANDARDS OF EMPLOYEE CONDUCT & VA REGULATIONS**:** Contractor and contractor personnel shall be required to adhere to the following standards of dress and conduct while performing work in the National Cemetery. These standards and regulations are enforceable under Title 38, U.S.C. Section 218. Contractor, and all contractor personnel, shall follow all US Department of Veterans Affairs, National Cemetery Administration, and Miramar National Cemetery environmental protection standards, policies and procedures, including, but not limited to, the NCA Environmental Management System and Green Purchasing policies.

Contractor and contractor's employees shall be required to wear uniforms displaying the name of the company the employee's name, and status. Outer wear (including jackets, coats, hats, rain gear, etc.) must also comply with above. Contractor’s employees shall be fully clothed at all times, to include long slacks or pants and shirt, buttoned up from neck to waist. Clothing shall be clean each day. Any soiled clothing should be cemetery work-related that day. T-shirts and/or tank tops as outer garments are prohibited. Garments displaying a “message” or “slogan” other than the Contractor’s business attire are prohibited. Other clothing in question shall require the Director’s written approval.

Contractor and contractor employees will maintain personal hygiene. Shoes/boots will have no holes or loose soles. Steel-toed shoes will be required in accordance with OSHA. All required uniforms and personal protective equipment will be provided by the Contractor-to-contractor personnel.

Contractor and contractor personnel shall show proper reverence during committal service and other cemetery ceremonies. Contractor and contractor personnel shall not engage in loud or boisterous behavior, use profane or abusive language nor use personal radios. Due to the sensitive mission of the Cemetery, Contractor and Contractor employees shall exercise courtesy and respect while within the cemetery. If inquiries are received from visitors, they are to assist visitor’s to the best of their ability.

Possession of weapons is prohibited. Enclosed containers, including tool kits, shall be subject to search. Violations of VA regulations may result in citation answerable in the United States (Federal) District Court, not a local district, state, or municipal court.

4.1.11 HANDLING OF HEADSTONES**:** 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. Contractor personnel cannot walk, stand, lean, sit or jump on headstones or markers, nor shall the wheels/tracks of any Contractor vehicle ever drive over them.

No tools, equipment or other items will be placed or leaned on headstones or markers. Once headstones/markers are removed from the socket, do not place the headstones on dirt piles or mud; they should be carefully placed on each associated gravesite and protected in such a way as to prevent any soiling and be out of the way of any other work.

Headstones shall be removed from their sockets using wooden and/or metal clamps. If metal clamps are used, the area that contacts the headstone must be protected with a rigid fabric that will prevent damage to and marking of the headstone. Clamps may be attached to a skid steer loader (i.e., Bobcat®) or similar machine to extract the headstone from the socket. Contractor personnel should use tools approved by the Contracting Officer Representative (COR), such as shovels, pry bars or pinch bars to lift flat markers out of the ground; pick axes are not an acceptable tool.

When headstones are removed from their sockets, they shall be carefully stored on each associated gravesite; do not lean headstones against each other. Use care not to scratch or damage headstones in any manner. The headstones shall be laid with front inscription side up while the headstone is lying horizontally on the ground. The headstone shall be protected from direct ground contact while lying horizontally. The protection method shall be as approved by the COR and shall be free of deterioration in weather. An approved method is to support each headstone with two (2) wood 4x4's. Alternate methods can be approved. Cardboard shall not be used. Wood or other suitable appropriate and attractive material shall be used to keep the headstones from contact with the soil while lying horizontally during the construction period. This also shows respect towards the families visiting the gravesites and the remains that are buried.

Contractor shall be responsible for replacing damaged headstones and markers and for restoring landscape damaged during performance of this work. Additionally, should any activity result in the exposure and/or damage to any remains, container for remains (i.e.,

casket or urn), or outer burial container, the Contractor must contact the COR, Director/Assistant Director, or Contracting Officer (CO) for guidance.

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 this guidance with their employees and have each employee sign a statement of compliance and deliver the signed statement to the COR before work may begin.

4.1.12 USE OF CEMETERY FACILITIES: The Government will not be responsible for any loss, damage, or theft of contractor items. Contractor shall be responsible for acceptable standards of housekeeping and custodial maintenance of Department of Veterans Affairs' facilities used by contractor's employees that are acceptable to the COR and in accordance with National Cemetery Administration Operational Standards and Measures (Version 5.1, July 2014 or the most current version).

All contractor personnel operating motorized vehicles/equipment on government property must possess a valid state driver's license. Contractor and contractor personnel may park privately owned vehicles in the area designated for parking by the COR. It is the responsibility of the Contractor to ensure his employees park in the appropriate designated parking areas. The Cemetery will not invalidate or make reimbursement for parking violations of the Contractor or contractor's personnel under any circumstances. The Government is not responsible for any damage, theft of vandalism to privately owned vehicles parked on cemetery property. All Contractor employees park on cemetery property at their own risk. The Contractor shall observe all traffic, parking, directional signs and regulations when using the cemetery's roadways. The Cemetery will not invalidate or make reimbursement for parking violations of the Contractor's employees under any conditions.

4.1.13 STORAGE FACILITIES: The Government will not furnish any building(s) at the cemetery site for use by the Contractor to store supplies, equipment, etc. The Government will provide the Contractor with a fenced storage yard to store supplies, tools and equipment directly related to the implementation of this contract. However, the Government will not be responsible for any damage to or loss of the Contractor's equipment and supplies, or items belonging to Contractor's personnel stored on the Government's premises. The Contractor shall provide any storage buildings/lockers at their own expense. Storage buildings/lockers shall be in presentable condition. Conex boxes shall be painted to blend into the natural landscape. Equipment and supplies stored by the Contractor shall be maintained in a neat and orderly fashion.

4.1.14 RESTROOMS: Contractor and contractor employees shall not be allowed to use cemetery staff or public restrooms. Contractor must provide adequate, COR- approved, restroom facilities for their personnel. A septic system hook-up is available for a contractor-provided office trailer as approved by the COR. Contractor shall be fully responsible for maintenance and repairs to septic system and leach fields if used for their benefit.

4.1.15 MATERIALS STORAGE AREA: The Government will provide the Contractor two materials storage bays for use in storing materials (e.g., decomposed granite, crusher waste.) Other landscape materials (compost, mulch, topsoil, sand, gravel, etc.) may be stored within the Contractor's fenced storage yard as approved by the COR. The contractor is responsible for Stormwater Pollution Prevention Plan (SWPP) and erosion prevention control measures related to the stockpiling of these materials in accordance with local, state and federal regulations.

4.1.16 HAZARDOUS MATERIALS STORAGE: The Contractor shall request the approval of the COR if the Contractor desires to store any hazardous materials at the Cemetery. If approval is granted the Contractor is responsible for safely storing any chemicals, pesticides, herbicides, cleaning solutions, flammable materials, etc. on site in properly ventilated hazardous materials lockers in accordance with all federal, state and county laws and regulations and manufacturers recommendations. Each locker shall be rated for the storage of the specific material(s) housed inside and shall be Cal-OSHA compliant. The lockers are subject to inspection by NCA, federal, state and local authorities. Items stored within the lockers shall be maintained in a neat and orderly fashion.

The Contractor shall provide, as part of their offer, a list of tools and equipment to be used during the course of the contract, for the approval of the Government. Ten (10) days after contract award, and every year thereafter, the Contractor shall verify in writing that this equipment is in safe operating condition. The Contractor shall comply with all Federal, State, City, County, and local laws and regulations regarding the use of Personal Protective Equipment (PPE) for all contract personnel. All Personal Protective Equipment is provided by the Contractor.

The Contractor shall be responsible for maintaining fire extinguishers and other safety equipment. SDS or Safety Data Sheets (formerly known as MSDS or Material Safety Data Sheets) are required for all chemicals, pesticides, herbicides and cleaning solutions. The Contractor shall provide master file of SDS sheets to the COR. The contractor shall also maintain a file of all SDS sheets wherever these materials are stored. Should the storage yard become unusable, the Contractor will be given a minimum of 60 days to find storage off the cemetery grounds. The Contractor shall then be responsible for delivering and removing all necessary equipment and supplies on a daily basis. Inability to use the storage yard will in no way alter the contract.

4.1.17 CELL PHONE USAGE: Contractor's personnel should refrain from using cell phones for non-contract work related business while in public areas. This includes, but is not limited to, calls, texting, and internet related functions. Any cell phone use while operating vehicles/equipment is strictly prohibited. The use of headphones/ear buds by Contractor and Contractor's personnel is prohibited.

4.1.18 INSPECTION OF CEMETERY FACILITIES: The Contractor shall perform no less than weekly inspections of the entire cemetery to ensure that National Shrine Standards are met. During this inspection, any deficiencies noted within the scope of the contract will be corrected as soon as practicable. Items that need correcting outside the scope of the contract will be reported to the Contracting Officer or COR. The Contractor will be required to submit inspection reports and work accomplished to the COR weekly on Fridays. The inspection forms will be provided to the Contractor by the COR.

4.1.19 SAFETY & TRAINING: The Contractor shall also be responsible for training and safety precautions for Contractor employees performing work under these specifications. OSHA standards shall be observed by the Contractor in all work performed. Appropriate safety equipment shall be furnished by the Contractor-to-Contractor personnel and shall be used as prescribed by OSHA standards, including hard hats, safety shoes, safety glasses, gloves and hearing protection devices. The following OSHA and NFPA standards and codes are to be adhered to: National Fire Protection Association (NFPA): 10-1998 Standard for Portable Fire Extinguishers. Occupational Safety and Health Administration (OSHA) 29 CFR 1910 Safety and Health Regulations for Personal Protection, Safety Color Codes, Portable Power Tools, Electrical Safety and Portable Electric Equipment. The Contractor should maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.

The Contractor shall be fully licensed to purchase and apply pesticides as required by Federal, State, City, and County, laws and regulations. The Contractor shall fully comply with all applicable Federal, State, City, and County, laws and regulations. The Contractor shall provide, as part of their offer, a list of tools and equipment to be used during the course of the contract. The Contractor shall verify in writing that this equipment is in safe operating condition.

The Contractor shall comply with all Federal, State, City, and County regulations regarding the use of Personal Protective Equipment (PPE) for all contract personnel. All Personal Protective Equipment is provided by the Contractor. Contractor's employees shall wear all required safety equipment such as goggles or face shield, hearing protection, hard hats, respirators, if required, and uniforms identifying them as an employee of the Contractor. The Contractor shall be responsible for providing and maintaining fire extinguishers, and other safety equipment for Spill Prevention Control Countermeasures (SPCC). Contractor shall have a Spill Control and Countermeasure Plan (SCCP).

Contractor shall be responsible for maintaining a hazardous chemical list for all chemicals entering the Cemetery. The Contractor must keep all employee training records on site and available for review by the COR. SDS (Material Safety Data Sheets) are required on-site for all chemicals, pesticides, herbicides, and cleaning solutions. Contractor shall be responsible for maintaining monthly fuel tank inspection reports and shall have records available for review

by local authorities during site safety inspections. The Contractor shall be responsible for training and safety precautions prescribed by OSHA standards.

The Contractor shall be responsible for safely storing any chemicals, pesticides, herbicides, cleaning solutions, and other hazardous materials in accordance with manufacturers printed instructions. The Contractor shall maintain a binder with SDS (Safety Data Sheets) for all chemicals, pesticides, herbicides and cleaning solutions stored and used on site stored in the maintenance area with telephone numbers of poison control centers to call in case of an accident. The Governments Environmental Management System Coordinator will make periodic inspection on the storage of hazardous chemicals, etc. The Contractor shall take corrective action immediately to remedy any deficiencies with safeguards to protect personnel and the environment.

4.1.20 PROTECTION & CLEAN UP: The Contractor shall leave all work areas free of debris and in the same condition as before the work commenced. The Contractor shall take all necessary precautions to protect monuments, headstones, markers, vegetation, and structures as appropriate, in the immediate work area(s). The Contractor shall not use any herbicide in either granular or liquid form that will stain or discolor any headstones and will notify the COR of all materials scheduled for use on mineral mulch before any application. Contractor shall be responsible for cleaning cemetery structures, headstones, monuments, and roadways that are soiled or stained because of Contractor's performance. The Contractor shall wash-down with water all soiled or stained structures, headstones, and monuments at the end of each workday. No unapproved hazardous chemicals are to be used at any time on Government property. The Contractor shall bear all costs associated with washing and cleaning. Any such washing/cleaning shall be brought to the immediate attention of the Contracting Officer Representative (COR) prior to washing/cleaning.

4.1.21 MAINTENANCE DURING CEMETERY FUNCTIONS: The Contractor shall coordinate a work schedule with the COR(s) daily to ensure that no work is being performed at the immediate site of a scheduled interment. These daily meetings are also an opportunity for the Contractor to ask questions and ensure he/she understands the off-limit areas, which may vary, depending on the event. The Contractor is solely responsible for ensuring that no contract work causes any funeral, service, ceremony, procession or visitation to be delayed, altered, or otherwise impacted in such a way that the dignity or security of the event is compromised. The Contractor is solely responsible for staying abreast of all such upcoming events and when in doubt, he/she must ask the COR(s) for information/details.

The Contractor shall meet with the COR at the end of each day to determine work completed and ensure that work is on schedule. In the absence of the COR, the Contractor shall meet with an Alternate COR.

Contractor personnel shall not operate motorized equipment or conduct other commercial activities within the designated area during interment services. The COR will set up the

designated area. The COR or his/her representative shall furnish the Contractor with a schedule of all interments and/or ceremonies no later than 8:30 am on the date of the scheduled interment, and a minimum of three (3) days before any ceremonial events.
Note: To cause the least possible interference with cemetery activities, contract personnel will stop (cease) all work in areas where burials are taking place. As a general "rule-of-thumb", work shall not take place within 1,000 feet of an ongoing committal service or ceremony. The Site Manager shall re-direct work throughout the rest of the Cemetery so that productive use of labor and equipment is assured, and downtime is avoided. If the Contractor fails to re-direct employees away from an event in a timely fashion, the COR may then do so.

4.1.22 PERFORMANCE EVALUATION MEETING: The issuance of a Contract Discrepancy Report (CDR) may be cause for the scheduling of a meeting among the Contractor, Contracting Officer, and the COR to evaluate Contractor performance of the contract. A mutual effort will be made to resolve all problems identified. The Government will prepare written minutes of the meeting. The Contractor, Contracting Officer, and the COR will sign minutes of the meeting(s). Minutes of the meeting (s) will be signed by the Contractor, Contracting Officer, and the Contracting Officer Technical Representative. Should the Contractor not concur with the meeting minutes, he/she will state in writing to the Contracting Officer within ten calendar days any areas he/she does not concur and explain the reasons for non-concurrence. The Contracting Officer will review and consider the reasons submitted for the Contractor's non- concurrence and make a decision. The Contracting Officer will notify the Contractor of the decision in writing within ten calendar days.

4.1.23 ACTIONS: Normally, the COR will verbally advise or give a written inspection report to the Contractor of discrepancies the first time they occur and ask the Contractor to correct the problem. A notation will be made on the COR checklist of the date and the time the deficiency was discovered and the date and time the Contractor was notified.

When the Contractor is not meeting the limits of satisfactory performance, a CDR will be issued to the Contractor. The seriousness of the failures should govern whether to issue CDR at the end of the period, or as soon as the limits of satisfactory performance are exceeded.

4.1.24 SUPERINTENDENT & CREW FOREMAN: The Contractor shall provide a superintendent and a crew foreman who shall each have a minimum of two (2) years experience as a direct supervisor of commercial Landscape Maintenance/Construction operations. Both the superintendent and the crew foreman shall speak fluent English. The superintendent and/or the crew foreman shall be on-site at all times.

The superintendent will be responsible for the following: Directing, overseeing, and coordinating the work involved on a daily basis in accordance with this Performance Work Statement, the daily Interment Schedule, and the Cemetery Grounds Management Plan. Staying abreast of all upcoming cemetery functions including special holiday events, burial

activities and floral regulations. Ensuring that grounds maintenance work does not cause any burial, committal service, ceremony, funeral procession or visitation to be delayed, altered, or otherwise impacted in such a way that the dignity, security, or safety of the event or visit is compromised.

4.1.25 CHANGES TO THE PERFORMANCE WORK STATEMENT: Any changes to this Performance Work Statement (PWS) shall be authorized and approved only through written correspondence from the Contracting Officer. The Contractor shall contact the Contracting Officer on all matters pertaining to administration. Only the Contracting Officer is authorized to make commitments or issue changes, which will affect the price, quantity, or delivery terms of this contract. A copy of each change will be kept in a project folder along with other products of the project. Costs incurred by the contractor through the actions of parties other than the Contracting Officer shall be borne by the contractor.

4.1.26 COMMUNICATION & COORDINATION OF WORK WITH COR**:** Communication with the COR is strongly encouraged. Burial activities shall take precedence over grounds maintenance activities. Work activity and noise other than that required for the interment services cannot disturb burial ceremony. Trucks and workmen are prohibited from passing through the service area during this period. During the burial section grooming process, the crew foreman shall communicate daily with COR, to ask questions and ensure he/she understands the off-limit areas, which will vary depending upon event.

5. SPECIFIC CONTRACTOR TASKS AND ASSOCIATED DELIVERABLES

BASIC SERVICES: The Contractor shall provide all labor, equipment, materials (unless otherwise specified), and supervision of its employees to perform turf and grounds maintenance and improvement services. Compile and submit a detailed Grounds Management Plan (GMP) within the first 30 workdays following contract award. The Contractor may be asked to provide a quote from time to time. All quotes shall be detailed, itemizing materials and labor. There is no guarantee the Contractor will perform any of the repairs they recommend or quote. Services required include: Headstone Services; Gravesite Maintenance; Turf & Grasses Maintenance; Tree, Shrub & Planting Bed Maintenance: Irrigation System Services; Drainage System Maintenance; Trash & Debris Removal; Pavement Sweeping & Cleaning; Structure Cleaning & Light Maintenance; and Ceremonies Assistance in accordance with National Cemetery Administration (NCA) Standards. NCA Standards shall control and supersede any inconsistency, conflict, or ambiguity with PCD Operating Procedures.

5.1.1 HEADSTONE SERVICES

General Requirements:

- Setting New & Replacement Headstones

- Headstone Raise & Realignment
- Headstone Fine Tuning Alignment
- Headstone Cleaning

5.1.2 GENERAL**:** Work consists of setting new or replacement headstones on gravesites and resetting or realigning those already in place that have shifted out of vertical or horizontal alignment. It includes reporting physical defects to the Contracting Officer or his/her authorized representative.

5.1.2.1 The type of headstone to be used will be determined by the Contracting Officer Representative (COR) through direction of the National Cemetery Administration, Central Office (in accordance with the general plan of the cemetery).

5.1.2.2 **Definition:** The term "Headstone" and "Marker" when used generically, includes both upright headstones and flat marker headstones. Work in this project includes only Upright Headstones. Standard upright marble headstones are approximately 42 inches long, 13 inches wide, 4 inches thick, and weigh approximately 230 pounds each.

5.1.2.3 Install headstones within five (5) working days of delivery to the Cemetery as weather and soil conditions permit. Clean headstones after setting. Include the cost for replanting sod around the headstone and headstone cleaning in the work of headstone setting.

5.1.2.4 Repair turf damaged in the process of installing headstones at no additional cost to the Government.

5.1.2.5 **Acceptability**: The "Setting & Alignment" of new or replacement headstones is considered "acceptable" when the Contractor clearly evidences compliance in meeting contract requirements.

5.1.2.6 **Inspection & Acceptance:** Acceptance is defined as the point in time which the COR has determined the work performed is satisfactory. The Government reserves the right to inspect any/all services rendered and either reject or require correction when headstone setting & alignment are not in conformity with contract specifications.

5.1.2.7 Headstones that are set by the Contractor must maintain the proper height and alignment for a period of 90 days after being initially set. Correct settlement or misalignment of headstones during this 90-day period at no additional cost to the Government. The Government may require the contractor to re-perform any non-conforming services at no increase in contract price.

5.1.1 SETTING NEW & REPLACEMENT HEADSTONES

CLIN 0001 – Upright Headstone Setting – Est. Qty. 1800 Each

Subject to DBA, Construction Provisions/Clauses, and FAR 36 requirements

5.1.1.1 The Cemetery is responsible for ordering headstones, checking for proper wording spelling.

5.1.1.2 Headstones are delivered by the vendor to the Cemetery and received by the Cemetery Staff. Cemetery Staff will inventory and inspect headstones for damage immediately upon receipt.

Cemetery Staff will inventory and inspect headstones for proper wording within two (2) days after receipt.

5.1.1.3 Contractor will remove glue or crating material from the headstones that has adhered to the surface.

5.1.1.4 Contractor to protect headstones during transporting or storage of headstones from damage and staining from crating materials and from the weather. Place each stone so as to rest flat. Bear the cost for replacement if there is any breakage or damage in any form due to the Contractor's handling or negligence. The COR will designate a suitable area for storage of the headstones at the Cemetery. Initial inspection must be accomplished by COR and contractor's representative upon receipt. Do not set defective headstones. The Cemetery will order replacement headstones.

5.1.1.5 Contractor to erect headstones in appropriate places within five (5) working days of receipt, or if weather or soil conditions prohibit this time frame, as soon as practicable after receipt. See 5.1.2 Headstone - Raise, Lower, Realign & Reset for specific procedures for setting each type of headstone.

5.1.1.6 Contractor to inform the COR if existing trees or shrubs obstruct headstone setting. The COR will determine remedial action, and any modification needed for installation of the headstone.

5.1.1.7 Contractor to lift, transport and set headstones by at least two (2) people unless special one-person lifting devices are approved. When consisting merely of straightening the headstone, one person may realign them.

5.1.1.8 Contractor will realign older markers laterally, transversely and diagonally in the same manner as new headstones.

5.1.1.9 Contractor will identify damaged markers and immediately notify the COR. Do not set damaged or incorrectly inscribed markers. Destroy damaged, defective and incorrectly inscribed markers upon the receipt of the new marker. Destroy by breaking the marker with a maul or sledge hammer to be totally unreadable. Remove the resultant debris from the cemetery grounds in a lawful manner.

5.1.1.10 Contractor to set replacement marker(s) within five (5) working days after receipt at the cemetery.

5.1.1.11 Contractor reports on the Marker Weekly Inspection report to the COR the following:

Number of headstones raised and what section
_____(Upright) _____Section

Number of headstones realigned and section
_____(Upright) _____Section

5.1.1.12 If there is a problem with realigning a specific marker, contractor will send a report to the COR providing a detailed explanation, the reasons the marker was not realigned.

5.1.1.13 Warranty headstones set for a period of 90 days; realign headstones during this warranty period at no additional cost to the Government.

5.1.1.14 Adjust, raise and realign newly set headstones due to initial settling, improper compaction or Contractor error. Work to do so will not constitute Headstone Raise, Lower, Realign, Reset, Backfill as described in the Price/Cost Schedule and must be at the Contractor's expense.

5.1.1.15 Repair turf damaged in the process of installing headstones at no additional cost to the Government.

5.1.1.16 REMOVAL OF HEADSTONES

5.1.1.16.1 This process involves the removal of any headstone associated with a second interment or to gain access to an area within an interment area:

5.1.1.16.2 The COR, or his/her designee, will identify headstone(s) to be removed.

5.1.1.16.3 Pull headstone(s) to gain access to the location(s) identified.

5.1.1.16.4 Once removed, headstones must not leave the gravesite unless the headstone needs additional inscription work.

5.1.1.16.5 If additional inscription work is required, relocate removed headstones to the maintenance yard for destruction, or transport them to the inscription area.

5.1.1.16.6 Once work is completed in the area, reset the original or replacement headstone(s) and the 90-day warranty period will begin.

5.1.1.17 DISPOSAL OF HEADSTONES

5.1.1.17.1 Once the COR or his/her designee has identified a headstone for disposal, take the following actions:

Move the headstone to an area of the maintenance yard located out of the view of the general public.

Break the headstone into pieces so that the inscriptions are not legible.

Bury the broken headstone pieces or remove from the site in a lawful manner as approved by the COR.

Headstones must not be used for any purpose other than their intended use.

Maintain a log of all disposed headstones. This log must track the Name, date of disposal and the location of disposed headstone and be available at anytime for review. The number of disposed headstones will be provided in the daily contractor work report.

5.1.2 HEADSTONE – RAISE, LOWER, REALIGN & RESET

5.1.2.1 GENERAL: Work consists of raising, lowering, realigning and resetting existing markers.

5.1.2.2 Standard upright marble headstones are approximately 42 inches long, 13 inches wide, 4 inches thick, and weigh approximately 230 pounds each.

5.1.2.3 ACCEPTABILITY: The "Raise, Lower, Realign & Reset" (R&R) of existing headstones is considered "acceptable" when the Contractor clearly evidences compliance in meeting contract requirements.

5.1.2.4 Headstones must maintain the proper height and alignment for a period of 90 days after being initially set. Correct settlement or misalignment of headstones during this 90-day time at no additional cost to the Government.

5.1.2.5 INSPECTION & ACCEPTANCE: Acceptance is defined as the point in time which the COR or designee has determined the work performed is satisfactory and meets the criteria set forth in the contract. The Government reserves the right to inspect services rendered and either reject or require correction when Raise, Lower, Realign & Reset are not in conformity with contract specifications.

5.1.2.6 The Government may require re-performance of non-conforming services at no increase in contract price.

5.1.2.7 REPORTING

5.1.2.8 RECORD KEEPING AND REPORTING: Provide the COR with weekly written accurate reports detailing the burial section and range of headstones raised and realigned during that specific week. These lists must be provided on not less than a weekly basis and must identify all of the above work that took place within the previous seven calendar days. Upon COR's request, provide a plan of action for the upcoming week, indicating headstone/marker locations and specific areas where work is scheduled to occur.

5.1.2.9 Carefully remove temporary markers, floral, commemorative, or other types of decorations (arrangements) causing interference with the raise and realignment of upright headstone operation in an orderly manner. Upon completion of work, move them back to the gravesites. Prior to removal, verify the numbering sequence and location of the headstone and associated decorations.

5.1.2.10 Report headstones broken or damaged during raise & realignment to the Cemetery Director or COR by close of business each working day in order that the grave can be properly marked and a new headstone ordered. Reimburse the Government for the cost of the headstone replacement and set the replacement headstone. Headstone replacements must be coordinated with the COR. Replace grid or sectional monuments disturbed, displaced or broken. Retain the services of a licensed land surveyor to reset grid or sectional monuments disturbed during raise & realignment of headstones. Repair curbs, roads, walks, turf, trees, utilities existing above and below the ground damaged or disturbed during performance of contract work at no additional cost to the Government. Repairs to the above must be completed by the Contractor within fourteen (14) workdays, unless otherwise agreed to with the COR.

5.1.3 UPRIGHT HEADSTONES RAISE/LOWER/REALIGN & RESET

CLIN 0002 – Est. Qty. 500 Each

Subject to DBA, Construction Provisions/Clauses, and FAR 36 requirements

5.1.3.1 OVERVIEW: This section outlines Upright Headstone realignment requirements. Raise, Lower, Realignment, Reset, and Backfill services consist of extracting, resetting, aligning backfilling

and tamping/compacting upright headstones that are already in place which have shifted out of vertical and/or horizontal alignment and plumb, as well as inventorying and assuring accurate placement of gravesites. Provide all supervision, professional advice/guidance, labor, parts, materials, equipment, and personnel necessary to provide the services defined herein.

5.1.3.2 REMOVAL/HANDLING/STORAGE OF HEADSTONES: If headstones are to be removed, verify the accuracy of headstones prior to their removal using gravesite layout maps provided by the COR. Do not remove headstones from the burial section. Place headstone flat side down on the adjacent row when necessary. Do not lean headstones against any object. Headstones must be handled and stored in a dignified manner.

5.1.3.3 Remove headstones from their sockets by using wooden and/or metal clamps. Protect the area of metal clamps that comes into contact with the headstone with a rigid fabric that will prevent damage to, and marring of, the headstone. Clamps may be attached to a track loader or similar machine to extract headstone from socket. Use care not to scratch or damage headstones in any manner. Restore damage caused to headstones and turf during performance of this work. Raise and/or lowered headstones in the following manner; (Note: In areas where smaller than standard size headstones occur, coordinate specific measurements and dimensions of required work with COR.) The COR will determine the specific height for resetting upright headstones between 24 and 26 inches above topsoil level.

5.1.3.4 SHALLOW AND CORRECT DEPTH HEADSTONES SET IN EARTH: Dig earthen sockets to a depth of 21 inches below finished grade. Place minimum 3-inch-deep base of 3/4-inch minus crushed aggregate material and compact to 95 percent relative density such that a consistent topline height (± 1/8-inches) between 24-26 inches of the headstone will extend from the finish grade to the top of the arc on the headstone. For example, if a height of 25 inches is selected for a section, headstones in that section must be initially set between 24 7/8-inches and 25 1/8-inches. Place aggregate base material around all sides of the headstones in 3-inch lifts and compact to 95 percent relative density, leaving the last 6 inches for placement of topsoil. Compact topsoil to 85 percent relative density and re-establish turf by seed or sod per “Turf Renovation”.

5.1.3.5 DEEP HEADSTONES SET IN EARTH: Fill earthen sockets to a depth of 18 inches below finished grade. Place minimum 3-inch-deep base of 3/4-inch minus crushed aggregate material and compact to 95 percent relative density such that a consistent topline height (± 1/8-inches) between 24-26 inches of the headstone will extend from the finish grade to the top of the arc on the headstone. For example, if a height of 25 inches is selected for a section, headstones in that section must be initially set between 24 7/8-inches and 25 1/8-inches. Place aggregate base material around all sides of the headstones in 3-inch lifts and compact to 95 percent relative density, leaving the last 6 inches for placement of topsoil. Compact topsoil to 85 percent relative density and re-establish turf by seed or sod per “Turf Renovation”.

5.1.3.6 FOR STRAIGHT ROWS: Headstones must be set vertically plumb in all directions, in all cases in a line vertically and laterally, and where possible transversely (coordinate with COR), with headstones of other graves using a top string, a back of headstone string line, and a side of headstone string line. Maximum vertical, lateral, and transverse tolerance of any headstone

off the alignment string lines and/or marks must be 1/8-inch or less. All measurements and string line set ups must be taken from established section layout control points, not from previously set headstones or keystones, unless otherwise directed by the COR. In irregular terrain where sloping and uneven ground conditions exist, all headstones must be set at proper heights and levels to provide a flowing transition through uneven terrain. Raised and realigned headstones in all soil and terrain conditions must be firmly in place so that the headstones are rigid with no give or play. Headstone vertical alignment must be further measured by use of an electronic/digital level, with tolerance between 89-90 degrees plumb.

5.1.3.7 In cases where headstone sockets need to be realigned/shifted, and/or re-dug, the headstone sockets (holes) to receive headstones must be dug by hand and/or mechanical devices to a sufficient depth so that a consistent topline height (± 1/8-inches) between 24-26 inches of the headstone is extending from the soil level to the top of the arc on the headstone. Do not dig a headstone socket wider than twelve (12) inches, twenty (20) inches in length, or exceed a depth of 21 inches that may cause the headstone to settle below height requirement.

5.1.3.8 The measurements between rows of headstones and headstones within each row may differ from one section to the next due to the use of differing burial patterns; discuss with COR where this is found to occur. These measurements must be adhered to as closely as possible. Accurately and precisely reinstall headstones on the correct gravesites with the utilization of gravesite layout maps.

5.1.3.9 Headstones are chosen to be “key” stones. All headstones determined to be keystones are stones identified by the COR that are set off the burial section’s permanent control markers. All keystones are to be identified at beginning, middle, and the end of 72-feet grids. These keystones are to be aligned by leveling front and back and side-to-side and raised or lowered to a height of 24-26 inches above topsoil level. Constant quality control is to be maintained and is required on all keystones.

5.1.3.10 At the start of work in each burial section, the first row of reset/realigned headstones in each burial section is to be inspected by COR for appearance, spacing, depth, alignment, plumbness, height, accuracy, and smoothness in grade transition. No further setting of headstones must be done until this first row has been inspected and accepted by the COR. If the first row is rejected by the COR, the contractor must at no additional cost to the Government reset the rejected stones before proceeding in that section. Notify the COR 24 hours in advance of when each of these inspections will be needed.

5.1.3.11 Run heavy strings or lines along the backs, sides, and tops of these keystones. The string or line is to be provided by the contractor and must be approved for use by the COR before use. Use steel tape measures to set distances for setting headstones. Distances are determined by gravesite size. Set up tape measures over gravesite grid control markers. Check for square with a diagonal measurement using the Pythagorean Theorem. Set height string as follows: at one end of the horizontal row of headstones approximately 1 foot past the vertical string line place a piece of rebar firmly in the ground it needs to be in line with the center of the first headstone; repeat this process every ten headstones or every five if windy. Measure from top of control marker up 25 inches and tie off a string line to act as your height-line; repeat this process at each piece of rebar until you reach the end of the row. Raised or lower each

headstone as necessary to ensure a uniform measurement between 24-26 inches above topsoil level.

5.1.3.12 For horizontal alignments, mark the strings lines with the proper measurements (size of section) for the section being aligned. Align all remaining headstones in the row along the strings front to back and side-to-side even with the measured marks on the line. Leveled and plumb each headstone front to back and side-to-side keeping the back of the headstone along the string and the side of the headstone along the measured mark. Maximum vertical, lateral, and transverse tolerance of any headstone off the alignment string lines and/or marks must be 1/8-inch, or less. Align the headstone in the column along the string front to back and side-to-side even with the measured mark on the line. The headstone is leveled and plumbed front to back and side-to-side keeping the back of headstone along the string and the side of the headstone along the measured mark.

5.1.3.13 Check the alignment of the headstones frequently during this process because the tamping may move the headstone out of level or off the mark on the line. This process of raising and realigning is repeated for each row of headstones. Upright headstones in all completed work areas must be firmly set and anchored in place with no movement from forces subjected by the COR. The Government reserves the right to require the contractor to pull suspect stones to verify that the correct base material and specified depths have been achieved. Any stone pulled under this requirement will be pulled and reset at no additional cost to the Government.

5.1.3.14 If this is a replacement headstone set to match the height of existing headstones. Each headstone is leveled and plumbed front to back and side-to-side. New and replacement headstones in old sections of the cemetery where existing stones have not been and cannot be set at the standard height, shall be set at the same distance above the ground as the adjacent headstones, provided they can be set with the inscription above the ground level. In new sections of the cemetery, all upright headstones shall be set at a height of 24 inches from the finished grave to the top of the arc.

5.1.3.15 Where headstones have been previously set at other heights above grade, but in general, at a uniform height throughout an area, and otherwise present a neat overall appearance with the inscription visible, resetting for the sole purpose of attaining the stated height is not necessary. The nominal height of 24 inches given for the current standard of headstone setting is the standard height. Minor deviations in the less than nominal height are permissible to provide a uniform appearance in the top line to compensate for slight ground rises or depressions within a burial section.

5.1.4 HEADSTONE FINE TUNED ALIGNMENT

CLIN 0003 – Est. Qty. 1000

Subject to SCA and Commercial Provisions/Clauses

5.1.4.1 Headstone Fine Tuned Alignment is a minor alignment process that does not require the upright headstone to be removed from the original socket.

5.1.4.2 Fine Tuned Alignment shall either be accomplished by one person or a two-person team as follows:

5.1.4.2.1 **One person:** Set up and use strings lines or lasers to provide realignment guides.

5.1.4.2.2 **Two-person Team:** One person must stand in the row/column where headstones need adjusting approximately 10 headstones distant to instruct the second person which direction the subject headstone should be adjusted. The second person must adjust each upright headstone to align vertically with adjacent headstones in the same row and column.

5.1.4.3 Use a wood lever such as a 2x4 or wheelbarrow handle (flattened on one side), or metal pry bar to adjust each upright headstone to align vertically with adjacent headstones in the same row and column. Care must be taken to wrap the bar or tool to ensure it does not damage or mar the headstones.

5.1.4.4 Once the headstone has been satisfactorily adjusted so it is aligned with the other headstones in the same row and column, a tamping tool must be used to tamp around the base of the headstone so soil is compacted sufficiently to prevent shifting.

5.1.5 HEADSTONE CLEANING and MAINTENANCE

CLIN 0004 –Qty 12 Months

Subject to SCA and Commercial Provisions/Clauses

5.1.5.1 GENERAL: Work consists of cleaning all markers as specified by the Contracting Officers Representative (COR) to remove objectionable material and discoloration, such as accumulations of animal droppings or mud, tire and hose markings, grass stains, residue from trees, fungus, lichens, and other biological activity. (*See Appendix 3 for estimated quantities of marked gravesites requiring headstone cleaning, (i.e., upright markers; flat markers; niche covers; and memorial markers.*)

5.1.5.2 Clean headstones identified by the COR thirty days prior to Memorial Day and Veteran's Day and any other times as determined by the Contracting Officers Representative (COR). Each headstone must be washed with cleaning agent and pressure washing one time per year at a minimum. The natural surfaces must be retained. They must not be bleached, painted, whitewashed or calcimined.

5.1.5.3 Promptly clean headstones that have any dirt splash-up or grass debris from mowing/trimming from the grounds maintenance contractor operations when found.

5.1.5.4 MINOR HEADSTONE CLEANING: Clean by dry brushing headstones that have objectionable accumulations of dust, bird droppings, sap or other naturally deposited dirt & debris. Remove with a wet brush and rinse with water debris that cannot be removed by the dry brush method. The headstones most affected are those directly beneath trees and adjacent to roadways.

5.1.5.5 Realign headstones that become misaligned during contractor headstone cleaning operations per "Headstone Raise, Lower, Re-align & Reset" at no additional cost to the Government

5.1.5.6 Protect the turf area from any damage with protection boards or rubber mats. Any turf that is damaged must be restored at no additional cost to the Government per "Turf Renovation".

5.1.5.7 Do not use abrasive blasting and abrasive cleaning solutions to clean headstones.

5.1.5.8 Report the condition of all headstones to the COR monthly using Headstone, Marker and Niche Cover Maintenance Checklist. (See Attachment 'D'.) The COR will train the Contractor in the proper use of this form.

5.1.5.9 UPRIGHT MARKER CLEANING

5.1.5.9.1 Use only Government-approved cleaning agent and clean water to clean headstones. Cleaning techniques with water may include high pressure spraying, scrubbing and rinsing.

5.1.5.9.2 When pressure washing is utilized, the pressure must not exceed 800 psi. Excessive soiling may be removed with plain water and a stiff brush (no wire brushes), followed by rinsing with clear water.

5.1.5.9.3 If water used in cleaning should soften the soil around the base of the headstone loosening the headstone, take care not to tip the stone out of plumb or alignment.

5.1.5.9.4 Use a cleaning product specifically designed to clean headstones. Acceptable Products: D/2 Biological Solution by D/2 Biological Solutions, Inc.; Weatherzyme' by United Laboratories, Inc.; or COR-approved equal. Follow manufacturer's printed instructions for product mixing and application. Protect turf from injury. Avoid contact between cleaning agent and turf exposed to direct sunlight. Initially clean two headstones using the approved cleaning agent as a test area to determine efficacy of cleaning and to observe damage done to turf. COR will inspect and track results. Discontinue use of cleaning agents that are not producing satisfactory results and/or are damaging turf. Continue with cleaning of headstones as approved by COR.

5.1.5.10 MINOR HEADSTONE CLEANING

5.1.5.10.1 Clean headstones soiled by excessive accumulation of dust, bird droppings, sap, and other dirt & debris as approved by the COR.

5.1.5.10.2 Use a dry medium-stiff bristle brush to remove detritus. Wire brushes are not allowed.

5.1.5.10.3 When the dry brush method does not achieve satisfactory results, use a wet brush and clean water to clean headstones by scrubbing and rinsing.

5.2 GRAVESITE MAINTENANCE

CLIN 0005 – Qty 12 Months

Subject to SCA and Commercial Provisions/Clauses

General Requirements:

- Sunken Grave Renovation (Full Casket Gravesites)
- Sunken Grave Renovation (In-Ground Cremains Gravesites)

5.2.1 SUNKEN GRAVE RENOVATION

5.2.1.1 A sunken grave is defined as any gravesite that has subsided two (2) inches or more from the existing adjacent grade. Standard graves excavated and backfilled are approximately 5 feet wide and approximately 10 feet long.

5.2.1.2 Inspect the cemetery no less than weekly for holes, washouts and sunken graves. (See Appendix for estimated quantities of sunken gravesite in need of repair annually.)

5.2.1.3 Identify on the weekly report by section and headstone number all sunken grave sites in need of renovation. Repair sunken graves within 15 days of identification.

5.2.1.4 TURF BURIAL SECTIONS: Cut and remove all turf from the gravesite where the sunken grave has occurred, (e.g. remove 5 feet by 10 feet rectangular area of turf from the gravesite).

5.2.1.5 Backfill with COR approved soil and tamped to within twelve (12) inches of finish grade. Place and tamp amended topsoil to bring the gravesite to final grade. The disturbed area must then be raked free of stones and any debris larger than one-half (1/2) inch measured in any direction.

5.2.1.6 Replant turf on gravesites by seed or sod per "Turf Renovation".

5.2.1.7 Backfill with COR-approved soil and tamp to within three (3") to four (4") inches of finish grade.

5.3 TURF & GRASSES MAINTENANCE

CLIN 0006 – TURFS AND GRASSES MAINTENANCE Qty 12 Months
Subject to SCA and Commercial Provisions/Clauses

General Requirements:

- Turf Renovation
- Turf Maintenance – Fertilization
- Turf Maintenance – Pest Control
- Turf Maintenance – Mowing, Trimming & Edging
- Turf Maintenance – Aerification
- Turf Maintenance – Topdressing
- Turf Maintenance -- Dethatching

5.3.1 TURF RENOVATION

5.3.1.1 Work consists of ground preparation and seeding/sodding of areas of the cemetery where the turf is thin, has died, has become infested, or otherwise needs renovation. (See Appendix 3 for approximate square-feet of turf that will need renovation each year.)

5.3.1.2 The Contractor must be responsible for the removal and disposal of any weeds, dead turf, and must use quality topsoil and compost/seed topper in performance of the seeding]/sodding.

5.3.1.3 All newly dug or refilled graves must be re-planted with turf by seed/sod.

5.3.1.4 Turf damaged by the process of Upright Headstone Raise & Realignment must be repaired as per "Seeding of Individual Gravesites".

5.3.1.5 The finished grade of each gravesite must conform to the height and alignment specifications as expressed in "Headstone Setting and Realignment" section of this contract.

5.3.1.6 DEFINITIONS:

5.3.1.7 **Turf:** Turfgrass, grass, lawn. Any ground cover consisting primary of cultivated turfgrass species, such as perennial ryegrass and fescue.

5.3.1.8 **Interseeding:** The practice of seeding the same species into itself for the purpose of increasing stand density and recovery of lost grass.

5.3.1.9 **Overseeding**: The practice of seeding another species over an existing stand to produce viable turf when the existing stand has become dormant.

5.3.1.10 **Irrigated Turf**: Lawn that has permanent irrigation system installed.

5.3.1.11 **RTF:** Rhizomatous Tall Fescue. Turf-type tall fescue which produces rhizomes, underground stems that penetrate laterally through the soil to spread the plant while sending shoots up to the soil surface, forming a new plant.

5.3.1.12 **Full Sun Areas:** Areas receiving more than 5 hours of direct sunlight per day.

5.3.1.13 **Part Sun Areas**: Areas receiving less than 5 hours of direct sunlight per day normally due to shade from tree canopies.

5.3.1.14 **Topsoil:** ASTM D 5268; natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles, conforming to USDA classification for Loam or Sandy Loam; friable, pervious, and compatible in texture with the existing soil to prevent a perched water table; ECe less than 3 mmhos/cm; a minimum of 2 percent/maximum of 10 percent organic material content; pH range between 6 and 8; reasonably free of subsoil, clay lumps, gravel, rocks and other objects more than 13 mm (1/2-inch) in any dimension; and free of weeds, roots, and other extraneous materials harmful to plant growth.

5.3.1.15 **USDA**. United States Department of Agriculture.

5.3.1.16 **ASTM**. American Society for Testing and Materials.

5.3.2 TURF RENOVATION - IRRIGATED TURF

5.3.2.1 VEGETATION REMOVAL:

5.3.2.2 Apply herbicide in a minimum of two applications. Do not turn off the irrigation system until just before the first application of the herbicide. Do not mow the area before application of herbicide. This will allow the turf/weeds to absorb the maximum amount of herbicide.

5.3.2.3 While the turf is still actively growing, the entire vegetated area must be sprayed with a non-selective herbicide (Glyphosate derivative). Application rate must be at the maximum label recommended rate for the complete elimination of the existing turfgrass and weeds. Product label instructions must be followed for elapsed time before moving to the next procedure to allow the herbicide to fully affect the plant material (approximately 10 to 14 days).

5.3.2.4 After the elapsed time for burn out, the area must then be irrigated to encourage growth of any remaining plant material. When there is sufficient re-growth, the area will be retreated with the non-selective herbicide, again following the product label directions for time to elapse for the herbicide to fully affect the plants.

5.3.2.5 Power rake or verticut the entire area to loosen residual plant debris. Remove plant debris and dispose of as indicated for green waste in a legal manner.

5.3.2.6 SOIL PREPARATION

5.3.2.7 SOIL TESTING**:** *(See requirements of "TURF MAINTENANCE – FERTILIZATION".)*

5.3.2.8 Soil Amendment: Manage the Ecofert soil amendment system for soil amendments.

5.3.2.9 FINE GRADING:

5.3.2.10 Restore the soil to an even condition before seeding/sodding by rolling in several directions with a standard turfgrass roller filled with water.

5.3.2.11 All irregularities in the finished surface must be corrected to eliminate depressions and high spots. Fill low spots with high quality topsoil, similar to the soil already present, to eliminate the depressions and achieve the desired finish grade.

5.3.2.12 Finish grades adjacent to paving and curbs must be the proper distance below the top of paving to allow for the placement of seed and compost or sod.

5.3.2.13 The finished seed/sod bed must be fine in texture and firmly compacted and free of any plant material, rocks or other debris greater than one-half (1/2) inch.

5.3.2.14 Prepared seed/sod bed areas must be protected from damage by vehicle or pedestrian traffic.

5.3.2.15 SODDING:

5.3.2.16 SOD: Sod must be produced from stolons and State-certified. The composition of the grass species in the sod must match existing grass species and cultivars. The sod must be certified weed and pest-free. The grass must be a blend of three regionally adapted cultivars.

5.3.2.17 Prior to delivery of sod, the COR must inspect the work area. Any discrepancies in the ground preparation must be corrected prior to laying sod in the work area.

5.3.2.18 Prior to installation of the sod, the COR must have the right to inspect and to assess the condition and quality of the proposed sod. The COR must have the right to reject poor quality sod before installation. The Contractor must warranty the sod for one (1) year from date of Final Acceptance.

5.3.2.19 The sod must be cut as thinly as possible (3/4 to 1 inch) to allow for faster rooting and must be cut and delivered to the work site the same day of installation. The Contractor must make all necessary arrangements to protect delivered sod from excessive drying and wind damage.

5.3.2.20 Sod must be laid expeditiously without interruption, until the work area is completely sodded. Sod must meet elevations of existing adjacent turf.

5.3.2.21 Sod must be laid perpendicular to the direction of the slope with seams staggered and tightly matched and then tamped lightly or rolled to ensure firm contact with the soil with no air gaps.

5.3.2.22 Sod placement must match existing adjacent grades. Sod must be cut and fitted around all markers, headstones and other objects.

5.3.2.23 Sod must be kept continually moist until it is well rooted and able to survive with routine irrigation scheduling.

5.3.2.24 Gaps between sod slabs must be filled with fine, washed, river sand or 50:50/sand:compost mixture. Place soil/compost along any temporary exposed edges of sod to keep the edges from drying out.

5.3.2.25 Any substitution of sod type must be specifically approved by the COR and Pacific District Agronomist in writing.

5.3.2.26 Begin mowing new turfgrass when the leaf blades reach one inch above normal recommended mowing height. Mow at desired maintenance height (***See*** *"Turf*

Maintenance—Mowing, Trimming & Edging"). Never remove more than 1/3 of the total foliage length.

5.3.2.27 Continue watering and mowing until the new turfgrass is well-established. If weeds germinate with the turfgrass, do not treat with herbicides until the turfgrass has been mowed at least three times. Then eliminate the weeds by using appropriate post-emergent herbicides in accordance with procedures specified under "Turf Maintenance – Pest Control", (*and as indicated in NCA Handbook 3410–Integrated Pest Management Procedures for VA National Cemeteries).*

5.3.2.28 SEEDING:

5.3.2.29 GRASS SEED: Fresh, clean, dry, new-crop seed complying with "AOSA, Rules for Testing Seed" for purity and germination tolerances. Seed must be labeled in conformance with U.S. Department of Agriculture rules and regulations under the Federal Seed Act and applicable state seed laws. Wet, moldy, or otherwise damaged seed will not be acceptable.

5.3.2.30 SEED SPECIES: Not less than 95 percent germination, not less than 85 percent pure live seed, and not more than 0.5 percent weed seed.

5.3.2.31 SPECIES: Blue Tag certified seed and State-certified. The composition of the grass seed species must be a mix of grass species to match the existing. The grass species must be a blend of at least 3 regionally adapted cultivars. Seed mixes must suit the site's sun exposure; (e.g. where shade is a factor, specify seed mixes for adapted for both sun and shade.)

5.3.2.32 Apply 18:24:12 (N:P:K) granular starter fertilizer at a rate of 5 lbs./1000 sq-ft (200 lbs./Acre). Two surface applications of turf starter fertilizer are required, one immediately prior to seed placement, and another after the first mowing. Split applications such that a maximum of 1 pound of actual Nitrogen is applied per 1000 square-feet of seed bed. Broadcast fertilizers using an accurately calibrated spreader to uniformly apply fertilizer to the designated area.

5.3.2.33 Distribute seed manually with chest spreaders. Apply seed at 8 to 10 lbs./1000 sq-ft (400 lbs./Acre) for bare areas, and at 3 to 4 lbs/1000 sq-ft (150 lbs./Acre) for interseeding.

5.3.2.34 SODDING OF INDIVIDUAL GRAVESITES

5.3.2.35 Prepare sod bed as indicated for "Turf Renovation – Irrigated Turf" beginning with "Soil Preparation," unless noted otherwise.

5.3.2.36 Finish graves must be backfilled with topsoil below the adjacent gravesites allowing for thickness of sod to replant gravesite. Verify sod thickness with supplier.

5.3.2.37 Apply 18:24:12 (N:P:K) granular starter fertilizer at 5 lbs. per 1000 sq-ft. using a calibrated spreader.

5.3.2.38 Plant areas with Sod. The composition of the grass species in the sod must match the existing grass species and cultivars. The sod must be certified weed and pest-free. The grass species must be a blend of three regionally adapted cultivars and must match surrounding turf variety in color and texture.

5.3.2.39 Thoroughly hand water to maintain moist soil conditions until turf is re-established.

5.3.2.40 Hand mow new turf with walk-behind mowers until established to prevent damage from riding mowers.

5.3.2.41 SEEDING OF INDIVIDUAL GRAVESITES

5.3.2.42 Prepare seed bed as indicated for "Turf Renovation – Irrigated Turf" beginning with "Soil Preparation," unless noted otherwise.

5.3.2.43 Finish graves must be backfilled with topsoil to within 3/8-inch below the adjacent gravesites to provide required depth for seed and compost/seed topper to replant gravesite, or to repair turf around headstones associated with a Headstone Raise and Realignment effort.

5.3.2.44 Apply 18:24:12 (N:P:K) granular starter fertilizer at 5 lbs. per 1000 sq-ft. using a calibrated spreader.

5.3.2.45 Seed areas at 8 to 10 lbs. per 1000 sq-ft. using a calibrated seed broadcaster.

5.3.2.46 Cover seed with approximately 1/2 inch of approved organic compost. Compost must be 100% organic humus from green waste compost, black or darker shade of brown in color, free of twigs, leaves, animal manures, and objectionable odors. Compost must be U.S. Composting Council Certified.

5.3.2.47 Alternatively, protect seeded areas with erosion-control blankets and fastened with biodegradable materials according to manufacturer's written instructions.

5.3.2.48 Thoroughly hand water to maintain moist soil conditions until turf is re-established. Keep seed and seedlings moist until turf is established.

5.3.2.49 Do not mow until grass has reached 4 inches in height. Hand mow new turf with walk-behind mowers until established to prevent damage from riding mowers.

5.3.2.50 INTERSEEDING BY SLIT SEEDING (IRRIGATED AND NON-IRRIGATED TURF)

5.3.2.51 Interseed all non-irrigated turf, and thin or bare irrigated turf, in early fall (late September/early October), and again in early spring (late February/early March) to coincide with annual rainfall. Begin biannual overseeding regime in spring of Base Year and perform in fall and spring every year thereafter as approved by the COR. COR will designate areas of irrigated turf to be interseeded.

5.3.2.52 Apply post-emergent herbicide to kill both broadleaf and grass weed species. Wait until herbicide has effectively killed weeds before proceeding to next step. Reapply herbicide as needed to achieve 90% kill of weed species.

5.3.2.53 Mow existing vegetation as short as possible, 1/2 to 1 inch in height, removing clippings from the site with bag attachments.

5.3.2.54 Verticut the areas to be overseeded to loosen surface soil to a depth of 1-inch, and to rake out loose vegetation. Remove loose vegetation from site. Verticut in two directions at 45 degrees angles to each other. (See "Turf Maintenance – Aeration".)

5.3.2.55 Apply 18:24:12 (N:P:K) granular starter fertilizer at a rate of 5 lbs./1000 sq-ft (200 lbs./Acre).

5.3.2.56 Two surface applications of turf starter fertilizer are required, one immediately prior to seed placement, and another after the first mowing. Split applications such that a maximum of 1 pound of actual Nitrogen is applied per 1000 square-feet of seed bed. Broadcast fertilizers using an accurately calibrated spreader to uniformly apply fertilizer to the designated areas.

5.3.2.57 Interseed cool season turf by mechanical slit seeder with seed mix at 3 to 4 lbs./1000 sq-ft (175 lbs./Acre) for thin turf; and 8 to 10 lbs./1000 sq-ft (400 lbs./Acre) for bare areas.

(Interseed warm season turf by mechanical slit seeder with seed mix at 1-1/2 to 2 lbs./1000 sq-ft (90 lbs./Acre) for thin turf; and 3 to 4 lbs./1000 sq-ft (175 lbs./Acre) for bare areas.) or otherwise directed by the COR.

5.3.2.58 Use a slit seeding unit equipped with verticutting blades that cut through existing vegetation and opens up a slit or miniature furrow in the soil. The depth of the slit into the soil must be no more than 1/2 the length of the grass seed husk or otherwise directed by the COR.

5.3.2.59 Make two passes with the slit seeder at 45-degree angles to each other leaving a diamond shaped pattern with the seed placed into the soil at 1/2 inch apart.

5.3.2.60 ESTABLISHMENT

5.3.2.61 Care for turf by watering, mowing, and fertilizing until a healthy stand of turf is established.

5.3.2.62 Hand mow with walk-behind mowers until turf is established to prevent damage from riding mowers.

5.3.2.63 SATISFACTORY TURF

5.3.2.64 Turf installations must meet the following criteria as determined by COR:

SATISFACTORY SODDED TURF: At end of 30 days, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities, with coverage exceeding 95 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 5 by 5 inches (125 by 125 mm).

SATISFACTORY SEEDED TURF: At end of 30 days, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 5 by 5 inches (125 by 125 mm).

5.3.2.65 GUARANTEE

5.3.2.66 The Contractor, coordinating with the COR, must be responsible for mowing, trimming, and ensuring all new turf areas are automatically irrigated, and maintained in a healthy and vigorous condition.

5.3.2.67 The Contractor must, at his own expense, replace any turf which has died or been damaged within 30 days of being installed.

5.3.2.68 Healthy turf must be re-established within 30 days on all grave re-openers during the growing season.

5.3.2.69 Seeded turf on grave re-openers not established with 30-days must be replanted immediately by sod.

5.3.3 TURF MAINTENANCE – FERTILIZATION

5.3.3.1 Contractors are responsible for maintaining the turf area of the cemetery and the immediate area surroundings of the cemetery in a healthy condition by proper application of fertilizers and soil amendments and soil conditioners indicated in soil tests for each burial section and as described herein. In the case of the Ecofert system not operating, then manual fertilization shall be executed and reported to the COR.

5.3.3.2 FERTILIZER REQUIREMENTS

5.3.3.3 FERTILIZER: Apply through the Ecofert system Phosphorus, Potassium and micronutrient components of fertilizer based on the results and recommendations of soil reports. Apply Nitrogen component through the Ecofert system to include at least 5 to 6 pounds of actual Nitrogen per 1,000 square feet per year. Maintain soil pH at optimal level between 6.3 and 7.5 through the application of pH adjusters.

5.3.3.4 LIME: When pH below 6.5 in soil tests indicates a need for lime, apply lime at the rate and frequency indicated in those tests. Elemental Sulfur: When pH above 7.0 in soil tests indicates a need for elemental sulfur, apply elemental sulfur at the rate indicated in those tests. Limit sulfur applications to 5 pounds per 1000 square-feet every 5 to 6 weeks during the active growing season until the total recommended amount of product has been applied. Gypsum: When soil tests indicate a need for gypsum, apply gypsum at the rate and frequency indicated in those tests. Product must be derived from: Calcium Sulfate and consist of: Calcium (Ca) 21.00%; Sulfur (S) 16.00%; and Gypsum ($CaSO4 \bullet 2H2O$) 60.00%.

5.3.3.5 HUMATES: Where soil tests indicate soil organic matter less than 6%, apply humates at the manufacturer's recommended rates of 750 lbs. per Acre indicated on their printed instructions. Time of application must be immediately after soil aerification. Use a pelletized product for ease of application. The product must be derived from mined Gypsum and have a guaranteed minimum analysis: Calcium Sulfate dihydrate ($CaSO42H20$) 35.00%; Calcium (Ca) 7.00%; Sulfur (S) 5.00%, plus Humic Acids 1.5% derived from Leonardite.

5.3.4 FERTILIZER EQUIPMENT AND SUPPLIES

5.3.4.1 Provide all required chemicals, fertilizers, soil amendments and any other supplies as indicated in the "Turf Application Schedule".

5.3.4.2 Fully utilize the on station Ecofert system for all distribution of soil amendments except for Humate treatment. Water will be furnished by the Government at no cost to the Contractor.

5.3.5 SOIL TESTING

5.3.5.1 Test soils during the base year and every year thereafter. Soil tests must be conducted by a qualified, independent soils and plant laboratory, university laboratory, or an Agricultural Extension recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed. Soil laboratories affiliated with vendors are not permitted.

5.3.5.2 Provide soil reports and recommendations for each distinct geographic region in the cemetery in each testing year. Soil extractions must be performed in accordance with standard guidelines for agricultural soil sampling and under the observation of the COR. Soil samples must be taken from areas within the cemetery that will properly represent the soil conditions. The soil test reports must clearly identify the cemetery section(s) from which the samples were taken to assist the contractor in the application of specific soil amendments. The soil reports must clearly identify the "crop" (i.e., turf species) and whether the recommendations are for maintenance of existing turf, or planting of new turf. For each soil sample submitted

to the laboratory, a minimum of 10 soil extractions must be taken. Extractions may be taken using a standard 12-inch soil core sampler.

5.3.5.3 See the following link for instructions on how to determine areas to be samples and how to take soil samples: General Information (al-labs-west.com)

5.3.5.4 The Contractor must provide a copy of each soil test results and recommendations to the COR and Pacific District Agronomist for record. Provide soil analyses in the form of a graphical report showing:

5.3.5.5 Soil composition (USDA particle size analysis indicating percentages of sand, silt and clay).

5.3.5.6 Percent organic matter.

5.3.5.7 Macro and micronutrient fertility tests as determined by pH.

5.3.5.8 Salinity (ECe).

5.3.5.9 Nitrate nitrogen, ammonium nitrogen, phosphate phosphorous, potassium, calcium, magnesium, soluble copper, zinc, manganese, iron saturation extract, boron and sodium analyses.

5.3.5.10 Exchangeable Sodium Percentage (ESP).

5.3.5.11 Cation exchange capacity (CEC).

5.3.5.12 Sodium Absorption Ratio (SAR).

5.3.5.13 Soil Infiltration Rate Testing.

5.3.5.14 REPORT SUITABILITY OF TESTED SOILS FOR PLANT GROWTH: Based upon the test results, the laboratory must provide recommendations for fertilizers and soil amendments to be applied for the maintenance of healthy turf. For turf renovation, the recommendations of the soil testing must provide soil preparation amendments for planting of new turf.

5.3.5.15 State recommendations for macro and micronutrients in pounds per 1,000 square foot or tons per acre, as necessary to correct soil nutrient deficiencies.

5.3.5.16 State recommendations for soil amendments to be added in pounds per 1,000 square foot or tons per acre to adjust soil pH to within the optimal range for turfgrass health.

5.3.5.17 State recommendations for soil amendments to be added in pounds per 1,000 square foot or tons per acre to correct soil salinity problems where ECe is greater than 4.0 dSm-1 and ESP is less than 15%.

5.3.5.18 State recommendations for soil amendments to be added in pounds per 1,000 square foot or tons per acre to improve soil permeability and increase soil infiltration rates.

5.3.5.19 For Turf Renovation: state recommendations for compost to be added in cubic yards per 1000 square feet to adjust soil organic matter content of the soil to a minimum of 4 and maximum of 6 percent.

5.3.6 VERIFICATION

5.3.6.1 List distribution rates for fertilizer applications on the Cemetery Grounds Management Plan.

TURF MAINTENANCE – MOWING, TRIMMING & EDGING

5.3.6.2 SCOPE

5.3.6.3 Turf must be maintained at a height within one-inch range of that which is professionally recommended for the turfgrass type appropriate for the geographic region. Optimally, the height is no more than half an inch above that range. Turf surrounding a headstone must be

trimmed to the recommended height. There must be no signs of “grass burns” caused by mowers. There must be no signs of turf being “scalped” by string trimmers.

5.3.6.4 The Contractor must be responsible for mowing, trimming and edging all grass within the cemetery and any grass outside perimeter enclosure walls and fences. This encompasses both irrigated turf grass, and non-irrigated grasses/lawns within the developed area of the cemetery.

5.3.6.5 Vegetation in visually prominent areas within the undeveloped areas of the cemetery must be mown to present a well-maintained appearance. All other vegetation within the undeveloped areas of the cemetery must be mown to prevent fire hazard.

5.3.6.6 EQUIPMENT

5.3.6.7 Riding mowers may be used if they are not operated within 2 inches of headstones, monuments, tree trunks or other vertical elements unless directed to do so by the COR.

5.3.6.8 Thirty-inch (30”) deck or smaller commercial walk-behind mowers must be used to mow along curb edges, small spaces, and areas too steep to mow with riding mowers.

5.3.6.9 Sixty-inch (60”) minimum and Seventy-two-inch (72”) maximum deck mowers must be used to mow aisles between upright headstones within burial sections. Wheel paths of mowers must not align on return passes within aisles to avoid creating ruts in the turf area.

5.3.6.10 Mowers with decks larger than Seventy-two inches (72”) must be comprised of multiple “contour” cutting units to prevent scalping of turf.

5.3.6.11 Brush mowers with rotary cutters, or flail crop shredders will be used to clear vegetation in buffer areas and undeveloped areas of the cemetery. Deck size is required to perform task.

5.3.6.12 Commercial-grade power trimmers and power edgers will be used to trim grass from around headstones, monuments, curblines, walkways, etc. Power trimmers must be equipped with scalp-protectors.

5.3.6.13 Cutting blades on mowing and trimming equipment must be sharpened every 20 hours of use, at the minimum so that grass tips are cleanly cut, and not torn or damaged. Cutting heights of all mowing equipment must be set according to heights specified below. The height of grass is what is measured to get correct cutting height.

5.3.6.14 GENERAL REQUIREMENTS

Turf must be cut to maintain heights as set forth below:

Cutting Height - Inches	Turf Grass Species
2.0 to 3.5	Rhizome Tall Fescue

5.3.6.15 Maintain turf in burial and public areas at a height within one inch range of that which is professionally recommended for the grass type by the State University Agricultural Extension. Optimally, the height must not be more than half an inch above that range and of consistent height throughout the sward. The height of the turfgrass should be maintained between 2.0 and 3.5 inches in height. In no circumstances must the turf be allowed to grow taller than 4.0

inches or to be cut lower than 2.0 inches. Turf that is cut lower than 1.0 inches must be repaired by Turf Renovation at no additional cost to the Government.

5.3.6.16 Maintain non-irrigated vegetation in visually prominent areas of the cemetery by mowing. Maintain vegetation height at 4 to 6 inches. In no circumstances must the vegetation be allowed to grow taller than 6 inches.

5.3.6.17 Do not remove more than 1/3 of the grass leaf surface at anyone mowing.

5.3.6.18 Be familiar with and utilize different mowing patterns. Changing direction and patterns reduces turf wear providing a cleaner cut and avoids creating tire ruts in the turf areas.

5.3.6.19 Clean mowing and trimming equipment prior to entering the cemetery grounds. This will minimize the possibility of introducing weed contamination to cemetery turf from areas outside the cemetery grounds. Contact the COR to inspect the equipment prior to unloading.

5.3.6.20 Clean mowing and trimming equipment prior to moving equipment from a turf area known to contain invasive weed infestation (e.g., kikuyugrass, Bermudagrass) to a turf area free of that weed infestation. This will minimize the spreading the weed infestations within the cemetery grounds. Contact the COR to inspect the equipment prior to proceeding from turf area to the next.

5.3.6.21 Provide one or more commercial-grade mowers that will be dedicated to mowing areas known to be infested with Kikuyugrass and/or Bermuda grass. The mower(s) shall be able to professionally mow all areas within the infested cemetery sections. These mowers shall be marked with a 12-inch-wide painted white stripe or decal from bumper to bumper to distinguish these mowers from the other mowers used on the rest of the cemetery.

Take the utmost care not to damage headstones, floral or commemorative items, structures, survey monuments, irrigation equipment, and trees while performing mowing, trimming and edging services. Repair or replace all damaged items caused by the Contractor to the satisfaction of the COR at no additional cost to the Government.

Remove and replace all floral and commemorative items, such as fresh cut flowers, wreaths, (and artificial flowers, and potted plants when allowed), to their proper gravesite during the course of performing mowing and trimming services. Remove floral and commemorative items in accordance with the cemetery's Floral Policy. (**See** "*Trash and Debris Removal*".) Clean and replace floral vases inside the floral vase receptacles. Stack floral vases so they do not collect water. Fresh cut flowers may be placed on graves and in the gravel areas surrounding the Columbarium, Memorial Walls or Memorial Monuments at any time. Cemetery furnished temporary flower containers are available and located throughout the cemetery in specially marked containers.

All floral items will be removed as soon as they become faded and/or unsightly and may also be removed every week to accommodate grounds maintenance, to include removal of artificial flowers. Floral pick up is the 1st and 3rd Wednesday of each month along with daily pick up of faded or unsightly arrangements.

Artificial flowers may be placed on graves and in the gravel areas surrounding the Columbarium, Memorial Walls or Memorial Monuments November through February. Plantings will not be permitted on graves and in the gravel areas surrounding the Columbarium, Memorial Walls or Memorial Monuments at any time.

Potted plants will be permitted on graves and in the gravel areas surrounding Columbarium, Memorial Walls or Memorial Monuments five days before and five days after Easter Sunday and Memorial Day. During the winter season a Holiday wreath or plan is allowed from December 1 to January 15. Floral blankets are not authorized due to year-round growing season. To maintain the dignity of the cemetery, items such as candles, statues, glass of any kind, vigil lights, shepherd's hooks, wind chimes, pinwheels, balloons, memorabilia, or any item exceeding 24 inches in height are not permitted on graves and in the gravel areas surrounding the Columbarium, Memorial Walls or Memorial Monuments at any time. Items of any time will not be secured to Headstones, Niches, Memorial Markers or Memorial Monuments.

5.3.6.22 Newly seeded and sodded turf will be present at newly interred gravesites, second interment gravesites, and renovated gravesite locations. New seedlings and sod must be hand mowed until it is fully established to the point where riding mowers will not cause damage to the turf.

5.3.6.23 Mow around trees in a manner that prevents "ringing pattern" around the tree and associated damage to turf. Take care not to disturb adjacent bark and rock mulch beds while mowing. Reposition mulch into their respective beds.

5.3.6.24 Vary mower wheel width patterns and mowing patterns after each mowing to prevent and avoid wheel rutting from occurring.

5.3.6.25 Trim un-mowed grass around headstones, monuments, and other vertical surfaces to keep the grass at the height standard for mown turf without scalping between stones or around stones. Scalped turf between headstones must be repaired as per "Turf Renovation" at no additional cost the Government and will require additional weed control measures to prevent weeds from populating these scalped zones.

5.3.6.26 Clean headstones, section markers, walkways, curbs, concrete bases, signs, and roads of grass clippings and leaves after mowing, weed-eating, edging, and trimming. Do not use leaf blowers to move grass clippings into planting beds and rock gardens.

5.3.6.27 PROCEDURE

5.3.6.28 FREQUENCY OF MOWING, TRIMMING, & DEBRIS REMOVAL: Mow, trim and remove clippings as required (generally once every seven (7) days) to maintain the specified height for all turf in the developed cemetery. Edge and remove clippings as required (generally once every fourteen (14) days) to maintain the specified height for all turf in the developed cemetery. During periods of active growth, and after dethatching operations, mowing may be required twice weekly as approved by the COR. Complete trimming around headstones and debris removal in conjunction with each mowing cycle.

5.3.6.29 WEATHER CONDITIONS: There may be periods of excessive rainfall when the Contractor cannot access areas for mowing due to excessive wetness. The COR has the authority to stop work if weather conditions are such that work that day will do more damage than good to the Cemetery grounds. During these periods, the Contractor will be expected to ensure the grass is cut in less than a week's time once grass is suitable for mowing. During periods of fire

danger (i.e., excessive heat and low humidity), cease mowing operations in non-irrigated buffer areas to avoid starting brush fires.

5.3.6.30 MOWING TIMING: Do not mow wet turf. Do not mow turf under a layer of frost. The COR will determine when the frost has subsided enough to proceed. Coordinate with the irrigation schedule so mowing does not occur during the morning after irrigation. Mowing cycle must be completed by Friday of each week.

5.3.6.31 MOWING PATTERNS: Crosscut the turf between headstones every other mowing cycle by mowing perpendicular to the gravesite rows, (i.e., Alternate between cutting parallel with and perpendicular to the gravesite rows). For turf with upright headstones, mowers must pass between the headstones without damaging them. Cut turf in rows between headstones in the opposite direction from the preceding mowing cycle to prevent rutting.

5.3.6.32 MOWING SPEED: Do not operate mowers at speeds that will leave tire marks when making sharp turns. In no case must mowers be operated at speeds exceeding the manufacturer's indicated speed for safe operation, or at speeds which cause damage to cemetery property.

5.3.6.33 MOWER/TRIMMER MAINTENANCE: Conduct mower and trimmer maintenance in the designated maintenance yard, including refueling of equipment. Do not refuel equipment in cemetery burial sections.

5.3.6.34 MOWING: Cut turf within the cemetery burial sections at recommended height unless otherwise specified by the COR. Use rotary mowers with rear discharge mulching decks for mowing. The design of the mowing decks and speed of the mowing must be such that scalping is avoided. At no time is freshly mowed grass to be blown onto headstones. Areas will be mowed first, followed by the trimming operations.

5.3.6.35 TRIMMING: All turf areas that cannot be maintained by traditional mowing equipment shall be trimmed at the same height of the mown grass. Take great care to avoid contact with headstones, markers, signs, monuments, building walls, trees, shrubs, flowers, any other desirable plant materials, and any other structure that can be damaged by contact with the trimming device's cutting instrument. Scalping of the turf around a marker/headstone is unacceptable. Trimming will be accomplished free of scalping, rutting, bruising, and uneven and rough cutting. Streaks or irregularities, uneven cutting, plowing, or gouging of the soil is unacceptable. Use bicycle-handled "stick" string trimmers for mowing around upright headstones and other structures. Scalping of the turf around a marker/headstone is unacceptable. Turf must not be shorter around headstones creating a "bowl" effect. Use string line gauge that will not damage headstones.

5.3.6.36 EDGING: Edge turf at streets, curbs, walkways, mow bands, landscape borders, tree wells, and planting beds inside and outside cemetery grounds. Edging must provide a clear zone 1/2-inch wide by 1-inch minimum deep with all vegetation removed from joints and cracks. Use "stick" edgers with metal blades. Avoid damaging pavement. Remove debris from edging from the site on the same day as the edging event.

5.3.6.37 REMOVAL OF TURF CLIPPINGS: Immediately remove or disperse windrows and mats of grass clipping deposited on the turf to avoid turf damage. Remove clippings deposited on headstones and other monuments, section markers, concrete bases, roads, walks, plazas, beds, tree basins, or other non-turf grass areas the same day as the mowing event that

produced them. Remove clippings deposited on sidewalks or at public visitor areas including at the Committal Shelter at same time mowing work is occurring. In specialty areas, collect clippings in bag attachments to the mowers, as approved by the COR. Remove and dispose clearly visible clumps of grass clippings and/or windrows of clippings, as a result of infrequent mowing. Isolate use of Rake-O-Vac type equipment to removal of windrows and mats of grass clippings to prevent wear and tear of turf and compacting of soil, unless directed otherwise by the COR. If inclement weather does not allow the grass trimmings to be collected while mowing, they must either be short enough to blend into the existing turf or raked and collected as soon as weather allows.

5.3.6.38 REMOVAL OF GRASS CLIPPINGS AND SOIL: Immediately remove grass and/or soil splatter deposited onto headstones, section markers, and other structures the same day as the mowing and/or trimming event that produced them. Cleaning of headstones and structures soiled by mowing and trimming activities is incidental to the work and shall not be considered as "Headstone Cleaning and Maintenance" or "Structure Maintenance".

5.3.6.39 MEMORIAL DAY: Complete mowing, trimming, edging & debris removal work no later than close of business on Thursday prior to Memorial Day to allow sufficient time for the placement of personal floral arrangements on individual graves and for the preparation of Memorial Day services at the cemetery. Contact COR one week before event for final schedule.

5.3.6.40 VETERANS DAY (NOVEMBER 11): Complete mowing, trimming, edging & debris removal work for Veterans Day no later than two (2) workdays prior to the scheduled holiday. Contact COR one week before event for final schedule.

5.3.6.41 INSPECTION: The COR will inspect mowing, trimming and edging a minimum of once a week (during the growing season).

5.3.6.42 VERIFICATION: On Friday of each week, the Contractor shall submit to the COR cemetery site plan(s) indicating the areas and dates turf areas were mowed and trimmed. Use a different colored highlighter marker for each day.

5.3.7 TURF MAINTENANCE – AERIFICATION

5.3.7.1 SCOPE

5.3.7.2 Soil compacted by heavy foot or vehicle traffic must be relieved by aerification to improve air, water, and nutrient penetration into the turfgrass canopy and root zone. The procedure is generally necessary twice per growing season on national cemetery grounds not subject to continual heavy traffic.

5.3.7.3 Core aerification uses specialized equipment to remove numerous soil cores (from 4 to 6 inches long) as it passes across the turfgrass surface. The cores can be left on the turfgrass surface as approved.

5.3.7.4 Aerate the turf (both irrigated and non-irrigated) twice yearly at a minimum in early spring, and late fall.

5.3.7.5 Verticutting uses specialized equipment to cut straight lines or rows into the turf and soil with closely spaced blades attached to a rotating drum to a depth of 1 to 2 inches.

5.3.7.6 In preparation for interseeding, aerate by verticutting both non-irrigated turf, and areas of bare and thin irrigated turf, to create a loose texture soil suitable for placing seed into the ground. The blades are to be spaced 1/2-inch apart and set to slice into the soil to a depth of 1-inch.

5.3.7.7 PROCEDURE

5.3.7.8 CORE AERATION: Use core aeration equipment to extract minimum 4-inch and maximum 6-inch core plugs at not less than 6-inch square spacing over cemetery turf. Flag sprinkler heads, control markers, valve boxes and other appurtenances which are not readily visible. Do not damage surrounding vegetation or structures, including but not limited to, sprinkler heads, vases, valve boxes, control markers, and paving.

5.3.7.9 VERTICUTTING: Where possible, verticut turf areas in preparation for interseeding. (***See*** *"Turf Renovation*")

5.3.7.10 INTERSEEDING: After completion of the verticutting, and removal of loose vegetation, utilize belly seed distributors over all turf.

5.3.8 TURF MAINTENANCE – TOP-DRESSING

5.3.8.1 SCOPE

5.3.8.2 Turfgrass prone to thatching must be top-dressed regularly to eliminate the build-up of thatch by creating a suitable environment for microbes to digest the thatch.

5.3.8.3 Soil with textures that consists of more than 50 percent clay (e.g., clay loam, silty clay, silty clay loam, silt loam, loam, and clay) must be modified by regular topdressing to reduce the percentage of clay in the turf root zone.

5.3.8.4 Turf that that is rutted must have the soil leveled by repeated applications of topdressing.

5.3.8.5 Turf that is overseeded and interseeded must be top-dressed to provide seed topper to aid in the germination of the seeds.

5.3.8.6 PROCEDURE

5.3.8.7 TOP-DRESSING TYPE 1: (TO MODIFY SOIL TEXTURE AND PREVENT THATCH BUILD-UP)

5.3.8.8 Beginning in spring immediately following the spring turf aeration, top-dress the established with a 90% sand/10% reed sedge peat mix designed for top-dressing turfgrass. Apply top-dressing while core aeration holes are open. Acceptable Product: '90/10 2Mil Dakota Blend', or approved equal. Submit product data sheets to COR for approval.

5.3.8.9 Immediately following the turf aeration, top-dress annually. Apply top-dressing while core aeration holes are open. Avoid blocking sunlight from excessive coverage of turf with top-dressing soil. Alternate between applications with clean river sand; and 40:30:30 mixture of sandy loam topsoil, peat humus, and compost formulated for topdressing turfgrass. Submit one-half (1/2) cubic-foot sample of compost, and certification letter from the supplier attesting that compost is U.S. Composting Council Certified. Submit topdressing compost test analysis and product data sheets to COR for approval. (***See*** *requirements of "TURF MAINTENANCE – FERTILIZATION")*

5.3.8.10 Apply topdressing at a rate of 0.5 cubic yards per 1000 square feet with turf tender equipment specifically designed for top-dressing turf, and capable of being calibrated to uniformly apply

the product at the specified rate. Use brushes to move the top-dressing into the turf and aeration core holes. Irrigate thoroughly to move topdressing into turf. Remove topdressing from adjacent areas and headstones. Do not top-dress newly laid sod or sod that has not completed one dormant period.

5.3.8.11 TOP-DRESSING TYPE 2: (TO FILL RUTS AND DEPRESSIONS)

5.3.8.12 Top-dress depressions in turf such as ruts created by maintenance equipment as approved by the COR. Alternate between application with 90% sand/10% reed sedge peat mix; and 40:30:30 mixture of sandy loam topsoil, peat humus, and compost formulated for top-dressing turfgrass. Submit top-dressing composition test analysis to COR for approval. Apply top-dressing using approved equipment to apply no more than 1/2-inch of material in a single application. Use brushes to move the top-dressing into the turf. After brushing, irrigate thoroughly to move top-dressing into turf. Repeat applications over the course of several weeks as required to eliminate depressions. Acceptable Product: '90/10 2Mil Dakota Blend', or approved equal. Submit product data sheets to COR for approval.

5.3.8.13 TOPDRESSING TYPE 3: (IN CONJUNCTION WITH OVERSEEDING/INTERSEEDING)

5.3.8.14 Top-dress turf immediately after overseeding/interseeding with seed topper formulated for overseeding turfgrass. Apply top-dressing while furrows from slit-seeding are open. Avoid blocking sunlight from excessive coverage of turf with top-dressing. Submit top-dressing composition test analysis to COR for approval. Acceptable Product: 100% compost humus with 100% passing 1/4" sieve (fine grind) or approved equal.

5.3.8.15 Apply topdressing at a rate of 0.5 cubic yards per 1000 square feet with turf tender equipment specifically designed for top-dressing turf, and capable of being calibrated to uniformly apply the product at the specified rate. Use brushes to move the top-dressing into the turf to cover the seeds. Irrigate thoroughly to further move top-dressing into turf. Remove top-dressing from adjacent areas and headstones. Do not top-dress newly laid sod or sod that has not completed one dormant period.

5.3.9 TURF MAINTENANCE – DETHATCHING

5.3.9.1 SCOPE

5.3.9.2 No more than 1/2-inch thatch layer shall exist at any time throughout the growing season.

5.3.9.3 The turf is to be dethatched in March as needed.

5.3.9.4 PROCEDURE

5.3.9.5 Use a vertical mower with steel blades mounted solidly to an axle to dethatch all turf area with more than 1/2-inch of thatch build-up. Adjust the blades of the device so that they barely scratch the soil surface. Flag sprinkler heads, control markers, valve boxes and other appurtenances which are not readily visible. Do not damage surrounding vegetation or structures, including but not limited to, sprinkler heads, vases, valve boxes, control markers, and paving.

5.3.9.6 Remove thatch material immediately from the site in a lawful manner.

5.3.9.7 Schedule additional mowing and trimming operations in response to major growth surge that accompanies thatch removal.

5.3.10 TURF MAINTENANCE – PEST CONTROL

5.3.10.1 GENERAL REQUIREMENTS

5.3.10.2 Contractors must be responsible for maintaining the turf area of the cemetery and the immediate area surroundings of the cemetery in a healthy condition by proper application of fertilizers, and chemicals (to control weeds, diseases, and invertebrate and vertebrate pests). Turf in high visibility areas must be at least 90 percent pest and disease free.

5.3.10.3 Conduct pest control in accordance with requirements as stated in NCA Handbook 3410 – Integrated Pest Management Procedures for VA National Cemeteries.

5.3.10.4 For Water-Wise cemeteries, “pest control” must provide weed and pest free burial sections and planting beds.

5.3.10.5 DEFINITIONS:

5.3.10.6 Pest is defined as any plant or animal detrimental to humans or human concerns including weeds, fungi, molds, vertebrates, and invertebrates.

5.3.10.7 An animal is any living thing that is not a human being or a plant.

5.3.10.8 A pesticide is herbicide, insecticide, fungicide, and poisonous baits.

5.3.10.9 SAFETY/REGULATORY REQUIREMENTS:

5.3.10.10 All application methods must be in strict accordance with manufacturer, Department of Environmental Protection and all federal, state and local laws.

5.3.10.11 All applications must be made in accordance with manufactures label instructions to ensure proper rate and timing of application. Ten (10) workdays prior to any scheduled application, the Contractor shall provide to COR, a copy of product label for each chemical used, the amount and application rate, and appropriate supporting Safety Data Sheets (SDS) sheets in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

5.3.10.12 Contractor shall keep a record of all pesticides applied and shall submit to the COR within five (5) working days after application a fully completed “Pesticide Application Data Sheet” for review and approval, with a copy sent to the Pacific District Agronomist. (See Attachment) The COR will train the Contractor in the proper use of this form. Records will show type, amount, application area, and weather conditions.

5.3.10.13 Report herbicides/pesticide use to the County Ag Commissioners Office's when required by local jurisdictions.

5.3.10.14 Contractor personnel applying pesticides must possess a current, valid, state-issued, commercial pesticide/herbicide application license. Provide a copy of the license to the COR. The Contractor must be responsible for any damage resulting from the application of any fertilizer, herbicide or pesticide treatments.

5.3.10.15 Train employees on environmental issues such as ground water contamination, wetland protection, poison control, and be consistent and fully compliant with all applicable Federal, State, County and City laws, ordinances, Right-to-Know laws, EPA guidelines, and regulations.

5.3.10.16 Prevent the public and cemetery employees from accidentally becoming exposed to pesticides during an application or from encountering treated areas after the application has been made. Contact the Agricultural Commissioner's office for instructions on restricted entry intervals and posting. In compliance with these instructions, provide the required safety warning devices, barricades and signage at all work sites to eliminate hazards from public visitors and cemetery employees.

5.3.10.17 Prior to fertilizer and/or pesticide application, the contractor shall at a minimum post appropriate flags or markers in all areas to be treated for a period of 24 hours after a fertilizer and/or pesticide treatment has been applied accompanied by a sign informing the public of the time and date of the chemical application. Remove all flags and signs upon expiration of the 24-hour period.

5.3.10.18 In addition to, or in compliance with instructions from the Agricultural Commissioner's office on posting, prior to an herbicide application, the Contractor shall provide and install signage that clearly states the following: "CAUTION - HERBICIDE APPLICATION IN PROGRESS."

5.3.10.19 The signage shall be COR-approved and shall be uniformly spaced along all perimeters of the application area, and at all regular points of public entry, and shall remain standing for 24 hours after application is complete. If the herbicide has a restricted entry interval, the signage shall be removed by the Contractor within 24 hours after the expiration of the restricted-entry interval. The Contractor is responsible for the removal and disposal of all signage, warning devices, etc.

5.3.10.20 The contract work shall not jeopardize the safety of any persons or jeopardize the protection any plant material or property within the cemetery. The Contractor shall not make turf applications, particularly those involving hazardous materials, when people are present in or passing by any such work area(s). Such work in Visually Prominent Areas and along major pedestrian routes, and in any area where a funeral or ceremony is taking place or will take place within 2 hours, shall be rescheduled by the Contractor to an earlier or later time, or to a time before or after cemetery visiting hours as determined by the COR.

5.3.11 WEED CONTROL - GENERAL:

5.3.11.1 Control weeds throughout the cemetery year-round, using Contractor-provided herbicides with emphasis given to Visually Prominent Areas. The result shall be that 100 percent of Visually Prominent Areas (interment sections, committal service shelters, columbaria and memorial walkways, flagpole/assembly area, public buildings, and entrance gate; areas adjacent to the main entrance road; and primary roads/routes to committal service shelters, burial areas, the entrance way) shall be 98 percent weed free. Ninety-eight percent weed free means that the population of weeds is very widely scattered and visually insignificant when the total expanse of the cemetery turfgrass is observed. The weeds in no way distract from the visual attractiveness of the landscape.

5.3.11.2 Make applications in accordance with manufacture's label instructions to ensure proper rate and timing of application. Provide and apply liquid broadleaf herbicide no earlier than 6 hours before anticipated rainfall to allow herbicide sufficient time to be absorbed into plant tissue to maximize the herbicide's full potential. Any rainfall that is received within this six-hour time frame after the application will require the Contractor to treat all turf areas a second time at no additional cost to the Government.

5.3.11.3 Control weed growth and disease in turf by means of mowing, trimming and pesticide application or any other method approved by the COR. The person in charge must possess current, valid, state-issued license to use pesticides. Broadcast applications of pesticides for weeds shall be accomplished in the spring and the fall. Spot treatments of pesticides for weed control shall occur monthly unless noted otherwise.

5.3.11.4 Follow herbicide manufacturers' precautions on maximum applications per year for both spot and broadcast applications. Do not apply herbicides which will inhibit the germination of grass seeds. Follow herbicide manufacturers' precautions for timing use of product on interseeded/overseeded turf. Do not apply herbicides on overseeded/interseeded turf until turf has been mowed two times, or four weeks after emergence (whichever is longer) before

making a post-emergence application. Weed control products shall be compatible with interseed/overseed present on the cemetery and shall not damage the turf either by misapplication or inappropriate product selection.

5.3.11.5 Coordinate Turf Herbicide Applications with special programs for the control of invasive weed pests such as Bermuda grass and Kikuyugrass.

5.3.11.6 GRASS WEED PRE-EMERGENT: Apply grass pre-emergent herbicide in granular form when treating for annual bluegrass, crabgrass, dallisgrass, goosegrass, johnsongrass, Bermuda grass, kikuyugrass, and any other target weed species present at manufactures recommended rate allowable for the species of turfgrass and region of the country. Apply pre-emergent one to two weeks prior to the anticipated seed germination when soil temperatures register between 50 to 55°F for 3 consecutive days. Apply a second sequential application of the same product 8 to 10 weeks following the first application. Apply pre-emergent with calibrated spreading equipment. The Contractor is solely responsible for damage to headstones or any other structures, and newly seeded turfgrass caused as a result of any pre-emergent application or herbicidal treatment. Alternate between herbicide products containing atrazine, dithiopyr, pendimethalin, and prodiamine to reduce herbicide resistance.

5.3.11.7 ANNUAL BLUEGRASS (POA ANNUA) CONTROL: To limit annual bluegrass germination during winter, apply pre-emergent herbicides listed above in late summer or early fall when soil temperatures drop below 70°F. Repeat application in early spring. In addition to the pre-emergent herbicide application, apply post-emergent herbicide spot applications of ethofumesate, foramsulfuron, pronamide, sulfosulfuron, and trifloxysulfuron to young annual bluegrass plants. Successful control will be measured as cemetery turf with less than 10 percent annual bluegrass weeds.

5.3.11.8 BROADLEAF WEED CONTROL: Apply broadleaf herbicides with calibrated measured spraying equipment (not a hose end sprayer). The chemical must address issues of various broadleaf weed types which include dandelion, white clover, bristly oxtongue, speedwell, bristly mallow, California burclover, filaree, chickweed, curly dock, yellow wood-sorrel, black medic, plantain, spurge, prickly lettuce, purslane, and other target weed species present. Applications must be timely and at the proper dosage so that perennial weeds do not go to seed. Utilize both broadcast applications and spot-applications of chemicals to turf areas throughout the cemetery as appropriate for the degree of weed pressure. Use three-way herbicide products containing triclopyr; 2,4-D; and dicamba. Tank mix with MCPP or MCPA to increase spectrum of control.

5.3.11.9 GRASS WEED CONTROL: Apply grass weed herbicides with calibrated measured spraying equipment (not a hose end sprayer). Applications must be timely and at the proper dosage so that grass weeds do not go to seed. Utilize both broadcast applications and spot-applications of chemicals to grass weeds in turf areas throughout the cemetery as appropriate for the degree of weed pressure. Alternate between herbicide active ingredients to reduce herbicide resistance. For example, apply triclopyr in the spring, and quinclorac in the summer to reduce herbicide resistance. Tank mix with MSMA or fenoxapropto increase spectrum of control.

5.3.11.10 SEDGE WEED CONTROL: Apply sedge weed herbicides with calibrated measured spraying equipment (not a hose end sprayer). The chemical must address issues of various weeds which include green kyllinga, annual sedge, purple nutsedge, yellow nutsedge, and aquatic sedges. Applications must be timely and at the proper dosage so that grass weeds do not go to seed. Spot-apply chemicals throughout the cemetery where infestations are evident, particularly in moist and low-lying areas prone to poor drainage. Tank mix with adjuvant per manufacturer's printed instructions. Reapply 4 to 6 weeks per manufacturer's printed

instructions. Alternate between herbicides products containing halosulfuron, imazosulfuron, and sulfosulfuron to reduce herbicide resistance.

5.3.11.11 FUNGI: Employ IPM methods for reduction and treatment of fungi such as improving drainage through aeration and thatch removal; and proper mowing, fertilization and irrigation techniques to eliminate the conditions favorable for the growth of fungus. Application of fungicides is generally not required.

5.4 PEST CONTROL:

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Subject to SCA and Commercial Provisions/Clauses

5.4.1.1 Establish a treatment plan to control Vertebrate Pests within the developed cemetery grounds throughout the calendar year for approval of COR. This schedule shall be incorporated into the Grounds Management Plan.

5.4.1.2 Vertebrate Pests include, but are not limited to: gophers, moles, voles, mice, rats, ground squirrels, rabbits, skunks, raccoons, wild pigs, badgers, geese, coots, and snakes and other target pests present. Control pests by trapping, elimination of their food source, or other effective methods. Trapping must be performed by licensed professionals permitted to trap the target pest. Shooting of animals will not be authorized. Comply with U.S. Fish and Wildlife laws and regulations and state Fish and Game Code with regard to baiting and trapping of animal pests. Dispose of or relocate animal pests in accordance with federal, state and local laws.

5.4.1.3 If soil is disturbed by these pests, fill holes/ruts with topsoil or other COR-approved material, tamp and re-grade. Areas of repair include both turf and planting beds. Cut and remove damage to turf areas to provide clean edges, and replant with sod per "Turf Renovation". When mowing, mark off and avoid newly sodded areas until the turf is established. Repair planting beds to original condition, including re-establishing grades, re-planting, re-mulching, and repairs to irrigation systems.

5.4.1.4 Within 10 calendar days from start of the contract period, conduct a complete inspection of the cemetery grounds and document all vertebrate pest damage using Attachment 'G' "Vertebrate Pest Inspection Sheet" or other COR-approved document. Provide this completed document to the COR. Within 15 calendar days from the start of the contract period the Contractor must have treated with bait, and/or set traps to eliminate the pests. With 20 calendar days from the start of the contract period the Contractor must have correctly repaired the areas damaged from pest activity with matching turf. The document shall identify the following: Pest Species, Location (ID Number, Section, and Headstone) of all treatments. Provide this document to the COR each week and identify work that took place within the previous seven days.

5.4.1.5 Approximately 30 days after the start of the contract period, and every 15 days thereafter as required, the COR will inspect the cemetery grounds to determine if the vertebrate pest damage has been reduced to an acceptable level. Also at that time, the COR will determine if the damaged turf has been repaired to an acceptable level. (Acceptable is defined as 90% of vertebrate pests are eliminated).

5.4.1.6 Inspect for pest damage at least weekly. If any additional signs of pest damage are found set baits and/or traps the day of discovery. Document and report the inspections to the COR on a weekly basis.

5.4.1.7 Inspect each irrigation equipment valve box for soil spoils from pest activity. Remove soil from irrigation valve boxes and install 1/2-inch square by 16-gauge galvanized steel mesh under and up sides of box to prevent pest intrusion. Secure mesh to sides of box with galvanized steel fasteners.

5.4.2 INVERTEBRATE PEST CONTROL:

5.4.2.1 Control pests that include but are not limited to insects (all life cycle stages), and spiders by insecticides, biological controls or other effective methods. Insect pests include but are not limited to: Grubs, Ants, Crane Fly, Wasps.

5.4.2.2 Establish a treatment plan to control invertebrate pests identified within the developed cemetery grounds throughout the calendar year for approval of COR. Incorporate this schedule into the Grounds Management Plan.

5.4.2.3 Treat turf areas in the cemetery in accordance with the approved schedule with a broadcast application of granular herbicide effective in the control of invertebrate pest species present on the cemetery. The frequency of application must be in accordance with the manufacturer's printed instructions for the control of the target pest species.

5.4.2.4 In addition to broadcast applications, provide spot-application of pesticides directly to pest nests on monthly or on an as-needed basis as approved by the COR.

5.4.2.5 Acceptable level of control is defined as 90% of invertebrate pests are eliminated.

5.4.2.6 Keep buildings free of wasps and their nests with particular attention given to the skylights on the Committal Shelters, entries to PIC and Admin. Bldg., and under ledges on Columbarium walls.

5.4.2.7 North American honeybees must be live trapped and relocated by a specialist in bee keeping.

5.4.3 FERTILIZER AND PESTICIDE APPLICATION:

5.4.3.1 Apply turf applications with the on station EcoFert distribution system. Apply herbicides under calm wind conditions to eliminate any potential for wind drift. Comply with pesticide label precautions to where surface run-off is likely to occur or near a water source.

5.4.3.2 Use an appropriate non-staining, green-colored, marker dye compatible with the herbicide being applied for spot applications of herbicide.

5.4.3.3 Use surfactants and adjuvants with herbicides to improve herbicidal activity or application characteristics when recommended by herbicide manufacturer.

5.4.3.4 Apply Fertilizers, Herbicides, and Soil Conditioners in accordance with NCA Standards and as indicated herein.

5.4.3.5 Do not dispose of, rinse, mix nor store any herbicide containers/bags on cemetery premises, unless authorized in advance by the COR. Do not keep or store herbicide application equipment or agricultural chemicals on the cemetery premises when applications are not in progress.

5.4.3.6 Thirty (30) days after completion of the application, jointly inspect the pesticide application with the COR and assess results. In areas where results are less than acceptable* re-perform the application at no additional cost to the Government. (*Acceptable is defined as 90% of target pest species are eliminated).

5.4.3.7 Take precautions to prevent damage to the cemetery, in any manner, including headstones, monuments, shrub and flower beds, trees and other structures during maintenance operations. Current replacement costs for headstones, other cemetery structures or property damaged by the work under this contract will be deducted from the contract price.

5.4.3.8 Do not use any pesticide or fertilizer in either granular or liquid form that will stain or discolor any headstones. Notify the COR of all materials scheduled for use on turf before beginning

any turf application. Clean cemetery structures, headstones, monuments, and roadways that are soiled or stained as a result of the application.

5.4.3.9 Wash-down with water all soiled or stained structures, headstones, and monuments at the end of each workday. Do not use hazardous chemicals at any time on Government property. Bear all costs associated with washing and cleaning. Notify the COR of any such soiling or staining of structures prior to washing/cleaning.

5.5 TREE, SHRUB & PLANTING BED MAINTENANCE

CLIN 0008 – Qty 12 Months
Subject to SCA and Commercial Provisions/Clauses

5.5.1 SCOPE

5.5.1.1 Work consists of, but is not limited to, planting and maintaining trees, shrubs, and groundcovers, vegetated edge and wildflower/cover crop areas in a healthy and attractive condition by proper watering, pruning, cultivation, fertilization, weed control and mulching techniques.

5.5.1.2 Notify the COR within 48 hours of discovery of dead, diseased or insect infested trees or shrubs. Remove dead and diseased shrubs and groundcovers as approved by the COR.

5.5.1.3 Each ornamental tree planted and native/naturalized trees at the perimeter of the active cemetery use areas must be inspected yearly by a certified arborist and a tree assessment report be provided to the cemetery. The report must list the trees by genus/species; common name; DBH; location in the cemetery as identified by cemetery section number and nearest headstone ID. The report must rate the overall health of the tree, type of pruning needed, pests and/or diseases present, and recommended course(s) of action.

5.5.1.4 Pruning must focus on maintaining plant structure, form, health and appearance through crown-thinning and general pruning.

5.5.1.5 All shrubs and hedges must be trimmed and shaped annually during the months of May and November.

5.5.1.6 All tree and shrub pruning and hedge trimming must comply with ANSI A300 (Part 1) – 2017 Pruning and companion publication “Best Management Practices” (2018 ISA).

5.5.1.7 **Note:** Pruning and trimming will be limited to cuts that can be executed within 15 feet from the ground directly below the cut location. Pruning and trimming above that height will be provided by others under a separate contract.

5.5.1.8 Keep trees free of sucker growth, water sprouts, broken/dead limbs, and low hanging limbs/branches. Remove fallen limbs/branches of all sizes immediately.

5.5.1.9 Prune young trees annually to provide scaffold development, suppression, thinning and perimeter reduction by “Training” pruning.

5.5.1.10 Tree removal will be provided by others under a separate contract to remove dead, diseased or wind-thrown and storm-damaged trees.

5.5.1.11 Maintain the cemetery and the immediate surroundings of the cemetery in a healthy, visually pleasing condition with proper application of fertilizers, pesticides for the control of diseases and insect pests, herbicides and mulch to control weeds.

5.5.1.12 Personnel must be properly trained in the operations they are to perform. If pesticide sprays are used, the person in direct charge must be licensed by the State.

5.5.1.13 Control weeds year-round in landscape beds, areas of mineral mulch, area of organic mulch, tree wells, areas around all buildings, areas around solar panel arrays. Control weeds growing in walkways and roadways. Control weeds within the 5-foot zone outside fence lines, walls/columbaria walls along the perimeter of the cemetery. Control weeds within the public right-of-way between fence lines/walls and curblines or edge of pavement of public streets and public sidewalks. Contractor must dispose of all dead and dying weeds.

5.5.1.14 Maintain planting bed edging materials in sound, stable condition, and in proper relationship to finish grade. Edging material includes rock-lined borders, divot/spade cut edge, metal/plastic edging and other delineators.

5.5.1.15 Dead or dying plant material must be reported to the COR.

5.5.1.16 Replacement plants must be supplied and planted by the Contractor as approved by the COR and from plans provided by the Pacific District Agronomist.

5.5.1.17 Supply and plant a limited number of new plants at the discretion of the Cemetery to enhance existing planting beds, and to replace dead trees and trees that have previously been removed but not replaced. (See Appendix 'A' for estimated quantities and sizes of plants to be provided annually at each Cemetery.)

5.5.1.18 Plant replacement is limited to plants that have died and/or are in a state of decline after Award of Contract.

5.5.1.19 Prepare planting beds for replacement planting. Work includes plant removal, soil preparation, stump grinding/removal, and other operations to create a suitable growth medium for the establishment of new plants.

5.5.1.20 Hand-water plants and make adjustments to irrigation system for establishment.

5.5.1.21 Pest Control will be provided under the direction of the Palm Tree Expert in accordance with Tree, Shrub & Planting Bed Maintenance.

5.5.2 DEFINITIONS

5.5.2.1 **Landscape Bed:** Any non-turf area planted with trees, shrubs, and/or ground cover plants, and usually includes mulches.

5.5.2.2 **Mulch Bed:** Any area containing primarily organic and/or inorganic mulch.

5.5.2.3 **Organic Mulch:** Decorative tree bark, compost, nut shells.

5.5.2.4 **Inorganic Mulch:** Decomposed granite, path fines, gravel, pebbles, cobblestones, rip-rap, boulders, artificial mulch.

5.5.2.5 **Ground cover:** Low growing plants growing over an area of ground. Ground covers include grasses, shrubs, and herbaceous plants.

5.5.2.6 **Wildflowers:** Annual and perennial flowering ground cover plants grown by sowing seeds.

5.5.2.7 **Vegetation:** All plant material including weeds.

5.5.2.8 **Weed:** Any non-desirable plant material, including escaped and invasive ornamental plants.

5.5.2.9 **Pesticide:** Includes herbicides, insecticides, fungicides, poisonous baits.

5.5.3 QUALIFICATIONS

Arborist: All pruning work shall be executed under the direction of a licensed arborist. The Arborist must be certified by International Society of Arboriculture, and this certificate must be current. The Contractor shall submit the arborist's current certificate to the COR prior to commencing work. The Arborist shall serve as the "Contractor's Site Manager" for pruning work and will be provided by the Contractor whenever work is being performed, other than trash and debris pick-up. The Arborist must have not less than five (5) years' experience as a direct supervisor of a commercial tree maintenance operations that include removal, trimming, and stump removal in industrial, commercial or public sites. The Arborist will ensure all specifications are being met, ensure contract work does not conflict with ceremonies and funerals, and ensure employees are adequately supervised and proper conduct is maintained.

5.5.4 SHRUBS AND GROUND COVER PRUNING

5.5.4.1 Shrub pruning and hedge trimming must comply with ANSI A300 (Part 1) – 200 Pruning and companion publication "Best Management Practices" (2018 ISA or latest edition).

5.5.4.2 At the approval of the COR, prune shrubs/hedges monthly during summer months/growing season to conform to the current pattern of growth. Do not trim shrubs into "ball" shapes. Remove shrub trimmings immediately from the site.

5.5.4.3 Prune hedges and shrubs promote a healthy and attractive appearance and uniform growth over all parts of the plant. "Limb-up" lower branches of shrubs to promote air circulation at the ground level. Selectively trim internal stems of hedge shrubs to encourage branching and dense growth.

5.5.4.4 Keep hedges and shrubs free of dead branches, leaves, and all weed growth. Remove weeds and their root systems.

5.5.4.5 Deadhead spent flowers on shrubs, groundcovers, and annual plants after flowers have faded and wilted. Remove flowers by pruning the flower stems. Do not cut fresh blooms or flower buds. Do not shear plants to deadhead flowers unless directed by the COR.

5.5.4.6 Prune groundcover plants to keep clear of walkways and lawns. Do not apply herbicides to control ground covers plants.

5.5.4.7 Trim shrubs, groundcovers, vegetation outside the existing turf along the perimeter of the cemetery is necessary to maintain a 5-foot wide easement between 1 and 6 inches in height.

5.5.4.8 Remove vines growing up tree trunks and into tree canopies. Trim vine plants back in a 3-feet circumference around tree trunks to prevent regrowth of vines into trees.

5.5.5 TREE PRUNING

5.5.5.1 Limited to cuts that can be executed within 15 feet from the ground directly below the cut location. Will provide an annual assessment and a monthly report of work.

5.5.5.2 EQUIPMENT: Furnish necessary equipment for tree pruning.

5.5.5.3 Pruning Standards: Pruning, cutting, trimming and shaping of trees must be accomplished in accordance with ANSI A300 (Part 1) - 2017 or latest edition: Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices, Pruning and companion publication "Best Management Practices" (2018 ISA or latest edition).

5.5.5.4 Pruning must be performed under the direction of the Contractor's certified Arborist, hereinafter known as the Arborist. The Arborist must be certified by International Society of Arboriculture, and this certificate must be current. The Arborist must serve as the "Contractor's Site Manager" for tree work and will be provided by the Contractor whenever work is being performed, other than trash and debris pick-up. The Arborist must have not less than five (5) years' experience as a direct supervisor of a commercial tree maintenance operation that included removal, trimming, and stump removal in industrial, commercial or public sites.

5.5.5.5 The Arborist will ensure all specifications are being met, ensure contract work does not conflict with ceremonies and funerals, and ensure employees are adequately supervised and proper conduct is maintained.

5.5.5.6 The Arborist must submit photo-documentation of the condition of each tree prior to work on the tree and after the work has been completed. The electronic images must be copied onto electronic media and delivered or emailed to the Pacific District Agronomist within 14 (fourteen) days of completion of the work. Failure to provide this documentation will result in a 2% reduction in the overall contract fee.

5.5.5.7 At the approval of the COR, trees must have major structural pruning when the trees are coming out of winter dormancy in February. Trees must have minor pruning such as Crown Thinning monthly during summer/fall months. Deadwood pruning must occur year-round.

5.5.5.8 All pruning tools must be kept sharp and properly functioning. When trees known to be diseased or susceptible to diseases are pruned, disinfect tools with alcohol after each cut and before moving to the next tree, to prevent the transmission of disease.

5.5.5.9 Pruning cuts must be made just outside the collar or shoulder ring (branch bark ridge/swollen trunk collar) close to parent stem so that healing can readily start under normal conditions.

5.5.5.10 When reducing the tree height and spread, retain the natural shape of the tree by removing the entire lateral branches back to their point of origin also known as drop crouching or thinning.

5.5.5.11 Ensure that all limbs are one inch in diameter and greater must be precut to prevent splitting. All branches and/or tree material 3-1/2 inches in diameter and greater must be lowered by proper lowering methods such as using slings and ropes.

5.5.5.12 Ensure that trees that are thinned, live branches are removed to permit penetration of sunlight and circulation of air through the canopy while maintaining the proper aesthetic appearance, natural crown characteristics and growth pattern for that species.

5.5.5.13 In reducing overall size, attention is to be given to symmetrical appearance. The top is to be higher and the sides reduced in order to maintain a tree-like form.

5.5.5.14 Do not "top" trees. Retain the trees natural shape as much as possible. Do not remove more than 20 percent of the total mass of the tree in a single pruning operation. Cuts must not be made so large that they will prevent normal sap flow.

5.5.5.15 The following methods of pruning are NOT acceptable: topping, heading-back, stubbing, de-horning, lion-tailing and pollarding.

5.5.5.16 Take care to retain symmetrical appearance when lifting the bottom branches of mature trees for under clearance.

5.5.5.17 Trim trees high enough to allow spray from turf rotor heads to pass unobstructed by foliage.

5.5.5.18 Trim the tree high enough to allow sunlight to penetrate the trunk sometime during the day which should be in the range of 10 to 15 feet above ground level.

5.5.5.19 Do not limb up a tree more than 1/4 of the tree's overall height. Take care to create a symmetrical, aesthetic appearance, conforming to the natural crown characteristics and growth patterns of the tree species.

5.5.5.20 As a general rule, do not limb up conifers; lowest limbs may be removed where touching the ground or obstructing walkways.

5.5.5.21 Report to the COR the following conditions: when old scars are not healing properly; where callus growth is not already established; visible girdling roots, and when there is any structural weakness; decayed trunk or branches; and split crotches, or branches.

5.5.5.22 Provide adequate warning devices, barricades, guards, flagmen and other necessary precautions for the protection, safety, and warning of pedestrians and vehicular traffic within the work area.

5.5.5.23 Do not operate trucks, tractors, and other heavy equipment on any turf area except when authorized in writing by the COR. Place heavy sheets of plywood or mud tracks to protect turf from damage from heavy equipment. "Board-in" and "board-out" when moving heavy equipment over turf. Protection boards must be removed from turf by the close of business each day to avoid damaging turf.

5.5.5.24 Tree limbs and branches from pruning operations must be transported to the spoils area, chipped and spread, and/or deposited onto the cemetery compost pile as approved by the COR; or hauled off site and disposed of in a legal manner.

5.5.6 TREEWORK DESCRIPTION

5.5.6.1 DEADWOOD PRUNING: Pruning to remove deadwood and/or broken branches that pose a potential risk that could result in personal injury or property damage. This category is used for any tree with broken, hanging, dead, or otherwise potentially dangerous limbs or those trees with a significant number of dead branches that require removal. This category also includes palm frond and palm seed head removal.

5.5.6.2 ROUTINE PRUNING: Regular maintenance to reduce the development of future problems or correct minor problems that could increase if not corrected. This primarily includes trees with minor amounts of deadwood less than two inches in

diameter or with correctable structural problems. Trees with growth patterns that will eventually obstruct or interfere with turf growth and health, pedestrian or vehicular traffic clearance, and lines of sight are also included in this category. Work performed under Routine Pruning must remove 20 to 25% of the tree's total leaf area by means of one or combination of the types of Routine Pruning listed below. Examples of Routine Pruning include:

5.5.6.3 TRAINING PRUNING: Prune young or small trees less than 20 feet in height in order to reduce the development of future structural problems. Trees with growth patterns that will eventually obstruct or interfere with turf growth and health, pedestrian or vehicular traffic clearance, and lines-of-sight are also included in this category.

5.5.6.4 CROWN RAISING: The removal of the lower branches of a tree to provide clearance for buildings, signs, vehicles, pedestrians and vistas, also known as "limbing up" and "lifting". Do not "limb up" coniferous trees.

5.5.6.5 CROWN THINNING: The selective removal of dead, diseased, broken or weakly attached branches (Crown Cleaning) and: the removal of branches to increase light penetration and air movement through the crown; thinning towards the branch tip to reduce the wind-sail effect of foliar clumps in the crown; and thinning to relieve the weight of heavy limbs. Only 25 percent of a tree's leaf area can be removed at any one time

5.5.6.6 CROWN CLEANING: The selective removal of dead, diseased, broken or weakly attached branches. This constitutes regular landscape maintenance pruning that will correct small growth problems before they become larger, more costly problems.

5.5.6.7 CROWN REDUCTION: Pruning to reduce the size of the tree.

5.5.7 RECORD KEEPING AND REPORTING:

5.5.7.1 FINAL TREE REPORT: At the completion of the work, the Contractor's site manager must provide the COR with an updated tree inventory listing the trees that were worked on and the type of tree work that was performed. The update must be provided on a copy of the cemetery tree inventory with the tree identification number and type of work executed clearly evident on the sheet.

5.5.7.2 INSPECTION: At the completion of the work, the COR must inspect the tree work in the company of the Contractor's site manager. Work determined by the COR to be incomplete must be completed by the Contractor at no additional cost to the Government. Disputes arising regarding the status of the work will be reported to the CO for final resolution. The COR's report must include the Contractor's before and after photo-documentation, and the type of tree work indicated.

5.5.8 TREE LIMB AND BRANCH DISPOSAL

5.5.8.1 Remove tree limbs and branches of all sizes that have fallen from trees and transport to the spoils yard for green waste disposal. Cut to sizes that will fit inside of containers, or chip and spread as mulch as coordinated with the COR.

5.5.9 CEMETERY VEGETATION CONTROL

5.5.9.1 Control vegetation within the cemetery and outside perimeter enclosure walls and fences to control excessive weed growth, reduce any fire hazard, and provide a properly maintained appearance.

5.5.9.2 The work areas include Irrigated and non-irrigated areas in developed and undeveloped lands within the cemetery property lines, and lands between the property lines and the public roadway.

5.5.9.3 Maintain vegetation height at no more than 6 inches throughout the year by means of mowing, brush clearing/weed abatement. Mowing frequency varies throughout the year corresponding with active plant growth. Minimum mowing frequencies are twice per month in the wet season and once per month in the dry season.

5.5.9.4 In addition, maintain a five (5) foot fire break along both sides of the fence lines/property lines surrounding the developed and undeveloped area of the cemetery.

5.5.9.5 Work area does not include leased active agricultural fields on cemetery property.

5.5.9.6 DEVELOPED CEMETERY: Maintain irrigated and non-irrigated vegetation in visually prominent areas of the cemetery by mowing. Maintain vegetation height at 4 to 6 inches or less from the ground. In no circumstances shall the vegetation be allowed to grow taller than 6 inches. Mow vegetation in developed and undeveloped areas of the cemetery, perimeter of fence lines, spoils area, and other areas as directed by the COR. Clear brush twice monthly during active growing season and monthly during the slow growth season. Removal of Brush Clippings: Immediately remove brush clipping on the same day of the mowing event that produced them. Transport clippings to the spoils area as directed by the COR.

5.5.9.7 EQUIPMENT: Brush mowers with rotary cutters, flail crop shredders, or string trimmers may be used to clear vegetation within both developed and undeveloped areas of the cemetery. Deck size as required to perform task.

5.5.10 WILDFLOWER AREA MAINTENANCE

5.5.10.1 To maintain wildflower populations in designated areas, after the plants have bloomed, dried and dropped their seed, mow old stalks to a height of 3 to 6 inches or as approved by the COR. To further promote wildflower populations, weed control and re-seeding may be required as approved by the COR. Weed control must be Contractor-provided. Seed for replanting will be Government-provided.

5.5.11 WEED CONTROL

5.5.11.1 Maintain planting beds in an attractive state and free of weeds. Remove weeds and their root system.

5.5.11.2 Maintain tree wells and tree mulch rings free of weeds and turf.

5.5.11.3 Maintain non-planting beds such as storage and maintenance yards, areas of open earth, pavements, bark mulch beds, free of weeds. Weeds and their root system will be removed.

5.5.11.4 Maintain areas with mineral mulch such as rock-lined swales, rock borders, and other areas mulched with decorative rock free of weeds. Weeds and their root

system must be removed. Mineral mulch includes: crusher fines, path fines, decomposed granite, pea gravel, gravel, pebbles, cobblestones, rip-rap, and boulders.

5.5.11.5 Twice yearly, cultivate planting beds by spading fork or approved equipment to loosen compacted soils to a depth of 6 inches. Avoid any damage to the roots and irrigation equipment. Cultivate soil immediately prior to fresh mulch replacement.

5.5.11.6 Apply pre-emergent herbicide twice yearly to planting beds, bark mulched beds, mineral mulch areas, tree wells and tree mulch rings, and open earth areas for the control of weed grasses and broadleaf weeds. Apply herbicide before the application of fresh mulch.

5.5.11.7 Apply monthly spot applications of post-emergent weed control, and/or manually remove weeds by cultivating soil and completely removing weeds.

5.5.12 PEST CONTROL

5.5.12.1 Complete each application specified in this Chapter "Tree, Shrub & Planting Bed Maintenance", (weather permitting) in accordance with the approved Grounds Management Plan. Applications must be provided in accordance with manufacturers label instructions to ensure proper rate of active ingredient (ai) and timing.

5.5.12.2 Time application of pesticides to coincide with lifecycle of insects emerging from and entering into the plants.

5.5.12.3 Submit pesticide manufacturer's data sheets and SDS sheets for approval of COR prior to application.

5.5.12.4 Apply pesticide soil drench to infested plants and topical bark spray once yearly and more frequently if insect infestation is evident to control target pests, such as borers, beetles, weevils, moths and their respective pupae.

5.5.12.5 Apply pesticide with soil injection equipment at rate, depth and spacing indicated in the manufacturer's printed instructions for control of the target insect. Use products containing imidacloprid or clothianidin or other neonicotinoids for soil injection. Use as topical spray only when pest is present.

5.5.12.6 Apply horticultural oil to branches and leaves of plants infested with aphids, scale, thrips, mites, psyllids, and other insects which pupate over the winter. Apply oils in February before insect eggs hatch, and every 30 days until early summer.

5.5.12.7 Apply oils with high-pressure sprayer equipment at rate indicated in the manufacturer's printed instructions for control of the target insect.

5.5.12.8 Use horticultural oils to control aphids, scale, and thrips. Supplement horticultural oils with insecticides and/or biological controls.

5.5.12.9 Control ants at trees infested with aphids, scale, and thrips. Ants disrupt activities of natural predators.

5.5.12.10 See UC Davis IPM website: http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7408.html

5.5.12.11 Apply appropriate pesticides to branches and leaves of plants for control of aphids, scales, thrips and other insects when insect is present.

5.5.12.12 Provide COR and Contractor with written report for each tree tested. Notify COR and Contractor immediately if Fusarium wilt is detected in any tree. Tag the tree with a yellow ribbon and provide an estimate to remove the tree by crane with as few cuts as possible. Protect adjacent trees and planting beds from airborne sawdust with plastic sheeting. Removal of the tree shall be under separate contract. No further pruning of infected trees are to be performed to avoid spread of the fungus to healthy trees.

5.5.13 PESTICIDE APPLICATION (GENERAL):

5.5.13.1 Post appropriate flags or markers in all treated areas for a period of 24 hours after a pesticide treatment has been applied accompanied by a sign informing the public of the time and date of the chemical application. Remove all flags and signs upon expiration of the 24-hour period.

5.5.13.2 Apply pesticides with pressurized spraying equipment at rate indicated in the manufacturer's printed instructions for control of the target insect.

5.5.13.3 Use surfactants and adjuvants with pesticides to improve insecticidal activity or application characteristics when recommended by pesticide manufacturer.

5.5.13.4 Contractor personnel applying applications must possess a current, valid State-issued pesticide application license. A copy of the license will be provided to the COR. The Contractor must be responsible for any damage resulting from the application of any pesticide treatment.

5.5.13.5 Train employees on environmental issues such as ground water contamination, wetland protection, and be consistent and fully compliant with all applicable Federal, State, County and City laws, ordinances, Right-to-Know laws, EPA guidelines, and regulations.

5.5.13.6 Report pesticide use to the County Ag Commissioners Office's when required by local jurisdictions.

5.5.14 ORGANIC MULCH

5.5.14.1 Maintain a 3-inch-deep layer of Contractor-provided, COR-approved, organic mulch to in planting beds, tree mulch rings, and open earth areas. Mulch material must be aesthetically pleasing, redwood or fir bark, dark brown, free of weeds or pests. Bark mulch must be similar in color and texture to the existing bark mulch and must be approved by the COR prior to installation. Mulch must not be a chipped wood product and must not contain dyes or other colorants.

5.5.14.2 Maintain mulch in a uniform 3-inch depth throughout the planting beds and areas of open earth.

5.5.14.3 Hand weed and/or use appropriate chemical controls for weed control in mulch beds.

5.5.14.4 Apply fresh mulch if needed after application of pre-emergent herbicide.

5.5.14.5 Construct 6-foot diameter bark mulch rings around trees in turf as approved by the COR. Cut and remove circular shape from the sod and apply bark mulch. Keep bark mulch 3-inches away from the tree trunk.

5.5.14.6 Place bark mulch underneath fence lines to prevent cemetery turf from growing beyond the defined edge.

5.5.15 INORGANIC MULCH

5.5.15.1 MINERAL MULCH: Hand weed and/or use appropriate chemical controls for weed control in mulch beds. Remove weeds from mineral mulch, (e.g., rip-rap, boulders, cobble stone, river rock, pea gravel, decomposed granite, crusher fines, path fines).

5.5.15.2 Rake mineral mulch to remove depressions, footprints, erosion of all types, and other irregularities when the surface becomes unsightly and after storm events.

5.5.15.3 Supplement with matching mulch as approved by the COR to maintain complete coverage of the area being mulched.

5.5.15.4 MINERAL MULCH REHABILITATION: Reconstruct mineral mulch beds and drainage swales as approved by the COR when weeds cannot be controlled by conventional methods, and spaces between stones have become silted-in. Procedure: Remove and clean inorganic mulch. Remove debris and weed fabric within trench. Repair/reshape trench. Repair/replace weed barrier fabric, and edging where applicable. Apply pre-emergent herbicide. Replace mineral mulch in accordance with original construction drawings. Supplement with additional clean mineral mulch as needed.

5.5.16 PLANTING BED EDGING MAINTENANCE

5.5.16.1 Examine planting bed edging material and repair, reset, or replace edging material that has been broken, become loose, and become higher that surrounding grade.

5.5.16.2 Reset edging material so that the top of the edge is flush with adjacent turf or 1-inch above finish grade of the planting bed. Stake edging material with stakes as supplied by the original manufacturer of the edging material.

5.5.16.3 Examine machine-cut divot edges separating planting beds from turf. Remove bark mulch from divots so a thorough visual examination of the edging can be made. Reconstruct machine-cut divot edges that have become filled with soil, lost continuity of form and alignment, and become higher or lower than the surrounding grade.

5.5.16.4 Refill divot cut edges with specified bark mulch after re-cutting/re-shaping.

5.5.17 TREE STAKING AND MAINTENANCE

5.5.17.1 Set two tree stakes per tree in the direction of prevailing winds. Provide new tree stakes for newly planted trees to match existing tree stakes. Provide tree stakes on young trees requiring support with trunk caliper less than 3 inches. Re-set tree stakes on existing trees that have become loose or leaning. Provide replacement tree stakes where stakes are broken or missing to match existing tree stakes. Provide a third tree stake in extremely windy locations.

5.5.17.2 Provide two tree ties per stake. Locate the ties to provide support for upper and lower 1/3 of the tree. Adjust tree ties to be loosely fitted around the tree trunk to prevent girdling of the tree trunk. Resecure/replace tree ties that have become loose or fallen free from the tree.

5.5.17.3 Remove tree stakes and tree ties on trees with 3-inch caliper and larger, as approved by the COR. Completely remove stakes; do not saw stakes leaving embedded portion in the ground. Loosen or remove tree ties before they become embedded in the tree bark. Remove tree ties that have become embedded in the tree bark without injury to the tree.

5.5.18 PLANTING IRRIGATION

5.5.18.1 Irrigate planting beds during the growing season to the degree needed to maintain an attractive appearance and optimal plant growth.

5.5.18.2 Irrigate planting beds year-round in temperate climates to supplement rainfall.

5.5.18.3 Apply plant anti-desiccants to leaves of plants in harsh, dry winter climates where irrigation systems have been winterized for the season.

5.5.19 DEEP ROOT TREE IRRIGATION

5.5.19.1 Irrigate planting beds during the growing season to the degree needed to maintain an attractive appearance and optimal plant growth.

5.5.19.2 Deep root irrigate all established trees showing stress from drought.

5.5.19.3 Irrigate trees once a month in the dry season. Do not deep root irrigate native Oak trees June through August.

5.5.19.4 Inject water using a 200 PSI pressurized tank equipped with a hydraulic sprayer fitted with shut-off valve and root feeder wand attachment designed for injecting water and/or liquid fertilizer into the root system of trees.

5.5.19.5 Inject water underneath the drip line of the trees to thoroughly irrigate the root zone of trees. Liquid fertilizer may be applied at the same time of the irrigation. (***See*** *paragraph 5.4.20.5 Liquid Fertilizing*.)

5.5.19.6 Inject water into the top 4 to 8 inches of soil with a distance of 2.5 - 3.0 feet between injection points.

5.5.19.7 Start near the trunk and work out to the dripline of the branches. In clay soil extend injection sites beyond the branch tips.

5.5.20 PLANT FERTILIZING

5.5.20.1 GENERAL

5.5.20.1.1 Fertilize trees, shrubs and ground covers growing in planting beds during the active growing season. Provide either dry or liquid slow-release fertilizers specially formulated for the type of plant being fertilized.

5.5.20.1.2 Follow fertilizer manufacturer's printed instructions for each type of fertilizer applied.

5.5.20.1.3 Broadcast fertilizers onto moist soil; thoroughly water-in fertilizers immediately after application.

5.5.20.1.4 If soil is dry, follow applications of dry fertilizer with thorough watering. Watering will make the fertilizer immediately available to the tree and will help prevent burning of grass around the holes by fertilizer that may have been spilled. Some soluble fertilizer solutions may burn the grass unless washed in following applications.

5.5.20.1.5 In fertilizing trees that have roots extending into shrub beds, care must be taken not to punch holes closer than 24-inches to the crowns of small plants.

5.5.20.2 DRY FERTILIZING (ESTABLISHED TREES 6-INCH DBH AND LARGER):

5.5.20.2.1 FORMULA: A 10-6-4 or similar formula. Any complete fertilizer containing 6-10% available nitrogen is acceptable. High amounts of phosphorus and potash are unnecessary.

5.5.20.2.2 METHODS: Punch-hole with power drives or hand bar; and drilled-hole with power-driven or hand auger. When holes are drilled, the soil brought to the surface by the auger must be removed from the turf when the job is completed.

5.5.20.2.3 LOCATION OF HOLES: Start holes 2-1/2 feet or more from base of trunk. Keep far enough away to prevent injury to base of the trunk or root flare. Stagger holes about 2 feet apart; and locate then in circular patterns underneath the crown-spread to the outer tips of the branches.

5.5.20.2.4 DEPTH OF HOLES: 10 to 15 inches.

5.5.20.2.5 AMOUNT OF FERTILIZER PER TREE: 3-5 pounds for each inch of trunk diameter measured 4-1/2 feet above ground. In determining the amount of fertilizer to use per tree, consider the soil area in which fertilizer can be applied. If the area beneath spread of the branches is restricted, reduce the application in proportion to the number of holes that cannot be made. Trees growing between the sidewalk and a paved street should rarely receive over one-half the amount of fertilizer indicated by measuring the trunk diameter at 4-1/2 feet above ground level.

5.5.20.2.6 METHOD OF APPLICATION: Start inside, near trunk, and work out toward the drip line of the branches; until the prescribed amount of fertilizer is used. Trees with spreading roots systems, such as Elms and Maples growing in clay soil, often will have roots beyond the drip line of the branches. In such cases it is good to extend the area fertilized, especially if all the fertilizer has not been used under the branch spread. Located holes as previously described, or if trees are in groups the fertilizer may be applied in holes arranged in square patterns to five more, uniform spacing.

5.5.20.2.7 FILLING OF HOLES: Place one cup of fertilizer in each hole. A metal orange juice can (2 inches in diameter by 3 inches tall) is a convenient measure--one can full to each hole. Finish filling holes with humus, Michigan peat or native soil. If native soil is heavy clay, the holes must be filled with sand to improve aeration and to enable water to penetrate more readily. Fertilizer must be immediately watered-in after application.

5.5.20.2.8 CLOSING OF HOLES: In turf areas, the holes may be closed by pressing from different angles with the heel of the worker's shoe.

5.5.20.2.9 'AERO-FERTIL' METHOD: This is a good method for aerating the soil and distributing fertilizer, especially in case of trees growing in heavy soil. Holes are drilled in much the same pattern as described previously, except that they are usually placed 3-4 feet apart and 15-18 inches deep. By use of a special piece of equipment ('Aero-Fertil' Gun) a charge of compressed air from a compressor is injected from the drilled hole. This blast of air fractures to soil for some distance from the point of entry. Fertilizer and humus, if desired, are then blown into the hole and through the fractures in the soil by a second blast of air.

5.5.20.3 DRY FERTILIZING (ESTABLISHED TREES LESS THAN 6-INCH DBH): For trees less than 6 inches in trunk diameter use the same methods described for larger trees, but use less fertilizer. One and one-half to 3 pounds per inch of trunk diameter measured 4-1/2 feet above ground is recommended for trees of this size; 1-1/2 pounds per inch for 2–3-inch trees; and 2 to 3 pounds per inch for 4-5 inch trees.

5.5.20.4 DRY FERTILIZING (SHRUBBERY): Apply one cup of fertilizer per every two feet of spread of the plant by sprinkling onto the surface of the soil. The fertilizer must not be closer than one foot from base of shrub and extend to the perimeter of the branches.

5.5.20.5 LIQUID FERTILIZING

5.5.20.5.1 Liquid fertilizing of establish tress may be substituted for dry fertilizing with COR approval.

5.5.20.5.2 Inject liquid fertilizers under driplines of trees during the active growing season in spring.

5.5.20.5.3 Liquid feeding when heavy soil is excessively wet will further exclude the soil's air and may be detrimental to the tree. Liquid feeding is most beneficial when the soil is on the dry side.

5.5.20.5.4 FORMULA: Soluble fertilizers are available on the market with analyses, such as 15-8-4, 15-15-15, 20-20-20, 24-12-12, and others. Brand names of some soluble fertilizers used for feeding trees are Arbor Care, Heller-Gro, Fermel, Millers, Ra-Pid Gro, Kapco. These materials are used at dilutions of 2-10 pounds per 100 gallons of water, and 5-7 gallons of solution are used per inch of trunk diameter of the tree being fertilized. With any brand of soluble fertilizer used in liquid feeding, follow the manufacturer's printed directions.

5.5.20.5.5 Inject fertilizer using a 200 PSI pressurized tank equipped with a hydraulic sprayer fitted with shut-off valve and root feeder wand attachment designed for injecting water and liquid fertilizer into the root system of trees.

5.5.20.5.6 Inject fertilizer into the top 4 to 8 inches of soil with a distance of 2.5 - 3.0 feet between injection points or as indicated in the fertilizer manufacturer's printed instructions.

5.5.20.5.7 Start near the trunk and work out to the dripline of the branches. In clay soil extend injection site beyond the branch tips.

5.5.21 PLANTING BED APPLICATION SCHEDULE:

5.5.21.1 List each planting bed application and planned application date within the Grounds Management Plan. Apply fertilizers, pesticides, herbicides and mulch, deep root irrigation as indicated herein. Provide fertilization, pest control, grass & broadleaf weed control, mulching and irrigation, services for planting beds, mulch beds, and open earth areas in strict accordance with NCA Standards.

5.5.22 REPLACEMENT PLANTING:

5.5.22.1 Furnish and install nursery plants as approved by the COR. The Pacific District Agronomist will provide a plan showing the location, species and size of plants to be planted. Replacement plants may not always be the same as the original plant species needing replacement. Emphasis will be on replacing non-native plants with native plants known to thrive within the cemetery.

5.5.22.2 Minimum tree size shall be #15 container (18-inch Ball & Burlap); minimum shrub size shall be #5 container; and minimum groundcover size shall be #1 container. Plant sizes shall be in accordance with American Standards for Nursery Stock (ANZI Z60.1-2004).

5.5.22.3 Any donated plant material offered for installation must be approved by the COR prior to acceptance of the donation. Install donated plant material as approved by the COR.

5.5.22.4 Prepare soil of the planting bed as indicated for "Turf Renovation". In the case of tree planting, the Contractor must remove all obstructions including tree stumps and roots to a depth of 1-1/2 times the depth of the rootball.

5.5.22.5 Conform to the tree planting procedure shown for the appropriate state below:

5.5.22.6 University of California Agriculture and Natural Resources Publication 8046 "Planting Landscape Trees" unless noted otherwise herein. http://anrcatalog.ucanr.edu/pdf/8046.pdf

5.5.22.7 PLANTING: Excavate a plant pit equal to 2 times the width of the rootball, and 1 to 2 inches less than the depth of the rootball. Roughen the sides of the planting pit. Set the rootball on firm subgrade with the rootball 1-inch higher than the surrounding grade. Backfill the plant with native soil avoiding use of subsoil and hard clods. Place and compact in 6-inch lifts. Form a 3-inch high watering basin around the outside edge of the rootball and water-in the plant thoroughly. Apply starter fertilizer in accordance with manufacturer's printed instructions for size and type of plant material.

5.5.22.8 IRRIGATION: Supplement automatic irrigation with hand-watering until the plant is well-established. Where utilized, reset drip tubing on both sides of the rootball conforming to the existing tubing depth and layout making any necessary repairs. On slopes ensure the drip tubing is on the uphill side of the plant. Stake drip tubing in place using galvanized steel "J" stakes.

5.5.22.9 TREE STABILIZATION: Double-stake new trees. Triple-stake with 2-inch diameter lodge pole tree stakes and cross-brace stakes with 1x4 dimensional lumber where adverse effects from high winds are evident. Secure trunk loosely to stakes with rubber tree ties. Stain tree stakes and braces with dark brown, low-gloss, wood stain.

5.5.22.10 Provide mulch tree ring around new trees. Mulch rings must be 4 feet in diameter centered on the tree trunk forming a circle. Remove sod within the area of the mulch ring.

5.5.22.11 Report trees which have been damaged in any way to the COR without delay. Plant material damaged by the Contractor must be replaced at the Contractor's expense at no additional cost to the Government using the ISA Tree Valuation Guide.

5.5.23 SEEDING WILDFLOWERS

5.5.23.1 Seed mix will be supplied by the cemetery and installed by the contractor. Seed mix shall be a mix of native annual and perennial wildflowers locally available to the area.

5.5.23.2 Seed areas of the cemetery designated for wildflowers, in early spring (late February/early March) to coincide with annual rainfall as approved by the COR. Do not sow seed when weather conditions are unfavorable, such as during drought, heavy rain or high winds.

5.5.23.3 Apply post-emergent herbicide to kill both broadleaf and grass weed species. Wait until herbicide has effectively killed weeds before proceeding to next step. Reapply herbicide as needed to achieve 90% kill of weed species.

5.5.23.4 Mow existing vegetation as short as possible, 1/2 to 1 inch in height, removing clippings from the site with bag attachments.

5.5.23.5 Apply 18:24:12 (N:P:K) granular starter fertilizer at a rate of 5 lbs./1000 sq-ft (200 lbs./Acre).

5.5.23.6 Broadcast starter prior to seed placement such that a maximum of 1 pound of actual Nitrogen is applied per 1000 square-feet of seed bed. Broadcast fertilizers using an accurately calibrated spreader to uniformly apply fertilizer to the designated areas.

5.5.23.7 Seed native wildflower seed mix at 20 lbs./Acre using a mechanical slit seeder.

5.5.23.8 Use a slit seeding unit equipped with verticutting blades that cut through existing vegetation and opens up a slit or miniature furrow in the soil. The depth of the slit into the soil must be no more than 1/2 the length of the seed husk.

5.5.23.9 Make two passes with the slit seeder at 45-degree angles to each other leaving a diamond shaped pattern with the seed placed into the soil at 2 inches apart.

5.6 IRRIGATION SYSTEM SERVICES

CLIN 0009– Qty 12 Months
Subject to SCA and Commercial Provisions/Clauses

General Requirements:

- Irrigation System Management
- Irrigation System Maintenance
- Irrigation System Minor Repairs

5.6.1 IRRIGATION SYSTEM MANAGEMENT

5.6.1.1 DEFINITIONS

5.6.1.2 **Evapotranspiration (ET):** The combined loss of water from soil through evaporation and plant transpiration.

5.6.1.3 "**Hot Spot":** An isolated patch of turf as evident by dry soil, hydrophobic soil, and brownish or yellowing leaf color.

5.6.1.4 SCOPE

5.6.1.5 Irrigate all turf, tree, shrub and planting bed areas to ensure plant growth and health with no more than 10 percent "brown" areas due to water stress. The frequency and duration of irrigation must be based on replenishing the loss of water from soil using measurements of evapotranspiration. The irrigation schedule must be approved by the COR and the Pacific District Irrigation Specialist / Agronomist.

5.6.1.6 Program and manage the irrigation controllers to ensure that all cemetery plant material receives the optimum amount of water for plant health and vigor. The Contractor shall not overwater the plant material. Any plant material lost by over irrigation or under irrigation as determined by the COR shall be replaced by the Contractor at no additional cost to the Government. The Contractor shall ensure that there is no standing water in the interment areas, and walkways.

5.6.1.7 Inspect the entire irrigation system each workday and report the system's condition in writing to the COR each week on Wednesday. If there is an emergency that requires immediate attention, notify the COR without delay.

5.6.1.8 Utilize evapotranspiration measurements from weather stations to program irrigation frequency and duration. For cemeteries without on-site weather stations, subscribe to on-line services to provide local evapotranspiration data.

5.6.1.9 Provide and pay monthly service charges for commercially-available internet service to the central irrigation computer needed to access cloud-based control systems, on-line data, technical support, and download software updates.

5.6.1.10 Renew annual subscription and pay monthly service charges for cemeteries with cloud-based control systems, and controllers using cellular communication.

5.6.1.11 Maintain irrigation equipment used to automate irrigation events in accordance with manufacturer’s printed instructions.

5.6.1.12 Fine-tune schedules utilizing theoretical evapotranspiration data with visual observations of soil moisture and turfgrass health. Make adjustments to schedules to maximize turf health while minimizing soil moisture.

5.6.1.13 Operate manually controlled sprinklers to assure even watering with no more than 10 percent brown area due to water stress.

5.6.1.14 Hand water “hot-spots” where irrigation coverage is lacking. Do not overwater turf in a given irrigation zone to compensate for isolated dry areas. Evaluate irrigation coverage and adjust head locations and add sprinkler heads to solve coverage problems as approved by the COR and District Irrigation Specialist. Do not change individual sprinkler nozzle sizes to provide coverage for dry areas unless indicated by irrigation audit reports to improve overall efficiency. Apply soil-wetting agent for turf (soil surfactants) to hydrophobic soils which will not readily accept water.

5.6.1.15 Provide one irrigation audit for each turf irrigation zone that employs different head or nozzle sizes using the “catch can” technique. Provide water audits for no less than ten (10) turf rotor zones as approved by the COR. Irrigation audits must be conducted by a Certified Landscape Irrigation Auditor accredited by the Irrigation Association. Present a certificate of course completion to COR as evidence of credentials. Make adjustments to irrigation system based on written recommendations of irrigation audit, such as pressure regulation settings and nozzle exchanges. Calculate actual precipitation rate(s) and Distribution Uniformity Low Quarter (DU_{LQ}) for each irrigation zone audited and use this information to develop the irrigation schedule.

5.6.1.16 If Distribution Uniformity Low Quarter (DU_{LQ}) for any zone is less than 0.71, change turf rotor nozzle sets and re-audit.

5.6.1.17 Exchange nozzles sets and re-audit until highest possible DU_{LQ} is achieved.

5.6.1.18 Do not perform irrigation audits when wind conditions exceed 5 mph.

5.6.1.19 Provide one drip irrigation audit for each irrigation zone that employs different emitter spacing, and drip irrigation technique. Provide irrigation audits for no less than ten (10) drip zones as approved by the COR. Irrigation audits must be conducted by a Certified Landscape Irrigation Auditor accredited by the Irrigation Association with a drip irrigation specialty. Present a certificate of course completion to COR as evidence of credentials. Calculate actual precipitation rate(s), Distribution Uniformity, and efficiency coefficient for each irrigation zone audited and use this information to develop the irrigation schedule. Make adjustments to irrigation system based on written recommendations of irrigation audit, such as pressure regulation settings, emitter flow rate and spacing, filtration, numbers and locations of flush and air relief and check valves, maintenance recommendations, and repairs.

5.6.1.20 If Distribution Uniformity is less than 0.90, make adjustments to system pressure, drip tubing layout and emitter flow rate and spacing to achieve targeted results.

5.6.1.21 Do not perform drip irrigation audits when soils are saturated.

5.6.1.22 The Contractor must have an employee or consultant schedule and manage the irrigation system. The Contractor's Irrigation Manager must have a minimum of two years' experience in the management of large commercial irrigation systems equipped with central irrigation control systems, (e.g., Rain Bird Maxicom, Site Control, IQ; Rain Master Oasis, Laguna, Eagle; Calsense ET2000e, CS300; Baseline; etc.).

5.6.1.23 The Contractor's Irrigation Manager must be Certified Irrigation Technician (CIT) and Certified Landscape Irrigation Auditor (CLIA) certified by the Irrigation Association (IA). Submit a certificate of completion as evidence that the irrigation manager has completed the required training. All subsequent irrigation managers are required to complete the same training.

5.6.1.24 To become certified by the IA, the successful candidate must have: 1) Six months or 1,000 hours of irrigation-related field experience; 2) Passed the irrigation technician exam. The three-hour exam includes 100 equally weighted, multiple-choice questions on basic irrigation principles, basic electrical principles and basic hydraulics; 3) Complied with the Select Certified Code of Ethics; and 4) Remained in good standing. CIT's must submit 20 continuing education units (CEU's) per two-year cycle.

5.6.1.25 To become a Landscape Industry Certified Technician (LICT), the successful candidate must: 1) Have completed and earned the certificate in "Irrigation"; have passed written and hands-on exams in the Irrigation certificate course; and 2) Remain in good standing. LICT's must report 24 Continuing Education Units (CEUs) every two years to maintain the active status of their certification.

5.6.1.26 The Contractor's Irrigation Manager must be trained by the pump station manufacturer or an authorized representative, in "winterizing" and spring start-up of the pump station and all of its components. Provide the irrigation manager with a minimum of 16-hours of on-site training. Submit a certificate of completion as evidence that the irrigation manager has completed the required training. All

subsequent irrigation managers are required to complete the same training. Film the training session to be used as a re-fresher course prior to winterizing and spring start-up. Provide digital copy to the COR and District Irrigation Specialist.

5.6.1.27 The Contractor's Irrigation Manager must be trained by the irrigation control system manufacturer or an authorized representative, in information gathering, data entry, programming, scheduling, and trouble-shooting of the central irrigation control system. Provide the irrigation manager with a minimum of 16-hours of on-site training. Submit a certificate of completion as evidence that the irrigation manager has completed the required training. All subsequent irrigation managers are required to complete the same training. Film the training session to be used as a re-fresher course. Provide digital copy to the COR and District Irrigation Specialist.

5.6.1.28 Gather site data (i.e., planting type, percent slope, soil type, soil infiltration rate, geographic location, etc.), weather data, (i.e., solar exposure, evapotranspiration rates, wind speed, temperature, rainfall, etc.) and sprinkler head output data (i.e., head type, drip emitter type, emitter spacing, emitter GPH, nozzle GPM, zone GPM's, PSI, precipitation rate (PR) and Distribution Uniformity Low Quarter (DULQ)), and enter data into the central control system program as often as required to update system parameters.

5.6.1.29 Contact Irrigation District/Water Purveyor at the beginning of each water year to obtain written directives regarding voluntary and mandated water use restrictions. Present a copy of the directive to the COR and the District Agronomist. Upon the approval of the COR, make necessary adjustments to the irrigation schedule to comply with water use restrictions imposed by water suppliers, federal, state, and/or city mandates. The scheduling adjustments must be made zone by zone according to a hierarchy of lowest to highest visually prominent areas designated by the National Cemetery Administration's "Drought Response Contingency Plan". Provide a modified irrigation schedule to the COR and Pacific District Irrigation Specialist/ Agronomist demonstrating compliance with water use reduction mandates.

5.6.1.30 The Contractor's Irrigation Manager and Site Supervisor must complete the water purveyor-mandated "Recycled Water Site Supervisor Certification Training" where required and receive certification to irrigate with reclaimed water. All subsequent irrigation managers and site supervisors are required to complete the same training.

5.6.1.31 GENERAL REQUIREMENTS

5.6.1.32 Irrigate turf infrequently in a quantity sufficient to wet the entire root zone (usually a minimum 6-inch depth). Do not irrigate again until turf shows signs of wilt. Test water infiltration depths with a soil core sampler, soil moisture meter or similar device.

5.6.1.33 Submit a baseline irrigation schedule in electronic format for approval of COR and Pacific District Irrigation Specialist. The schedule must show each zone on the irrigation system and display total daily run times in minutes, total cycles per day, and frequency of watering days per week for the month of July. Determine run

times based on the results of the irrigation audit and infiltration rate of the soils. For each zone indicate in a spread sheet:

5.6.1.34 Distribution Uniformity Low Quarter (DULQ).

5.6.1.35 Irrigation head type, manufacturer, model number.

5.6.1.36 Nozzle size, and nozzle precipitation rate (PR) in inches per hour.

5.6.1.37 Total zone gallons per minute.

5.6.1.38 Utilize the cemetery's on-site weather station and central software to make automatic adjustments to irrigation run times based on actual evapotranspiration (ET) rates logged at the site. Print out station run-time history and water use records at the end of each billing cycle for review of the COR and District Irrigation Specialist. Alternatively, for cloud-based irrigation controllers, upload ET data supplied daily from cloud-based weather service to automatically adjust irrigation run times.

5.6.1.39 For Cemeteries without an on-site weather station or cloud-based ET data, show monthly adjustments for each zone as total run times in minutes, or a percentage reduction in peak water application for the month of July. List historical evapotranspiration (ET) rates for each month of the year for the cemetery. List official source(s) of ET data.

5.6.1.40 Program irrigation controller to apply water to match the water infiltration rate of the site soils. Use several start times (or "cycle and soak" feature of the controller) to allow irrigation water to infiltrate soils and avoid water waste through run-off. Reference soil test reports for soil infiltration rates (in/hr).

5.6.1.41 Program irrigation controller to avoid high wind time periods observed on the site. Typically start irrigation as late into the evening as the schedule will allow to avoid high winds usually associated with late afternoon/early evening periods.

5.6.1.42 Program a syringe cycle to remove morning dew from turf to control fungal pathogens where present.

5.6.1.43 Program thresholds on central control system to automatically shut-down master valves when peak scheduled flow is exceeded by 105 percent of peak flow indicating a mainline break. (Do not set programming to shut down master valve due to excess flow associated with a single broken sprinkler head.)

5.6.1.44 Make adjustments to sprinkler heads and irrigation/water control equipment weekly as required to assure even distribution of water to all irrigated areas. Tasks include but are not limited to: adjust height of sprinklers to be flush with grade; adjust arc and radius to minimize overspray onto pavement and adjacent landscape areas; align heads perpendicular to grade; unclog sprinkler nozzles; clean internal screens; relocate heads or add heads to avoid impediments which inhibit proper distribution; replace non-matching sprinkler heads and nozzles; and provide new nozzles sets for entire zones to increase Distribution Uniformity Low Quarter (DULQ) as determined by the Irrigation Audit.

5.6.1.45 Make adjustments to drip irrigation outlets and irrigation/water control equipment each workday as required to ensure even distribution of water to all irrigated areas. Tasks include but are not limited to: adjusting depth of drip tubing; adjusting location of drip tubing in relation to plant rootball; aligning and staking drip tubing

to be parallel to grade; flushing drip lines; cleaning drip filters; relocating drip tubing or add drip tubing to avoid impediments which inhibit proper distribution; replacing non-matching drip tubing; and providing new drip tubing for entire zones to increase Distribution Uniformity Low Quarter (DULQ) as determined by the Irrigation Audit.

5.6.1.46 Create irrigation wall map(s) from full size irrigation as-built drawings. Obtain the CAD electronic files from the Irrigation Specialist or District Agronomist for this purpose. Verify actual field locations of controllers, mainline and valves; and adjust line work on drawings accordingly. Plot a color-coded drawing with different colors for remote control valves and their corresponding controllers onto one or more 30 by 42-inch sheets as required for legibility. Laminate and post drawing(s) in a convenient location for staff's use.

5.6.2 IRRIGATION SYSTEM MAINTENANCE

5.6.2.1 SCOPE

5.6.2.1.1 Provide regularly scheduled preventative maintenance to irrigation equipment before failures occur. Follow instructions in Operations and Maintenance (O&M) Manuals for routine maintenance unless indicated otherwise. Obtain a copy of the O&M manuals from the COR.

5.6.2.1.2 Provide all labor, materials and supplies to maintain the irrigation system downstream of the control valves in an operable condition free of leaks and waste of water. This includes non-pressure piping, fittings, risers and outlets.

5.6.2.1.3 Provide all labor, materials and supplies for routine preventative maintenance inspections.

5.6.2.1.4 Service calls reports must be accompanied by a quote for parts and labor needed to make any necessary repairs above and beyond routine maintenance.

5.6.2.1.5 When requested by the CO, submit quotes to make repairs to irrigation equipment noted to have defects or failures identified during regularly scheduled preventative maintenance.

5.6.2.2 DEFINITIONS

5.6.2.2.1 **Non-pressure Piping:** Lateral line pipe that is not under water pressure until the control valves are opened. Pipe that is typically downstream of the control valve.

5.6.2.2.2 **Pressure Piping:** Mainline and submain pipe that is constantly under water pressure. Pipe that is typically upstream of the control valve.

5.6.2.2.3 **Outlets:** Sprinkler heads, drip emitters, drip flush valves, drip air relief valves.

5.6.2.2.4 **Valves:** Backflow prevention devices, isolation valves, pressure regulating valves, automatic valves, air and vacuum release valves, remote control valves, hose bibs, quick couplers,

5.6.2.2.5 Inspect the entire irrigation system and report the system's condition to the COR once each week on Friday. Monitor and manage the entire irrigation system, up to and including the point-of-connection, the city water meters, backflow prevention devices, pump station, water storage tank, mainline, and immediately report any leaks, breaks and

irregularities to the COR. Immediately control leaks and/or breaks to ensure that no flooding or washouts occur.

5.6.2.2.6 Provide corrections to defective lateral lines and sprinkler heads (e.g., turf rotors, shrub rotors, spray heads), and emission devices (e.g., drip tubing, emitters, bubblers, etc.) to provide a fully functional irrigation system. All irrigation materials and supplies are to be provided by the Contractor.

5.6.2.2.7 Repair or replace missing, defective, damaged, broken, malfunctioning and inoperative sprinkler heads, tree bubblers, shrub bubblers, drip emitters, tree emitter loops, broken non-pressure pipe and fittings, broken drip tubing and drip irrigation accessories as often as necessary to properly maintain the health, quality appearance and vigor of all irrigated plant material. All replacement parts and materials are to be provided by the Contractor.

5.6.2.2.8 Provide an initial inventory log at the beginning of the contract, and maintain an inventory of commonly needed parts, supplies and equipment to enable timely repair and replacement of critical components as approved by the COR. Maintain a quarterly inventory log for review of the COR. Note on the log each repair made and parts used to make the repair. Maintain an adequate supply of parts, supplies and equipment required to make repairs, (e.g., lateral line breaks). Store parts, supplies and equipment in a secure location. Replace stolen and missing parts, supplies and equipment at no additional cost to the Government.

5.6.2.3 IRRIGATION PUMP STATION

5.6.2.3.1 Provide an Irrigation Pump Station preventive maintenance plan for pressure booster pumps, jockey pumps, submersible pumps, electric motors, electrical switches, valves and filters based on manufacturer's Operations and Maintenance manuals. Prior to initiation of contract, submit a copy of this plan for COR approval. Any deviations from this plan must be approved by the COR. This service is designed to: provide efficient equipment operation; extend the life of the units; identify potential problems before major breakdowns occur; and reduce system downtime. Where the pump station requires “spring start-up” and “winterization”, the Irrigation Pump Station preventive maintenance plan must provide step-by-step instructions for decommissioning and recommissioning of the pump station.

5.6.2.3.2 Work must be performed by a qualified electrical and pump service technician in a mobile dispatched service truck. Pump service technician must be certified by the pump station manufacturer or have a minimum of 5 years experience servicing pumps by the pump station manufacturer. Prior to initiation of contract, provide copies of documents and or certificates showing technicians meet this requirement to the COR.

5.6.2.3.3 Provide a minimum of four yearly service calls, plus one additional emergency (on-call) 3-hour visit per year..

5.6.2.3.4 Provide the emergency service with 24 hours after notification.

5.6.2.3.5 Provide written service report to COR within 5 days of each visit, and alert COR of any recommended repairs above and beyond routine maintenance. Submit quote for repairs to COR.

5.6.2.3.6 Provide the following services on each piece of equipment listed below in accordance with the pump station manufacturer's printed Operations and Maintenance (O&M) Manuals. Obtain a copy of the O&M Manuals from the COR.

5.6.2.3.7 Visual inspection of pump station.

5.6.2.3.8 Evaluate pump station operation at various flows. Take voltage and current rating and compare to last report.

5.6.2.3.9 Check all safety shutdown features.

5.6.2.3.10 Confirm pump station is operating properly.

5.6.2.3.11 Check tightness on flange and motor bolts.

5.6.2.3.12 Check and verify PRV and High-Pressure Relief Valve operation. Adjust valves as required.

5.6.2.3.13 Check coupling alignment on pump(s).

5.6.2.3.14 Grease or oil motor bearing(s).

5.6.2.3.15 Change motor bearing oil once a year.

5.6.2.3.16 Check stuffing box for leakage.

5.6.2.3.17 Open wye-strainer blow-down valve to provide heat exchanger flush.

5.6.2.3.18 Inspect basket strainers, clean debris from interior and screens, check screen for wear, and reassemble.

5.6.2.3.19 Inspect and tighten all electrical connections in electrical panel.

5.6.2.3.20 Conduct Infrared Temperature Check (check electrical panels for hot spots, defective transformers and detect loose connections).

5.6.2.3.21 Inspect contactors for pitting and excessive wear.

5.6.2.3.22 Remove and clean diaphragm and pilots on safety relief valve.

5.6.2.3.23 Inspect Inverter and PLC and/or Starting Equipment.

5.6.2.3.24 Verify all surge devices are visually sound.

5.6.2.3.25 Check pressurized water tanks for leakage and pressure holding capabilities. Note flow from well (gpm), pump cut in (psi), pump cut out (psi), and tank pre-charge pressures (psi) on service record.

5.6.2.3.26 Verify all electrical connectors are at proper torque settings.

5.6.2.3.27 Verify electrical grounding of the motor armatures.

5.6.2.3.28 Clean/change all cooling filters and grills.

5.6.2.3.29 Remove all dirt and dust that has penetrated the unit interior, and that has accumulated on the processor board.

5.6.2.3.30 Clean station pumps, motors, control panel and associated components.

5.6.2.3.31 Clean pump house interior and/or clean pump station yards within the fenced enclosures of trash, dirt and debris.

5.6.2.3.32 Clear water intake structure of debris.

5.6.2.3.33 Provide written service report to COR within 5 business days of each visit.

5.6.2.3.34 Alert COR of any recommended repairs above and beyond routine maintenance. Submit quotes for repairs to COR.

5.6.2.3.35 Swap lead and stand-by pumps annually to provide for even wear and tear on the pumps.

5.6.2.4 PUMP STATION FILTERS

5.6.2.4.1 Provide routine maintenance for pump station filters per the Operations and Maintenance (O&M) Manual. Obtain a copy of the O&M Manual from the COR.

5.6.2.4.2 Contractor must be an authorized service provider of installed filtration system. Provide to the COR prior to initiation of contract, copies of documents and or certificates showing technicians meet this requirement.

5.6.2.4.3 Contractor will provide at a minimum, quarterly (4) site visits per year to service filters at pump stations, plus one (1) additional emergency on-call service. Schedule the maintenance services with the approval of the COR.

5.6.2.4.4 Provide the emergency service with 24 hours after notification.

5.6.2.4.5 Provide written service report to COR within 5 days of each visit, and alert COR of any recommended repairs above and beyond routine maintenance.

5.6.2.4.6 General Pump Filter Maintenance: Provide a preventive maintenance plan for maintenance of the filtration systems to the COR. Test and inspect the filtration systems based on manufacturer's printed O&M manuals, including but not limited to the tasks listed below. Perform tasks in accordance with manufacturer's preventative maintenance schedule. Any discrepancies or unrecorded maintenance items shall be reported to the COR.

5.6.2.4.7 CENTRIFUGAL FILTERS:

5.6.2.4.8 Visual inspection of pump filter.

5.6.2.4.9 Open and close by-pass valves to exercise valves.

5.6.2.4.10 Clean mini filter.

5.6.2.4.11 Inspect plastic tubing.

5.6.2.4.12 Check flush valve for proper operation.

5.6.2.4.13 Check wire connections.

5.6.2.4.14 Clean exterior of equipment.

5.6.2.4.15 Provide written service report to COR within 5 business days of each visit.

5.6.2.4.16 Remove the main filter screen and check for wear and tear. Re-install.

5.6.2.4.17 Inspect dirt collector, flush valve, piston and differential pressure gauge.

5.6.2.4.18 ANNUALLY, INSPECT FOR WEAR AND TEAR: cover seal; fine screen; dirt collection nozzles; air/water connections; O-rings; piston; dirt collector.

5.6.2.4.19 Alert COR of any recommended repairs above and beyond routine maintenance. Submit quote for repairs to COR.

5.6.2.4.20 SAND MEDIA FILTERS:

5.6.2.4.21 Visual inspection of pump filtration system for leaking gaskets, gauge operation, hydraulic tubing integrity, and system pressure drops, wiring condition, paint condition

5.6.2.4.22 Check media depth yearly.

5.6.2.4.23 Clean water pickup assembly filter.

5.6.2.4.24 Inspect hydraulic line connections.

5.6.2.4.25 Inspect electrical connections and control box seals.

5.6.2.4.26 Lubricate backwash valve with general purpose water insoluble grease.

5.6.2.4.27 Inspect valve interior components (seals, diaphragm, shaft, etc.).

5.6.2.4.28 Check coupling gaskets for leaks.

5.6.2.4.29 Check system pressure differential.

5.6.2.4.30 Check backwash flow rate.

5.6.2.4.31 Check flow meter to assure proper flow rate.
5.6.2.4.32 Monitor duration of flush cycle.
5.6.2.4.33 Evaluate seasonal water quality fluctuations for possible settings adjustments.
5.6.2.4.34 Service downstream strainer.
5.6.2.4.35 Provide chlorine shock treatment.
5.6.2.4.36 Clean exterior of equipment.

5.6.2.5 PRESSURE REDUCING

5.6.2.5.1 Provide a preventive maintenance plan for maintenance of all pressure reducing and valves based on manufacturer's Operations and Maintenance manuals. Prior to initiation of contract, submit a copy of this plan for COR approval. Any deviations from this plan shall be authorized by the COR. This service is designed to extend the life of the units and identify potential problems before major breakdowns occur, reduce system down time, and provide reliable equipment operation.
5.6.2.5.2 All work must be performed by a qualified electrical and valve service technician in a mobile dispatched service truck. Prior to initiation of contract, provide the COR copies of documents and or certificates showing technicians meet the requirements.
5.6.2.5.3 Service the valves once per year, plus one additional emergency on-call service. Schedule the maintenance service with the approval of the COR.
5.6.2.5.4 Contractor must provide emergency service within 24 hours after notification.
5.6.2.5.5 Quarterly, exercise shut-off and diversion valves. Inspect for complete closure. Provide a report to the COR.
5.6.2.5.6 Provide written service report to COR within 5 days of each visit, and alert COR of any recommended repairs above and beyond routine maintenance.
5.6.2.5.7 PROVIDE THE FOLLOWING SERVICES ON EACH OF THE VALVES:
5.6.2.5.8 Disassemble.
5.6.2.5.9 Clean.
5.6.2.5.10 Inspect main control valve.
5.6.2.5.11 Inspect pilot control.
5.6.2.5.12 Rebuild internal valve and replace diaphragm.
5.6.2.5.13 Rebuild pilot assembly.
5.6.2.5.14 Reassemble.
5.6.2.5.15 Adjust operating pressure.

5.6.2.6 WEATHER STATION MAINTENANCE

5.6.2.6.1 Provide routine maintenance for on-site weather station(s) per the Operations and Maintenance (O&M) Manual. Obtain a copy of the O&M Manual from the COR.
5.6.2.6.2 General Weather Station Maintenance:
5.6.2.6.3 Check sensor leads and cables for cracking, deterioration, proper routing, and strain relief. Replace sensor cables if required.
5.6.2.6.4 Check the tripod or tower for structural damage, proper alignment, and for level/plumb.

5.6.2.6.5 Desiccant – Enclosure humidity is monitored in the enclosure by an RH chip incorporated into the connector board. Change the desiccant packs when the enclosure RH exceeds 35%.

5.6.2.6.6 Monitor data values collected by the Weather Reach Server. Abnormal or out of range sensor values may indicate problems with the station.

5.6.2.6.7 Weekly visual inspection of the station to observe any apparent problems.

5.6.2.6.8 An occasional cleaning of the glass on the solar panel will improve its efficiency, if applicable

5.6.2.6.9 SENSOR MAINTENANCE – MONTHLY

5.6.2.6.10 Check the Pyranometer for level and contamination. Gently clean, if needed.

5.6.2.6.11 Visually inspect the wind sensors and radiation shield.

5.6.2.6.12 Check the rain gauge for debris and level.

5.6.2.6.13 Do a visual/audio inspection of the anemometer at low wind speeds.

5.6.2.6.14 Check the filter cap of the temperature/humidity sensor for contamination.

5.6.2.6.15 SENSOR MAINTENANCE - 6 MONTHS

5.6.2.6.16 Clean the temperature/humidity sensor filter cap.

5.6.2.6.17 Clean the Gill Radiation Shield.

5.6.2.6.18 Battery test.

5.6.2.6.19 Inspect the enclosure seal.

5.6.2.6.20 1 YEAR MAINTENANCE:

5.6.2.6.21 Replace anemometer bearings, in some areas the bearings may be good for 2 years.

5.6.2.6.22 Calibrate the rain gauge.

5.6.2.6.23 Calibrate the HMP45C/HMP35C temperature / RH probe. Or check calibration of CS500 RH Probe; replace RH chip if necessary but at least every 2 years.

5.6.2.6.24 Check internal RH chip (MetData1 and ET101/106 only). Replace if >5% off or every 3 years.

5.6.2.6.25 Change the desiccant packs.

5.6.2.6.26 2 YEAR MAINTENANCE:

5.6.2.6.27 Calibrate the solar radiation sensor.

5.6.2.6.28 Calibrate the temperature sensor.

5.6.2.6.29 Replace the wind vane potentiometer and bearings.

5.6.2.6.30 4 – 5 YEAR MAINTENANCE:

5.6.2.6.31 Calibrate the datalogger; this must be done by the Manufacturer.

5.6.2.7 WEATHER SENSORS

5.6.2.7.1 Provide routine maintenance for the ET Gage, Tipping Rain Bucket, and Wind Gage per the manufacturer's printed instructions.

5.6.2.7.2 GENERAL WEATHER SENSOR MAINTENANCE:

5.6.2.7.3 Check sensor leads and cables for cracking, deterioration, proper routing, and strain relief. Replace sensor cables if required.

5.6.2.7.4 Weekly visual inspection of the gages to observe any apparent problems.

5.6.2.7.5 SENSOR MAINTENANCE – MONTHLY

5.6.2.7.6 **ET Gage:** Fill the reservoir with distilled water.

5.6.2.7.7 **Wind Gage:** Visually inspect the wind gage: perform a visual/audio inspection of the anemometer at low wind speeds.

5.6.2.7.8 **Tipping Rain Bucket:** Remove debris from the rain bucket. Check bucket for plumbness and level.

5.6.2.7.9 6 MONTH MAINTENANCE:

5.6.2.7.10 **ET Gage:** Remove and clean the canvas per manufacturer's printed instructions.

5.6.2.7.11 **Wind Gage:** Check mounting clamps; clean exterior.

5.6.2.7.12 **Tipping Rain Bucket:** Check mounting clamps; clean interior and exterior of bucket.

5.6.2.7.13 1 YEAR MAINTENANCE:

5.6.2.7.14 **ET Gage:** Clean ceramic evaporation plate per manufacturer's printed instructions.

5.6.2.7.15 **Wind Gage:** Check for plumbness and level.

5.6.2.7.16 **Tipping Rain Bucket:** Check for plumbness and level.

5.6.2.7.17 2 YEAR MAINTENANCE:

5.6.2.7.18 **ET Gage:** Clean and recondition the ceramic evaporation plate per manufacturer's printed instructions.

5.6.2.7.19 3 – 5 YEAR MAINTENANCE:

5.6.2.7.20 **Wind Gage:** Replace bearings.

5.6.2.8 BACKFLOW PREVENTION DEVICE

5.6.2.8.1 Provide yearly backflow testing and certification by a certified backflow prevention assembly tester for each backflow prevention device serving the site. Devices include both domestic water and irrigation-only backflow preventers. Affix a service record tag to each backflow serviced. Flush and clean wye-strainers screens on backflow assemblies yearly at time of testing.

5.6.2.8.2 Check backflow insulators are securely fitted around the devices. Tighten laces. Inform COR if insulators are worn and in need of replacement.

5.6.2.8.3 Check backflow enclosure for structural soundness. Tighten bolts connecting enclosure panels together, and bolts mounting the enclosure to the foundation.

5.6.2.9 MASTER VALVES

5.6.2.9.1 Exercise master valves and submaster valves/hydrometers quarterly to check for proper functioning. Provide a report to the COR in tabular form showing date of inspection and results for each master valve in the system as "pass" or "fail". A passing grade is a valve that is capable of being actuated from the irrigation controllers and closes and opens flow completely. Advise COR of any recommended repairs and provide quotes for parts and labor.

5.6.2.9.2 Test master valves for automatic closure upon exceeding flow threshold established in programming of central control system. Set a low flow test threshold in the programming and run an irrigation zone that exceeds that threshold. Note on the report to the COR the results for each master valve in the system as "pass" or "fail". A passing grade is a valve that closes automatically when the high flow threshold is exceeded.

5.6.2.9.3 Advise COR of any recommended repairs and provide quotes for parts and labor.

5.6.2.10 FLOW METERS

5.6.2.10.1 Check flow meters for communication of real time flow at satellite irrigation controllers and central irrigation computers. Provide a report to the COR in tabular form showing date of inspection and results for each flow meter to measure flow in the system as "pass" or "fail". Advise COR of any recommended repairs and provide quotes for parts and labor

5.6.2.10.2 Recalibrate flow meters/hydrometers annually. Provide a service report to the COR.

5.6.2.11 BASKET STRAINERS

5.6.2.11.1 Quarterly, flush filter screen quarterly to remove heavy contaminants. Connect hose to outlet and direct flow onto non-landscaped area.

5.6.2.11.2 Yearly, remove and clean screen filters. Replace screen filters when worn. Advise COR of any recommended repairs and provide quotes for parts.

5.6.2.12 AUTOMATIC CONTROL VALVES

5.6.2.12.1 Exercise Automatic Control Valves (ACV) as part of submain pressure regulating assemblies quarterly to check for proper functioning. Provide a report to the COR in tabular form showing date of inspection and results for ACV in the system as "pass" or "fail". A passing score is a valve that can open and close in response to flow demand, and/or opens and closes completely when actuated from an irrigation controller.

5.6.2.13 PRESSURE REGULATING VALVES

5.6.2.13.1 Exercise pressure-regulating valves (PRV) quarterly to check for proper functioning. PRV's include valves which are part of irrigation mainline pressure regulating assemblies. Report upstream and downstream static and dynamic pressure readings. Provide a report to the COR in tabular form showing date of inspection and results of pressure readings for each PRV assembly.

5.6.2.13.2 Check remote control valves for presence/absence of pressure-regulating modules. Re-install manufacturer's optional pressure-regulating modules on remote control valves where they are missing or have been removed. Exercise pressure-regulating modules which are components of remote-control valves. Turn pressure adjustment screw until pressure reduction is visible either from pressure gauge or noticeable drop in radius of sprinkler heads. Provide a report to the COR in tabular form showing date of inspection and results for each PRV in the system as "pass" or "fail". Advise COR numbers of valves needing pressure-regulating modules, any recommended repairs and provide quotes for parts.

5.6.2.14 COMBINATION VALVES/AIR-VAC VALVES

5.6.2.14.1 Observe combination valves (Air and Vacuum Release Valves) quarterly to check for proper functioning and leaks. Follow the manufacturer's printed instructions for testing. Testing may require temporary installation of a shut-off valve on the drain outlet. A properly operating combination valve will allow air trapped in pipes to escape, eject a small amount of water and then form a water-tight seal. Provide a report to the COR in tabular form showing date of inspection and results for each combination in the system as "pass" or "fail". Advise COR of any recommended repairs and provide quotes for parts and labor.

5.6.2.15 ISOLATION VALVES

5.6.2.15.1 Exercise isolation valves (Gate and Ball Valves) quarterly on irrigation mains, domestic water mains, and fire mains to check for proper functioning, and to remove built-up debris.

5.6.2.15.2 Exercise in accordance with valve manufacturer's printed instructions and American Water Works Association (AWWA) standards. Obtain a copy of the O&M manuals form the COR.

5.6.2.15.3 Contact the local fire marshal for direction prior to exercising fire main valves.

5.6.2.15.4 Close valve completely and check for complete isolation of the mainline by attempting to obtain water from a downstream outlet such as a quick coupling valve or sprinkler.

5.6.2.15.5 Provide a report to the COR in tabular form showing date of inspection and results for each isolation valve in the system as "pass" or "fail". Advise COR of any recommended repairs and provide quotes for parts and labor.

5.6.2.15.6 After testing and positive identification of the water source controlled by the valve, prepare surfaces and paint the cast-iron valve covers with respectively-colored low-gloss enamel spray paint: Non-potable Purple for irrigation valves; Potable Blue for Domestic valves; and Yellow for Fire valves. (***Note**: Currently, not all valve covers may be painted the correct color.)*

5.6.2.16 LEAK DETECTION AND REPAIR

5.6.2.16.1 Leak Detection and Repair is a strategy for water use reduction.

5.6.2.16.2 Actuate individual irrigation zones weekly by manual starts. Observe for broken/malfunction sprinkler heads, leaks in piping visible at the surface. Isolate leaks and make repairs within 24-hours of identification. Adjust radius, arc and trajectory of sprinkler heads to prevent overspray.

5.6.2.16.3 At least quarterly monitor flow meters to detect water flow when the system is not in use. This method will be used to detect leaks that may not be visible on the surface level. Isolate mainlines and submains until leak(s) is detected. Isolate and repair mainline/submain leak(s) in landscape within 48-hours of detection. For leaks under paving, isolate the leaks and immediately notify the COR of the leak location(s), so the Government can hire a leak detection company to pinpoint the leak location(s). Make provisions to irrigate landscapes until repairs are completed.

5.6.2.16.4 Create a wall map of the actual irrigation mainline routing and actual locations of isolation/shut-off valves so irrigation mainline can be isolated for leak detection, and shut down during mainline breaks, and segments isolated for repairs. Obtain the CAD electronic file from the District Irrigation Specialist or Agronomist for this purpose. Verify actual field locations of mainline and isolation valves; and adjust line work on drawings accordingly. Provide dimensions on drawing showing location of isolation valves from two fixed points (e.g., face of curb, wall, etc.). Plot a color-coded drawing with different colors for mainline and isolation valves onto one or more 30 by 42-inch sheets as required for legibility. Laminate and post drawing(s) in a convenient location for staff's use.

5.6.2.16.5 After repair of pressure and non-pressure irrigation line breaks and equipment repairs, flush lateral lines to the satisfaction of the COR. Direct water flow onto landscape areas

or into approved storm drainage structures. Remove all heads on ends of lateral lines for lateral line flushing. Open all flush valves on ends of drip tubing for drip line flushing.

5.6.2.16.6 To ensure compatibility with existing equipment, all parts and supplies used for repair and maintenance shall be the same size, type, model and brand of the part to be replaced and COR-approved prior to installation. Provide the invoice from irrigation distributor as evidence of cost for the part.

5.6.2.17 IRRIGATION CONTROL SYSTEM

5.6.2.17.1 Provide updates to existing control system software downloadable from manufacturer's website as soon as new updates are made available. Install updates on central irrigation computer. Make a backup of historical data prior to new software installation. Upload historical data into updated program.

5.6.2.17.2 Engage a manufacturer's authorized service provider to inspect Central Irrigation Computer and irrigation controller, and Pump Station Monitor annually. Check hard wire communication links between central irrigation computer, pump station controls, and weather station for proper functionality.

5.6.2.17.3 Check remote control system for remote operation of remote control valves. Check antenna and tighten mounting hardware. Inspect central irrigation computer and satellite irrigation controllers annually. Check hard wire communication links between central irrigation computer and satellite irrigation controllers for proper functioning; inspect wire connections, electrical connectivity and grounding.

5.6.2.17.4 Verify that the irrigation controllers can actuate all remote control valves and master valves automatically.

5.6.2.17.5 Set up thresholds on central controller to automatically shut-down master valves when peak flow is exceeded by 105 percent of peak flow indicating a mainline break. (Do not set programming to shut down master valve for a broken sprinkler head.)

5.6.2.17.6 Advise COR of any recommended repairs and provide quotes for parts.

5.6.2.17.7 Remove and replace Government-provided controller panels and associated components (e.g., antennae, cooling fans), when equipment is determined to need repair or is no longer functional.

5.6.2.17.8 Clean interior of controller cabinets annually. Inspect weather stripping inside controller cabinet doors. Replace worn and broken weather stripping to provide a water-tight seal.

5.6.2.17.9 Polish stainless-steel cabinets for irrigation controllers annually using stainless steel polish per manufacturer's printed instructions. Inspect and tighten mounting hardware.

5.6.2.18 TURF ROTOR SPRINKLER HEADS

5.6.2.18.1 Annually, test pressure at turf rotor sprinkler heads with a pitot tube. Test a minimum of 3 heads for each irrigation zone. Adjust pressure at the remote-control valve pressure regulating module for system design pressure at sprinkler head furthest from the remote control valve.

5.6.2.18.2 Verify that the correct nozzle is present in all heads on the same zone. Replace non-conforming nozzles. All nozzles should be the same number/gpm based on the results of the irrigation audit.

5.6.2.19 SPRAY/MULTI-STREAM ROTARY HEADS AND BUBBLERS

5.6.2.19.1 Provide regular quarterly maintenance to inspect sprinkler heads for proper functioning. Inspect that pop-up risers fully extend and retract, and that wiper seals are not deteriorated. Remove nozzles, unclog orifices, inspect for cracks and clean filter screens. Inspect caps for leaks. Make needed repairs/replacements.

5.6.2.20 DRIP IRRIGATION EMITTERS

5.6.2.20.1 Annually, test pressure at drip irrigation emitters with a pitot tube. Test a minimum of 3 emitters for each irrigation zone. Adjust pressure at the remote-control valve pressure regulating module for system design pressure.

5.6.2.21 SEASONAL SHUT-DOWN/START-UP

5.6.2.21.1 FALL SHUT-DOWN: Typically, in October/November prior to the onset of freezing temperatures, "winterize" the irrigation system. Drain water or blow out with compressed air water in above-and below-ground equipment: pumps systems, filters, valves, lateral and mainline pipes. Disassemble and properly store equipment that must be removed from service during freezing weather.

5.6.2.21.2 For irrigation systems supplied with high-turbidity agricultural water, supply fresh water in sufficient quantities to flush dirty water completely from all system component prior to winterizing. Repair/replace non-functional irrigation equipment at spring start-up at no additional cost to the Government for failing to adequately flush the system.

5.6.2.21.3 SPRING START-UP: In the springtime, typically in March, re-assemble dismantled parts and equipment and re-charge the irrigation system. Repair/replace any damage caused by improper winterization at no additional cost to the Government.

5.6.3 IRRIGATION SYSTEM MINOR REPAIR

5.6.3.1 GENERAL REQUIREMENTS

5.6.3.1.1 Perform Irrigation system minor repair by or under the direct supervision of a Certified Irrigation Contractor (CIC) by the Irrigation Association or the Landscape Contractors Association. Submit evidence of certification to COR.

5.6.3.1.2 Make repairs and maintenance using new materials to match the existing system components unless approved otherwise by the COR.

5.6.3.2 SCOPE

5.6.3.2.1 Irrigation System Minor Repair includes all work on pressure pipe and non-pressure pipe downstream of the master valves.

5.6.3.2.2 Repair or replace defective, damaged, broken, malfunctioning and inoperative valves of all types, remote control valves, exposed control wires/cables, decoders, broken submain pressure pipe and fittings, and accessories to properly supply water to the sprinkler system. Replace damaged vaults, valve boxes, vault/valve box lids. Where repair or replacement of the valve requires removal of a vault and/or valve box, reconstruct the valve box assembly with proper support including compacted aggregate base, support

blocks, rodent intrusion prevention, and drainage rock. All replacement parts and materials are to be provided by the Contractor.

5.6.3.2.3 Repair of submain pipe 3 inches and larger must be provided using ductile iron fittings, ductile iron or stainless-steel repair couplings, and mechanical joints and/or self-restrained joints. Repair of submain 6 inches and larger must also include concrete thrust blocks in addition to restrained joints.

5.6.3.2.4 Repair of HDPE pipe must be made with heat fusion-weld equipment and parts approved by the pipe manufacturer.

5.6.3.2.5 Flush mainlines and lateral lines after repair of line breaks to the satisfaction of the COR. Direct water flow onto landscape areas or into approved storm drainage structures. Remove all heads at ends of lateral lines for lateral line flushing. Open all flush valves on ends of drip tubing for drip line flushing. Flush mainlines through quick coupling valves and blow-off valves where exist. Inspect air-relief valves (aka, "Air-Vac", Combination valves) for proper functioning during recharge of the mainline. Witness air and then water being expelled through the devices, and automatic water-tight closure of the valves. Report malfunctioning air-relief valves to the COR.

5.6.3.2.6 In the event of the failure of any portion of the irrigation system, provide a temporary means of irrigating the affected area until the system is restored to normal.

5.6.3.3 IRRIGATION CONTROL SYSTEM

5.6.3.3.1 Trouble-shoot and make repairs to the irrigation control system when faulty remote-control valves have been identified.

5.6.3.3.2 Verify active power supply to irrigation controller. Test controllers for electrical reliance.

5.6.3.3.3 Verify control wires are properly wired at the controller and at the valve solenoid. Test and replace faulty solenoids. Use waterproof wire connectors.

5.6.3.3.4 Trace and/or tone wires to locate ground faults in the presence of the COR.

5.6.3.3.5 Locate and flag ground fault locations so repairs to direct-bury conductors can be made to re-establish connectivity.

5.6.3.3.6 Where conduits exist pull new conductors through conduits and make connections to re-establish connectivity.

5.6.3.4 MAJOR IRRIGATION SYSTEM REPAIRS (NOT IN CONTRACT)

5.6.3.4.1 Repairs on pressure pipe and valves upstream of and including the master valves shall be considered "Construction" and will be repaired outside of this contract. This typically includes: water meters, service lines, backflow preventers, pressure-regulating valves, master valves, flow meters, hydrometers, isolation valves, vaults and valve box assemblies in roadways, mainline pipe and fittings, pipe restraints, irrigation controllers, electrical power lines, valve control wires, cables and conduits under paving.

5.6.3.4.2

5.7 DRAINAGE SYSTEM MAINTENANCE

CLIN 10 – Qty 12 Months

Subject to SCA and Commercial Provisions/Clauses

5.7.1 STORMWATER POND AND WETLAND MAINTENANCE

5.7.1.1 SCOPE

5.7.1.1.1 Maintain Stormwater detention and retention ponds/basins in accordance with requirements of agencies having jurisdiction over these facilities. Overflow/detention ponds associated with Irrigation Ponds/Lakes are also included under this Chapter. Manage stormwater ponds to maintain the stormwater detention/treatment function for which they were designed while allowing natural wetland vegetation to become established.

5.7.1.1.2 Open and close by-pass valves and operate lift pumps to lower water levels from detention and retention ponds/basins as approved by the COR and/or agencies having jurisdiction over these facilities. Assure that there is sufficient free-board in stormwater facilities to allow on-site stormwater to drain to these structures prior to forecasted storm events.

5.7.1.1.3 Maintain Wetland Mitigation Areas free of non-native plant species and foreign objects which will compete with the objective to create self-sustaining wetland and buffer communities that provide similar functions to natural wetland systems. Preserve existing functions and protect from direct and indirect damage.

5.7.1.2 VEGETATION/DEBRIS CONTROL

5.7.1.2.1 Mow grasses growing within the basins 1 to 2 times per year as water levels allow (i.e., when little to no standing water is present).

5.7.1.2.2 Spot-treatment of non-native/invasive weeds two times per year with an herbicide approved for use around wetlands (Glyphosate product such as 'Aquamaster', 'Rodeo', or approved equal), or other herbicides as appropriate to species present.

5.7.1.2.3 Remove weed trees and shrubs and their root systems growing inside basins. Fill excavations with clean sand, or other COR-authorized fill material.

5.7.1.2.4 Monitoring of herbicide treatment success and re-treatment as necessary.

5.7.1.2.5 Trimming and/or pruning of wetland plant material annually if needed using line-trimmers, saws and pruners.

5.7.1.2.6 Treat for control of algae.

5.7.1.2.7 Remove trash and debris.

5.7.1.3 DRAINAGE STRUCTURE MAINTENANCE

5.7.1.3.1 Maintain pits, sumps, retention and detention ponds/basins to prevent a breeding habitat for mosquitoes or other vectors.

5.7.1.3.2 Clean-out and maintain culverts, spillways, inflows, outflows and piping.

5.7.1.3.3 Clean-and maintain rock-lined swales/ concrete channels and outfalls free of sediment, weeds, trash and debris.

5.7.2 SCOPE

5.7.2.1 Maintain the surface/street drainage system by inspecting monthly and after every rainstorm and clearing and cleaning the grates and catch basins as required for proper drainage.

5.7.2.2 Remove standing water from gravesites and memorial areas.
5.7.2.3 Maintain rock dissipaters at outfalls by removal of sediment.
5.7.2.4 Maintain crypt underdrain lift pump stations and drain lines.
5.7.2.5 Place and maintain erosion control measure (e.g., straw wattles, sandbags) in strategic locations to keep soil and bark mulch from washing onto roadways and into catch basins during rain events.

5.7.3 GENERAL REQUIREMENTS

5.7.3.1 Clear culverts and drain lines of debris annually.
5.7.3.2 Remove covers/grates for drainage structures and clean catch basins and trench drains of debris annually. Clean sediment traps if present. Replace traps, grates, and re-secure covers.
5.7.3.3 Clean concrete gutter/terrace drains of dirt and debris monthly.
5.7.3.4 Clear drain lines in gravel beds at flower strips in columbaria courts annually.
5.7.3.5 Clean sediments at rock outfalls as needed to increase capacity for sediment capture. Excavate rock, remove sediment, and replace rock.

5.8 TRASH & DEBRIS REMOVAL

CLIN 11 – Qty 12 Months
Subject to SCA and Commercial Provisions/Clauses

5.8.1 SCOPE

5.8.1.1 Maintain all the cemetery grounds and turf free of trash and debris.
5.8.1.2 Work consists of collecting and removing all trash, debris, fallen leaves, needles, seed pods and branches, dead and unsightly flowers from the cemetery grounds, driveways, parking areas, and areas within the public right-of-way between the cemetery proper and edge of pavement at least weekly, and usually in conjunction with the mowing cycle.
5.8.1.3 Work includes emptying cemetery trash receptacles each workday, and regular floral pickup at gravesites and columbaria. Floral arrangement must be treated in accordance with National Cemetery Administration Floral Regulations. Random inspections will be conducted by the COR.
5.8.1.4 Debris piles, equipment, tools and supplies must be removed at the conclusion of each task or at the end of each workday.
5.8.1.5 All roads, driveways, walkways, shelters and burial sections must be free of grounds maintenance debris by the end of the workday.
5.8.1.6 All trash collection points are screened from the public view.
5.8.1.7 Provide a commercial waste collection and removal contract with licensed waste management company for weekly emptying of contractor-provided dumpsters.
5.8.1.8 Remove non-conforming gravesite decorations/commemorative items. Any items collected from gravesites that may be deemed of monetary or clear sentimental value will be placed in bags, tagged with date and location found (e.g., headstone number)

and stored in a cemetery-approved holding location for 30 days. Visitors inquiring about items of value left on graves will be directed to this holding site.

5.8.2 GENERAL REQUIREMENTS

5.8.2.1 Cemetery area includes all of land within the property lines, areas outside the walls and fences, including the areas within the public rights-of way to the edge of public roads, and any debris collecting within the gutters of public roads.

5.8.2.2 **Definition:** Trash & Debris are defined as any item, material or foreign object not permanently attached to or planted within cemetery grounds and boundaries. Items include, but are not limited to leaves, needles, flowers, seed-pods, twigs, branches of all sizes, feces, paper products, cigarette butts, gum, glass and metal products, plastic and any other synthetic items, gravel, asphalt, concrete, loose rock and stones over two inches (2") in diameter, and soils that are a result of interment operations.

5.8.2.3 **Trash & Debris Removal:** In addition to trash and debris removal each workday, trash & debris must be removed from all areas in conjunction with each mowing cycle. Trash & debris removal must also include clearing of all roads/walks with a power leaf blower as necessary to clean the street / walkways of clippings, small debris and leaves.

5.8.2.4 Also included is trash & debris found within the trash receptacles located throughout Cemetery grounds which will be collected each workday throughout the year.

5.8.2.5 **Green Waste Removal:** The Contractor must be responsible for the proper collection, removal and disposal of all debris resulting from tree and shrub pruning operations. All tree limbs, branches, wood chips, bush/shrub/hedge clippings and other vegetative debris must be removed from cemetery grounds the same day the work is performed and be disposed of in a legal manner.

5.8.3 PROCEDURES

5.8.3.1 Each workday inspect all areas of the cemetery and ensure that there is no accumulation of debris in any area.

5.8.3.2 Provide the necessary labor and suitable conveyance each workday for pickup of debris from cemetery grounds.

5.8.3.3 Each workday, fallen tree limbs of all sizes must be removed. Leaves/needles and twigs must be hand raked, vacuumed or blown by walk-behind push type machines from interment areas into the roadways, and then collected and properly deposited into waste receptacles. Do not move debris into planting beds, woodland/wetland areas, and rock mulch beds. Remove trash & debris from planting beds and mulch beds (e.g., bark mulch, decomposed granite, paths fines, gravel).

5.8.3.4 In addition to daily trash and debris removal, all trash, debris, contents of trash cans, dead or unsightly flowers and fallen tree limbs must be removed from cemetery areas in conjunction with each mowing cycle.

5.8.3.5 Walkways, driveways, roads, and parking areas must be swept following mowing activities.

5.8.3.6 **FLORAL PICK-UP:** Collect and dispose of all grave decorations according to the cemetery floral policy. Fresh cut flowers may be placed on graves and in the gravel

areas surrounding the Columbarium, Memorial Walls or Memorial Monuments at any time. Cemetery furnished temporary flower containers are available and located throughout the cemetery in specially marked containers. All floral items will be removed as soon as they become faded and/or unsightly and may also be removed every week to accommodate grounds maintenance, to include removal of artificial flowers. Artificial flowers may be placed on graves and in the gravel areas surrounding the Columbarium, Memorial Walls or Memorial Monuments November through February. Plantings will not be permitted on graves and in the gravel areas surrounding the Columbarium, Memorial Walls or Memorial Monuments at any time. Potted plants will be permitted on graves and in the gravel areas surrounding Columbarium, Memorial Walls or Memorial Monuments five days before and five days after Easter Sunday and Memorial Day. During the winter season a Holiday wreath or plant is allowed from December 1 to January 15. Floral blankets are not authorized due to year-round growing season. To maintain the dignity of the cemetery, items such as candles, statues, glass of any kind, vigil lights, shepherd's hooks, wind chimes, pinwheels, balloons, memorabilia, or any item exceeding 24" inches in height are not permitted on graves and in the gravel areas surrounding the Columbarium, Memorial Walls or Memorial Monuments, at any time. Items of any type will not be secured to Headstones, Niches, Memorial Markers or Memorial Monuments.

5.8.3.7 Remove, clean and replace flower cones into designated receptacles. Floral cones must be neatly stacked upside down to prevent water from accumulating in them. Schedule general floral pickup from gravesites as follows: First and Third Wednesday of each month.

5.8.3.8 Remove unsightly cut flowers weekly in conjunction with each mowing cycle.

5.8.3.9 Remove unsightly cut flowers on a twice-monthly basis during the non-mowing season.

5.8.3.10 All keepsake/mementos must be kept in designated area for 30 days as approved by the COR.

5.8.3.11 Annual Ceremonies Clean-up: Clean-up trash and gravesite decorations after special memorial ceremonies. Remove wreaths and American flags placed on gravesites as approved by the COR. Remove flags placed on gravesites outside of holidays when needed for Grounds Maintenance or when the flags become unserviceable.

5.8.3.12 Collect and dispose of all grave decorations and clean and re-stock all flower cones. Schedule general floral pickup from gravesites in accordance with the Cemetery's posted Floral Policy. Post the pickup date on the sign located on the entry drive.

5.8.3.13 **STORM CLEAN-UP (WIND, RAIN, HAIL, SNOW, ICE):** Check and clean up the cemetery on the next working day following a storm event unless the extent of the storm prompts civil defense authorities to declare emergency movement only. Should this occur, clean-up must be done as soon as emergency restrictions are lifted.

5.8.3.14 In conjunction with each mowing cycle, all trash, debris, contents of trash cans, grave decorations, dead or unsightly flowers and fallen tree limbs must be removed from cemetery areas.

5.8.3.15 Removal, segregation, containment, and disposal of waste from the cemetery grounds must be the responsibility of the Contractor. This includes spoils removal left over from interment operations.

5.8.3.16 Provide dumpster delivery and pickup services for waste segregation and removal. Dumpster sizes must be suitable for the available storage space and frequency of pick-up.

5.8.3.17 Separate all recyclable and non-recyclable waste as follows:

5.8.3.18 Non-recyclable waste must be deposited in a corresponding commercial trash receptacle/dumpster.

5.8.3.19 Recyclable waste must be deposited in a corresponding commercial trash receptacle/dumpster.

5.8.3.20 Green waste (i.e., dead flowers, grass clippings, plant trimmings, etc.) will be deposited in a corresponding commercial trash receptacle/dumpster.

5.9 PAVEMENT SWEEPING & CLEANING

CLIN 12 – Qty 12 Months

Subject to SCA and Commercial Provisions/Clauses

5.9.1 SCOPE

5.9.1.1 Clean roads, curbs, gutters, sidewalks, stairs, paths, and parking lots.

5.9.1.2 Parking lots are accessible and well maintained.

5.9.2 REQUIREMENTS

5.9.2.1 Sweep roads, curbs, gutters, sidewalks, stairs, paths, parking lots, and other paved surfaces as needed, but not less than weekly. Collect and dispose of debris.

5.9.2.2 Each workday morning clean the Visitor and Disabled parking spaces, and entries and walkways to the Administration Building.

5.9.2.3 On a weekly basis, collect and dispose of debris from roads, curbs, gutters, sidewalks, stairs, paths, parking lots, and other paved surfaces.

5.9.2.4 Two (2) times per year, pressure wash pavement including asphalt paving, cemetery walkways, columbaria courts, committal shelter paving, courtyards, plazas, overlooks, cortege lanes, cross-walks, driveways, curb lines and gutters, wheel stops, etc. to remove dirt and stains, including tire marks. Gravel roads shall be maintained free of debris but are not subject to the pressure-washing requirements.

5.9.2.5 Two (2) times per year (once per semester upon the approval of the COR), power-sweep the entire road system and parking lots after pressure washing.

5.9.2.6 During the rainy season use power sweepers and power brooms to remove difficult-to-remove debris, and debris stuck to paving on a weekly basis. During other times of the year, reduce use of power sweepers and power brooms to once a month.

5.9.2.7 Two (2) times per year (once per semester at the approval of the COR), pressure wash pavement including cemetery walkways, columbaria courts, courtyards, plazas, overlooks, roadways, parking lots, driveways and curb lines to remove dirt and stains,

including tire marks. Following pressure washing use a high-powered sweeper to sweep all cemetery roadways of any remaining dirt or debris.

5.9.2.8 Permeable Asphalt Paving: Two (2) times per year (once per semester at the direction of the COR), remove particulate matter which has settled into the pores of the permeable asphalt paving by vacuuming with a commercial cleaning unit such as a vacuum sweeper or walk-behind vacuum unit. Vacuum the paving immediately after cleaning the permeable asphalt pavement with low pressure water.

5.10 ARTIFICIAL TURF MAINTENANCE

CLIN 13 – Qty 12 Months

Subject to SCA and Commercial Provisions/Clauses

5.10.1 SCOPE

5.10.1.1 Provide routine maintenance to artificial turf.

5.10.1.2 Provide artificial turf rejuvenation as needed.

5.10.2 GENERAL REQUIREMENTS

5.10.2.1 Provide regular and as needed maintenance for the artificial turf on the cemetery in accordance with the manufacturer's printed instructions. Provide semi-annual reports. Obtain a copy of the Operations and Maintenance (O&M) Manuals from the COR.

5.10.3 INSPECT, CLEAN AND GROOM TURF FIBERS

5.10.3.1 Check artificial turf seams and edges and report failures to COR.

5.10.3.2 Measure infill material depth on a 10 by 10 foot grid and report measurements to COR.

5.10.3.3 Clean the artificial turf fibers two times a year, one week prior to Memorial Day and Veterans Day. Use a solution of hot water and a manufacturer's approved mild household detergent as the cleaning agent. Use a medium-stiff bristle broom to provide the cleaning action. Do not use power equipment or drag equipment. Rinse with clean water. Allow to dry.

5.10.3.4 Brush artificial turf fibers with a carpet rake to unmatt and groom the fibers. Carpet rake must be constructed of closely-spaced and layered nylon tines attached to a solid steel head attached to a strong hickory handle. Drag the carpet rake over the carpet to pull up its pile or nap. This process helps to loosen soils and keeps the yarn of the carpet lifted. Available product: 'Grandi Groom; or equal.

5.10.4 REMOVE WEEDS, LITTER AND STAINS

5.10.4.1 Remove weeds by manually or as indicated for "Turf Maintenance – Weed Control".

5.10.4.2 Remove airborne pollutants such as leaves and other debris from the synthetic turf surface weekly using a wide soft broom, a mechanical leaf sweeper or special vacuum cleaner that does not remove the infill material.

5.10.4.3 Remove fixed pollutants (i.e., chewing gum, grease, oil, paint) with organic oils as indicated in the artificial turf manufacturer's written maintenance instructions. Do not use solvents that may damage the synthetic fibers.

5.10.4.4 REPLENISH INFILL MATERIAL

5.10.4.5 Replenish sand infill once yearly before Memorial Day. Use sand infill designed specifically for synthetic turf systems as indicated in the manufacturers printed instructions. (Do not use rubber infill products.) Provide full infill depth for specific synthetic turf product. Use specialized power grooming equipment for brushing fibers and placing infill material. Remove excess material from the site.

5.10.5 ARTIFICIAL TURF REJUVENATION

5.10.5.1 Use specialized equipment to remove all the infill material in the artificial turf. Use of equipment that separates the infill from the contaminants is permitted. Brush the turf fibers to untangle matted and compacted fibers; reinstall cleaned infill; supplement with new sand infill to replenish infill to maximum depth as indicated for the specific turf product. Use specialized power grooming equipment for brushing fibers and placing infill material. Remove excess material from the site.

5.11 STRUCTURE CLEANING & LIGHT MAINTENANCE

CLIN 14 – Qty 12 Months

Subject to SCA and Commercial Provisions/Clauses

5.11.1 SCOPE

5.11.1.1 Provide regular and routine maintenance to all elements of the columbaria, the surrounding courts, memorial wall, and ossuary.

5.11.1.2 Clean and provide minor upkeep to buildings, rostrum, entry features, signage, lighting, perimeter walls, planter walls, seat wall, fences and gates, and site furnishings. Provide and maintain fire extinguishers.

5.11.1.3 See Appendices for locations and estimated quantities of structures to be maintained.

5.11.2 DEFINITIONS

5.11.2.1 **Clean**: Free of all foreign matter.

5.11.2.2 **Foreign Matter:** Dirt, marks, stains which can be removed with reasonable cleaning effort and appropriate cleaning agents and equipment. Feces of all types.

5.11.2.3 **Reasonable Cleaning Effort**: Commercially reasonable amount of time and expenditure of physical effort needed to clean an element utilizing commercially available equipment and products designed specifically for that task.

5.11.2.4 **Cleaning Agents:** Products and substances (usually liquids, pastes, powders, sprays, or granules) used to remove dirt and detritus, including dust, stains, oxidation on surfaces.

5.11.2.5 **Cleaning Equipment:** Devices, tools, and machines designed for specific cleaning tasks, including pads and cloths.

5.11.2.6 **Polished:** Smooth and shiny as a result of being rubbed. Free of oxidation.

5.11.3 COLUMBARIA COMPLEXES

5.11.3.1 Clean Columbaria and Memorial Wall structures by pressure washing twice a year to remove efflorescence, stains, and debris. Use low pressure setting on concrete and stone work. Schedule cleaning one week before both Memorial Day and Veterans Day. Use lowest possible pressure setting while cleaning concrete to prevent reoccurrence of efflorescence. Do not pressure wash niche covers and memorial markers.

5.11.3.2 Clean concrete, brick and stone veneer end caps, bases, and tops of structures by power washing to remove stains and residue. Protect niche covers, memorial markers, and gravel flower strips from power washing operations.

5.11.3.3 Clear gutters of debris. Clear gutter outfalls and clean rain chains. Remove insect nests.

5.11.3.4 Clean surrounding structures, (e.g., seat walls, and site walls along the walkways leading to and from the main structures.)

5.11.3.5 Remove plant litter, trash and other debris from the courts each workday. Collect and remove debris from the site. Do not use leaf blowers to move the debris into natural areas (wetlands/woodlands). Remove mementoes placed in planting beds, (e.g., painted rocks).

5.11.3.6 Remove objects placed on or attached to niche covers, memorial markers and columbaria walls each workday, (i.e. flowers, stickers, balloons, rocks and other items set, taped or tied on).

5.11.3.7 Remove graffiti each workday, including lipstick.

5.11.3.8 Remove efflorescence on concrete surfaces and stonework when evident by brushing with a stiff plastic bristle brush and mild detergent and water.

5.11.3.9 Remove mold/mildew from surfaces of concrete when evident by using an approved biological cleaning agent such as 'D2 Biological Cleaner', following the manufacturer's printed instructions.

5.11.3.10 Remove potted plants per floral regulations. (***See*** *Floral Regulations*)

5.11.3.11 Remove non-conforming gravesite decorations and Christmas trees and deliver to a specified location or dispose thereof as approved by the COR. Tag items with the gravesite number for later identification by the family.

5.11.3.12 Remove, clean, and replace flower cones into designated receptacles each workday. Floral cones shall be neatly stacked upside down to prevent rainwater from accumulating in them.

5.11.3.13 Provide additional flower cones for high usage times of the year (e.g., the Friday prior to Easter Sunday, Memorial Day, Mother's Day, Christmas, etc.) and other times as approved by the COR.

5.11.3.14 Remove fresh cut flowers when they become unsightly and all debris in gravel flower strip.

5.11.3.15 Rake gravel flower strips of columbaria and memorial walls each workday to remove debris and to evenly distribute material. Remove non-conforming gravel/pebbles from flower strips.

5.11.3.16 Replenish gravel at flower strip of columbaria/memorial walls annually in July with matching gravel. Submit gravel sample to COR for approval prior to placement. Fill gravel up to 1/2-inch below top of surrounding concrete walkway.

5.11.4 OSSUARY COURT

5.11.4.1 Twice a year clean and polish stainless steel Ossuary lid with appropriate metals cleaners to remove oxidation and stains following manufacturer's printed instructions. Protect and clean up surrounding areas.

5.11.4.2 Clean ossuary structure and surrounding structures, (e.g., cap and base, planter/seat walls, and site walls surrounding the ossuary court), by power washing to remove stains and residue. Use biological cleaner to eliminate stains that cannot be removed by pressure-washing, (e.g., Spray & Forget).

5.11.4.3 Remove plant litter, trash and other debris from the court each workday. Collect and remove debris from the site. Do not use leaf blowers to move the debris into other landscaped areas.

5.11.5 MAIN ENTRY SIGN, WALLS AND GATES

5.11.5.1 Four times a year (one week prior to Memorial Day and Veterans Day and other times as needed with approval of the COR), low pressure wash the entry sign and entry monument. Clean lettering, seals, plaques, and lighting fixtures with non-abrasive clothes and warm water only. Clean painted entry gates railings, and fences. Do not pressure wash painted metals. Repair damage at no additional cost to the Government to the satisfaction of the COR.

5.11.6 WALLS, FENCES, RAILINGS AND GUARDRAILS

5.11.6.1 Three times per year (May, August & November one week prior to Memorial Day and Veterans Day with the approval of the COR), low-pressure wash walls, fencing, railings and guardrails to remove efflorescence, stains and debris. Apply non-toxic efflorescence remover to stone and concrete walls and concrete caps following manufacturer's printed instructions when pressure washing alone does not remove deposits.

5.11.7 MAINTAIN GATE HINGES AND AUTOMATION

5.11.7.1 Twice annually (once per semester) maintain gate automation, including lubrication of rollers and chains. Tighten tension bars on gate track frame as needed for proper alignment. Alert COR of any recommended repairs above and beyond routine maintenance. Repairs will be procured outside of this contract.

5.11.8 ASSEMBLY AREA/ROSTRUM STRUCTURE

5.11.8.1 Three times a year (one week prior to Memorial Day and Veterans Day and a third time as needed with the approval of the COR), pressure wash Assembly Area/Rostrum Structure and all its architectural elements to remove efflorescence, stains and debris. Apply non-toxic efflorescence remover to concrete following manufacturer's

printed instructions when pressure washing alone does not remove deposits. Clean metal railings to remove dirt and debris.

5.11.9 SITE SIGNAGE

5.11.9.1 Clean Site Signage and their supports/frames as needed (usually weekly after mowing & trimming near signage), including VA Rules & Regulations sign, Floral Regulation sign, section markers, entry monument sign(s), electronic reader board, and site directional signage.

5.11.9.2 Minimum of one time per year, clean section markers and directional signage by power-washing and with use of appropriate cleaners in conjunction with headstone cleaning. Note: Clean marble and granite section markers using the same procedures described for cleaning marble and granite headstones.

5.11.10 MEMORIAL PLAQUES, INSIGNIA AND SERVICE SEALS

Three times a year (one week prior to Memorial Day and Veterans Day and as needed with the approval of the COR), clean VA seal and medallions of the military service insignia inside the Committal Shelters and at the Rostrum with non-abrasive cloths and warm water. Three times a year (one week prior to Memorial Day and Veterans Day and as needed with the approval of the COR), clean Blue Star Memorial sign and Memorial Plaques with non-abrasive cloth and warm water.

5.11.11 Weekly clean Memorial Walk monuments with warm water and soft brush and annually professional cleaning on all monuments in accordance with NCA Monument/Memorial Maintenance Cleaning guidelines.

5.11.12 CLEAN AND MAINTAIN FLAG POLES

5.11.12.1 Once per year (prior to Memorial Day) at the approval of the COR, pressure wash flag poles. Polish aluminum base trim and anodized aluminum gold finial at top of flag poles with appropriate metal polish to remove oxidation and stains following manufacturer's printed instructions.

5.11.12.2 Maintain halyard components in accordance with manufacturer's printed instructions.

5.11.13 MAINTAIN EXTERIOR AND INTERIOR LIGHTING

5.11.13.1 Maintain all interior and exterior lighting including the Flagpole and entry sign lighting. At no time will the flag be allowed to fly unlit except in the event of unplanned power failures. Furnish replacement lamps, (i.e., light bulbs) to match existing.

5.11.14 CLEAN BUILDINGS EXTERIORS AND ROOFS

5.11.14.1 Three times a year (one week prior to Memorial Day and Veterans Day and as needed with the approval of the COR), pressure wash the exterior of all buildings (Admin, PIC, Maintenance, Committal Shelters, Pump House) and their roofs. Remove efflorescence, stains and debris from building faces. Use lowest possible pressure

setting while cleaning to prevent reoccurrence of efflorescence. Apply non-toxic efflorescence remover to following manufacturer's printed instructions when pressure washing alone does not remove deposits. Special care must be taken to preserve the integrity of the existing roofing materials. Clean the roof, skylight, fascia, and gutters. Demonstrate in the presence of the COR that the existing roofs do not leak. Any leaks that develop due to Contractor negligence must be repaired at the Contractor's expense by a professional licensed roofing Contractor approved by the Government including replacing damaged roof panels and skylight panes.

5.11.15 BUILDING GUTTERS

5.11.15.1 Inspect and clean building gutters and downspouts of debris monthly.

5.11.16 INTERIOR AND EXTERIOR OF COMMITTAL SHELTERS, BREEZEWAYS AT ADMIN/PIC

5.11.16.1 Each workday clean the interior, furnishings, concrete paving and immediate surroundings of the committal sheltersand breezeways at Admin/PIC. Spot clean glass to eight-foot high.

5.11.16.2 Each workday remove animal droppings from benches, concrete paving, ledges columns and pilasters. Each workday police the building interior for wasps/yellow jackets, exterminate and remove nests. Remove cobwebs.

5.11.16.3 Each workday rake the mineral mulch surrounding the committal shelter before the first service of the day.

5.11.16.4 Weekly, clean the interior and exterior of the windows and doors of the committal shelter. Clean the glass with professional-grade glass cleaner and window cleaning equipment. Provide spot and streak-free surfaces on both sides of glass. Clean and dry window/door frames and mullions.

5.11.16.5 Twice annually (once per semester), deep-clean supports and wood ceiling with appropriate cleaners. Rinse with clean water. Do not pressure wash.

5.11.16.6 Twice annually (once per semester) maintain door hinges and locking mechanisms. Lubricate door hinges and self-closing hinge mechanisms. Set self-closing spring tension for complete closure of door at slowest operation speed. Close committal shelter doors at the end of the day and open doors as approved by COR.

5.11.16.7 Yearly, seal decorative concrete paving within and surrounding the committal shelter with low-gloss concrete sealer following pressure washing of pavement. Apply sealer per manufacturer's printed instruction. Protect from foot traffic until dry.

5.11.17 CLEAN AND MAINTAIN SITE FURNISHINGS

5.11.17.1 Monthly clean and maintain site furnishings including seat walls, benches, memorial benches, bollards, memorial walk monuments, trash receptacles, flower vase holders, flower vases, flower watering stations, fire hydrants.

5.11.17.2 Power wash seat walls once annually to remove efflorescence, stains and debris from facing and concrete caps. Clean concrete caps of seat walls weekly.

5.11.17.3 Tighten mounting bolts on site furnishings.

5.11.17.4 Maintain faucets on flower watering stations. Repair leaks and check anti-siphon valve and pressure regulating valve for proper functioning.

5.11.17.5 Replace drinking fountains water filters semi-annually or sooner if indicator on filter indicates a need for replacement.

5.11.18 CLEAN SOLAR PANELS

5.11.18.1 Clean solar panels annually in June. Use professional-grade cleaning equipment to clean surface of solar panels with a mild detergent and warm water to remove dust, soil, animal droppings, and other debris. Rinse thoroughly with clean water. Use a long handle squeegee to remove water. Keep the panels clear of large leaf litter and other objects that reduce solar transmittance monthly.

5.11.19 FIRE EXTINGUISHERS

5.11.19.1 Provide and Maintain Fire Extinguishers in accordance with the National Fire Protection Association (NFPA) codes and standards. Monthly visual inspections and annual function inspections shall be reported to the COR/Foreman.

6 APPLICABLE PUBLICATIONS

6.6 Applicable Publications (Current Editions)_The Contractor shall comply with various standards, directives, and other VA, NCA, and Miramar publications in addition to industry standards that are applicable at the time of job performance. The Contractor is responsible to stay abreast of updates and changes. Links are provided where available below.

6.7 Interment Area Layout, VA Directive 3120

6.8 Integrated Pest Management at VA National Cemeteries, VA Directive 3410

6.9 Integrated Pest Management at VA National Cemeteries, NCA Handbook 3410

6.10 Organization Assessment and Improvement (OAI) Program NCA Directive NCA 0330

6.11 NCA Environmental Management Program NCA Directive_ NCA 0057

6.12 Miramar National Cemetery Floral Policy – Provided by COR Post contract award

7 ATTACHMENT/TECHNICAL EXHIBIT LISTING

7.1 Attachment 1/Technical Exhibit 1 – Quality Assurance Surveillance Plan (QASP)

7.2 Attachment 2/Technical Exhibit 2 – Deliverables Schedule

7.3 Attachment 3/Technical Exhibit 3 – Estimated Workload Data for Service Contract Act (SCA) Elements

7.4 Attachment 4/Technical Exhibit 4 – Estimated Workload Data for Davis Bacon Act (DBA) Elements

7.5 Attachment 5/Technical Exhibit 5- Site Summary

7.6 Attachment 6/ Technical Exhibit 6 – Site Maps

7.7 Attachment 7/Technical Exhibit 7 – Diagram of Graves

7.8 Attachment 8/Technical Exhibit 8 – Dig Slip

7.9 Attachment 9/Technical Exhibit 9 – Headstone Realignment Diagrams

7.10 Attachment 10/Technical Exhibit 10 – Headstone, Marker and Niche Cover Maintenance Checklist

7.11 Attachment 11/Technical Exhibit 11- Grounds Maintenance Checklist

7.12 Attachment 12/Technical Exhibit 12 – Pesticide Application Data Sheet

7.13 Attachment 13/Technical Exhibit 13 - Vertebrate Pest Inspection Sheet

7.14 Attachment 14/Technical Exhibit 14 – Contract Discrepancy Report (CDR)

ATTACHMENT 1/TECHNICAL EXHIBIT 1
QUALITY ASSURANCE SURVEILLANCE PLAN (QASP)

Quality Assurance Surveillance Plan ** QASP

The Contractor service requirements are summarized into performance objectives that relate directly to mission essential items. The performance threshold briefly describes the minimum acceptable levels of service required for each requirement. These thresholds are critical to mission success and may impact payment and/or CPARS.

Performance Objective	Standard	Performance Threshold	Methods of Surveillance
SP# 1 The Contractor shall provide a detailed grounds maintenance management plan (GMP) in accordance	The Contractor provided GMP shows detailed daily, weekly, monthly, and annual tasks and is received within the first 30 workdays of the	100% Correction(s) required within one work week to provide acceptable report.	Review by COR TEAM.

with PWS 5.1.	contract and updated as necessary.		
SP # 2 The Contractor shall provide deliverables in accordance with PWS requirements and Technical Exhibit 2.	Reports are submitted on time and provide the contracted details.	Information is detailed and provides relevant/ actionable data for planning and quality assurance. Correction and resubmittal within 10 workdays is allowable, however tasks requiring prior approval may not proceed.	Random review by COR TEAM.
SP # 3 The Contractor shall maintain turf. PWS 5.3	Turf is maintained within proper height for its area. Sod does not need to be replaced. Sod is healthy and looks well maintained. PWS 5.3 requirements are met.	90% Contractor shall provide an action plan to bring area into acceptance within one workday with corrections completed as approved by COR. Repeated deficiencies may result in meetings, , CDR, contractual correction.	Monthly inspection of random turf areas throughout the cemetery.
SP # 4 The Contractor shall maintain trees, shrubs, plants, beds, and related non-weed vegetation. PWS 5.5	Trees, shrubs, plants, beds, and related non-weed vegetation flourish and do not need to be replaced. They are weed-free with adequate drainage and mulch. They do not show any sign of disease or pests and appear healthy. They are pruned properly and in a timely manner. Fertilizer, soil amendments, and irrigation properly applied. Soil is aerated, and mulches are groomed based on type and area requirements. Storm damage is promptly cleared. PWS 5.5. requirements are met.	95% Contractor shall perform/ reperform to bring area into acceptance within two workdays. Repeated deficiencies may result in meetings, , CDR..	Monthly inspection of random non-turf throughout the cemetery.
SP # 5 The Contractor shall maintain , drainage, and storm water systems. PWS 5.7.	Water storage and drainage systems are cleared of trash and operating optimally. No standing water is observable on markers, roads, or other areas. PWS 5.7. requirements are met.	95% Contractor shall perform/ reperform to bring area(s) into acceptance within two workdays. Repeated deficiencies may result in meetings, QC Updates, CDR, contractual correction.	Monthly inspection of random water features throughout the cemetery and 100% inspection following storms and/or flooding
SP # 6 The Contractor shall clean paved areas. PWS 5.9.	All paved areas are clean and groomed. Ongoing maintenance of areas is apparent and there is no evidence of dirt build-up. PWS 5.9. requirements are met.	95% Contractor shall perform/ reperform to bring area(s) into acceptance within two workdays. Repeated deficiencies may result in meetings, QC Updates, CDR, contractual correction.	Random inspection of random paved features throughout the cemetery.

SP # 7 The Contractor shall perform structure maintenance. PWS 5.11.	National Cemetery structures, monuments, and included elements are clean and function properly. PWS 5.11. requirements are met.	95% Contractor shall provide an action plan to bring area into acceptance within one workday with corrections completed as approved by COR. Repeated deficiencies may result in meetings, QC Updates, CDR, contractual correction.	Customer complaints shall not exceed three (3) per month.
SP # 8 The Contractor shall clean remove trash, including floral arrangements and unauthorized grave adornments. PWS 5.8.	Trash and debris are removed promptly ensuring the national cemetery is free of clutter and unauthorized items contrary to operations. PWS 5.8. requirements are met.	97% Contractor shall perform/ reperform to bring area(s) into acceptance the same day. Repeated deficiencies may result in meetings, QC Updates, CDR, contractual correction.	Monthly inspection of random areas throughout the cemetery.
SP # 9 The Contractor restores sunken graves and renovate turf to the proper grade. PWS 5.2.	All turf, including sunken graves are restored and renovated to the proper grade and soil condition as surrounding graves. Sod is restored and thrives. PWS 5.2. requirements are met. **No grave is unmarked at any time.**	90% Contractor shall provide an action plan to bring area into acceptance within one workday with corrections completed as approved by COR. Repeated deficiencies may result in meetings, QC Updates, CDR, contractual correction.	Monthly inspection of random areas throughout the cemetery.
SP # 10 The Contractor shall adjust interment markers to ensure proper height and alignment. PWS 5.1.	All adjusted markers shall result in proper alignment without delay or damage to the marker and/or surrounding area. PWS 5.1. requirements are met. **No grave is unmarked at any time.**	100% Contractor shall perform/ reperform to ensure the grave is properly marked without delay or deficiency. Repeated deficiencies may result in meetings, QC Updates, CDR, contractual correction.	Daily inspection of work completed by COR TEAM.
SP # 11 The Contractor shall install subsequent and replacement interment markers. PWS 5.1.	All subsequent and replacement interment grave markers are set without delay or damage to the marker and/or surrounding area. PWS 5.11. requirements are met. **No grave is unmarked at any time.**	100% Contractor shall perform/ reperform to ensure the grave is properly marked without delay or deficiency. Repeated deficiencies may result in meetings, QC Updates, CDR, contractual correction.	Daily inspection of work completed by COR TEAM,
SP # 12 (DBA) The Contractor shall install first interment markers. PWS 5.1.	All first interment grave markers are set without delay or damage to the marker and/or surrounding area. PWS 5.1. requirements are met. **No grave is unmarked at any**	100% Contractor shall perform/ reperform to ensure the grave is properly marked without delay or deficiency. Repeated deficiencies may result in meetings, QC Updates, CDR, contractual correction.	Daily inspection of work completed by COR TEAM.

	time.		
SP # 13 The contractor shall provide and maintain Fire Extinguishers. PWS 5.11.	Fire extinguishers shall annually be inspected and maintained with National Fire Protection Association	100% Contractor shall perform/ monthly visual inspections and annual 3rd party inspections of all extinguishers. Repeated deficiencies may result in meetings, QC Updates, CDR, contractual correction.	Daily inspection of work completed by COR TEAM.
SP # 14 The contractor shall provide weekly work plan. PWS 4.1.3	Work planned reports shall be provided to the COR in accordance with the Grounds Maintenance Plan	100% Contractor shall provide accurate work reports. Repeated deficiencies may result in meetings, QC Updates, CDR, and contractual correction.	Daily inspection of work completed by COR TEAM.
SP #15 The contractor shall provide daily work completed report. PWS 4.1.4.	Daily work completed reports shall be provided to the COR in accordance with the Grounds Maintenance Plan	100% Contractor shall provide accurate work reports. Repeated deficiencies may result in meetings, QC Updates, CDR, and contractual correction.	Daily inspection of work completed by COR TEAM.

ATTACHMENT 2/TECHNICAL EXHIBIT 2
DELIVERABLES SCHEDULE

DELIVERABLES SCHEDULE

The Contractor may provide email, PDF, TIF, JPG, PNG, WORD, and EXCEL documents. No zipped files or links to outside sources or storage locations are permitted without prior COR TEAM approval.

Item	Deliverable	Frequency	Qty	Medium/Format	Submit To
1.	Quality Control Plan (QCP). PWS 1.8.1.0, 1.8.1.10 quality	With the proposal in draft form. A formal QCP shall be delivered within 30 days	1	Electronic	COR *a*nd contracting officer

Item	Deliverable	Frequency	Qty	Medium/Format	Submit To
	standards throughout PWS	after contract award and within five (5) working days following each update.			
2.	Grounds Management Plan PWS 4.1.2	With the proposal in draft form. A formal QCP shall be delivered within 30 days after contract award and within five (5) working days following each update.	1	Electronic	COR and contracting officer
3.	Personnel List PWS 1.8.1.9	Within ten (10) workdays after contract award	1	Electronic	*COR*
4.	Certification/Specialized work licenses. PWS 1.8.1.7	Upon award, at time of each option, whenever a new certification/ license is issued	1	Electronic	COR and contracting officer
5.	List of tools and equipment PWS 4.1.16	Within 10 workdays after contract award and updated as needed	1	Electronic	*COR*
6.	Marker weekly inspection report PWS 5.1.1.11	Weekly	1	Electronic	*COR*
7.	Marker adjustment report. PWS 5.1.2.8	Weekly	1	Electronic	*COR*
8.	Disposed Headstones Log PWS 5.1.1.17.6				
9.	Work activity sequence PWS 2.7	Prior to marker raise and realign	1	Electronic	*COR*
10.	Headstone, Marker and Niche Cover Maintenance checklist PWS 5.1.5.9	Monthly	1	Electronic	*COR*
11.	Manufacturer's product sheets and instructions PWS 5.1.5.10.4	Prior to application	1	Electronic	*COR*
12.	One-half (1/2) cubic-foot sample of compost, and certification letter PWS 4.1.6	Prior to supplying the compost, soil amendments and fertilizers	1	Electronic	*COR*

Item	Deliverable	Frequency	Qty	Medium/Format	Submit To
13	Laboratory analysis of proposed soil amendments PWS 5.3.5.2	Prior to supplying the compost, soil amendments and fertilizers	1	Electronic	*COR*
14	Composition and laboratory analysis of fertilizer PWS 5.3.5.2	Prior to supplying the compost, soil amendments and fertilizers	1	Electronic	*COR*
15	Cemetery Site Plan PWS 5.3.6.42	Weekly	1	Electronic	*COR*
16	Phot-documentation of trees prior to and after pruning PWS 5.5.5.6	within 14 days of completion of the work	1	Electronic	*COR*
17	Irrigation Auditor Certificate PWS 5.6.1.15	With proposal	1	Electronic	*COR*
18	Initial inventory log PWS 5.6.2.2.8	Beginning of the contract	1	Electronic	*COR*
19	Quarterly Inventory Log irrigation parts PWS 5.5.2.2.8	Quarterly	1	Electronic	*COR*
20	Irrigation System Inspection PWS 5.6.2.2.5	Weekly	1	Electronic	*COR*
21	Irrigation Pump Station preventive maintenance plan PWS 5.6.2.3.1	Prior to initiation of contract	1	Electronic	*COR*
22	Qualified electrical and pump service technician certificate PWS 5.6.2.3.2	Prior to initiation of contract	1	Electronic	*COR*
23	Preventive maintenance plan for maintenance of all pressure reducing valves PWS 5.5.2.5.1	Prior to initiation of contract	1	Electronic	*COR*
24	Work completion report for the current week. PWS 4.1.4	Weekly no later than 3:00 p.m. on the final workday of each week.	1	Electronic	*COR*
25	Detailed grounds management plan (GMP). PWS 4.1.2	With proposal (draft); Final version within 30 workdays of contract award and updated as needed	1	Electronic	COR *a*nd contracting officer

Item	Deliverable	Frequency	Qty	Medium/Format	Submit To
26.	Recommendation report for new trees and plants. PWS 5.5.5.1.16	March and October	1	Electronic	*COR*
27.	Annual Arborist assessment. PWS 5.5.5.1	Annually	1	Electronic	*COR*
28.	Monthly Arborist report of work. PWS 5.5.5.1	Monthly within 15 workdays following visit.	1	Electronic	*COR*
29.	Artificial turf inspection report. PWS 5.10.2.1	One week following inspections in May and October.	1	Electronic	*COR*
30.	Annual soil test report. PWS 5.3.5	Each spring prior to fertilizer purchases.	1	Electronic	*COR*
31.	Notice of completion for fertilizer applications. PWS 5.3.3.1	Within five (5) workdays following application.	1	Electronic	*COR*
32.	Initial vertebrate damage report. PWS 5.4.1.4	Initial report within 10 workdays of contract award.	1	Electronic	*COR*
33.	Recurring weekly vertebrate damage repair report. PWS 5.4.1.6	Weekly	1	Electronic	*COR*
34.	Sunken grave repair report. PWS 5.2.1.3	Weekly	1	Electronic	*COR*
35.	Marker setting for Initial/first. PWS 5.1.1.4	Daily when markers are set.	1	Electronic	*COR*
36.	Marker setting for Subsequent/ replacements. PWS 5.1.1.10	Daily when markers are set.	1	Electronic	*COR*
37.	Weekly work plan. PWS 4.1.3	Weekly	52	Electronic	*COR*
38.	Completed work report. PWS 4.1.4	Daily	261	Electronic	*COR*
39.	Completed fire extinguisher inspection. PWS 5.11.19.1	Monthly/Annually	12/ 1	Electronic	*COR*

ATTACHMENT 3/TECHNICAL EXHIBIT 3
ESTIMATED WORKLOAD DATA FOR SERVICE CONTRACT ACT (SCA) ELEMENTS

HEADSTONE CLEANING AND MAINTENANCE	ESTIMATED QUANTITY	UNIT
Upright Headstones	10,500	Each
Minor Headstone Cleaning	1,000	Each

GRAVESITE MAINTENANCE	ESTIMATED QUANTITY	UNIT
Sunken Grave Renovation – Full Casket Gravesite	25	Each

Sunken Grave Renovation – Cremain Gravesite	50	Each

TURF & GRASSES MAINTENANCE	ESTIMATED QUANTITY	UNIT
Vegetation Removal	10,000	SF
Soil Preparation	7,000	SF
Fine Grading	10,000	SF
Sodding	15,000	SF
Seeding	5,000	SF
Fertilization	Auto Ecofert	Jobs
Pest Control	12	Months
Mowing, Trimming & Edging	12	Months
Aerification	2	Job
Topdressing	1	Job
Dethatching	1	Job

TREE, SHRUB & PLANTING BED MAINTENANCE	ESTIMATED QUANTITY	UNIT
Tree Planting (15 gallon)	50	EA
Shrub Planting (5 gallon)	100	EA
Ground Cover Planting (1 gallon)	200	EA
Shrubs and Ground Cover Pruning	12	Months
Tree Pruning	12	Months
Tree Limb and Branch Disposal	12	Months
Vegetation Control	12	Months

Wildflower Area Maintenance	2	Jobs
Weed Control	12	Months
Pest Control	12	Months
Organic Mulch	2	Jobs
Inorganic Mulch	2	Jobs
Planting Bed Edging Maintenance	As needed	
Tree Staking and Maintenance	As needed	
Planting Irrigation	12	Months
Deep Root Tree Irrigation	1	Job
Planting Fertilizing	2	Jobs

IRRIGATION SYSTEM MAINTENANCE	ESTIMATED QUANTITY	UNIT
Pump Station	5	Jobs
Pump Station Filters	5	Jobs
Water Station	2	Jobs
Weather Sensors	12	Months
Backflow Prevention Device	1	Job
Master Valves	4	Jobs
Flow Meters	1	Job
Basket Strainers	4	Jobs
Automatic Control Valves	4	Jobs
Pressure Regulating Valves	4	Jobs
Combination Valves/Air-Vac Valves	4	Jobs
Isolation Valves	4	Jobs
Leak Detection and Repair	4	Jobs

Irrigation Control System	1	Job

IRRIGATION SYSTEM MINOR REPAIRS	ESTIMATED QUANTITY	UNIT
Irrigation Control System	1	Job
Major Irrigation System Repairs	1	Job

DRAINAGE SYSTEM MINOR REPAIRS	ESTIMATED QUANTITY	UNIT
Drainage System Minor Repairs	6	Jobs

TRASH & DEBRIS REMOVAL	ESTIMATED QUANTITY	UNIT
Trash and Debris Removal	12	Months

PAVEMENT SWEEPING & CLEANING	ESTIMATED QUANTITY	UNIT
Pavement Sweeping and Cleaning	12	Months

STRUCTURE CLEANING & LIGHT MAINTENNACE	ESTIMATED QUANTITY	UNIT
Columbaria Complexes	2	Job
Ossuary Court	2	Job
Main Entry Sign, Walls and Gates	4	Job
Walls, Fences, Railings and Guardrails	3	Job
Maintain Gate Hinges and Automation	2	Job
Assembly Area/Rostrum Structure	3	Job
Site Signage	53	Job
Clean and Maintain Flag Poles	1	Job
Maintain Exterior and Interior Lighting	12	Months
Clean Building's Exteriors and Roofs	3	Job
Building Gutters	12	Job
Monuments and Plaques	53	Jobs
Fire Extinguishers	12	Months

ARTIFICIAL TURF MAINTENANCE	ESTIMATED QUANTITY	UNIT
Inspect, Clean and Groom Turf Fibers	1	Job
Remove Weeds, Litter and Stains	12	Months
Artificial Turf Rejuvenation	1	Job

ATTACHMENT 4/TECHNICAL EXHIBIT 4
ESTIMATED WORKLOAD DATA FOR DAVIS BACON ACT (DBA) ELEMENTS

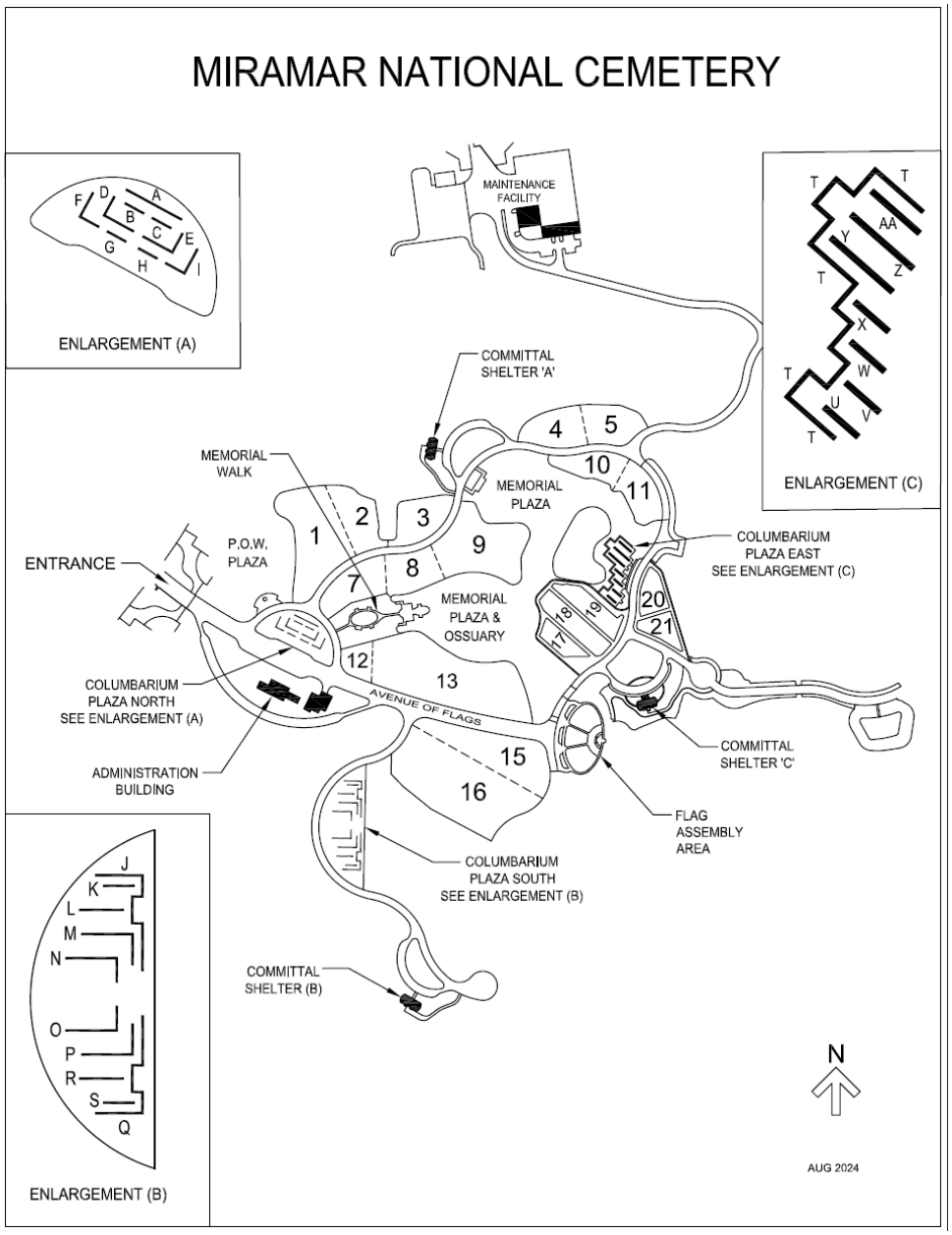
HEADSTONE RAISE, LOWER, REALIGN & RESET	ESTIMATED QUANTITY	UNIT
Fine Tuning Alignment (Bump & Run)	1000	Each
Raise and Re-align Upright Headstones	500	Each

ATTACHMENT 5/TECHNICAL EXHIBIT 5
SITE SUMMARY

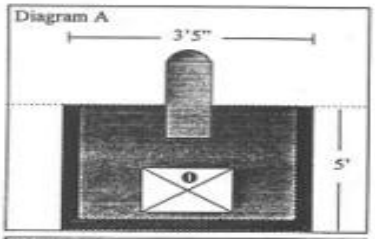
Classification	Quantity	Units
Total Site Area	313.2	Acres
Total Developed Cemetery	100.6	Acres
Total Undeveloped Cemetery	232.6	Acres
Barrow Site	1	Acre
Burial Section Area	28.03	Acres
Columbaria Complex Area	97140	Square-Feet
Committal Shelters	6150	Square-Feet
Administration/Public Information Center (PIC)	5276	Square-Feet
Maintenance Buildings	7000	Square-Feet
Maintenance Yard	2.5	Acres
Walkways/Concrete Paving	137495	Square-Feet
Cortege Lanes	41740	Square-Feet
Asphalt Roads/Parking Lots	372174	Square-Feet
Curb Lines	27460	Lineal Feet
Gravel Roads	31614	Square-Feet
Headstones (Uprights)	21,755	Each
Headstones (Niches)	12944	Each
Headstones (Memorial)	5	Each
Irrigated Turf Irrigated, Landscape Beds/Tree Mulch	47	Acres
Cobble Planting Beds	26470	Square-Feet
Cobble Borders	12375	Lineal-Feet
Non-Irrigated Landscape Buffer Areas	8.4	Acres
Mulched Only Areas (No Plantings)	1	Acre
Stormwater Detention Basin	3.68	Acres
Wetland Mitigation Area	0.52	Acres
Vernal Pools	5.7	Acres
Benches	54	Each
Flower Watering Stations	16	Each
Trash Receptacles/Flower Vase Receptacles	22	Each
Cobble Bands	10881	Square-Feet
Fence	568	Linear Feet
Basin Area	18577	Square-Feet
Shrub Area	136852	Square-Feet
Sprinklers	8297	Each

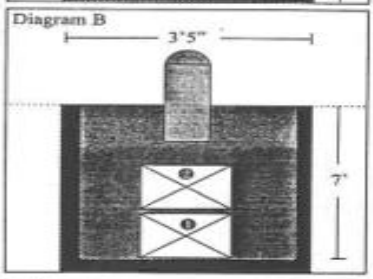
ATTACHMENT 6/ TECHNICAL EXHIBIT 6

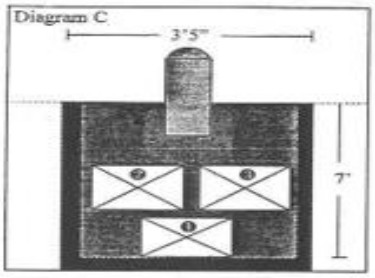
SITE MAPS

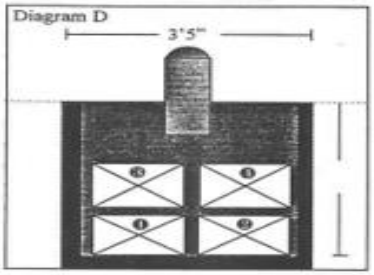


ATTACHMENT 7/TECHNICAL EXHIBIT 7
DIAGRAM OF GRAVES









1. DIAGRAM "A" shows a single burial when no future interment is expected. The burial is made in the center of the site at a depth of 5 feet.

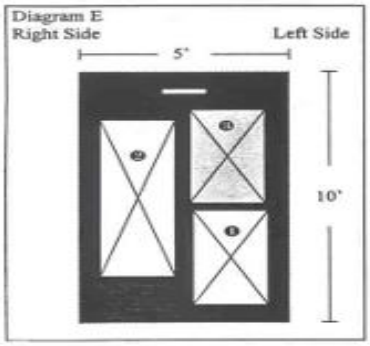
2. DIAGRAM "B" shows normal burial of two remains as in the case of a service connected person and spouse. The first interment is made in the center of the site at a depth of 7 feet. When the second interment is made the grave will be reopened to a depth approximately 2" from the top of the first casket, leaving a thin layer of earth between the two as shown.

3. DIAGRAM "C". If, at the time of the second interment, it is expected that a third interment will be made, the second remains will be placed at the extreme edge of the site, leaving room for the third at the opposite side as shown in Diagram "C". In the infrequent case when a third interment is found necessary after two burials have been made as shown in "B", the grave will be opened sufficiently to permit moving the No. 2 interment to the side to provide room for No. 3. Conditions will again obtain as in "C".

4. DIAGRAM "D". The conditions shown in "D" will occur only rarely, and usually when 2 minor dependents predecease their parents or in extremely rare cases when an accident takes the lives of the entire group.

5. DIAGRAM "E". When the remains are in a small casket, they will be placed in the lower corner of the gravesite, as a 5 ft. depth, permitting room for additional like burials at the head of the first. The two adults would be buried in the other side, the first at 7 ft. and the second at 5 ft.

6. When it is necessary to make side-by-side burials in a single gravesite, extreme care will be exercised to accurately locate the sideline of the site. Where a burial vault is used in such cases, it may be necessary to encroach several inches on adjacent site(s). This is permissible provided the site encroached upon has been or will be utilized as shown in "A" or "B".



7. Unusual conditions may require occasional deviations from the method indicated.

ATTACHMENT 8/TECHNICAL EXHIBIT 8
DIG SLIP

Burial Operation *(circle)*: 1st Casket 2nd Casket 1st Garden 2nd Garden 1st Wall 2nd Wall Disinterment

Decedent:	**Burial Operation Date:**

Burial Operation Staff:

Verify Adjacent Gravesite Information *(Section, Gravesite, Name)*

	Yes	No	NA	Execution *(Initial)*	Witness *(Initial)*
Gravesite Verification completed using Layout Map					
Open gravesite protected while unattended					
Burial Operation completed without damage to containers					
Gravesite leveled, tamped, and finished at proper grade					
Burial Operation completed without damage to turf or markers					
Burial Operation completed without damage to tools/equipment					
Damage reported to Foreman & corrective action implemented					
Adhered to applicable safety best practices					
Utilized applicable Personal Protective Equipment					
Temporary marker aligned on correct gravesite					
Accompanying floral arrangements placed neatly					

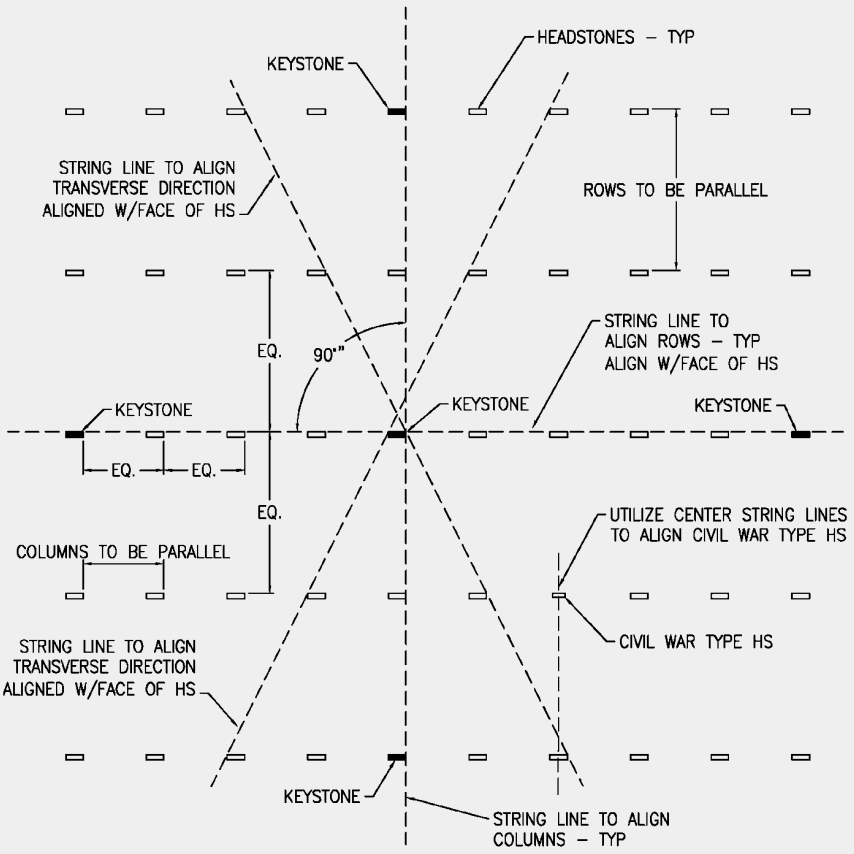
	Yes	No	NA
Witness Placement			
Scheduled			

Comments:

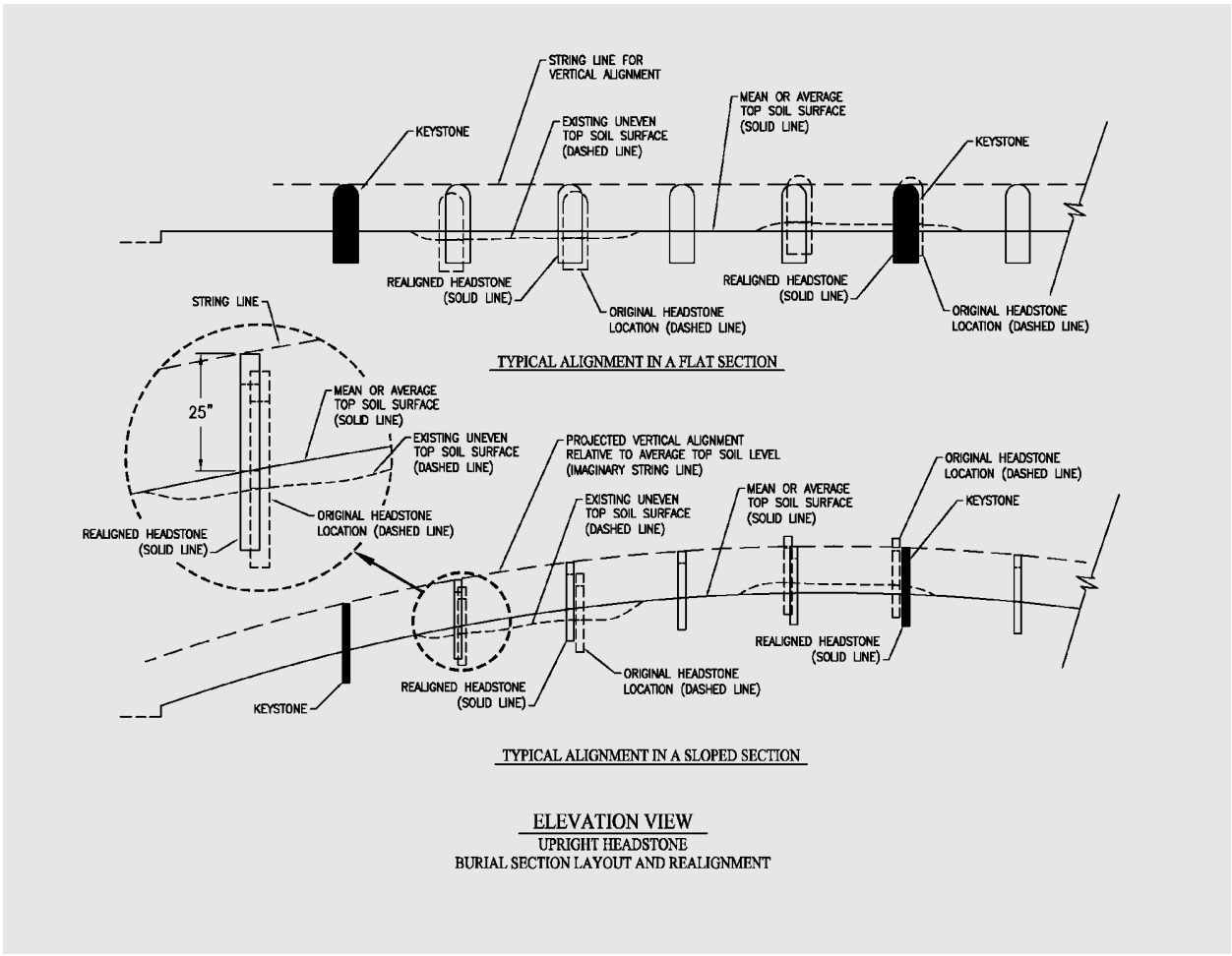
Supervisor Verification Signature:

Your initials indicate Decedent ID tag matches Daily Interment Schedule, Gravesite Verification Checklist, Gravesite Layout Map, and placement in correct gravesite.

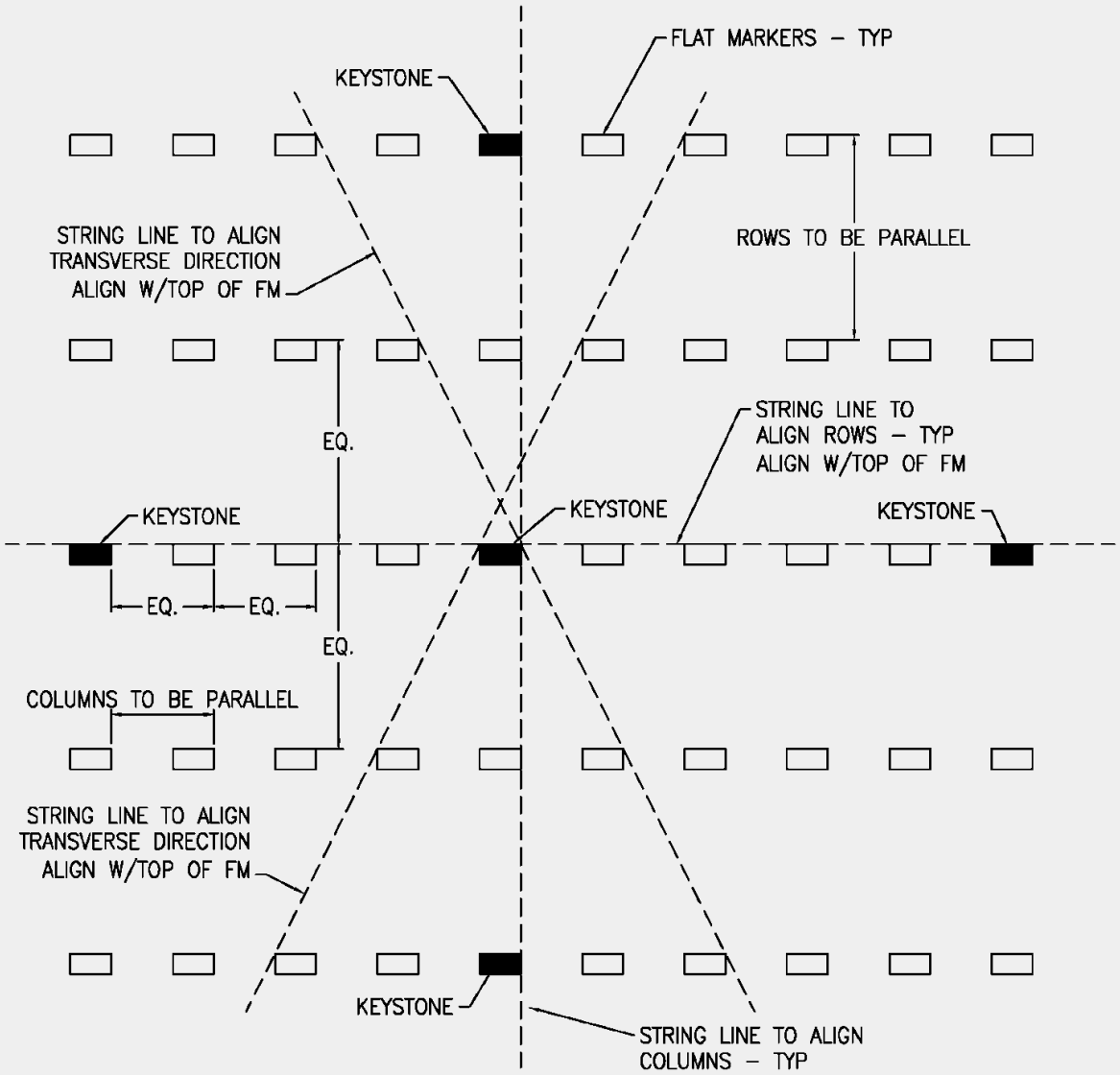
ATTACHMENT 9/TECHNICAL EXHIBIT 9
HEADSTONE REALIGNMENT DIAGRAMS



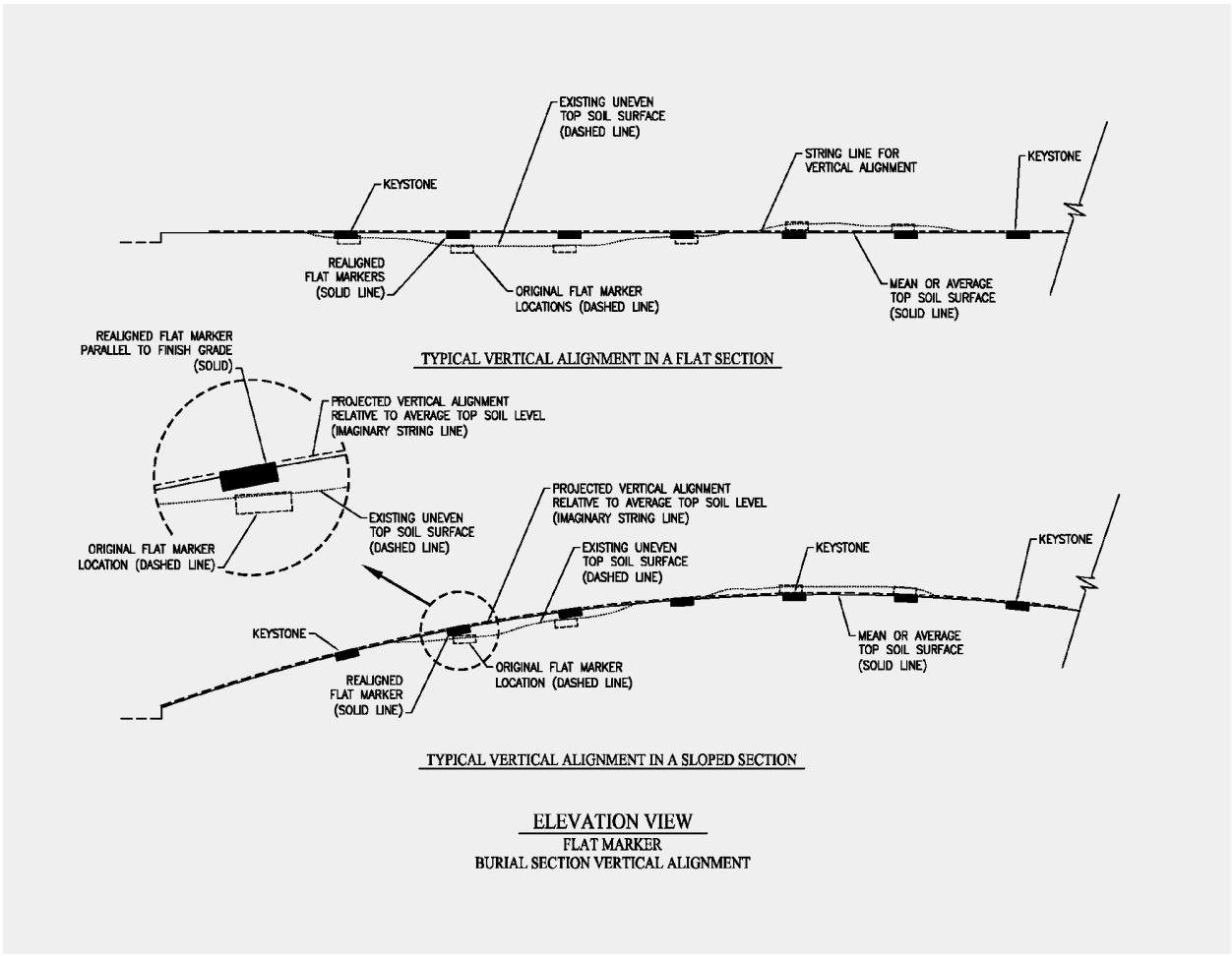
PLAN VIEW
UPRIGHT HEADSTONE
BURIAL SECTION LAYOUT AND REALIGNMENT



ELEVATION VIEW
UPRIGHT HEADSTONE
BURIAL SECTION LAYOUT AND REALIGNMENT



PLAN VIEW
FLAT MARKER
BURIAL SECTION LAYOUT AND REALIGNMENT



ELEVATION VIEW
FLAT MARKER
BURIAL SECTION VERTICAL ALIGNMENT

ATTACHMENT 10/TECHNICAL EXHIBIT 10
HEADSTONE, MARKER AND NICHE COVER MAINTENANCE CHECKLIST

HEADSTONE, MARKER AND NICHE COVER MAINTENANCE CHECKLIST (MONTHLY)					
Area/Section Inspected:		**OK**	**Needs Attention/#**	**N/A**	**Comments**
OAI Measure	**Description**				
Cleaning					
4.1	Headstones are clean, free of debris and objectionable accumulations				
	Markers are clean, free of debris and objectionable accumulations.				
	Niche covers are clean, free of debris and objectionable accumulations.				
Height and Alignment					
4.2	Upright headstones are at the proper height and alignment				
	Flat markers are at the proper height and alignment				
	Niche covers are at the proper height and alignment.				
Condition					
4.4	Headstone, marker and niche cover inscriptions are visible and legible as appropriate for the age and historic significance of the marker.				
4.5	Damaged and defaced headstones markers, and niche covers have been identified and action taken to replace or repair them.				
4.6	Headstones, markers, and niche covers that are no longer useable are disposed of in a manner that is respectful and prevents unacceptable use.				
Signature of Inspector:					
Title:					

ATTACHMENT 11/TECHNICAL EXHIBIT 11
GROUNDS MAINTENANCE CHECKLIST

GROUNDS MAINTENANCE CHECKLIST - DAILY					DATE: _____		
Area/Section Inspected:							
Completed by:		**Title**					
MEASURE	**DESCRIPTION**	**OK**	**NEEDS ATTENTION**	**NOT APPLICABLE**	**COMMENTS**	**Number Identified**	**Completed and/or**
	TURF / NON-TURF (*Circle One*)						
GM-2.3b/2.9b	Visually Prominent Areas are free of trash.						
GM-2.4b/2.9d	Sunken graves are identified and measures taken to re-establish ground level and cover within 30 calendar days of the date identified.						
GM-2.8	Turf damage due to grounds maintenance tasks is identified and corrective action initiaited by close of business the same day						
GM-2.9h	Grave reopeners are raked and groomed to return the grave to its original state within the same workday (**non-turf areas only**).						
	GENERAL MAINTENANCE						
GM-6.2a	Debris, equipment, tools and supplies are removed from turf areas at the conclusion or each task or at the end of the workday.						
GM-6.2b	All roads, walkways, shelters, etc are free of grounds maintenance debris at the end of the workday.						
	SAFETY						
OS-3.1a	Necessary personal protective equipment and safety measures are adhered to at all times during Grounds Maintenance operations.						
OS-3.2a	Safety hazards (holes, sunken graves, pest, etc.) identified and corrective action initiated to ensure safety with the same workday.						
OS-3.3a	Roads, sidewalks, paths and parking lots open to the public or for cemetery operations during adverse conditions are safe and accessible (e.g. clear of ice and snow or storm debris).						

GROUNDS MAINTENANCE CHECKLIST - WEEKLY					**DATE:**
Area/Section Inspected:					
Completed by:		**Title**			
MEASURE	**DESCRIPTION**	**OK**	**NEEDS ATTENTION**	**NOT APPLICABLE**	**COMMENTS**
	TURF / NON-TURF (*Circle One*)				
GM-2.1c	Turf in Visually Prominent Areas is maintained within one inch of the recommended height.				
GM-2.3a/2.9a	Turf areas are cleared of leaves and other natural debris as needed or weekly.				
GM-2.5/2.9e	Visually Prominent Areas have no standing water.				
GM-2.6a	Turf surrounding headstones is trimmed to its recommended mowing height.				
GM-2.6b	Turf is edged vertically even with marker and marker is free of trimming debris.				
GM-2.6c	Other features on cemetery grounds are trimmed or edged within appropriate limits.				
GM-2.9f	Headstones and markers with sand or gravel surrounding them are generally weed free **(non-turf areas only)**.				
GM-2.9g	Burial areas appear raked and groomed **(non-turf areas only).**				
	PLANTING BEDS				
GM-4.1b	Planting beds are weed free.				
GM-4.1c	Plants in planting beds are healthy, vigourous, and free of pests and disease and are maintained in accordance with the CGMP.				

GROUNDS MAINTENANCE CHECKLIST - MONTHLY					DATE:		
Area/Section Inspected:							
Completed by:		Title					
MEASURE	DESCRIPTION	OK	NEEDS ATTENTION	NOT APPLICABLE	COMMENTS	Number Identified	Number Completed
	TURF / NON-TURF (*Circle One*)						
GM-2.1a	Visually prominent area is generally weed free.						
GM-2.1b	Visually prominent area is generally free of bare areas.						
GM-2.7a	Grave reopeners during the growing season show healthy turf re-established within 60 days of the interment.						
GM-2.7b	Winter grave reopeners show healthy turf re-established within 60 days of the start of the growing season.						
	TREES AND SHRUBS						
GM-3.2	Trees and shrubs are healthy, vigorous, free of pests and disease and/or are maintained in accordance with the Cemetery Grounds Management Plan.						
	GENERAL MAINTENANCE						
GM-6.4a	Containers for floral vases are well marked, clean, neat and in good repair.						
GM-6.4b	Floral vases are clean and in good repair						

GROUNDS MAINTENANCE CHECKLIST - ANNUAL					**DATE:**		
Area/Section Inspected:							
Completed by:		**Title**					
MEASURE	**DESCRIPTION**	**OK**	**NEEDS ATTENTION**	**NOT APPLICABLE**	**COMMENTS**	**Number Identified**	**Number Completed**
	TURF / NON-TURF (*Circle One*)						
GM-1.1a	Grounds Management Plan is current and includes a cemetery site plan and all maintenance activities and schedules.						
GM-1.1b	Grounds Management Plan has been reviewed and updated.						
GM-1.1c	Activities in the Grounds Management Plan are being accomplished						
GM-2.2	Turf is compatible with the geographic region.						
	TREES AND SHRUBS						
GM-3.1	Trees and shrubs are compatible with the geographic region.						
	PLANTING BEDS						
GM-4.1a	Planting beds contain only material that is compatible with the geographic region.						
	WASTE MANAGEMENT						
GM-5.2a	Cemetery has a centralized trash collection point established in a location that is screened from the public.						
GM-5.3	Cemetery spoils areas are located, concealed or maintained to minimize public visibility.						
	GENERAL MAINTENANCE						
GM-6.3	Floral regulations are posted in visually prominents areas.						

ATTACHMENT 12/TECHNICAL EXHIBIT 12
PESTICIDE APPLICATION DATA SHEET

	Date:		Applicator:	
APPLICATION SITE			Location:	
	Size of Treatment Area:		Plant Age and Condition:	
	Description (Turf, Bed etc.):		Soil Conditions:	
	Surrounding Sensitive Areas:			
	Previous Pesticides Used:			
PEST PROBLEM	Primary Pest:		Damage Observed:	
	Other Pests Present:		Location of Damage:	
	Beneficials Present:			
	Severity of Pest Problem:			
PESTICIDE(S) USED	Pesticide(s): Formulation: (1)		Rate:	Total Amount Used:
	(2)			
	(3)			
	Adjuvants Type:		Amount:	Total Gallons of Diluted Spray Used:
	Surfactant Type:		Amount:	
APPLICATION	Date(s) of Application:		Weather Conditions Temperature:	
	Equipment used:		Cloud Cover:	
			Wind Speed:	
	Equipment Calibrated By:		Wind Direction:	
			Rain:	
			Travel Speed:	
			Total Hours for Application:	
	Persons Notified or Spoken to Regarding Application:			
	(1)			
	(2)			
	(3)			
FOLLOW UP	Effectiveness of Application:	Beneficials Present:		Pest Resurgence Noted:
	Injury to Non-Target Plants or Surfaces:			
COMMENTS				
Signature & Date				

ATTACHMENT 13/TECHNICAL EXHIBIT 13
VERTEBRATE PEST INSPECTION SHEET

Gophers, Voles, Moles, Ground Squirrels, Raccoons, Skunks, Geese, Turkeys, Pigs, Snakes, Etc.

Location of Service: _____ National Cemetery

Date of Service: _____

NO.	CEMETERY SECTION	ID# OF NEAREST HEADSTONE	ANIMAL PEST TYPE	OLD OR NEW DAMAGE?	DATE OF DISCOVERY	CHEMICAL OR TRAP TREATMENT	DATE OF TREATMENT	DATE OF TURF REPAIR	CONTRACTOR SIGNATURE	COMMENTS
1										
2										
3										
4										
5										
6										
7										
8										
9 10										

ATTACHMENT 14/TECHNICAL EXHIBIT 14
CONTRACT DISCREPANCY REPORT

CONTRACT DISCREPANCY REPORT (CDR)		
1. Contract Number:	2. Report No. for this Discrepancy:	
3. To: (Contractor/Manager's Name)	4. From: (Name of COR)	
5. Dates:		
5a. Prepared:	5b. Returned by Contractor:	5c. Action Complete:
6. Discrepancy or Problem: (Describe in detail. Include reference to PWS Directive; attach additional sheet if necessary.)		

7. Signature of Contracting Officer or COR:	
8a. To: (Contracting Officer and/or COR)	8b. From: (Contractor)
9. Contractor Response as to Cause, Corrective Action and Actions to Prevent Recurrence: (attach additional sheet if necessary.)	
10a. Signature of Contractor Representative:	10b. Date:
11. Government Evaluation: (Acceptance, partial acceptance, reflection; attach additional sheet if necessary.)	
12. Government Actions: (Reduced payment, cure notice, show cause, other)	

13. Close Out

	Name	Title	Signature	Date
Contractor Notified				
b. COR				
c. CO				

Deliveries or Performance

Section 3 - Documents, Exhibits, or Attachments

Title	Dates	Number of Pages
Performance Work Statement - DELETED	06/08/2026	
36C78626R50138 001 Answers to Vendors Questions_07042026.pdf - ADDED	07/05/2026	
Miramar GMC Contractor Site Visit Muster Sheet.pdf - ADDED	07/05/2026	
PAST PERFORMANCE QUESTIONNAIRE_36C78626R50138_resend.docx - ADDED	07/05/2026	