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NAVFAC PTS-G10 (September 2022)
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Preparing Activity: NAVFAC SUPERSEDING PTS-G10 (December 2018)

PERFORMANCE TECHNICAL SPECIFICATION
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SECTION G10

SITE PREPARATION
09/22

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*
NOTE: This section is intended to be used as a guide and contains requirements that are common to many different types of facilities; however, not all requirements and equipment items will be applicable to all projects. In addition, there may be special requirements for a particular project that are not addressed at all. The RFP preparer may have to incorporate additional information to address these special requirements in this PTS and corresponding Part 3 ESR. If the RFP preparer chooses to delete building elements that are not required for the project, do not change the remaining Uniformat paragraph designations (example - A102001). Uniformat designations are unique to the products they are assigned to. However, the subparagraph numerical extensions (example – 1.2 or a,b,c) of the Uniformat designations may change if subparagraphs are deleted.

This guide specification is formatted utilizing Uniformat II, an industry recognized standard, ASTM E 1557. When the RFP preparer chooses to add a paragraph that does not apply to an existing building element already included in the specification, refer to the Uniformat/WBS located on the NAVFAC Design-Build Website for a listing of Uniformat II designations and definitions.

NOTE: The RFP preparer may view or hide the criteria notes in this PTS section by modifying the WORD preferences for "Hidden text". To view the criteria notes, choose "File" then "Option". Click "Display" then check the "Hidden text" box under "Always show these formatting marks on the screen". In the same section, check the box for "Print hidden text" under "Printing options" to print the criteria notes.
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**G10 GENERAL**

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

 **G10 1.1 DESIGN GUIDANCE**

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and Government standards referenced in the section text that are not found in the [Unified Master Reference List (UMRL)](https://www.wbdg.org/ffc/dod/unified-master-reference) in the [Federal Facility Criteria (FFC)](https://www.wbdg.org/ffc/federal-facility-criteria) at the [Whole Building Design Guide (WBDG)](https://www.wbdg.org/) website, are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the referenced standard at the time of contract award.

 **G10 1.1.1 Industry Standards and Codes**

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

Refer to UMRL for reference designation identification.

 **G10 1.1.2 Government Standards**

CORPS OF ENGINEERS (COE)

|  |  |
| --- | --- |
| COE EM 385-1-1 | Safety and Health Requirements Manual |

UNIFIED FACILITIES CRITERIA (UFC)

|  |  |
| --- | --- |
| UFC 1-200-01 | DoD Building Code (General Building Requirements)(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed therein, which includes the following significant UFC(s):UFC 1-200-02, High Performance and Sustainable Building RequirementsUFC 3-201-01, Civil EngineeringUFC 3-220-01, Geotechnical Engineering) |
| UFC 3-810-01N | Navy and Marine Corps Environmental Engineering for Facility Construction |

UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS)

|  |  |
| --- | --- |
| UFGS 31 00 00 | Earthwork |
| UFGS 01 57 19 | Temporary Environmental Controls |
| UFGS 02 61 13 | Excavation and Handling of Contaminated Material |
| UFGS 02 61 23 | Removal and Disposal of PCB Contaminated Soils |
| UFGS 02 65 00 | Underground Storage Tank Removal |

 **G10 1.2 PERFORMANCE VERIFICATION AND ACCEPTABLE TESTING**

Compliance with the requirements will be determined by a review of the design and construction submittals and by field inspection. See Part 2 Section 01 33 10.05 20, *Design Submittal Procedures*, and Part 2 Section 01 33 00.05 20, *Construction Submittal Procedures*, for additional requirements. Verify earthwork performance via testing detailed in the paragraph, "Field Quality Control", in UFGS Section 31 00 00, Earthwork.

 **G10 1.3 DESIGN SUBMITTALS**

Submit design submittals in accordance with Part 2 Section 01 33 10.05 20, *Design Submittal Procedures*, FC 1-300-09N, *Navy and Marine Corps Design Procedures*, UFC 3-201-01, *Civil Engineering*, and UFC 3-220-01, *Geotechnical Engineering*.

In addition, UFGS sections listed below or in the body of the PTS text are to be used by the Designer of Record (DOR) as a part of the design submittal. If the UFGS products or systems are applicable to the project, the DOR is required to edit these referenced UFGS sections and submit them as a part of the design submittal specification. Edit the specification sections in accordance with the limitations stated in PTS section Z10, *General Performance Technical Specifications*.

UFGS 31 00 00, *Earthwork.*

Provide sustainability submittals in accordance with Part 2 Section 01 33 29, *Sustainability Requirements and Reporting*.

 **G10 1.4 CONSTRUCTION SUBMITTALS**

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) is required to approve the following construction submittals as a minimum:

Submittals in Part 2 UFGS Section 01 57 19, *Temporary Environmental Controls.*

Submittals in UFGS Section 02 61 13, *Excavation and Handling of Contaminated Material*

Submittals in UFGS Section 31 00 00, *Earthwork*.

Submittals in UFGS Section 02 61 23, *Removal and Disposal of PCB Contaminated Soils.*

Submittals in UFGS Section 02 65 00, *Underground Storage Tank Removal.*

Waste Management Plan in accordance with Part 2 UFGS Section 01 74 19, *Construction Waste Management and Disposal*.

Provide sustainability submittals in accordance with Part 2 UFGS Section 01 33 29, *Sustainability Requirements and Reporting*.

 **G10 1.5 GEOTECHNICAL REPORT**

 **G10 1.5.1 Subsurface Soils Information**

Provided subsurface soil information is included for the Contractor's information only, and is not guaranteed to fully represent all subsurface conditions. The data included in this RFP is intended for proposal preparation and preliminary design only. Perform, at the Contractor's expense, such subsurface exploration, investigation, testing, and analysis for the design and construction of the site improvements.

 **G10 1.5.2 Contractor-provided Geotechnical Engineer**

The Contractor-provided Geotechnical Engineer is required to be experienced with soil conditions in the region where the project site is located. The Geotechnical Engineer is required to evaluate the RFP data, obtain and evaluate additional data to support the design and construction, and prepare a Geotechnical Report.

Coordinate work by the Contractor-provided Geotechnical Engineer at the project location with the Contracting Officer so as not to interfere with normal base operations. A minimum of two weeks prior to the Foundation Work Design submittal, provide the Contractor's Geotechnical Report (a searchable Adobe Acrobat PDF version on CD and two printed copies) for review and record keeping purposes. The report will become the property of the Government. Provide the geotechnical reports generated during construction, such as pile driving results and analysis, to the Contracting Officer. In addition, provide a searchable Adobe Acrobat PDF version and two printed copies for record keeping purposes.

 **G10 1.5.3 Contractor-Provided Geotechnical Report**

Submit a written Geotechnical report based upon Government-provided subsurface investigation data and additional field and laboratory testing accomplished at the discretion of the Contractor's Geotechnical Engineer. Include in the Geotechnical Report all requirements listed in UFC 3-220-01, *Geotechnical Engineering*, paragraph entitled "Section 1803 Geotechnical Investigations"; in addition, include the following:

a. The project site description, vicinity map and site map indicating the location of borings and any other sampling locations. Provide 24 hour groundwater observations for at least 20 percent of the borings, minimum one boring. Provide notes explaining any abbreviations or symbols used and describing any special site preparation requirements.

b. Results of field and laboratory testing, whether Government or Contractor-provided. Address existing subsurface conditions, selection and design of the foundation and floor slab, underground construction including utility installation and other site specific requirements (such as soil stabilization and slope stability).

c. Engineering analysis, discussion and recommendations Addressing:

1) Settlement analysis - Limit settlement in accordance with UFC 3-220-01 *Geotechnical Engineering* and EM 1110-1-1904 "Settlement Analysis".

2) Bearing Capacity analysis.

3) Foundation selection (shallow, deep, special) and construction considerations; dimensions, and installation procedures.

4) Site preparation (earthwork procedures and equipment, compaction requirements, building slab preparation, soil sensitivity to weather and equipment, groundwater influence on construction, mitigation of expansive soils or liquefaction potential, and dewatering requirements).

5) Sheeting and shoring considerations.

6) Pavement design calculations with parameters defined, actual or assumed, and recommended thicknesses and materials.

7) Infiltration rate.

8) Haul routes and stockpile locations for earthwork.

9) Calculations to support conclusions and recommendations.

10) Present recommendations on a structure-by-structure basis.

A registered Geotechnical Engineer is required to sign the Geotechnical Report.

Accompany the submitted report with a cover letter identifying any report recommendations proposed to be adopted into the design which are interpreted by the Contractor as a changed condition to the Geotechnical or Pavement related requirements of the RFP.

 **G10 1.5.4 Geotechnical Site Data required in Design Drawings**

The Contractor's final design drawings must include the Government-provided subsurface data presented in the RFP, as well as additional borings and laboratory test result data performed by the Contractor. The data provided is required to include:

a. Logs of Borings and related summary of laboratory test results and groundwater observations. Provide 24 hour groundwater observations for at least 20 percent of the borings, minimum one boring. Provide notes explaining any abbreviations or symbols used and describing any special site preparation requirements.

b. Indicate the locations of borings on the drawings. Revise the design drawings to reference the Contractor's Geotechnical Report as being a basis for design.

**G1010 SITE CLEARING**

 **G1010 1.1 GENERAL**

Clear and grub project site for project construction.

 **G1010 1.2 BURNING**

Where burning is permitted, adhere to the federal, state, and local regulations.

**G101001 CLEARING**

 **G101001 1.1 CLEARING**

Clear trees, shrubs, brush and vegetation for construction of the project. Clearing includes the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including downed timber, snags, brush, and rubbish occurring within the areas to be cleared.

 **G101001 1.2 PRESERVATION**

Preserve and protect trees, shrubs and vegetation not directly impacted by the construction in accordance with Part 2 Section 01 57 19, *Temporary Environmental Controls,* and PTS Section G205005, paragraph 1.1 *Existing Plant Material to Remain or be Transplanted*.

**G101002 TREE REMOVAL**

Remove and dispose of trees to a depth of at least 18 inches (450 mm) below ground surface. Fill depressions with satisfactory material and compact. Mound fill 2 inches (50 mm) above adjacent surface to allow for settling when not part of a subbase.

**G101003 STUMP REMOVAL**

Remove stumps to a depth of at least 18 inches (450 mm) below ground surface. Fill depressions with satisfactory material and compact. Mound fill 2 inches (50 mm) above adjacent surface to allow for settling when not part of a subbase.

**G101004 GRUBBING**

Within the clearing limits, remove and dispose of logs, shrubs, brush, matted roots, roots larger than 2 inches (50 mm) in diameter, and other debris to a depth of at least 18 inches (450 mm) below ground surface. Fill depressions made by grubbing with satisfactory material and compact to make the new surface conform to the adjacent surface of the ground.

**G101005 SELECTIVE THINNING**

 **G101005 1.1 TREE THINNING**

Trim trees to remain of dead branches 1-1/2 inches (38 mm) or more in diameter. Cut limbs and branches in accordance with ANSI A300.

**G101006 DEBRIS DISPOSAL**

Prevent spillage on pavements, streets, or adjacent areas. Dispose of surplus and unsuitable material off of Government property.

**G1020 SITE DEMOLITION & RELOCATIONS**

 **G1020 1.1 GENERAL**

Demolition work includes the demolition, removal and legal disposal of existing construction debris to accommodate the new construction. Take precautions to prevent damages to existing utilities, construction and materials not scheduled for demolition, repair or replacement; repair damages to the construction and materials to the satisfaction of the Contracting Officer and at no additional cost to the Government.

 **G1020 1.2 AUTHORIZATION**

Do not begin demolition until the Demolition Plan has been approved by, and authorization is received from, the Contracting Officer.

 **G1020 1.3 TITLE TO MATERIALS**

Whenever possible, salvage or recycle features demolished in lieu of disposing of as waste in a landfill. Existing features to be demolished which are not salvageable or reused become the property of the Contractor, and must be removed from the project site. The Government will not be responsible for the condition, loss of, or damage to, such property after contract award. Materials and equipment cannot be viewed by prospective purchasers or sold on the site.

 **G1020 1.4 REUSE OF MATERIALS AND EQUIPMENT**

Remove and store materials and equipment to be reused or relocated to prevent damage, and reinstall as the work progresses.

 **G1020 1.5 SALVAGED MATERIALS AND EQUIPMENT**

Deliver salvaged materials and equipment that are to be removed by the Contractor and that are to remain the property of the Government to a storage site on the installation, in accordance with instructions of the Contracting Officer.

**G102001 BUILDING MASS DEMOLITION**

Refer to Section F20, *Selective Building Demolition*, for additional information.

**G102002 ABOVEGROUND SITE DEMOLITION**

 **G102002 1.1 DUST AND DEBRIS CONTROL**

Prevent the spread of dust and debris to occupied portions of a building or on pavements and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water for dust control if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution. Sweep pavements to control the spread of debris that may result in foreign object damage potential to aircraft.

 **G102002 1.2 PROTECTION**

 **G102002 1.2.1 Traffic Control**

Where pedestrian and driver safety is endangered in the area of removal work, provide traffic control in accordance with FHWA Manual on Uniform Traffic Control Devices (MUTCD).

 **G102002 1.2.2 Foreign Object Damage (FOD)**

Remove potential FOD debris and waste materials on or adjacent to operational airfield pavements due to the Contractor's operations. Install a temporary barricade at the Contractor's expense. The barricade is required to include a fence covered with a fabric designed to stop the spread of debris. Anchor the fence and fabric to prevent displacement by winds or jet/prop blasts. Remove barricade when no longer required.

 **G102002 1.2.3 Existing Work**

Protect existing work that is to remain in place, be reused, or remain the property of the Government. At no additional expense to the Government, repair items that are damaged during performance of the work to original condition, or replace with new. Do not overload pavements to remain.

 **G102002 1.3 PAVING AND SLABS**

Remove concrete and asphaltic concrete paving and slabs as required for construction of project. Remove the existing aggregate base in areas to receive new pavement to the depth of the proposed pavement section below new finish grade. Remove the existing aggregate base in areas not to receive new pavement to a depth of 8 inches (200 mm) below existing adjacent grade and break remaining pavement (if any) to allow drainage. Provide neat sawcuts at limits of pavement removal; protect sawcuts so that new pavement butts against the existing without feathering.

**G102003 UNDERGROUND SITE DEMOLITION**

 **G102003 1.1 UTILITY TERMINATION**

Terminate utilities in accordance with state and local rules and regulations; the nationally recognized code; and the requirements of the utility provider covering the specific utility; UFC 3-201-01, *Civil Engineering*; and approved by the Contracting Officer.

 **G102003 1.2 PROTECTION OF EXISTING UTILITIES**

Protect existing utilities to remain. Where removal of existing utilities and pavement is required, provide approved barricades, temporary covering of exposed areas, and temporary services or connections. Repair damage to existing utilities to remain at no additional expense to the Government.

**G102004 BUILDING RELOCATION**

Refer to Section F20, *Selective Building Demolition*, for additional information.

**G102005 UTILITY RELOCATION**

Repair relocated items that are damaged or replace damaged items with new undamaged items at no additional expense to the Government.

**G102006 FENCING RELOCATION**

Remove and replace post foundations. Repair relocated items that are damaged or replace damaged items with new undamaged items at no additional expense to the Government. Refer to Section G204001 for requirements for new fence systems.

**G102007 SITE CLEANUP**

Remove rubbish and debris from the installation daily; do not allow accumulations inside or outside the building(s) or on pavements. Store materials that cannot be removed daily in areas specified by the Contracting Officer.

 **G102007 1.1 SPILLS**

In the event of a spill or release of hazardous substances, pollutant, contaminant or oil, notify the Contracting Officer immediately. Take immediate containment actions to minimize the effect of any spill or leak in accordance with the ESR and the approved spill work plan as described in Part 2 Section 01 57 19, *Temporary Environmental Controls*. Perform clean up at no additional expense to the Government.

**G1030 SITE EARTHWORK**

 **G1030 1.1 GENERAL**

This section includes the design and construction requirements for earthwork and grading related to construction of the roadways, parking, paved areas and other related sitework. Refer to Section A10, *Foundations*, for earthwork related to construction of structures, including building, footings, foundations, retaining walls, slabs, tanks, and utility appurtenances.

The Designer of Record is required to utilize UFGS Section 31 00 00, *Earthwork*, for the project specification, and to submit the edited specification section as a part of the design submittal for the project.

**G103001 GRADING**

Provide site grading in accordance with the requirements of UFC 3-201-01, *Civil Engineering*.

 **G103001 1.1 ELEVATIONS**

Establish finish floor elevations in accordance with UFC 1-200-01, *DoD Building Code*(*General Building Requirements)*, and UFC 3-101-01, *Architecture*.

 **G103001 1.2 SITE GRADING**

Grade the site such that associated storm water runoff does not adversely affect surrounding sites. Preserve natural topographic features to minimize the impact on the existing drainage patterns at and adjacent to the site.

 **G103001 1.3 FINISHED SURFACES**

Provide finish grading with drainage towards new and existing drainage features and with no resulting low spots that hold water or that direct runoff towards new or existing facilities or site amenities.

 **G103001 1.4 RODENT AND VEGETATION CONTROL**

Prevent and eliminate standing water.

**G103002 COMMON EXCAVATION**

Preserve natural topographic features to minimize cut and fill requirements. Unsuitable material and surplus excavation becomes the property of the Contractor, and must be disposed of as indicated in the Project Program.

**G103003 ROCK EXCAVATION**

If blasting is allowed, conduct it in accordance with EM 385-1-1 and Federal, state, and local safety regulations. Provide blasting mats and use non-electric blasting caps. Notify the Contracting Officer 24 hours prior to blasting.

Do not make requests for additional compensation for degree of hardness or difficulty encountered in removal of material. Unsuitable material and surplus excavation becomes the property of the Contractor, and must be disposed of as indicated in the Project Program.

**G103004 FILL & BORROW**

 **G103004 1.1 SOURCES**

Where sufficient topsoil and satisfactory materials are not available on the project site, provide suitable borrow materials.

 **G103004 1.2 REQUIREMENTS FOR OFF SITE SOIL**

Test off-site soil in accordance with UFGS Section 31 00 00, *Earthwork*, section titled "Requirements for Off Site Soil".

 **G103004 1.3 UNSATISFACTORY SOIL MATERIALS**

Remove uncontaminated unsatisfactory soil materials from the site. Unsatisfactory materials are materials which do not comply with the requirements for satisfactory materials. Unsatisfactory materials also include man-made fills, trash, refuse, backfills from previous construction or material classified as satisfactory which contains root and other organic matter, frozen material, and stones larger than 3 inches. The Contracting Officer shall be notified of any contaminated materials.

 **G103004 1.4 TOPSOIL**

Refer to Section G2050, "Landscaping". Remove unsatisfactory, existing topsoil from the site in accordance with the Project Program.

**G103005 COMPACTION**

Provide compaction in accordance with UFGS Section 31 00 00, *Earthwork*, and the recommendations of the Contractor's Geotechnical Engineer, whichever is greater.

**G103006 SOIL STABILIZATION**

Provide soil stabilization designed to function as required by site conditions in accordance with the State Highway specifications and standards in the state where the project is located. Apply and install geosynthetics in accordance with the manufacturer's written instructions.

**G103007 SLOPE STABILIZATION**

Provide slope stabilization methods in accordance with the State Highway specifications and standards in the state where the project is located. Design and install manufactured products, gabions, geogrids, rock anchors in accordance with the manufacturer's written instructions.

**G103008 SOIL TREATMENT**

 **G103008 1.1 TERMITE CONTROL**

Refer to Section A1010 1.2, "Termite Control".

**G103009 SHORING**

Provide sheeting, shoring, bracing, cribbing and underpinning in accordance with the Army Corps of Engineer's Safety and Health Requirements Manual (COE EM 385-1-1), UFC 3-220-01, *Geotechnical Engineering*, UFC 3-301-01, *Structural Engineering*, and other Federal, State and local codes and requirements.

Provide protection of existing structures.

**G103010 TEMPORARY DEWATERING**

The design of the temporary dewatering system is required to account for soil conditions, rainfall, fluctuations in the groundwater elevations and the potential settlement impact on adjacent facilities due to dewatering. Provide dewatering in accordance with UFGS Section 31 00 00, *Earthwork*. While the excavation is open, maintain the water level continuously, at least 1.0 foot (0.30 m) below the working level.

French drains, sumps, ditches or trenches are not allowed within 3 feet (0.9 m) of the foundation of any structure without written approval of the Government's Civil/Geotechnical Reviewer.

**G103011 TEMPORARY EROSION & SEDIMENT CONTROL**

 **G103011 1.1 TEMPORARY EROSION & SEDIMENT CONTROL**

Develop and implement temporary erosion and sediment control measures and other Best Management Practices (BMPs) prior to or in conjunction with commencement of earthwork in accordance with the state Erosion and Sediment Control Laws and Regulations. Remove non-permanent erosion control measures after vegetation is fully established.

 **G103011 1.2 MAINTENANCE**

Maintain temporary erosion control measures in accordance with state Erosion and Sediment Control Laws and Regulations throughout the project until areas are fully stabilized.

**G103090 OTHER SITE EARTHWORK**

 **G103090 1.1 HISTORIC AND ARCHAEOLOGIC ARTIFACTS**

Refer to Part 2 UFGS Section 01 50 00, *Temporary Construction Facilities and Controls*.

 **G103090 1.2 PIPELINE CASING UNDER RAILROADS OR PAVEMENTS**

Where required by code or local practice provide casing for piping under railroads or pavements. The Contractor is responsible for obtaining permits from government and nongovernment owners/agencies as required to perform the work.

 **G103090 1.3 TOPSOIL AND SEED**

Provide topsoil and seed according to UFGS Section 31 00 00, *Earthwork*, except when landscaping is required.

**G1040 HAZARDOUS WASTE REMEDIATION**

Perform work in accordance with specification and plans provided in Parts 5 and 6.

 **G1040 1.1 DISPOSAL**

Manage, transport and dispose of waste materials in accordance with specification and plans provided in Parts 5 and 6.

-- End of Section --