SECTION 32 92 00 – SEEDING AND MULCHING

PART 1 – GENERAL

1.1  RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary
      Conditions and Division 01 Specification Sections, apply to this Section.

1.2  SUMMARY
   A. The work of this section consists of ordering, transporting and installing seed and mulch,
      watering, and maintaining all seeded and mulched areas, including areas disturbed by
      construction, in accordance with the plans and specifications and as directed by the Contracting
      Officer’s Representative until acceptance.
   B. The Contractor shall furnish all planting materials listed herein.

1.3  REFERENCE
   A. Comply with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act,
      and be equal to or better in quality than the Standards for Certified Seed. Seeds must also meet
      NPS requirements for Native Genetic Sourcing.

1.4  PRE-INSTALLATION MEETING
   A. Conduct conference at Project site with Contracting Officer’s Representative to coordinate the
      process with other trades, to coordinate equipment movement within planting areas and to avoid
      soil compaction, to review proposed methods of installation, performance criteria, and
      maintenance procedures. Review project limits, existing survey data, including utilities, and any
      additional supplementary reports and plans. This meeting shall be coordinated by the Contractor,
      and comply with requirements in Division 01.

1.5  SUBMITTALS
   A. See Section 01 33 23 – Submittal Procedures.
   B. Qualification Data: For qualified landscape installer.
   C. Product Data: For each type of product indicated.
      1. Supply with cut sheets and samples with a detailed list of materials proposed in this project,
         including Description, Manufacturer/Supplier, and Model.
      2. Record of Purchases: Package tags and receipts for all mulch and seed material shall be
         supplied to the Contracting Officer’s Representative prior to installation.
      3. Submit a delivery schedule at least forty-five (45) calendar days prior to the first day of
         delivery.
      4. Submit a list of equipment to be used for the seeding operation 2 weeks prior to starting work.
      5. Submit seeding and mulching plan, identifying field stockpile locations, seed protection,
         storage procedures and maintenance plan to Contracting Officer’s Representative at least
         forty-five (45) calendar days prior to first day of delivery.
   D. Product Certificates: For all materials from supplier and manufacturer.
      1. State Inspection Certificate from the origin nursery.
      2. Certificate from origin state.
3. Quarantine Certificate from origin state.
4. Any Certificates required by the USDA Animal and Plant Health Inspection Service (APHIS) and ANSI-Z-160 and accompanying Rules and Regulations.
5. Seed Warranty – Submit a signed seed warranty that guarantees seed survival for one full growing season after initial acceptance. Warranty to be issued at least forty-five (45) calendar days prior to commencement of seeding operations.
6. Weekly Inspection and Maintenance Reports; Submit a weekly inspection report once material has been planted until the warranty has been satisfied.

E. Certification of Grass Seed: From seed vendor for each grass seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity and germination, and to meet the NPS requirements for Native Genetic Sourcing. Include the year of production and date of packaging.
   1. Certification of each seed mixture for native genetic seed. Include identification of source and name and telephone number of supplier.

F. Certification of Weed Free Mulch: From vendor of each type of mulch, stating the mulch type and weight.

G. Analysis and Standards: Whenever applicable, for non-packaged materials, provide two copies of analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists.

H. Seeding Schedule: Submit in writing two (2) copies of proposed planting schedules, indicating dates for site preparation including, seeding and coordination with plant procurement. Schedule all work during specified planting seasons as indicated for this project. Once accepted, revise dates only as approved in writing by the Contracting Officer’s Representative, after documentation of reasons for delays.
   1. All seed shall be true to name as ordered or shown on planting plans.
   2. Delivery Schedule: Submit a delivery schedule at least forty-five (45) calendar days prior to the first day of delivery.

I. Obstructions Below Ground: When obstructions below finished grades prevent plant installation, the Contractor shall submit a plan showing proposed adjustments to locations, type of plant, and/or planting method to the Contracting Officer’s Representative.

J. Maintenance Instructions: Recommended procedures for maintenance of seed during a calendar year. Submit prior to installation of seed.

1.6 CLOSEOUT SUBMITTALS
   A. See Section 01 77 00 – Closeout Procedures. Include directions for maintenance as required for continued and proper maintenance through full growing season and dormant period.
   B. At completion of work, furnish written warranty to Contracting Officer’s Representative based upon specified requirements.

1.7 WARRANTY FOR SEEDED AREAS
   A. Seeded areas shall be warranted for a period of one (1) year after date of Initial Acceptance against defects including death, structural failures, dieback as determined by the Contracting Officer’s Representative.
B. The warranty shall not be enforced should any plant die due to vandalism after Initial Acceptance.

C. Warranty Period
   1. At the end of the warranty period, areas that do not exhibit either 85% cover or 85% survival of each species shall be reseeded at no cost to the Government. Areas selected for reseeding shall be determined by the Contracting Officer’s Representative. The reseeded areas shall be of a density to comply with those shown on the plans and specifications.
   2. In the event areas are reseeded under the Warranty Period as referenced above, the Warranty Period would be extended for a period of one (1) year after replacement at no further cost to the Government.

D. The Contractor shall submit to the Contracting Officer’s Representative, a written and signed seed warranty, which is conditioned upon 85% establishment of seeded areas with indigenous plant species for Coastal Dune Vegetation seeding areas at the end of the warranty period. The Initial Acceptance approval date will be considered the date the seed material is installed, if the Contractor completes all seeding within the defined seeding windows. However, at the end of the warranty period, seeding areas or portions thereof for which it is unlikely that 85% survival will be reached, the Contractor is reseed to a 100% level once during the appropriate seasonal seeding window for the seeding area to achieve a minimum of 85% of the seeded Contract quantity at no further cost to the Government.
   1. The seed warranty period shall commence on the date of initial acceptance of the seeding and area approved by the Contracting Officer’s Representative and shall end a period of one (1) year later, subject to final inspection. The Contractor shall provide the commencement and ending dates as part of the Periodic Schedule Updates. Following are the terms and conditions of the plant guarantee:
      a. Seeding shall meet the requirements described herein.
      b. Seeding operations shall be carried out as stipulated herein.
      c. Care shall be taken not to impact existing vegetation.
   2. At the end of the seed warranty, the Contracting Officer’s Representative shall make a determination as to whether the seeded area meet the conditions of the warranty as specified. Any seeding areas or portions thereof not meeting the requirements of the warranty shall be reseeded in accordance with the specified remedial action.

E. Remedial Action
   1. Under the terms and conditions of the seed warranty, the Contractor shall be solely responsible for the seeding and all of their components. Losses attributed to inappropriate Herbivory Protection (deer entering the site through fencing), disease, inappropriate hydrological regimes, and drought shall not lower the minimum survival or coverage requirement.
   2. In the event areas are reseeded under the warranty as reference above, the warranty period would be extended for a period of one (1) year at no additional cost to the government.
   3. Seeded areas will not be accepted in parts. Each time any portion or section of the entire seeded area requires replacement or remedial action, the maintenance period shall extend until all seeded areas meet the minimum establishment requirements stated above.
   4. All expense incurred including repairs from vandalism for the replacement and or establishment of the seed areas are the responsibility of the Contractor.
   5. If seeded in the fall, review for establishment shall be no later than June 15 of the following year.

F. All seeded areas under this Contract that are unsightly, unhealthy, dead, or not in a vigorous, thriving condition, as determined by the Contracting Officer’s Representative, during and at the end of the warranty period, shall be reseeded promptly from the site. The sum of the seeded area
as previously described being less than 85% of the originally seeded area and any areas due to
the Contractor’s negligence, shall be replaced and/or added as conditions permit, during the
normal planting season(s). If any questions arise regarding the condition and satisfactory
establishment of a rejected seeded area, the Contractor may elect to allow such a seeded area to
remain through another complete growing season, at which time the rejected seeded area, if
found to be dead, in an unhealthy or badly impaired condition, shall be reseeded.

G. Replacements shall consist of seed materials of the same kind and ratio specified on the Plant
List selected in the field by the Contracting Officer’s Representative prior to seeding and subject
to all requirements in these Specifications.

H. Replacements shall be made at the Contractor’s expense. Replacements shall be obtained from
agents as to be specified by the Contracting Officer’s Representative.

I. Replacements shall conform in all respects to the Specifications, and shall be seeded in the same
manner as the originally seeded material; replacement material shall be given a warranty period
that would extend through the end of the next year’s growing season.

J. A sum sufficient to cover the estimated cost of possible replacements (i.e. 15% of total seeded
area) including material and labor shall be retained by the Government until the end of the
guarantee period, and shall be paid to the Contractor only after all replacements have been made
and approved in writing by the Contracting Officer’s Representative. Replacements shall be made
as many times as necessary during the guarantee period in order to secure healthy plant
materials.

K. At the direction of the Contracting Officer’s Representative, the Contractor shall install and
maintain additional Herbivory Protection around the replanted areas in accordance with
specification section Herbivory Protection for the additional growing season.

L. All labor, materials, equipment, and incidentals necessary to complete any replanting work
associated with the plant guarantee shall be at no additional cost to the Government.

1.8 INSPECTION & ACCEPTANCE

A. The Contracting Officer’s Representative reserves the right to reject at any time or place prior to
Final Acceptance all seeded areas, which in the Contracting Officer’s Representative’s opinion
fail to meet specifications. Inspection of materials is primarily for quality, size and variety, but
other requirements are not waived even though visual inspection results in approval. Rejected
seeded areas shall be reseeded per a schedule as approved by the Contracting Officer’s
Representative.

B. The Contractor shall schedule the inspection by the Contracting Officer’s Representative.

C. Inspections

1. The plant material will be evaluated for acceptance thirty (30) days after all the following have
been complete or satisfied:
   a. All seed material has been satisfactorily installed and approved by the Contracting
      Officer’s Representative.
   b. All specified fencing has been installed adjacent to the seeding area and accepted.
   c. Invasive material within the planting areas has been removed.
   d. The Contractor shall walk the site with the Contracting Officer’s Representative and
      National Park Service as part of the acceptance inspection.
2. At any point during the maintenance period that damage occurs to the site, the Contractor shall document the site conditions (weather, etc. when damage occurred), provide photos of damage, describe the damage, and file this information with the Contracting Officer’s Representative within forty-eight (48) hours. The Contracting Officer’s Representative shall be notified immediately when the damage is discovered. Any damage that is undocumented by the Consultant will be considered a result of neglect of site maintenance, unless proven otherwise.

1.9 INITIAL INSPECTION & ACCEPTANCE

A. After inspection, the Contractor shall be notified in writing by the Contracting Officer’s Representative of acceptance in whole or in part of the work; exclusive of maintenance and possible replacement of seeds subject to warranty or if there are any deficiencies or requirements for completion of work. Seed noted to be in healthy, flourishing condition of active growth at the time of preliminary inspection shall receive preliminary acceptance and a written notice shall be given to the Contractor stating that the warranty period shall begin. Areas omitted or lost through the Contractor’s negligence shall be replaced as soon as possible during the accepted seeding season.

1.10 INSPECTION & ACCEPTANCE AT THE END OF THE WARRANTY PERIOD

A. After the maintenance and warranty period has expired, and upon written application by the Contractor, the Contracting Officer’s Representative shall make a final inspection of all work to determine the final acceptability of completed work. Any areas where seed materials did not emerge shall be replaced immediately or during the next seeding season or according to direction for the Contracting Officer’s Representative. Areas whose conditions are questionable shall also be replaced except where, in the opinion of the Contracting Officer’s Representative, it is advisable to extend the warranty period another full growing season, at which time another inspection shall be made to determine acceptance or rejection. If a substantial area of seed is unsatisfactory or dead at the time of inspection, acceptance shall not be granted and the Contractor’s responsibility for maintenance of all plant materials shall be extended until replacements are made with the remaining work subject to re-inspection before acceptance.

B. Final acceptance: Final review and inspection shall be made after replacement & completion of project and warranty period by the Contracting Officer’s Representative before the work is accepted.

1.11 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful indigenous seed establishment.
   1. Experience: Five (5) years’ experience in seed installation in addition to requirements in Section 01 40 00 - Quality Requirements.
2. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project Site when work is in progress.
3. Personnel Certifications: Installers shall have certification in one of the following categories from the National Association of Landscape Professionals:
   b. Landscape Industry Certified Lawn Care Manager.
   c. Landscape Industry Certified Lawn Care Technician.
4. Maintenance Proximity: Not more than two (2) hours’ normal travel time from Installer’s place of business to Project site.

B. Standards: All materials and methods used during this portion of the work shall meet or exceed applicable federal, state, county and local laws and regulations. All seed shall be free from weed seed, insects and disease. Species shall be true to their scientific name as specified.

C. Materials: The Contractor shall submit to the Contracting Officer’s Representative for approval a complete list of all materials to be used during this portion of the work prior to delivery of any materials to the site. Include complete data on source, amount and quality. This submittal shall in no way be construed as permitting substitution for specific items described on the plans or in these specifications unless approved in writing by the Contracting Officer’s Representative.

D. There are to be no plant species substitutions permitted. The Contractor is to provide proof that a species or the desired quantity is not available. The Contracting Officer’s Representative will provide in writing approval for removal of species.

E. All native grass species shall be first quality stock and supplied as pure live seed. The Contractor shall provide germination tests on the seed. Seed species shall be approved by the Government. All plant and seed material must have been collected with NY and NJ.

F. The Contracting Officer’s Representative reserves the right to reject plant material and mulch at any time prior to acceptance and that fails to meet specification requirements.

1.12 DELIVERY, STORAGE AND HANDLING

A. Delivery: No later than forty-five (45) days prior to the first day of seeding delivery, the Contractor shall submit to the Contracting Officer's Representative an estimate seeding plan with schedule for approval. This estimated schedule shall include the seed shipping dates from the supplier, seed delivery dates at the construction site, seeding dates for each of the shipments, time to complete and an estimate of the seeding crew size. It shall also include details of the shipping methods and seed protection. The Contractor shall submit a seed material storage and maintenance plan, concurrently with the seeding schedule for approval by the Contracting Officer’s Representative. The use of multiple seed material shipping dates is acceptable.

B. The Contractor is responsible for the protection of the seed material during delivery. Methodologies shall be submitted within the seeding plan detailed under Delivery.

C. Seed Material Inspection: Notice shall be given to the Contracting Officer’s Representative not less than five (5) business days before the seed material is to be shipped from the supplier. Inspections of the seed materials may then be made by the Government and written documentation shall be provided to the Contracting Officer’s Representative. The Contractor shall inspect all seed material prior to shipping at the facility and determine if they meet the Quality requirements.

D. The Contractor shall inspect all seed material upon delivery and determine if they meet the requirements of the Quality section. The Contractor will be given an opportunity to identify
potential seed inadequacies to the Contracting Officer’s Representative. The Contracting Officer’s Representative, upon consultation with the Government, will retain final seed material acceptance authority. Unauthorized substitutions shall also be rejected. Any rejected seed shall be replaced by the supplier within fifteen (15) business days. Notice shall be given to the Contracting Officer’s Representative not less than seventy-two (72) hours before the seed material is to be on the project site. If the delivery date is delayed or cancelled the Contractor shall notify the Contracting Officer’s Representative immediately.

E. The Contractor shall be responsible for all certificates of inspection of seed materials that may be required by federal, state or other authorities to accompany each shipment of seed and on arrival; the certificate(s), along with the accepted delivery invoice, shall be filed with the Contracting Officer’s Representative.

F. Storage:
   1. Storage of other materials shall be in designated areas.
   2. Seed material shall be stored in cool, dry locations away from contaminants.
   3. Packaged materials are to be delivered in original unopened containers showing weight, analysis and name of manufacturer, in conformance with the AMS Seed Act and applicable State seed laws.
   4. Materials are to be protected from deterioration and desiccation while stored at the job site.

G. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, composition of mix, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

H. Bulk Materials:
   1. To only be stored in a Contracting Officer’s Representative approved designated area.
   2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
   3. Accompany each delivery of bulk materials with appropriate certificates.

I. Acceptable seed handling and transporting techniques to be approved by the Contracting Officer’s Representative.

J. Damaged or faulty packages shall not be used and shall be rejected.

K. Immediately remove unacceptable material from job site.

L. Delivery: Contractor shall make all arrangements for the delivery of all seed, other packaged and bulk materials from the supplier. Contractor shall bear all shipping expenses, including but not limited to loading and unloading.

1.13 PROJECT/SITE CONDITIONS

A. Gateway National Recreation Area, Riis Park Golf Course.

B. Work Scheduling: Proceed with and complete seeding work as rapidly as portions of the site become available, working within the specified seeding season and approved schedule.
C. Seeding Restrictions:
   1. Variance from the specified seeding schedule shall be permitted only with written approval from the Contracting Officer's Representative. Coordinate seeding periods with initial maintenance periods to provide required maintenance from date of Substantial completion.

D. Vehicular accessibility on site shall be as directed by the Contracting Officer's Representative. Repair damage to existing surfaces, caused by vehicular access and movement during work under this section, to original condition at no additional cost to the National Park Service.

E. Seeding Season: Seeding shall occur as specified below. Verify with local producers and contractors prior to finalizing.

<table>
<thead>
<tr>
<th>Seed Type</th>
<th>Areas</th>
</tr>
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<tbody>
<tr>
<td>Native Grasses</td>
<td>Fall: September 1 – October 31</td>
</tr>
</tbody>
</table>

F. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer’s written instructions.

G. Existing Conditions:
   1. Excavation: When adverse conditions to seed growth are encountered, such as rubble fill, adverse drainage conditions, noxious materials or obstructions, notify Contracting Officer's Representative before planting.
      a. Obstructions Below Ground: When obstructions below finished grades prevent seeding installation, the Contractor shall submit a plan showing proposed adjustments to locations, type of plant, and/or planting method to the Contracting Officer’s Representative.
   2. Invasive species removal and management to occur prior to seeding. See Section 31 10 00 – Invasive Species Removal.

H. Coordination:
   1. All fencing is to be installed prior to seeding.
   2. Contractor to sequence work such that there is no site access or disturbance over seeded areas.

1.14 MAINTENANCE DURING CONSTRUCTION PERIOD

A. The maintenance period shall begin immediately after each area is seeded and continue until Final Acceptance of entire project. Final Acceptance of seeded areas will not be given until the Contracting Officer's Representative is satisfied with germination and a full stand of grass, in a vigorous growing condition, with consistent and complete coverage. During this time, the Contractor shall be responsible for watering, mowing, spraying, weeding, fertilizing and all related work as necessary to ensure that seeded areas are in a vigorous growing condition. Provide all supervision, labor, material and equipment to develop and maintain seeded areas. After Final Acceptance, maintenance shall become the responsibility of the National Park Service. For bidding purposes, include one full year of maintenance starting after Initial Acceptance.

B. Installed seeded areas shall be protected and maintained in a healthy growing condition from the time of inspection and shall continue until Final Acceptance (which is at the end of the warranty period), unless otherwise specified. Per Contractor's recommended maintenance schedule, as approved by the Contracting Officer's Representative, maintenance of seeding areas during
construction shall include preventing the intrusion of weeds, grass, and other undesired vegetation. Grass, weeds, and other undesired vegetation shall be removed before reaching a maximum height of 3-inches, including the root system.

PART 2 – PRODUCTS

2.1 SEED:

A. Seed to be locally sourced genetically approved material obtained from National Park Service approved plant vendors in New York and New Jersey and/or native genetic source within 50 miles along coastline from project location:

Greenbelt Native Plant Center (NYC Parks)
3808 Victory Blvd.
Staten Island, NY 10314
(718) 370-9044
Contact: Jeremy LaPointe

Long Island Natives
220 Old Country Rd.
Eastport, NY 11941
(631) 801-2855
Contact: Matt

Pinelands Nursery
323 Island Rd.
Columbus, NJ 08022
(609) 291-9486
Contact: Fran Chismar

B. The Contractor shall be responsible for verifying the availability of specified seed material for the appropriate planting season and construction schedule. The Contractor shall coordinate the submission of the Seed Material Order with the supplier for the seed to allow for enough time for supplier to supply the specified seed material.

C. The species composition of the Contractor provided seed mix must be approved by the National Park Service prior to installation. A copy of the orders shall also be submitted to the Contracting Officer’s Representative. Should any of the specified seed or plant material be unavailable or unsuitable in terms of size and quality of condition, the Contractor shall immediately notify the Contracting Officer’s Representative.

D. Native seed to be obtained from a Contracting Officer’s Representative approved local Nursery. Low maintenance native genetic seed shall be comprised of the species from the below list:

Grasses
Coastal panic grass (Panicum amarum) or Switchgrass (Panicum vigatum), 2 PLS lbs/ac
Indiangrass (Sorghastrum nutans), 5 PLS lbs/ac
Sideoats grama (Bouteloua curtipendula), 1 PLS lbs/ac
Deertongue (Dichanthelium clandestinum), 6 PLS lbs/ac
Little Bluestem (Achizachyrium scoparium), 3 PLS lbs/ac

Forbs
Showy tick trefoil (Desmodium canadense), 3 PLS lbs/ac
Butterfly Milkweed (Asclepas tuberosa), 0.1 PLS lbs/ac
Spotted bee-balm (Monarda punctata), 1 PLS lbs/ac
Partridge pea (Chamaecrista fasciculata), 2 PLS lbs/ac
Seaside Goldenrod (Solidago sempervirens), 2 PLS lbs/ac
Common boneset (Eupatorium perfoliatum), 0.6 PLS lbs/ac
Common Milkweed (Asclepias syriaca), 0.1 PLS lbs/ac
Queen Anne’s Lace (Daucus carota), 2 PLS lbs/ac

E. For sites where less than 15% fines are present (sands, loamy sands, course stands), add 2 PLS lbs/ac of Sandberg Bluegrass (Poa secunda) or consider other additions (such as annual rye grass) to core seed mix if quick cover is needed for erosion control.

F. Quality: Seed shall be clean, fresh and harvested from the previous growing season. Seed shall be mixed by the seed supplier prior to delivery to the project site. Prior to installing the seed mix, a germination test shall be submitted so that the Contracting Officer’s Representative can approve the seed. Seed shall conform to all applicable state and federal regulations and to test provisions of the Associations of Official Seed Analysts. There shall be no exceptions. The Contractor is advised that these tests can run two (2) months or more and should be prepared to have these test complete in sufficient time for the forthcoming seeding season.

G. Prior to seeding, the Contracting Officer’s Representative shall be given the opportunity to identify unsatisfactory seed material and if seed replacement from the supplier is needed.

H. Substitutions: Acceptance of this Contract carries with it the assumption that the supplier is able to supply all seed materials indicated on the Drawings and as specified. Substitutions shall not be permitted except at the specific request of the Contracting Officer’s Representative, or when proof is submitted that a particular seed material is not obtainable after all sources to supply have been investigated. If the supplier is not able to supply specific seed materials or sizes according to these Specifications, a proposal shall be considered for use of nearest equivalent size or variety, with an equitable adjustment of Contract Price. Substitutions shall be approved in writing by the Contracting Officer’s Representative.

I. The Contracting Officer’s Representative reserves the right to reject the seed at any time prior to acceptance and that fails to meet specification requirements. Promptly remove rejected seed from the site.

2.2 MULCH: Hand broadcast - Certified weed free straw mulch such as unrotted, certified weed seed free of wheat, oat, rye or salt hay can be applied at (2-ton/acre).

2.3 ORGANIC TACKIFIER: Plantago or guar base tackifier applied at (150 lb/acre). Strictly comply with equipment manufacturer’s installation instructions and recommendations.

2.4 HERBICIDE: No herbicide treatment.

PART 3 – EXECUTION
3.1 Any vegetation within preserved areas damaged by the work under this section, as determined by the Contracting Officer’s Representative, shall be replaced immediately after the completion of the work at no additional cost to the Government.

3.2 EXAMINATION:

A. Examine areas to be seeded for compliance with requirements and other conditions affecting performance.
   1. When conditions detrimental to seed growth are encountered, such as rubble fill, adverse drainage conditions, noxious materials or obstructions, notify Contracting Officer’s Representative before planting.
   2. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a seeding area.
   3. Seeding substrates shall be free from debris, noxious weeds, toxic substances or other materials harmful to plant growth.
   4. Do not mix or place soils in frozen, wet, or muddy conditions.
   5. Suspend tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
   6. Uniformly moisten excessively dry soil that is not workable and which is too dusty.

B. Prior to commencement of seeding, the Contractor shall examine the condition of seeding areas and notify the Contracting Officer’s Representative, in writing, of any conditions detrimental to establishing optimal conditions for specified seed material establishment and growth and to the timely completion of the work. The Contractor shall not proceed with seeding until approved by the Contracting Officer’s Representative. Subsequent to completion of seeding, the Contractor shall only enter seeded areas when absolutely necessary for the completion of the Project there shall be no exceptions. Proceed with installation only after unsatisfactory conditions have been corrected and approved by the Contracting Officer’s Representative.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Contracting Officer’s Representative and replace with new planting soil.

D. Obstruction Below Ground: When obstructions below finished grades prevent seed installation, the Contractor shall submit a plan showing proposed adjustments to location and/or seeding method to the Contracting Officer’s Representative.

E. Acceptance: Beginning of installation means acceptance of existing conditions by the Contractor.

3.3 PROTECTION

A. Protect existing vegetation from damage caused by seeding operations. Contractor shall repair any damage at no additional cost to the National Park Service.

B. Restrict vehicular and pedestrian traffic from seeded areas until grass is established. Erect signs and barriers as required or directed by the Contracting Officer’s Representative at no additional cost to the National Park Service.

C. The Contractor shall carefully protect all preserved areas as shown on the plans, and shall also be liable for any and all damages to property caused by the work under this section. Any damages to property or to vegetation within preserved areas shall be restored to the original conditions or to the satisfaction of the Contracting Officer’s Representative.
3.4 **SOIL PREPARATION FOR NATIVE SEEDING**

A. Limit preparation to areas which will be seeded in the immediate future.

B. Prior to the application of seed, the seeding substrate shall be prepared by tilling to a minimum depth of 2-inches. Stones larger than 1.5-inches in size, trash, debris, twigs, stems, root mat, and other matter detrimental to vegetation growth shall be removed. Tilling shall be complete so that the substrate is thoroughly loosened and shows some microtopography but is smooth enough to ensure uniform seeding by mechanical seeder, as approved by the Contracting Officer’s Representative. Tilling shall be accomplished by scarifying with heavy rakes or using rototillers where soil conditions and length of slope permit. Areas compacted by construction operations shall be completely pulverized by tillage.

3.5 **FINE GRADING**

A. Grade areas to be seeded to a smooth, even surface with a loose, uniformly fine texture. Roll, rake and remove ridges and fill depressions, as required to meet finish grades. Limit fine grading to areas which can be planted within the immediate future. Maintain positive drainage, prevent ponding and direct run-off into catch basins, drainage structures, etc., and provide well-contoured surface prior to proceeding. A firm weed-free seed bed is required. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations. Obtain Contracting Officer’s Representative approval of finished grade prior to proceeding with seeding operations.

3.6 **INSTALLATION**

A. Seeding periods shall be as follows:

<table>
<thead>
<tr>
<th>Period</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Season</td>
<td>September 1 to October 31</td>
</tr>
</tbody>
</table>

B. Seed immediately after preparation of bed during the approved seeding period.

C. Do not use wet seed which is moldy or otherwise damaged in transit or storage.

D. Sow not less than the quantity of the seed specified.

E. Seeding operations shall be performed only during periods when beneficial results can be obtained. Seeding operations shall not take place when the wind velocity (not in excess of 5 miles per hour velocity) will prevent uniform seed distribution. If drought, excessive moisture or other unsatisfactory conditions prevail, the work shall be stopped as directed by the Contracting Officer. When special conditions warrant a variance to the seeding operations, proposed alternate times shall be submitted for approval.

F. Rake seed in two (2) 45 degree angles to ensure even coverage of the specified distribution rates. Gravity feed applicators, which drop seed directly from a hopper on to the prepared substrate, shall not be used because of the difficulty in achieving even coverage, unless otherwise approved. Seed shall be set down at 1/8-inch to ¼-inch depth.

G. Subsequent to completion of seeding, the Contractor shall only enter seeded areas when absolutely necessary for the completion of the Project. The Contractors application method shall,
to the greatest extent practicable, facilitate the avoidance of compaction or other damage caused by re-entering newly seeded areas. There shall be no exceptions.

H. Do not seed areas in excess of that which can be mulched on the same day.

I. Certified weed free straw and tackifier to be applied immediately following seeding application.
   a. Install certified weed free straw completely and thoroughly over all seeding areas immediately after seeding.
   b. Apply tackifier on top of weed free straw mulch immediately after installing certified weed free mulch. Use approved spraying machines.

J. Topdress and seed areas with disturbed soil.

K. When weed growth occurs in conjunction with seeding, contractor to mechanically knock down weeds with weed-wacker or similar equipment. Weed growth to be monitored until seed growth 17-18 days after planting.

3.7 CLEAN UP AND PROTECTION

A. Upon completion of work, remove debris and leave area in clean, acceptable condition. The Contractor shall remove damaged, excess, and waste materials from the Project Site and dispose of the materials off Government property in a proper disposal facility.

B. During landscape work, keep pavements clean and work area in an orderly condition. Any damage to other work done by landscape crew is to be reported and repaired immediately.

C. Protect landscape work and materials from damage due to landscape operations, operations by other Contractors and trades and trespassers by erecting barricades and/or providing signage as directed by the Contracting Officer’s Representative. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed until final acceptance.

END OF SECTION 32 92 00