UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2023
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SECTION 32 92 26

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08/17, CHG 1: 08/21

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USACE / NAVFAC / AFCEC / NASA	**UFGS-32 92 26 (August 2017)**
	Change 1 - 08/21

Preparing Activity: NAVFAC	**Superseding**
	UFGS-32 92 26 (April 2006)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2023
****

SECTION 32 92 26

SPRIGGING
08/17, CHG 1: 08/21

****
NOTE: This guide specification covers the requirements for sprigging.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).
****

****
NOTE: The following information must be shown on the project drawings:

1. Clearly indicate all areas to be turfed and if more than one type of turf is specified, delineate areas for each type.

2. All draft turf specifications must be submitted to the cognizant Landscape Architect/Natural Resources Specialist for review to ensure that the specifications are in accordance with environmental conditions peculiar to the project areas.
****

PART 1 GENERAL

1.1 REFERENCES

****

NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a Reference Identifier (RID) outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

****

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C602	(2020) Agricultural Liming Materials
ASTM D4427	(2018) Standard Classification of Peat Samples by Laboratory Testing
ASTM D4972	(2018) Standard Test Methods for pH of Soils

TURFGRASS PRODUCERS INTERNATIONAL (TPI)

TPI GSS	(1995) Guideline Specifications to Turfgrass Sodding

U.S. DEPARTMENT OF AGRICULTURE (USDA)

AMS Seed Act	(1940; R 1988; R 1998) Federal Seed Act
DOA SSIR 42	(1996) Soil Survey Investigation Report No. 42, Soil Survey Laboratory Methods Manual, Version 3.0

1.2 DEFINITIONS

1.2.1 Stand of Turf

95 percent ground cover of the established species.

1.3 RELATED REQUIREMENTS

[Section 31 00 00 EARTHWORK,] [Section 32 84 24 IRRIGATION AND SPRINKLER SYSTEMS,] [Section 32 96 00 TRANSPLANTING EXTERIOR PLANTS,] [Section 32 92 19 SEEDING,] [Section 32 92 23 SODDING,] [Section 32 93 00 EXTERIOR PLANTS,] and Section 32 05 33 LANDSCAPE ESTABLISHMENT applies to this section for pesticide use and plant establishment requirements, with additions and modifications herein.

1.4 SUBMITTALS

****

NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G." Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification, with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Choose the first bracketed item for Navy, Air Force, and NASA projects, or choose the second bracketed item for Army projects.

****

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Wood Cellulose Fiber Mulch

Fertilizer

Include physical characteristics, and recommendations.

SD-06 Test Reports

****
NOTE: In states that require certification, adjust testing requirements to suit local conditions.
****

Topsoil Composition Tests (Reports and Recommendations).

SD-07 Certificates

State Certification and Approval for Seed

[Nursery] [Sod Farm] Certification for Sprigs. Indicate type of sprig in accordance with TPI GSS.

SD-08 Manufacturer's Instructions

Erosion Control Materials

1.5 DELIVERY, STORAGE, AND HANDLING

1.5.1 Delivery

1.5.1.1 Sprig Protection

****
NOTE: If sprigs are to be delivered in quantity over considerable distance, specify trucking in vans equipped with temperature control.
****

Protect from drying out and from contamination during delivery, on-site storage, and handling.

1.5.1.2 [Fertilizer] [Gypsum] [Sulfur] [Iron] [and] [Lime] Delivery

Deliver to the site in original, unopened containers bearing manufacturer's chemical analysis, name, trade name, trademark, and indication of conformance to state and federal laws. Instead of containers, [fertilizer] [gypsum] [sulphur] [iron] [and] [lime] may be furnished in bulk with certificate indicating the above information.

1.5.2 Storage

1.5.2.1 Sprig Storage

****
NOTE: Check with the local Agriculture County Extension Service Office to determine if specie used requires more water than is average for the geographical area.
****

Lightly sprinkle with water, cover with moist burlap, straw, or other

approved covering; and protect from exposure to wind and direct sunlight until planted. Provide covering that will allow air to circulate so that internal heat will not develop. Do not store longer than 24 hours. Do not store directly on concrete or bituminous surfaces.

1.5.2.2 Seed, [Fertilizer] [Gypsum] [Sulfur] [Iron] [and] [Lime] Storage

Store in cool, dry locations away from contaminants.

1.5.2.3 Topsoil

Prior to stockpiling topsoil, treat growing vegetation with application of appropriate specified non-selective herbicide. Clear and grub existing vegetation three to four weeks prior to stockpiling topsoil.

1.5.2.4 Handling

Do not drop or dump materials from vehicles.

1.6 TIME RESTRICTIONS AND PLANTING CONDITIONS

1.6.1 Restrictions

Do not plant when the ground is [frozen,] [snow covered,] muddy, or when air temperature exceeds [32] [_____] degrees Celsius [90] [_____] degrees Fahrenheit.

1.7 TIME LIMITATIONS

1.7.1 Sprigging

Perform sprigging a maximum of twenty four hours after initial harvesting.

PART 2 PRODUCTS

2.1 SPRIGS

****
NOTE: The specific species and varieties used should be based on recommendations of the local Agriculture County Extension Service Office.
****

2.1.1 Classification

Healthy living stems, stolons, or rhizomes and attached roots of locally adapted grass without adhering soil, including two to three nodes and from 100 to 150 mm 4 to 6 inches long. Obtain from heavy, dense certified sod as classified in the TPI GSS. [Obtain sprigs from designated areas on the project site.] Provide sprigs which have been grown under climatic conditions similar to those in the locality of the project. Coordinate harvesting and planting operations to prevent exposure of sprigs to the sun for more than 30 minutes before covering and moistening. Sprigs containing weeds or other detrimental material or that are heat damaged will be rejected.

2.1.2 Composition

Botanical and Common Name	Percent
[_____]	[_____]

2.1.3 Planting Dates

Sow sprigs from [_____] to [_____] for warm season planting and from [_____] to [_____] for cool season planting.

2.2 SEED

****
NOTE: When applying seed over sprigs as a specified method of establishing sprigs, select the annual seed species to be installed. State-certified seed is more stringently monitored than State-approved seed; and therefore, more expensive.
****

2.2.1 Seed Classification

[State-certified] [State-approved] seed of the latest season's crop must be provided in original sealed packages bearing the producer's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Labels must be in conformance with AMS Seed Act and applicable state seed laws.

2.2.2 Temporary Seed Species Composition

Botanical Name	Common Name	Minimum Percent Pure Seed	Minimum Percent Germination	Maximum Percent Weed Seed
[_____]	[_____]	[_____]	[_____]	[_____]

2.3 TOPSOIL

****
NOTE: If topsoil properties are included in another section of Division 31, delete this paragraph and include a cross-reference to the appropriate section. Otherwise, select appropriate paragraphs on topsoil. Check with the local Agriculture County Extension Service Office for soil properties appropriate for the plant materials to be planted. Where suitable topsoil is available within limits of the work area, stripping and stockpiling of topsoil should be included in the applicable section of Division 31 of the specification. If suitable topsoil is not available within the limits of the work area, it should generally be the Contractor's option to either treat the soil of the graded areas with fertilizer and supplements so as to be conducive to turf establishment and maintenance, or to transport topsoil to the project site. Modify pH

range for specified turf and geographical requirements.
****

2.3.1 On-Site Topsoil

Surface soil stripped and stockpiled on site and modified as necessary to meet the requirements specified for topsoil in paragraph COMPOSITION. When available topsoil must be existing surface soil stripped and stockpiled on-site in accordance with Section 31 00 00 EARTHWORK.

2.3.2 Off-Site Topsoil

Conform to requirements specified in paragraph COMPOSITION. Additional topsoil must be [furnished by the Contractor][obtained from topsoil borrow areas indicated].

2.3.3 Composition

Containing from 5 to 10 percent organic matter as determined by the topsoil composition tests of the Organic Carbon, 6A, Chemical Analysis Method described in DOA SSIR 42. Maximum particle size, 19 mm 3/4 inch, with maximum 3 percent retained on 6 mm 1/4 inch screen. The pH must be tested in accordance with ASTM D4972. Topsoil must be free of sticks, stones, roots, and other debris and objectionable materials. Other components must conform to the following limits:

Silt	[25-50][7 to 17][_____] percent
Clay	[10-30][4 to 12][_____] percent
Sand	[20-35][70 to 82][_____] percent
pH	[5.5 to 7.0][_____]
Soluble Salts	[600] [_____] ppm maximum

2.4 pH ADJUSTERS AND SOIL CONDITIONERS

****
NOTE: Prior to including these provisions in project specifications, perform tests of on-site topsoil to determine its suitability and the possible need of pH adjusters or soil conditioners.
****

Add conditioners to topsoil as required to bring into compliance with "composition" standard for topsoil as specified herein.

2.4.1 Lime

****
NOTE: Use ASTM C602 calcium carbonate equivalent (C.C.E.) as specified in Table 1: for burnt lime, C.C.E. must not be less than 140 percent; for hydrated lime, C.C.E. must not be less than 110 percent; and for limestone, C.C.E. must not be less than 80 percent.

****

Commercial grade [hydrate] [or] [burnt] limestone containing a calcium carbonate equivalent (C.C.E.) as specified in ASTM C602 of not less than [_____] percent.

2.4.2 Aluminum Sulfate

Commercial grade.

2.4.3 Sulfur

100 percent elemental

2.4.4 Iron

100 percent elemental

2.4.5 Peat

Natural product of [peat moss] derived from a freshwater site and conforming to [ASTM D4427] [as modified herein]. Shred and granulate peat to pass a 12.5 mm 1/2 inch mesh screen and condition in storage pile for minimum 6 months after excavation.

2.4.6 Sand

Clean and free of materials harmful to plants.

2.4.7 Perlite

Horticultural grade.

2.4.8 Composted Derivatives

Ground bark, nitrolized sawdust, humus or other green wood waste material free of stones, sticks, and soil stabilized with nitrogen and having the following properties:

2.4.8.1 Particle Size

Minimum percent by weight passing:

4.75 mmNo. 4 mesh screen	95
2.36 mmNo. 8 mesh screen	80

2.4.8.2 Nitrogen Content

Minimum percent based on dry weight:

Fir Sawdust	0.7
Fir or Pine Bark	1.0

2.4.9 Gypsum

Coarsely ground gypsum comprised of calcium sulfate dihydrate 80 percent, calcium 18 percent, sulfur 14 percent; minimum 96 percent passing through 850 micrometers 20 mesh screen, 100 percent passing thru 970 micrometers 16 mesh screen.

2.4.10 Calcined Clay

Calcined clay must be granular particles produced from montmorillonite clay calcined to a minimum temperature of 650 degrees C 1200 degrees F. Gradation: A minimum 90 percent must pass a 2.36 mm No. 8 sieve; a minimum 99 percent must be retained on a 0.250 mm No. 60 sieve; and material passing a 0.150 mm No. 100 sieve must not exceed 2 percent. Bulk density: A maximum 640 kilogram per cubic meter 40 pounds per cubic foot.

2.5 FERTILIZER

****
NOTE: Check with the local Agriculture County Extension Service Office for recommended fertilizer mixture for local conditions.
****

2.5.1 Granular Fertilizer

[Organic][synthetic], granular controlled release fertilizer containing the following minimum percentages, by weight, of plant food nutrients:

[_____] percent available nitrogen
[_____] percent available phosphorus
[_____] percent available potassium
[_____] percent sulfur
[[_____] percent iron

]2.5.2 Hydrosprigging Fertilizer

Controlled release fertilizer, to use with hydrosprigging and composed of pills coated with plastic resin to provide a continuous release of nutrients for at least 6 months and containing the following minimum percentages, by weight, of plant food nutrients.

[_____] percent available nitrogen
[_____] percent available phosphorus
[_____] percent available potassium
[[_____] percent sulfur
][[_____] percent iron

]2.6 MULCH

****
NOTE: Check with the local Agriculture County Extension Service Office to determine choice of mulch most suitable for the project area. Specify only one type of mulch.
****

Mulch must be free from noxious weeds, mold, and other deleterious materials.

2.6.1 Straw

Stalks from oats, wheat, rye, barley, or rice. Furnish in air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Straw must contain no fertile seed.

2.6.2 Hay

Air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Hay must be sterile, containing no fertile seed.

2.6.3 Wood Cellulose Fiber Mulch

****

NOTE: Wood cellulose fiber mulches have been successful on level areas or on slopes with slight grades where sufficient moisture is present to obtain a quick germination of grass seed. The material should be hydraulically applied at the following rates: Areas up to and including 3 to 1 slopes, at the rate of 1,120 kg per 10,000 sq. m 1,000 pounds per acre; areas steeper than 3 to 1 at the rate of 1,568 kg per 10,000 sq. m 1,400 pounds per acre. It should not be specified for slopes 2 to 1 or greater in areas where drought may prevent germination of the seed or where runoff from heavy rains may cut gullies through the fiber mulch. In these areas use erosion control materials such as specified in paragraph EROSION CONTROL MATERIAL.

****

****

NOTE: Hydraulic mulch is an EPA designated product for recycled content. Recycled content percentages listed are recommended by EPA; additional information can be found on the EPA's "Comprehensive Procurement Guidelines (CPG)" page within EPA's website at http://www.epa.gov.

****

Use recovered materials of either paper-based (100 percent post-consumer content) or wood-based (100 percent total recovered content) hydraulic mulch. Processed to contain no growth or germination-inhibiting factors and dyed an appropriate color to facilitate visual metering of materials application. Composition on air-dry weight basis: 9 to 15 percent moisture, pH range from 5.5 to 8.2 [_____]. Use with hydraulic application of grass [seed] and fertilizer.

2.7 WATER

****

NOTE: When water is Government furnished, locate the source. Recycled or reclaimed irrigation water may be available through a tertiary treatment plant on or off site. It is preferred that this type of water be used for irrigation whenever possible. Check project specific conditions.

Unless otherwise directed, water must be the responsibility of the Contractor. Water source must be potable or non-potable. If non-potable edit specification accordingly. Source of water must be approved by the Contracting Officer and must be of suitable quality for irrigation, containing no

elements toxic to plant life.

Coordinate information presented here with Section 01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS

****

Source of water must be approved by Contracting Officer and of suitable quality for irrigation containing no element toxic to plant life.

2.8 EROSION CONTROL MATERIALS

****

NOTE: Provide all erosion and sediment control measures in Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS for Navy instead of here if used for project. The Contractor may propose other types of erosion control material, based on site conditions.

****

Erosion control material must conform to the following:

[2.8.1 Erosion Control Blanket

Blanket must be machine produced mat of wood excelsior formed from a web of interlocking wood fibers; covered on one side with either knitted straw blanket-like mat construction; covered with biodegradable plastic mesh; or interwoven biodegradable thread, plastic netting, or twisted kraft paper cord netting.

][2.8.2 Erosion Control Fabric

Fabric must be knitted construction of polypropylene yarn with uniform mesh openings 19 to 25 mm 3/4 to 1 inch square with strips of biodegradable paper. Filler paper strips must have a minimum life of 6 months.

][2.8.3 Erosion Control Net

Net must be heavy, twisted jute mesh, weighing approximately 605 grams per meter 1.22 pounds per linear yard and 1200 mm 4 feet wide with mesh openings of approximately 25 mm one inch square.

][2.8.4 Hydrophilic Colloids

Hydrophilic colloids must be physiologically harmless to plant and animal life without phytotoxic agents. Colloids must be naturally occurring, silicate powder based, and must form a water insoluble membrane after curing. Colloids must resist mold growth.

]2.8.5 Erosion Control Material Anchors

Erosion control anchors must be as recommended by the manufacturer.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 EXTENT OF WORK

Provide soil preparation prior to planting (including soil conditioners), fertilizing, and sprigging,[temporary seeding] of all newly graded finished earth surfaces, unless indicated otherwise, and at all areas inside or outside the limits of construction that are disturbed by the Contractor's operations.

3.1.2 Soil Preparation

****
NOTE: Choose one of the following options
****

****
NOTE: Elevation of subgrade will vary depending upon the needs for additional topsoil, sod, or other treatment.
****

Provide 102 mm 4 inches of [off-site topsoil][on-site topsoil][existing soil] to meet indicated finish grade. After areas have been brought to indicated finish grade, incorporate [fertilizer] [pH adjusters] [soil conditioners] into soil a minimum depth of [100] [_____] mm [4] [_____] inches by disking, harrowing, tilling or other method approved by the Contracting Officer. Remove debris and stones larger than 19 mm 3/4 inch in any dimension remaining on the surface after finish grading. Correct irregularities in finish surfaces to eliminate depressions. Protect finished topsoil areas from damage by vehicular or pedestrian traffic.

[3.1.2.1 Soil Conditioner Application Rates

Apply soil conditioners at rates as determined by laboratory soil analysis of the soils at the job site. For bidding purposes only apply at rates for the following:

[Lime [[_____] kg per square meter pounds per acre] [[_____] kg per 100 square meters pounds per 1000 square feet.]

][Sulfur [[_____] kg per square meter pounds per acre] [[_____] kg per 100 square meters pounds per 1000 square feet.]

][Iron [[_____] kg per square meter pounds per acre] [[_____] kg per 100 square meters pounds per 1000 square feet.]

][Aluminum Sulfate [[_____] kg per square meter pounds per acre] [[_____] kg per 100 square meters pounds per 1000 square feet.]

][Peat [[_____] cubic meters per square meter cubic yard per acre] [[_____] cubic meters per 100 square meters cubic yards per 1000 square feet.]

][Sand [[_____] cubic meters per square meter cubic yard per acre] [[_____] cubic meters per 100 square meters cubic yards per 1000 square feet.]

][Perlite [[_____] cubic meters per square meter cubic yard per acre] [[_____] cubic meters per 100 square meters cubic yards per 1000 square feet.]

][Compost Derivatives [[_____] cubic meters per square meter cubic yard per acre] [[_____] cubic meters per 100 square meters cubic yards per 1000 square feet.]

][Calcined Clay [[_____] cubic meters per square meter cubic yard per acre] [[_____] cubic meters per 100 square meters cubic yards per 1000 square feet.]

][Gypsum [[_____] cubic meters per square meter cubic yard per acre] [[_____] cubic meters per 100 square meters cubic yards per 1000 square feet.]

]][3.1.2.2 Fertilizer Application Rates

****
NOTE: Check with the local Agriculture County Extension Service and specify amounts applicable for the project area. Two fertilizer applications may be required when hydroseeding with wood fiber mulch.
****

Apply fertilizer at rates as determined by laboratory soil analysis of the soils at the job site. For bidding purposes only apply at rates for the following:

[Organic Granular Fertilizer [[_____] kg per square meter pounds per acre] [[_____] kg per 100 square meters pounds per 1000 square feet.]

][Hydrosprigging Fertilizer [[_____] kg per square meter pounds per acre] [[_____] kg per 100 square meters pounds per 1000 square feet.]

]]3.2 SPRIGGING INSTALLATION

****
NOTE: Allow the Contractor sprig installation options when installing areas larger than one acre. Define lawn areas and field areas on the drawings.
****

Prior to installing sprigs, any previously prepared surface compacted or damaged must be reworked to meet the requirements of paragraph SOIL PREPARATION. Areas must be sprigged as indicated.

3.2.1 Installing Sprigs

The sprigging method must be [Broadcast Sprigging] [Hydroplanting] [Row Sprigging] [applying seed-over-sprigs]. Sprigging procedure must ensure even coverage.

3.2.1.1 Broadcast Sprigging

Sprigs must be broadcast uniformly by hand, with mechanical equipment, or other approved method. Sprigs must be planted to provide a minimum number of 30 viable sprigs per square meter 25 viable sprigs per square yard.

The distance between individual sprigs must be a maximum 300 mm 12 inch space. Sprigs must be forced into the soil to a minimum 25 mm one inch depth by disk-rolling, pressing with steel matting, or other approved method.

3.2.1.2 Hydroplanting

Sprigs must be mixed with water and uniformly applied under pressure over the entire area. Sprigs must be covered by distributing a topdressing uniformly and evenly to a minimum 25 mm one inch depth. Topdressing must conform to the paragraph TOPSOIL.

3.2.1.3 Row Sprigging

Sprigs must be planted in rows spaced a maximum of 300 mm 12 inches apart and to a minimum 25 mm one inch depth, with mechanical sprig planter or other methods. Sprigs must be placed in the rows a maximum 150 mm 6 inch distance apart.

3.2.2 Mulching

3.2.2.1 Hay or Straw Mulch

Hay or straw mulch must be spread uniformly at the rate of 0.75 metric tons per hectare 2 tons per acre. Mulch must be spread by hand, blower-type mulch spreader, or other approved method. Mulching must be started on the windward side of relatively flat areas or on the upper part of steep slopes, and continued uniformly until the area is covered. The mulch must not be bunched or clumped. Sunlight must not be completely excluded from penetrating to the ground surface. All areas installed with seed must be mulched on the same day as the seeding. Mulch must be anchored immediately following spreading.

3.2.2.2 Mechanical Anchor

Mechanical anchor must be a V-type-wheel land packer; a scalloped-disk land packer designed to force mulch into the soil surface; or other suitable equipment.

3.2.2.3 Wood Cellulose Fiber, Paper Fiber and Recycled Paper

Wood cellulose fiber, paper fiber, or recycled paper must be applied as part of the hydroseeding operation. The mulch must be mixed and applied in accordance with the manufacturer's recommendations.

[3.2.3 Applying Seed Over Sprigs

Seed must be applied using either [broadcast] [or] [hydroseeding] equipment and methods. Seeding procedure must ensure even coverage. Gravity feed applicators, which drop seed directly from a hopper onto the prepared soil, must not be used.

[3.2.3.1 Broadcast Seeding

Seed must be uniformly broadcast at the rate of [_____] kilograms per hectare pounds per 1000 square feet using broadcast seeders. Half the total rate of seed application must be broadcast in 1 direction, with the remainder of the seed rate broadcast at 90 degrees from the first direction. Seed must be covered to a minimum 6 mm 1/4 inch depth by disk

harrow, steel mat drag, cultipacker, or other approved device. Seed must be broadcast and covered prior to sprigging operation.

][3.2.3.2 Hydroseeding

Seed must be mixed to ensure broadcast at the rate of [_____] kilograms per hectare pounds per 1000 square feet. Seed and fertilizer must be added to water and thoroughly mixed at the rates specified. The time period for the seed to be held in the slurry must not exceed 24 hours.[Wood cellulose fiber mulch and tackifier must be added at the rates recommended by the manufacturer after the seed, fertilizer, and water have been thoroughly mixed to produce a homogeneous slurry.] Slurry must be uniformly applied under pressure over the entire area. The hydroseeded area must not be rolled.

]]3.2.4 Rolling

The entire area must be firmed with a roller not exceeding 130 kilograms per meter 90 pounds per foot roller width. Slopes over a maximum 3-horizontal-to-1 vertical must not be rolled.

3.2.5 Finishing

A minimum 25 percent of the installed sprigs must extend above the ground surface upon completion of the sprigging operation.

3.2.6 Erosion Control Material

Install in accordance with manufacturer's instructions, where indicated or as directed by the Contracting Officer.

3.2.7 Watering Sprigs

Watering must be started immediately after completing each day of sprigging. Water must be applied at a rate sufficient to ensure moist soil conditions to a minimum 25 mm one inch depth. Run-off, puddling, and wilting must be prevented. Unless otherwise directed, watering trucks must not be driven over turf areas. Watering of other adjacent areas or plant material must be prevented.

3.3 PROTECTION OF TURF AREAS

Immediately after turfing, protect area against traffic and other use.

3.4 RESTORATION

Restore to original condition existing turf areas which have been damaged during turf installation operations. Keep clean at all times at least one paved pedestrian access route and one paved vehicular access route to each building. Clean other paving when work in adjacent areas is complete.

-- End of Section --