

SECTION 32 92 00**TURF AND GRASSES****PART 1: GENERAL****1.01 DESCRIPTION**

Restore all disturbed grass and landscaped areas to conditions equal to or better than before the work began and to the satisfaction of AW and Fort Polk's Department of Public Works (DPW).

1.02 SUBMITTALS**A. Manufacturer's product data:**

1. Complete materials list of all materials proposed to be furnished and installed under this section
2. Specifications and other data required to demonstrate compliance with the specified requirements.

B. Pre-Construction Photos

1. Provide pre-construction photos of the existing conditions prior to disturbance of proposed areas of construction.

1.03 REFERENCES

FS O-F-241 Fertilizers, Mixed, Commercial (09 Oct 90)

JJJ-S-181b Seeds, Agricultural (08 Feb 91)

AMS-01 (Sep 1977; Amended Oct 29, 1981) Federal Seed Act Regulations (Part 20): Certified Seed Regulations

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Inspection – Inspect restoration material upon arrival and remove unacceptable material from the job site.
- B. Fertilizer - Deliver to the site in original unopened containers bearing manufacturers chemical analysis.
- C. Seed and fertilizer shall be stored in cool, dry locations away from contaminants.

- D. Handling - Except for bulk deliveries do not drop or dump materials from vehicles

1.05 GUARANTEE

- A. If a satisfactory stand of lawn/grass has not been produced, the Contractor shall renovate and reseed the lawn and unsatisfactory portions thereof immediately or during the next planting season if proper weather conditions do not exist. A satisfactory stand is defined as a section of lawn that has:
 - 1. No bare spots larger than 3 square feet.
 - 2. Not more than 10 percent of total area with bare spots larger than 1 square foot.
- B. Disturbed areas that will be exposed in excess of 10 days shall be temporarily mulched until proper weather conditions exist for establishment of permanent vegetative cover.

PART 2: PRODUCTS

2.01 TOPSOIL

Topsoil shall not contain more than 40 percent clay in that portion passing a No. 10 sieve. Topsoil shall contain between 5 percent and 20 percent organic matter as determined by loss on ignition of samples oven-dried to constant weight at 212 degrees Fahrenheit.

2.02 FERTILIZER

Fertilizer shall be lawn or turf grade 12-12-12.

2.03 SEED AND SOD

- A. Lawn Areas

Seed areas where lawns are or have been regularly maintained, whether residential, commercial or office areas, with the following mixture or a mixture as required by the Soil Conservation District or other governing authority. (Percentages are by weight.)

20 percent Annual Ryegrass (Lolium multiflorum). Remainder to be specified depending on time of year, regulatory requirements and location. See Part 3.03 and 3.04.

Where sod is required it shall be green, freshly cut, and of good quality with grass free from all noxious weeds. It shall contain all the dense root system of the grass and shall not be less than 1-1/2 inches thick.

B. All other Areas

Seed all other areas with the following mixture:

50 percent Perennial Ryegrass (Lolium perenne). Remainder to be specified depending on time of year, regulatory requirements and location. See Part 3.03 and 3.04.

2.04 SOIL EROSION CONTROL BLANKETS

When or if required for use soil erosion control blankets shall be machine produced mat of wood excelsior formed from a web of interlocking wood fibers, covered on one side with either plastic netting or twisted Kraft paper cord netting. Soil erosion control blankets shall not be installed on flat surfaces. Soil erosion control blankets shall not be installed on flat surfaces or sloped surfaces up to and including 10:1 slopes. Soil erosion control blankets shall be used on surfaces with a slope greater than 10:1 as per the manufacturers installation guidelines.

2.05 MULCH

Mulch shall be straw reasonably free of weed seed and foreign materials which may affect plant growth. Other materials may be used if approved by AW.

PART 3: EXECUTION

3.01 Notification

American Water when notified by sub-contractor will notify DPW, Corvias Military Housing and other involved entity of the areas to be restored.

3.02 Photograph Documentation

Photographs shall be taken of the area before the scheduled work, during construction and after the site has been restored.

3.03 Seeding

- A. Seeding Time – See Table 3.03.
- B. Type of Seed Mixture and Application Rate - See Table 3.03.

Table 3.03

Type	Seed Mixtures	Pounds/ Acre	Planting Dates	Establishment Period ²
A	Hulled Bermuda	30	Mar – Sep	Mar – Dec
B	Hulled Bermuda Crimson Clover	20 25	Feb – Mar	Feb – Jun
C	Kentucky 31 Fescue Unhulled Bermuda	25 20	Sep – Feb	Sep – May
D	Unhulled Bermuda Crimson Clover	20 40	Sep – Feb	Sep – May
E	Pensacola Bahia	25	Mar – Sep	Mar – Dec
F	Ball Clover Unhulled Bermuda	25 20	Feb – Mar	Feb – Jun
G	Vetch (Common) Unhulled Bermuda	40 20	Sep – Oct	Sep - Jan
H	Lespedeza Browntop Millet Hulled Bermuda Pensacola Bahia	6 20 15 50	Mar - Jul	Mar – Oct
I	Annual Rye	30	Sep – Jan ¹	Sep – Apr

¹Annual Rye grass shall not be planted before September 20. Annual Rye grass may be planted as late as January 15 if climatic conditions and soil temperatures will allow germination.

²The seed establishment period shall begin on the first day of seeding work under the contract and shall continue through the remaining life of the contract and end 3 months after the last day of the seeding operation. The contractor shall provide a written calendar time period for the seed establishment period. When there is more than one seed establishment period, the boundaries of each seeded area covered by each period shall be described. The seed establishment period may be modified for inclement weather, shut down periods, or for separate completion dates of areas as approved by AW.

3.04 PREPARATION OF SEED BED

- A. Subgrade - Cut and fill as required to provide for the placement of a minimum depth of four inches of top soil. Grade so that upon placement of the top soil the finished surface will conform to the topography of the adjacent grass area and will provide a free draining finished surface without low spots to trap water runoff. Till the top 2 inches of the subgrade before placing the topsoil.

B. Topsoil Areas

Topsoil shall be replaced with adequate amounts of topsoil material to restore the disturbed area to its original pre-disturbance grade and depth of topsoil but not less than 4 inches.

Remove, store, and use suitable topsoil available from the excavated material to backfill the excavation. Remove and dispose of all imported granular fill, grass, weeds, roots, sticks, stones, and other debris 1-inch or greater in diameter. Bring the topsoil to the finished grade by raking.

When there is insufficient topsoil available from the site excavated materials, furnish 4 inches of topsoil to be used as a seed bed in lawn areas as described in Part 2.04, Paragraph A of this Specification Section or clearly marked as lawn areas on the plans. Bring topsoil to finished grade by raking.

C. Non-Topsoil Areas

The trench backfill may be used as a seed bed, where approved by AW or in areas clearly marked on plans that are not considered lawn areas. After the backfill has been given a reasonable time to settle, grade it off to the finished grade and harrow to a depth of 3 inches. Remove and dispose of all grass, weeds, roots, sticks, stones and other debris 1 inch or greater in diameter.

- D. Tillage - Till the topsoil to a minimum depth of 4 inches by plowing, disking, harrowing, or roto-tilling. On slopes 2 horizontal to 1 vertical and steeper, till the soil to a minimum depth of 2 inches by scarifying with heavy rakes, or other approved method. Roto-tillers may be used where soil conditions and length of slope permit safe use. On slopes 1 horizontal to 1 vertical and steeper no tillage is required.
- E. Finished Grading Preparation - Fill as needed or remove surplus soil to attain the required finished grade. Maintain drainage patterns. Loosen top soil areas compacted by construction operations. Locate finished grade 1 inch below the adjoining grade of any surfaced area. Blend new surfaces to existing areas.
- F. Finished Grading Lawn Areas - Remove debris and stones larger than 1 inch in any dimension from the surface.
- G. Finished Grading Common Areas - Remove debris and stones larger than 1 inch in any dimension from the surface.
- H. Finished Grading Protection - Protect finished graded areas from damage by vehicular or pedestrian traffic and erosion by applying an acceptable method of temporary stabilization until final stabilization is achieved.

3.05 FERTILIZING

Apply fertilizer uniformly to all areas to be seeded at the rate of 1 pound per 100 square feet in topsoil and 2 pounds per 100 square feet in non-topsoil. Disk, harrowed, or raked the fertilizer thoroughly into the soil to a depth of not less than 2 inches. Immediately before sowing the seed, rework the surface until it is a fine, pulverized, smooth seed bed varying not more than 1 inch in 10 feet.

3.06 SEEDING

Seed immediately after preparation and fertilization of the seed bed. Mix the seed thoroughly and sow it evenly over the prepared areas at the rate of 3 pounds per 1,000 square feet. Sow the seed dry or hydraulically. After sowing, rake or drag the area to cover the seed to a depth of approximately 1/4 inch. Sod all areas with slopes greater than 10%.

3.07 SODDING

Sod all areas as noted in the drawings. As a minimum, sod shall be fibrous, well rooted approved grass type. The grass shall be cut to a height of less than three (3) inches. Edges of sod shall be cleanly cut, either by hand or machine, to a uniform thickness of not less than one and one-half (1-½) inches, to a uniform width of not less than sixteen (16) inches, and in strips of not less than three (3) feet in length. Sod shall be free from all primary noxious weeds.

On slopes, start placement at the foot of the incline. Use wood pegs driven flush to hold sod in place on slopes 4:1 or greater. Use two wood pegs per strip of sod. Roll the sod lightly after placement. Fill any open joints with topsoil and/or sod.

Around walkways, driveways, grass or other existing borders, remove sufficient soil so that the surface of the sod will be level with the existing surfaces and won't pose a tripping hazard,

3.08 MULCHING

Place mulching material evenly over all seeded areas within 48 hours of seeding. Place mulch at the rate of approximately 2 tons per acre, when seeding is performed in recognized growing season and at the approximate rate of 3 tons per acre when seeding is performed in a recognized non-growing season if applicable.

3.09 HYDROSEEDING

- A. Prior to Hydro seeding, rework and restore to the required ground condition all previously prepared seedbed areas compacted or damaged by interim rains, traffic, or other cause. Do not broadcast seed when the wind velocity prevents uniform seed distribution. Unit item includes 4-inches of topsoil installed, and watering is included and shall be watered the same as sodding.
- B. Seed and fertilizer shall be added to water and thoroughly mixed at the rates specified. The wood cellulose fiber mulch shall be added at the rate specified after the seed, fertilizer and water have been thoroughly mixed, to produce homogeneous slurry. Slurry shall be uniformly applied under pressure over the entire area. The hydro seeded area shall not be rolled. Do not hydro seed when the wind velocity prevents uniform distribution.

3.10 SOIL EROSION CONTROL BLANKET

Where Soil Erosion Control Blanket is required to keep top soil in place, install in accordance with manufacturer's instructions. Place the erosion control material without damage to installed material or without deviation to finished grade. Embed seeding blanket is acceptable.

3.11 RESTORATION AND CLEAN UP

A. Lawn Area

Remove excess and waste material and dispose of at the post land fill. Clean adjacent paved areas. Restore existing lawn areas which have been damaged during the contract operations.

B. Paved Area

If it is necessary to excavate a roadway, curb, driveway or sidewalk, the contractor shall provide a temporary surface such as gravel, so that the area can be safely access.

3.12 DOCUMENTATION

Complete the Site Restoration Form.

3.13 MAINTENANCE

Carefully maintain, tend, and water all seeded and sodded areas necessary to secure a good, well-established turf. Fill, grade, and reseed or re-sod all areas that have settled. Maintain the condition of the sodded areas for a period sufficient for the grass to root into the topsoil.

END OF SECTION 32 92 00