# SECTION 329200 - TURF AND GRASSES

## 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. Section Includes:

1. Hydroseeding for turf seed and native seed mixes.
2. Erosion-control materials.

B. Related Requirements:

1. Section 32 93 00 "Plants" for trees, shrubs, ground covers, and other plants as well as border edgings and mow strips.
2. Section 32 91 13 "Soil Preparation" for planting soil preparation.

### 1.3 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 32 91 13 "Soil Preparation" and drawing designations for planting soils.

E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

## 1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

## 1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For landscape Installer.

B. 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, germination, and weed seed. Include the year of production and date of packaging.

C. Product Certificates: For fertilizers, from manufacturer.

D. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

## 1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf seeding and native-mix seeding establishment.

1. Experience: Five years' experience in turf and native-mix 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. Pesticide Applicator: State licensed, commercial.

## 1.7 DELIVERY, STORAGE, AND HANDLING

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

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
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.

1.8 FIELD CONDITIONS

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.

1. Turf Seeding:

a. Spring Planting: April 15 – May 15
b. Fall Planting: Aug. 15 – Sept. 15

2. Native Mix Seeding

a. Spring Planting: April 15 – June 15
b. Fall Planting: Oct. 1 – Nov. 30

B. 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.

PART 2 - PRODUCTS

2.1 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species:

1. Quality: Seed of grass species as listed below for solar exposure, with not less than 85 percent germination, not less than 95 percent pure seed, and not more than 0.5 percent weed seed.
2. Native seed mixes:

**Swale Seed Mix**

| **Botanical Name** | **Common Name** | **PLS Ounces/Acre** |
|---|---|---|
| **Permanent Grasses/Sedges:** | | |
| *Andropogon gerardii* | Big Bluestem | 4.00 |
| *Carex cristatella* | Crested Oval Sedge | 0.50 |
| *Carex lurida* | Bottlebrush Sedge | |

| | | | |
|---|---|---|---|
| | | | 3.00 |
| *Carex spp.* | Prairie Sedge Species | | 8.00 |
| *Carex vulpinoidea* | Brown Fox Sedge | | 3.00 |
| *Elymus canadensis* | Canada Wild Rye | | 16.00 |
| *Elymus virginicus* | Virginia Wild Rye | | 16.00 |
| *Juncus canadensis* | Canadian Rush | | 1.00 |
| *Panicum virgatum* | Switch Grass | | 3.00 |
| *Scirpus atrovirens* | Dark Green Rush | | 2.00 |
| *Scirpus cyperinus* | Wool Grass | | 0.50 |
| *Spartina pectinata* | Prairie Cord Grass | | 3.00 |
| | | **Total** | **60.00** |
| **Temporary Cover:** | | | |
| *Avena sativa* | Common Oat | | 512.00 |
| | | **Total** | **512.00** |
| **Forbs:** | | | |
| *Alisma subcordatum* | Common Water Plantain | | 1.00 |
| *Asclepias incarnata* | Swamp Milkweed | | 2.00 |
| *Coreopsis tripteris* | Tall Coreopsis | | 1.00 |
| *Euthamia graminifolia* | Common Grass-Leaved Goldenrod | | 0.50 |
| *Eutrochium maculatum* | Spotted Joe-Pye Weed | | 1.00 |
| *Iris virginica v. shrevei* | Blue Flag | | 4.00 |
| *Liatris spicata* | Marsh Blazing Star | | 1.00 |
| *Lycopus americanus* | Common Water Horehound | | 0.50 |
| *Mimulus ringens* | Monkey Flower | | 0.50 |
| *Penthorum sedoides* | Ditch Stonecrop | | 1.00 |
| *Pycnanthemum virginianum* | Common Mountain Mint | | 0.50 |
| *Rudbeckia triloba* | Brown-Eyed Susan | | 1.00 |
| *Senna hebecarpa* | Wild Senna | | 1.00 |
| *Silphium terebinthinaceum* | Prairie Dock | | 1.00 |
| *Symphyotrichum novae-angliae* | New England Aster | | 0.50 |
| *Verbena hastata* | Blue Vervain | | 1.50 |
| *Zizia aurea* | Golden Alexanders | | 2.00 |
| | | **Total** | **20.00** |

3. Native seed mix rate:

    a. Apply Native Seed Mix at 37.0 PLS pounds per acre.

4. Turf seed mix: Proportioned by weight as follows:

    a. 90 percent (90%) Turf Type Tall Fescue (Festuca arundinaceous). Minimum 3 cultivars.
    b. 10 percent (10%) Kentucky bluegrass (Poa pratensis).

## 2.2 SOD

A. Turfgrass Sod: Certified Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.

B. Turfgrass Species, Cool-Season Grass: Sod of grass species as follows, with not less than 85 percent germination, not less than 95 percent pure seed, and not more than 0.5 percent weed seed:

    1. Full Sun: Kentucky bluegrass (Poa pratensis), a minimum of three cultivars.

## 2.3 FERTILIZER

A. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
    1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

## 2.4 MULCHES

A. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

B. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

C. Asphalt Emulsion: ASTM D 977, Grade SS-1; nontoxic and free of plant-growth or germination inhibitors.

## 2.5 PESTICIDES AND HERBICIDES

A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.

C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

## 2.6 EROSION-CONTROL MATERIALS

A. Erosion-Control as shown on drawings.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.

1. 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 planting area.
2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
3. Uniformly moisten excessively dry soil that is not workable, or which is dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

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 Architect and replace with new planting soil.

## 3.2 PREPARATION

A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.

2. Protect grade stakes set by others until directed to remove them.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

## 3.3 TURF AND NATIVE SEEDING AREA PREPARATION

A. General: Prepare planting area for soil placement and mix planting soil according to Section 32 91 13 "Soil Preparation."

B. Placing Planting Soil: Place manufactured planting soil over exposed subgrade.

C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

D. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

## 3.4 PREPARATION FOR EROSION-CONTROL MATERIALS

A. Prepare area as specified in "Turf and Native Seeding Area Preparation" Article.

B. For erosion-control mats, install planting soil in two lifts, with second lift equal to thickness of erosion-control mats. Install erosion-control mat and fasten as recommended by material manufacturer.

C. Fill cells of erosion-control mat with planting soil and compact before planting.

D. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.

E. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

## 3.5 HYDROSEEDING

A. Hydroseeding: Mix specified seed, slow-release fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

1. Mix slurry with fiber-mulch manufacturer's recommended tackifier.
2. Spray-apply slurry uniformly to all areas to be seeded in a two-step process. Apply first slurry coat at a rate so that mulch component is deposited at not less than 500-lb/acre

dry weight, and seed component is deposited at not less than the specified seed-sowing rate. Apply slurry cover coat of fiber mulch (hydromulching) at a rate of 1000 lb/acre.

## 3.6 TURF AND NATIVE SEEDING MAINTENANCE

A. General: Maintain and establish turf and native seeding areas by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth area. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
3. Apply treatments as required to keep turf and native seeding areas and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
2. Water with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

C. Mow turf seeded areas (only) as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:

1. Mow specified turf to a height of 2-1/2 to 3 inches.

D. Turf Postfertilization: Apply slow-release fertilizer after initial mowing and when grass is dry.

1. Use fertilizer that provides actual nitrogen of at least 1 lb/1000 sq. ft. to turf area.

## 3.7 SATISFACTORY TURF SEEDED AND NATIVE SEEDED AREAS

A. Seeded installations shall meet the following criteria as determined by Architect:

1. Satisfactory Seeded Turf and Native Mixes: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface

irregularities, with coverage exceeding 90 percent over any 10-sq. ft. and bare spots not exceeding 5 by 5 inches.

B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

3.8 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.9 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.

D. Remove nondegradable erosion-control measures after grass establishment period.

3.10 MAINTENANCE SERVICE

A. Turf and Native Seed Mixes Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in "Turf and Native Mix Seeded Maintenance" Article. Begin maintenance immediately after each area is planted and continue until acceptable turf is established, but for not less than the following periods:

1. 60 days from date of Substantial Completion.

a. When initial maintenance period has not elapsed before end of planting season, or if turf or native mix areas are not fully established, continue maintenance during next planting season.

END OF SECTION 329200

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