Revise this Section by deleting and inserting text to meet Project-specific requirements.

SECTION 329200 - TURF AND GRASSES

1. GENERAL
   * + 1. SUMMARY
          1. Section Includes:

Seeding.

Hydroseeding.

Sodding.

Plugging.

In some parts of the U.S., meadows may be called "Prairies." if needed for clarity, revise the term "Meadow" throughout the Section text, or insert a definition.

Meadow grasses and wildflowers.

* + - * 1. Turf renovation. Related Requirements:

Retain subparagraphs below to cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections.

Section 312500 “Erosion and Sedimentation Controls.”

Section 329300 "Plants" for trees, shrubs, ground covers, and other plants as well as border edgings and mow strips.

* + - 1. DEFINITIONS

Retain terms that remain after this Section has been edited for a Project.

* + - * 1. 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 310001 “Earthwork Materials” and drawing designations for planting soils.
        2. 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.

Insert other definitions if required to support planting requirements indicated on drawings.

* + - 1. SUBMITTALS
         1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
         2. Manufacturer’s installation instructions shall be provided along with product data.
         3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
         4. 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.

Retain subparagraph below for turfgrass sod.

Certification of each seed mixture for [**turfgrass sod**] [**plugs**]. Include identification of source and name and telephone number of supplier.

Retain "Product Certificates" paragraph below to require submittal of product certificates from manufacturers.

* + - * 1. Product Certificates: For fertilizers, from manufacturer.
        2. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

Retain "Maintenance Data" paragraph below if Director's Representative’s personnel provides maintenance after turf or meadow is established.

* + - * 1. Maintenance Data: Recommended procedures to be established by Director’s Representative for maintenance of turf [**and meadows**] during a calendar year. Submit before expiration of required maintenance periods.
      1. QUALITY ASSURANCE
         1. Field Examples: Seed samples will be taken by the Director’s Representative 30 days before sowing and sent to the New York State Seed Testing Laboratory, 6 Harriman Campus Road, Albany, NY 12206 for testing. Test analysis will indicate species, purity, percent of germination, and weed content. Results will be sent directly to the Director for acceptance or rejection based on these tests. Pay all expenses incurred for testing.

Use paragraph above only for large jobs; paragraph below only for small jobs.

* + - * 1. Provide prepackaged seed readily available to the public with quality and purity equal to product of O.M. Scotts and Son, Marysville, OH. On-the-job or made-to-order mixes will not be accepted.
      1. DELIVERY, STORAGE, AND HANDLING

Retain one or more paragraphs in this article to suit Project.

* + - * 1. 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.

Seed: Store all seed at the site in a cool dry place as approved by the Director’s Representative. Replace any seed damaged during storage.

Retain subparagraph below only for large jobs.

Deliver seeds, 30 days in advance of anticipated use, in vendor’s unopened packages bearing labels showing vendor’s name and seed analysis by weight for testing by the Director’s Representative.

Sod: Deliver sod within 24 hours of harvesting and in time for planting promptly. Do not deliver more sod than can be installed within 24 hours. Tag sod with common name of each grass species. Protect root system from exposure to wind or sun. Protect sod against dehydration, contamination, and heating during transportation and delivery. Store sod in a moistened condition under shade, or cover with wet burlap.

* + - * 1. Bulk Materials:

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

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.

Accompany each delivery of bulk materials with appropriate certificates.

* + - 1. FIELD CONDITIONS

Retain "Planting Restrictions" paragraph below to restrict planting times.

* + - * 1. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of [**planting completion**] [**Substantial Completion**].

In "Spring Planting" and "Fall Planting" subparagraphs below, insert specific dates for spring and fall plantings of seed, sod, plugs, sprigs, and meadows if required.

Spring Planting: Between April 1st and May 15th.

Fall Planting: Between August 15th and October 1st.

Provide temporary seed and mulch when final grading is complete while waiting for optimal seeding period.

Provide temporary seed and mulch for temporary cover on disturbed ground not to be worked on for more than 7 days.

Provide temporary seed and mulch on disturbed earth prior to temporary shutdown of construction.

* + - * 1. 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.

Do not install sod when temperature is below 32 degrees F. Do not install sod on saturated or frozen soil.

1. PRODUCTS
   * + 1. SEED

Retain this article if planting with seed. Selection of turfgrass species depends on climate, exposure, durability, and soil conditions.

* + - * 1. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

Acceptable material in a seed mixture other than pure live seed consists of nonviable seed, chaff, hulls, live seed of crop plants and inert matter. The percentage of weed seed shall not exceed 0.1 percent by weight.

All seed will be rejected if the label or test analysis indicates any of the following contaminates: Timothy, Orchard Grass, Sheep Fescue, Meadow Fescue, Canada Blue Grass, Alta Fescue, Kentucky 31 Fescue, and Bent Grass.

* + - * 1. Seed Species: Provide the following seed mixture:
        2. A = Min. Percentage of Germination
        3. B= Min. Purity Percentage
        4. C = Weight Pure Live Seed in Mixture

Retain one or more of the subparagraph below. If seed planting in wetland areas is required, include first subparagraph below.

For seed mixes in wetland areas, refer to Section 327100.

Seed Mix “A” – Urban Lawn Mix

| **Name** | **Variety** | **A** | **B** | **C** |
| --- | --- | --- | --- | --- |
| Chewings Fescue  (Festuca rubra commutata) | Banner, Highlight, Jamestown, or an approved equal. | 85 | 97 | 25 |
| Kentucky Bluegrass \*  (Poa pratensis) | Barron, Flyking, Glade, or an approved equal. | 80 | 95 | 55 |
| Perennial Ryegrass \*\*  (Lolium perenne) | Manhatten II, Pennfine, Yorktown II, or an approved equal. | 90 | 98 | 20 |

Seed Mix “B” – Roadside Mix

| **Name** | **Variety** | **A** | **B** | **C** |
| --- | --- | --- | --- | --- |
| Tall Fescue  (Festuca arundinacea) | Alta, Kentucky 13 or an approved equal. | 95 | --- | 15 |
| Creeping Red Fescue  (Festuca rubra trichophylla) | Ensylva | 95 | 97 | 20 |
| Kentucky Bluegrass \*  (Poa pratensis) | Baron, Flyking, Glade, or an approved equal. | 75 | 95 | 25 |
| Perennial Ryegrass \*\*  (Lolium perenne) | Manhatten II, Pennfine, Yorktown II, or an approved equal. | 90 | 95 | 40 |

\*Approximately equal proportions of 2 or more improved Bluegrass varieties as listed in the Cornell Recommendations for Turfgrass.

\*\*One or more of the improved Ryegrass varieties as listed in the Cornell Recommendations for Turfgrass.

Use seed mix “C” for undisturbed areas not being maintained.

Seed Mix “C” – Meadow Mix

| **Name** | **Variety** | **A** | **B** | **C** |
| --- | --- | --- | --- | --- |
| Red Fescue  (Festuca rubra) | Commercial | 92 | 98 | 42 |
| Annual Ryegrass  (Lolium multiflorum) | Commercial | 98 | 97 | 41 |
| Queen Anne’s Lace \*\*  (Daucus carota) | Commercial | --- | --- | 1 |
| Yarrow \*\*  (Achillea millefolium) | Commercial | --- | --- | 1 |
| Ox-eye Daisy \*\*  (Chrysanthemum leucanthemum) | Commercial | 78 | 99 | 1 |
| Smartweed \*\*  (Polygonum pensylvanicum) | Commercial | --- | --- | 1 |
| Red Top  (Agrostis alba) | Commercial | 93 | 98 | 4 |
| Bird’s-foot Trefoil \*  (Lotus corniculatus) | Commercial | 67 | 95 | 8 |
| New England Aster \*\*  (Aster novae-angliae) | Commercial | 82 | 95 | 1 |

* + - 1. TURFGRASS SOD

Retain this article if planting with turfgrass sod.

* + - * 1. Turfgrass Sod: Turf sod containing 95 percent pure permanent dense growth Kentucky Blue and fine leaved Fescue grasses. Color, leaf texture, and density shall be uniform. Sod shall be free of diseases, nematodes, and insects.

Mowed Height When Harvested: 1-1/2 to 2-1/2 inches.

Thatch: Maximum 1/2 inch.

Weeds:

Free of Bermuda grass, quack grass, Johnson grass, poison ivy, nut sedge, nimble will, Canada thistle, bind weed, bent grass, wild garlic, ground ivy, perennial sorrel, and brome grass.

Containing less than 5 jimson weed, mustard, lamb’s quarter, chick weed, cress, or crab grass plants per 100 sq ft.

* + - 1. PLUGS

Plugs are derived from warm-season, southern grass species of turfgrass sod.

* + - * 1. Plugs: Turfgrass sod. Furnish viable sod of uniform density, color, and texture that is cut into square or round plugs, strongly rooted, and capable of vigorous growth and development when planted; of the following turfgrass species and plug size:

Turfgrass Species: Kentucky Blue and fine leaved Fescue grasses.

Plug Size: [**2 inches**] [**3 inches**] [**4 inches**].

Weeds:

Free of Bermuda grass, quack grass, Johnson grass, poison ivy, nut sedge, nimble will, Canada thistle, bind weed, bent grass, wild garlic, ground ivy, perennial sorrel, and brome grass.

Containing less than 5 jimson weed, mustard, lamb’s quarter, chick weed, cress, or crab grass plants per 100 sq ft.

* + - 1. FERTILIZERS

Revise fertilizer composition to suit Project.

* + - * 1. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

Composition:

Revise to suit Project.

10 percent nitrogen, 6 percent phosphorous, and 4 percent potassium, by weight. 50% of total nitrogen shall be derived from ureaform furnishing a minimum of 3.5% water insoluble nitrogen (3.5% WIN). The balance of the nitrogen shall be present as methylene urea, water soluble urea, nitrate and ammoniacal compounds.

Other fertilizers meeting DOT Specification Section 713-03 Fertilizer can be used.

* + - 1. MULCHES

Retain one or more mulch paragraphs below.

* + - * 1. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley that are free of noxious weeds. Weight shall be based on a 15 percent moisture content.
        2. 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.

Mulch in "Fiber Mulch" paragraph above and material in "Nonasphaltic Tackifier" paragraph below are primarily used to protect hydroseeded areas from wind and water erosion during establishment.

* + - * 1. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.
      1. EROSION-CONTROL MATERIALS

Retain applicable paragraphs in this article; revise to suit Project or insert other erosion-control materials.

* + - * 1. Erosion-Control Blankets: As specified in Section 312500 “Erosion and Sedimentation Controls”.

1. EXECUTION
   * + 1. EXAMINATION
          1. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.

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.

Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.

Uniformly moisten excessively dry soil that is not workable or which is dusty.

* + - * 1. Proceed with installation only after unsatisfactory conditions have been corrected.
        2. 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 Director’s Representative and replace with new planting soil.
      1. PREPARATION
         1. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

Retain first subparagraph below for hydroseeding.

Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.

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

* + - * 1. 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.
      1. SEEDING
         1. Seed Bed: Scarify soil to a depth of 3 inches in compacted areas. Smooth out unsightly variations, bumps, ridges, and depressions which will hold water. Remove stones, litter, or other objectionable material.

Obtain written approval of seed bed from the Director’s Representative before commencing seeding operations.

* + - * 1. Assume all risks when seed is sowed before approval of seed analysis.
        2. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph.

Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.

Do not use wet seed or seed that is moldy or otherwise damaged.

Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

Revise first paragraph below to suit Project. Sowing rates vary with grass species and mixtures.

* + - * 1. Sow seed at a total rate of [**5 lb/1000 sq. ft. for Seed Mix “A”**] [**5 lb/1000 sq. ft. for Seed Mix “B”**] [**3.25 lb/acre for Seed Mix “C”**] .
        2. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.

Protect all seeded areas by spreading straw mulch. Spread uniformly at a minimum rate of [**2 tons/acre**] to form a continuous blanket [**1-1/2 inches**] in loose thickness over seeded areas. Spread by hand, blower, or other suitable equipment.

Retain subparagraph below for anchoring or bonding straw against erosion.

Anchor straw mulch by crimping into soil with suitable mechanical equipment.

* + - 1. HYDROSEEDING

Retain this article if hydroseeding is permitted.

* + - * 1. Hydroseeding: Mix specified seed, commercial 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.

Retain applicable option in first subparagraph below for improved erosion control.

Mix slurry with [**nonasphaltic**] [**fiber-mulch manufacturer's recommended**] tackifier.

Retain one of two subparagraphs below.

Spray-apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than [**1500-lb/acre**] dry weight, and seed component is deposited at not less than the specified seed-sowing rate.

Revise weight of fiber-mulch application in subparagraph below to suit Project.

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**].

* + - 1. SODDING
         1. Preparation:

Scarify topsoil to depth of 2 inches in compacted areas.

Apply fertilizer and rake into top 2 inches of topsoil.

Water dry soil to depth of 4 inches 48 hours prior to sodding.

* + - * 1. Lay sod within 24 hours of harvesting [**unless a suitable preservation method is accepted by Director’s Representative prior to delivery time**]. Do not lay sod if dormant or if ground is frozen or muddy.
        2. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to soil or sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.

Lay sod across slopes exceeding 1:3.

Retain subparagraph below if required. Steel staple anchors are commonly used.

Anchor sod on slopes exceeding 1:6 with wood pegs [**or steel staples**] spaced as recommended by sod manufacturer but not less than two anchors per sod strip to prevent slippage.

* + - * 1. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.
      1. PLUGGING

Revise plug spacing in this article to suit Project. Zoysiagrass plugs may require spacing as close as 6 inches in northern areas to speed coverage.

* + - * 1. Plant plugs in holes or furrows, spaced [**12 inches**] [**18 inches**] apart in [**both directions**] [**triangular pattern**]. On slopes, contour furrows to near level.
      1. TURF RENOVATION

Retain this article if turf renovation is required or if Contractor is likely to damage existing turf. Retain one or both of first two Paragraphs below to suit Project.

* + - * 1. Renovate existing turf where indicated.
        2. Renovate turf damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.

Reestablish turf where settlement or washouts occur or where minor regrading is required.

Install new planting soil as required.

* + - * 1. Remove sod and vegetation from diseased or unsatisfactory turf areas; do not bury in soil.
        2. Remove topsoil containing foreign materials, such as oil drippings, fuel spills, stones, gravel, and other construction materials resulting from Contractor's operations, and replace with new planting soil.
        3. Mow, dethatch, core aerate, and rake existing turf.
        4. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.
        5. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of them off Director’s Representative property.
        6. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches.
        7. Apply [**soil amendments and**] initial fertilizer required for establishing new turf and mix thoroughly into top 4 inches of existing soil. Install new planting soil to fill low spots and meet finish grades.

Retain "Soil Amendments" subparagraph below if retaining option in first Paragraph above. Insert application rate for each required soil-amendment material.

Soil Amendment(s): Apply <**Insert soil amendment**> at the rate of <**Insert application rate**>.

Initial Fertilizer: Commercial fertilizer applied according to manufacturer's recommendations.

Generally retain one option in first Paragraph below. If retaining more than one, indicate location of each on drawings or by inserts. Seeding and sodding are more commonly used for turf renovation.

* + - * 1. Apply [**seed and protect with straw mulch**] [**sod**] [**plugs**] as required for new turf.
        2. Water newly planted areas and keep moist until new turf is established.
      1. TURF MAINTENANCE
         1. General: Maintain and establish turf 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 turf. Provide materials and installation the same as those used in the original installation.

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.

Retain first subparagraph below if mulching is required.

In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.

Apply treatments as required to keep turf 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.

Revise "Watering" Paragraph below and insert requirements for use of sprinkler or irrigation systems if available. Also, revise below if water sources are distant or unavailable or if contractor must pay for water.

* + - * 1. 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.

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.

Revise rate of watering in subparagraph below to suit Project.

Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

* + - * 1. Mow turf 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 grass at heights between 3 inches and 3-1/2 inches until the Final Acceptance of the Work
      1. SATISFACTORY TURF
         1. Turf installations shall meet the following criteria as determined by Director’s Representative:

Retain one or more of three subparagraphs below. Revise descriptions or minimum acceptable coverage limits to suit Project.

Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 95 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.

Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.

Satisfactory Plugged Turf: At end of maintenance period, the required number of plugs has been established as well-rooted, viable patches of grass, and areas between plugs are free of weeds and other undesirable vegetation.

* + - * 1. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.
        2. Portions of the turf may be accepted at various times at the discretion of the Director’s Representative.
        3. At the physical completion of the Work, the State will assume maintenance responsibilities of the turf areas.
      1. MEADOW

Retain this article if planting seed for meadow grasses or wildflowers (Seed Mix “C”).

* + - * 1. Assume all risks when seed is sowed before approval of seed analysis.
        2. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph.

Before sowing, mix seed with seed carrier at a ratio of not less than [**two**] [**three**] [**four**] parts seed carrier to one part seed.

Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.

Do not use wet seed or seed that is moldy or otherwise damaged.

Sowing rates vary with mix of species but are usually much lighter than turfgrass-seed application rates. Revise first Paragraph below to suit Project.

* + - * 1. Sow seed at a total rate of 47 lb/acre for Seed Mix “C”, at a ratio of 42 lb grass seed, 4 lb legume, and 1 lb perennial wildflowers.
        2. Brush seed into top 1/16 inch of soil, roll lightly, and water with fine spray.
        3. Water newly planted areas and keep moist until meadow is established.

Final acceptance of meadow areas will be granted when uniform coverage of 95 percent or greater is achieved. Portions of meadow areas may be accepted at various times at the discretion of the Director’s Representative.

Unacceptable areas shall be reseeded as specified.

* + - 1. MEADOW MAINTENANCE
         1. Maintain and establish meadow by watering, weeding, mowing, trimming, replanting, and performing other operations as required to establish a healthy, viable meadow. Roll, regrade, and replant bare or eroded areas and remulch. Provide materials and installation the same as those used in the original installation.

Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and meadow damaged or lost in areas of subsidence.

Retain first subparagraph below if mulching is required.

In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.

Apply treatments as required to keep meadow 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.

Revise "Watering" Paragraph below and insert requirements for use of sprinkler or irrigation system if available. Also, revise below if water sources are distant or unavailable or if contractor must pay for water.

* + - * 1. Watering: Install and maintain temporary piping, hoses, and meadow-watering equipment to convey water from sources and to keep meadow uniformly moist.

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.

Revise rate of watering in subparagraph below to suit Project. Revise watering requirements according to meadow seed vendor's written recommendations.

Water meadow with fine spray to keep moist until meadow is established.

Consider adding weed-control requirements during meadow establishment. Also, consider adding a single fall mowing to a height of 4 to 6 inches if landscape installer is required to maintain meadow during fall season.

* + - 1. CLEANUP AND PROTECTION
         1. 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.
         2. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Director’s Representative's property.
         3. 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 Final Acceptance of the Work.
         4. Remove nondegradable erosion-control measures after grass establishment period.

END OF SECTION 329200