# DIVISION 32 – EXTERIOR IMPROVEMENTS
# 32 90 00 LANDSCAPING
# 32 92 00 TURF AND GRASSES

## PART 1 - GENERAL

1.01 INTRODUCTION

A. Preferred Methods for Installation of Turf: On the Pullman, Tri-Cities and Spokane campuses, sod is the preferred method of turf installation. On the Vancouver campus seeding may be preferred. Preferred methods at other locations shall be developed in consultation with the Project Manager (PM) and WSU professional staff.

1.02 DESIGN CONSIDERATIONS

A. Fertilization Plan: The Designer shall require the Contractor to prepare a Fertilization plan that addresses the composition of fertilizers applied. The plan shall specify locations and timing relative to worksite scheduling. Designer shall use the results of soil analysis testing to determine the N-P-K levels of inorganic fertilizers to be used, the form of slow release nitrogen to be used, timing of applications and rates of application for each location. Coordinate maintenance applications with turf grow-in applications and with worksite staging plan.

B. Fertilization Time: Do not specify application rates greater than one pound of nitrogen per 1000 square feet per month.

## PART 2 - PRODUCTS AND MATERIALS

2.01 SEED MIXES:

A. Turfgrass seed mix for the Pullman Campus:

i. 60% by weight Perennial Rye blend of three varieties
ii. 30% by weight Kentucky Bluegrass
iii. 10% by weight Magic Chewing Fescue

B. Prairie Grass / Native Grasses

1. Planned locations for “Prairie Grasses” or “Native Grasses” requires approval from WSU Grounds. These mixes may not be acceptable in some locations due to fire hazard.

2. Grassland LoGro Mix

i. 40% Perennial Ryegrass
ii. 40% Creeping Red Fescue
iii. 20% Hard Fescue

3. Noxious Plus Competitor Mix

    i. 50% two varieties of Fescue
    ii. 40% two varieties of Wheatgrass
    iii. 5% bluegrass
    iv. 5% Wild rye

4. Erosion Control Mix

    i. 80% 4 varieties of Fescue
    ii. 10% bluegrass
    iii. 10% Sterile Wheatgrass

2.02 HYDROSEEDING:

A. Submit hydroseed mulch, fertilization, application, and stabilization plan through the WSU Construction Manager for approval by WSU Grounds Staff or LA Professional Staff.

B. Hydroseed Mulch: Application rates, cellulose fiber, and soil binding agent (tackifier) shall comply with hydroseed mulch manufacturer's recommendations.

2.03 SOD:

A. Designer shall specify sod only from pre-approved turf farms.

B. Sod shall be in vigorous health, relatively free of damage, and free of all pests and diseases.

## PART 3 - EXECUTION

3.01 CONSTRUCTION ACTIVITIES

A. General Area Preparation & Care

1. New grass to be placed on existing grade requires 6-inches or more of topsoil:

    i. Avoid loosening or damaging the root system of existing trees and shrubs.

    ii. If surface material is acceptable, topsoil shall be prepared from existing surface material that has been cleaned, ground, and blended to meet specifications.

        1) Acceptable surface material is uncompacted, unpolluted, free of all construction debris, and has a pH between 5.5 – 8.3.

iii. If surface material is not acceptable, it shall be removed to a depth of 6-inches or more, and replaced with new imported topsoil.

iv. In all cases, scarify the subgrade to a depth of 3-inches before placing topsoil.

v. After inspection of subgrade by the WSU Construction Manager or Grounds Staff, Contractor shall place and till the topsoil in 3-inch lifts. Fine grade and roll to a smooth, even surface. Feather topsoil into new and existing grades up to existing tree and shrub driplines.

2. In general, do not plant new grass under the dripline of existing trees or shrubs. When this is required, consult with WSU Grounds Supervisor for guidance.

3.02 QUALITY CONTROL:

1. Submittals and Inspections: Comply with requirements of Submittals and Inspections of Plant and Seed Stocks per Section 32 90 00 “Landscaping.”

i. Seed Mix: Shall be "certified" grade or better, with less than 1% weed content and less than 2.5% inert material content. Seed that has become wet, moldy, or otherwise damaged shall not be accepted.

ii. Sod: Contractor shall provide a minimum 30 square foot sample prior to sod approval.

iii. Hydroseed Tackifier: Only guar gum tackifiers shall be used. Polyacrylamide-based tackifiers are not acceptable.

iv. Fertilizer: A copy of each fertilizer certificate of composition shall accompany the Safety Data Sheet (SDS) for that material when it is provided to Designer, WSU PM/CM, and WSU professional staff. Each original certificate shall be attached to each container of commercial fertilizer delivered to site. The original certificate shall be delivered to the WSU CM, Grounds staff, or Landscape Architect (LA) Professional staff as the container is opened at the time and location of application.

2. Delivery, Storage and Handling: Deliver seed in original unopened containers. Store all materials in a manner that will prevent the deterioration of the seed or additives. Seed and additives are subject to inspection for conformity to specifications and approval by the Designer, WSU PM/CM, Grounds staff, and LA Professional staff.

3. Acceptance of Area to be Seeded: The Contractor shall notify the WSU CM not less than three working days in advance of any seeding operation for owner inspection of prepared area. Contractor shall not begin the work until areas have been reviewed and inspected by the WSU CM, Grounds staff, or LA Professional staff and corrected as necessary. Following corrective work, seeding of approved areas shall begin without delay.

3.03 PLANTING:

A. Mechanical Seeding (Not hydroseeding): Moisten prepared lawn areas before planting if soil is very dry and allow surface to dry before seeding. Do not create a muddy soil condition. Sow seed using a spreader or seeding machine at a rate specified. Distribute seed evenly over entire area by sowing equal quantities in two directions at right angles to each other. Roll lightly and water with a fine spray so as to ensure complete seed-to-soil contact.

B. Hydroseeding:

1. Field Quality Control:

i. Contractor is responsible for protecting all surfaces, trees, and plants adjacent to hydroseed operations.

ii. Equipment: Hydroseed equipment shall use pure water as the carrying agent utilizing a continuous built-in agitation system. Equipment with a gear pump is not acceptable.

iii. Apply Seed at Specified Rate and Coverage: Apply hydroseed slurry at the rate and area coverage specified. Prior to application, the WSU CM or LA Professional Staff must review and approve the specific boundaries of area(s) to receive each load of seed. Areas completed to finish grade and approved for installation shall be seeded only after approval.

iv. Fertilizer shall not be applied during hydroseed operations. Fertilization of soil shall be applied prior to seed operations in order to bring topsoil nutrients to acceptable levels; this shall be documented by post-amendment soil testing.

v. All slurry mixed in one load shall be delivered and applied.

vi. Owner On-site Sampling at Time of Application: Designer, PM or representative shall sample applied materials to determine whether minimum density of seed has been evenly applied. If uniform density

has not been achieved, Contractor shall re-seed or infill to achieve specifications.

vii. Owner Sampling of Germination: WSU LA Professional Staff shall sample germinated seed to determine that rate of application, germination, and mix of species meet specifications.

viii. Contractor shall provide all empty or partially filled sacks and labels to WSU LA Professional staff upon completion of application.

2. Hydroseed Application:

i. Application Rates: (Adjust rates as required by conditions.) The following rates are suggested for the Pullman campus:

1) Hydromulch: 2000 pounds per acre (40 pounds per 1000 square feet).
2) Soil Binding Agent (tackifier): 45 pounds per acre (1 pound per 1,000 square feet).
3) Seed and Fertilizer: Per project specifications.

ii. Hydroseed Application Timing:

1) The LA Designer shall specify when hydroseeding shall be done. This will vary depending on planting plan and site conditions. In general, seeding should be done from April 15 - June 15, or August 15 - October 1.
2) No seeding shall be done on weekends or legal holidays without prior written approval. All premium time to WSU staff shall be compensated back to WSU.
3) Hydroseed operations shall not be performed during windy conditions (sustained or gusts above 25 mph) or when soil is saturated or frozen.

C. Sod Application: Designer shall specify the following and Contractor shall coordinate in the Worksite Staging Plan.

1. Delivery of sod shall be only after there is enough prepared and approved space on site for at least one day's sod application.

2. Palletizing: During shipping, sod shall be well covered on all sides to prevent drying.

3. Installation of Sod: Water soil lightly to provide moist condition for root contact. Unroll or place mats in same direction each time. Keep sod sections tightly butted to prevent edges from drying out. Stagger sod

section joints in a running pattern, placing the long axis of the mat running horizontally along face of any slope. Start laying sod at the bottom of the slope and work up the slope. Roll without delay before watering. If necessary, use boards or plywood paths at least 24-inches wide to walk on, to protect sod already placed.

i. Sod final subgrade shall be one inch below the level of any adjacent paved surfaces.
ii. Allow a 2 foot radius space free of sod around each tree trunk, and fill space with bark mulch up to root flair.

4. Water and Protect: Apply irrigation within 30 minutes after installation. After sod is in place, water carefully to saturate soil to a depth of 6-inches, taking care to prevent erosion between or beneath sod units. Protect newly placed sod.

3.04 MAINTENANCE AND WARRANTY:

A. Maintenance Period: See Section 32 90 00 “Landscaping”.

B. Warranty Period: See Section 32 90 00 “Landscaping”.

**END OF SECTION**