

## SECTION 02924

### SEEDING & REVEGETATION

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Topsoil.
  - 2. Seeding & Landscaping.
  - 3. Maintenance & Warranty.

##### 1.2 REFERENCES

- A. City of Cañon City Grading, Erosion, & Sedimentation Control (GESC) Plan Manual.
- B. Urban Storm Drainage Criteria Manual (UDFCD).
- C. 1999 CDOT Standard Specifications for Road and Bridge Construction.
- D. Erosion Control Technology Council (ECTC).
- E. American Society for Testing and Materials (ASTM).

##### 1.3 SUBMITTALS

- A. Product Data: Submit product information and design.
  - 1. Provide submittal of topsoil with proper analysis from independent soils laboratory prior to delivery.
  - 2. Submittals shall include seed mixes, mulches, soil amendments, methods, etc. The Contractor shall also submit an irrigation plan.
  - 3. If specified materials are not obtainable, submit non-availability to City, together with a proposal for use of equivalent material.
- B. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

##### 1.4 QUALITY ASSURANCE

- A. Developer/Contractor shall have a soil sample tested by a licensed, certified soil testing company for a report that will address fertilization needs, pH balance, and agricultural chemical analysis including micro nutrients and salt content data.

- B. All seed shall be furnished in containers clearly labeled to show name and address of supplier, the seed name, the lot number, net weight, origin, the percent of weed seed content, guaranteed percentage of purity and germination, and the pounds of pure live seed of each species.
- C. Seed shall be labeled in accordance with U.S. Department of Agriculture rules and regulations and Colorado State Seeding laws.
- D. A satisfactory stand of plantings not requiring reseeding shall be defined as a minimum of 50 grass seedlings per square foot or 70% of the prior disturbed landscaped growth.

## 1.5 QUALIFICATIONS

- A. Manufacturer/Installer: Company specializing in performing work of this section with documented experience.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Topsoil shall be surface soil, fertile, friable, natural loam reasonably free of subsoil, clay lumps, brush, weeds, and other litter and free of roots, stumps, stones larger than 2 inches in any dimension, and other extraneous or toxic matter harmful to plant growth. Topsoil shall conform to 1999 CDOT Standard Specifications for Road and Bridge Construction, Section 207.02.
- B. Specific fertilizer and amendments recommendations shall be provided by a licensed, certified soil-testing company.
- C. Erosion Control Blankets (ECBs) shall be used in areas with slopes steeper than 3:1. ECBs shall be temporary/biodegradable (life span = 18-24 months) and meet the guidelines of the Erosion Control Technology Council (ECTC). ECBs shall meet the

specifications of ASTM D5199, D5261, D1117, D1388, and D5035. ECBs shall be installed according to manufacturer's requirements and in a way that is not detrimental to the seeding and germination process. A product and installation submittal shall be delivered to Engineer for approval prior to installation of ECBs.

D. Hay mulch shall be used in areas with slopes of 3:1 or flatter. Hay mulch shall consist of clean field hay and shall not contain seeds of noxious weeds. Hay in such an advanced state of decomposition as to smother or retard the growth of grass will not be accepted. The hay mulch shall have a minimum of 60% of the hay stubble 10 inches or longer upon completion of the crimping operation.

E. Mulch tackifier shall be applied to all hay mulched areas at a rate of 100 lbs/acre and shall consist of a free-flowing non-corrosive powder produced from the natural plant gum of *Plantago Insularis* (Desert Indianwheat). The powder shall possess the following properties:

Protein Content	1.6%
Ash Content	2.7%
Fiber Content	4.0%
pH (1% solution)	6.8%
Settleable Soils	5.0%

F. Grass Seed Mix:

1. All brands shall be free from such noxious weeds as Russian or Canadian Thistle, European Bindweed, and Johnson Grass leafy spurge.
2. Seed that has become wet, moldy, or otherwise damaged in transit or in storage shall not be accepted.
3. Dry land areas shall be seeded with the following mix:  
TBD
4. Wet land areas shall be seeded with the following mix:  
TBD

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify placement with Engineer.
- B. All disturbed areas within the extents of the project shall be reclaimed, reseeded, and mulched according the Plans and Specifications.

### 3.2 SITE PREPARATION

- A. Landscape work shall proceed as rapidly as portions of the site become available, within season limitations.
- B. Rip existing soil to a minimum depth of 6 inches in one direction using an agricultural ripper with tines spaced at no greater than 18 inches.
- C. Remove all rubble, stones and extraneous material over 4 inches in diameter.
- D. Spread the amendment over the entire area to be landscaped and incorporate into the top 4 inches of soil by dicing or rotating until a uniform mixture is obtained with no pockets of soil or amendments remaining.
- E. Developer/Contractor shall supply fertilizer, erosion control, and mulch as required to meet the requirements.

### 3.3 SEEDING

- A. Seeding shall occur after spring thaw and before consistent ground freeze. At no time will seed be sown when the surface of the ground is frozen.
- B. Slopes 3:1 or flatter:
  - 1. Seeded by mechanical power drawn "Grass" drills equipped with agitator in the seed box, double disc opener, and depth bands followed by packer wheels. Drills

shall have a depth of  $\frac{1}{2}$  -  $\frac{3}{4}$  inch and shall be set to space the rows not more than 7 inches apart. Seed that is extremely small shall be sowed from a separate hopper adjusted to the proper rate of application.

2. Areas will be mulched with hay mulch after seeding within 24 hours uniformly at a rate of 2 tons per acre. The mulch shall then be crimped with a crimper. Crimping shall be performed on the contour. Areas not mulched within 24 hours shall be reseeded prior to mulching.
  3. Upon completion of mulching, organic tackifier shall be applied.
- C. Slopes steeper than 3:1:
1. Seeded by hydraulic seeders.
  2. Areas will be mulched with 100% virgin wood cellulose fiber mulch after seeding within 24 hours uniformly at a rate of 2000 lbs/acre. Areas not mulched within 24 hours shall be reseeded prior to mulching.
  3. Hydraulic mulching shall not be done in the presence of free surface water.
- D. Seeding may be accomplished on small areas not accessible to machine methods by approved methods.
- E. Seed shall not be sown during windy weather.
- F. All broadcast seed shall be "raked in" or covered with at least  $\frac{1}{4}$  inch of soil.
- G. Seed shall be applied at a minimum rate of 15 lbs/acre.

#### 3.4 MAINTENANCE & WARRANTY

- A. Maintenance and irrigation of seed and established plants is the responsibility of the Developer/Contractor for the full warranty period of two years. At any time, during the maintenance period, that the City determines corrective work and replacement materials are necessary in accordance with the Contract, the Contractor shall take corrective measures within 10 days of notice by the City.

- B. A warranty bond in the amount of line item prices for the seeding for the two-year warranty period may be required for assurance that the seed will be grown and maintained. This warranty bond shall be received by the City prior beginning any work.
- C. The Developer/Contractor shall be responsible for all maintenance and repair necessary within the warranty period.
- D. Maintenance shall include irrigation by the Developer/Contractor.
- E. The Developer/Contractor shall submit a plan for irrigation, which may include pumps, temporary sprinkler pipes, sprinklers, siphon pipes, gate pipe, etc.

END OF SECTION