

**CITY OF FARGO SPECIFICATIONS
SEEDING**

**PART 1
DESCRIPTION OF WORK (revised March, 2007)**

This work shall consist of seeding boulevards, slopes, ditches, or other locations shown on the plans or as designated by the engineer.

Furnishing and placing of 4" of topsoil and/or the installation of mulch is only included when specified or designated either in the Special Instructions for Bidders or on the Bid Sheet.

PART 2
MATERIAL

2.1. TOPSOIL

All topsoil shall be natural, friable soil which has produced heavy growths of crops, grass, or other vegetation and shall be reasonably free from subsoil, brush, objectionable weeds, or other litter, and shall be free from clay lumps, stones or other objects larger than one inch diameter, stumps roots, any toxic substance, or any other material which may be harmful to plant growth or may be a hindrance to grading, planting and maintenance operations.

2.2. SEED

All seed shall be labeled in accordance with U. S. Department of Agriculture rules and regulations under the Federal Seed Act in effect on the date of the invitation to bids. Seed shall be furnished in sealed containers unless the engineer grants exception. Damaged, wet, or moldy seed will not be accepted. All seed shall meet the minimum requirements for purity and germination. No purity or germination tolerance will be allowed. Weed seed shall not exceed 0.5% of the total mixture, and seed shall contain no noxious weed seed of the state from which seed is to be shipped. The seed mixture shall conform to the following:

A. Type A - Ditches and Side Slopes:

<u>Kind Of Seed</u>	<u>Percentage</u>		
	<u>by Weight</u>	<u>Purity</u>	<u>Germination</u>
Brome Grass	40%	85%	85%
Western Wheat	20%	90%	75%
Crested Wheat	20%	90%	85%
Rye Grass	20%	99%	90%

Rate of Seeding = 50 Pounds per Acre

Seed mixture shall contain one of the following companion crops at the specified application rate:

1. April 1 to June 15 seeding – 15 pounds/acre of Oats.

2. June 15 to September 15 seeding – 20 pounds/acre of Sudan Grass.
3. September 15 to December 1 seeding – 40/pounds/acre of Rye.

B. Type B - Parks, Boulevards, Private Property, Built-Up Areas:

<u>Kind Of Seed</u>	<u>Percentage by Weight</u>	<u>Purity</u>	<u>Germination</u>
Glade Kentucky Blue	25%	90%	80%
Park Kentucky Blue	25%	90%	80%
Creeping Red Fescue	25%	90%	80%
Perennial Ryegrass	25%	95%	90%

Percent by weight shall be plus or minus 5 % on all seed types.

Rate Of Seeding = 220 Pounds Per Acre (5 Pounds Per 1,000 Sq. Ft.)

2.3. FERTILIZER

Fertilizer shall be a commercial product and shall be 10-10-10 at an application rate of 90 pounds per acre (2 pounds per 1,000 sq. Ft.). Fertilizer shall be free flowing and suitable for application with mechanical equipment, delivered in sealed containers, fully labeled, and bearing the name, trade name or trade mark and warranty of the producer.

2.4. MULCH (IF SPECIFIED)

A. HYDRO MULCH

Hydro mulch shall be a wood cellulose fiber (not sawdust) and be applied at a rate of 2000 pounds per acre (45 pounds per 1,000 sq. Ft.). The mulch shall have an approved tacking and bonding agent to ensure long lasting stabilization and reduce erosion potential. The tackifier shall be installed as per the manufacturer’s recommendation.

B. STRAW MULCHING

Material for straw mulching shall consist of native hay or the straw from oats or barley, and shall be seed free to prevent the introduction of weeds as defined by the North Dakota Department of Agriculture. At least 50% of the mulch by weight shall be 10 inches or more in length. Dry mulching material that breaks and does not bend is not acceptable. Application rate is 2 tons per acre (90 pounds per 1,000 sq. Ft.).

PART 3
CONSTRUCTION

3.1. PREPARATION OF AREAS TO BE SEEDED

Prior to or during grading and tillage operations, the ground surface shall be cleared of all stumps, brush, roots, stones larger than 2 inches in diameter, wire or other material that may hinder seeding and maintenance operations. Any accumulated material shall be disposed of by the contractor at no additional cost to the City.

3.2. PLACING TOPSOIL

Immediately prior to placing the topsoil, the subgrade shall be loosened by disking or scarifying to a depth of two inches to provide for the bonding of the topsoil to the subgrade. Topsoil shall be placed on all areas to meet prescribed grades or to provide soil capable of supporting grass growth. Topsoil shall be dumped in uniformly spaced piles and spread evenly to a minimum depth of four inches over the prescribed area. Topsoil shall be graded as shown on the plans or as directed by the engineer. Irregularities or low spots resulting from the topsoiling or other operations shall be corrected in order to prevent pockets where water may stand. Topsoil will not be placed when the subgrade is frozen, excessively wet, extremely dry, or in a condition otherwise detrimental to the proposed plantings or the grading operation.

3.3. PLANTING SEED

Prior to planting of the seed, fertilizer will be applied at the specified rate. All seeding shall be done when the ground is open, not frozen or covered with snow, except as otherwise directed in writing by the engineer. Seed shall be mechanically sown using approved equipment. Application rates shall be checked periodically using approved methods. When drill seeding, provisions shall be made to assure overlap. If inspection shows strips have been missed or skipped, these areas will be reseeded at no additional cost. When delays in operation or unfavorable weather conditions indicate that seeding will not have satisfactory results, the engineer will stop the work.

A. BROADCAST SEEDING

Seed shall be broadcast by approved sowing equipment or by hand for small areas. Seed shall be uniformly distributed with half the seed being sown with the sower moving in one direction, and the remaining half-sown at right angles to the first sowing. Seed shall be covered to an average depth of 1/2 inch by a harrow or approved device. Broadcast seeding will not be allowed in windy conditions.

B. DRILL SEEDING

Drill seeding shall be done with grass drills not more than 6 inches apart and shall be sown uniformly over the designated area. Seed shall be sown to an average depth of 1/2 inch.

C. SLURRY SEEDING

The seed, water and mulch (if specified) shall be combined and kept under constant agitation so that a slurry of seed, mulch (if required) and fertilizer and water can be applied hydraulically to the areas to be seed. The equipment used will provide sufficient agitation to insure a uniform mixture of the ingredients throughout the application of each given quantity of slurry mixture. Uniform coverage and seeding ratios shall be obtained and spot checks of seed distribution may be made by random placing of paper plates on areas to be seeded. After seeding, comparison of actual count of seed on the plates will verify the uniformity and application rate of the seeding distribution. No hydro seeding will be allowed after September 15th.

3.4. MULCHING (IF REQUIRED)

3.4.1. HYDRO MULCH

Hydro mulch will be applied with the slurry seed application and when completed shall provide uniform coverage while allowing percolation of water to the seedbed.

3.4.2. HAY OR STRAW MULCH

Mulch shall be placed within 24 hours after the seeding has been completed and the mulching operation shall not be performed during periods of high winds. Mulch shall be applied by a mechanical blower that minimizes cutting or breaking of the material. The mulch shall be anchored by punching with a mulch tiller that anchors the mulch approximately 3 inches into the soil while leaving approximately 10% of the soil surface exposed.

3.5. CLEANUP

All areas shall be cleaned of areas that may hinder maintenance operations and all paved areas over which hauling operations were conducted shall be cleaned of soil or other material that may have been brought upon the surface.

3.6. PROTECTION OF SEEDED AREA

The contractor shall protect all planted areas from traffic or other use by placing warning signs or erecting barricades immediately after seeding is complete. Any damage that may occur prior to final acceptance by the engineer shall be repaired to re-establish the conditions or grade of the soil prior to the damage and shall then be re-planted by the contractor at no additional cost.

3.7. WATERING OF SEEDED AREA (revised March, 2007)

Immediately upon completion of the seeding, the seeded areas shall be given one watering. Sufficient water to moisten the seedbed to a depth of 2 inches shall be applied. Water shall be applied in a manner that provides uniform coverage and prevents erosion and damage to the final surface. The contractor shall provide daily watering for the first five days and sufficient water to maintain surface moisture in the top 2 inches of the soil for the following 2 weeks to insure germination of the seed.

PART 4
GUARANTEE, MEASUREMENT & PAYMENT

4.1. GUARANTEE

The guarantee shall cover the contract as to workmanship and material for a period of six (6) months from the date of final acceptance and payment.

4.2. MEASUREMENT

Measurement will be determined by measuring the areas seeded and/or mulched. The unit of measure will generally be the acre unless otherwise provided for in the bid documents.

4.3. PAYMENT

4.3.1. SEEDING

Seeding will be paid for at the unit price bid per acre, and shall be full compensation for preparing the earth bed, furnishing and placing topsoil, furnishing and applying the fertilizer, furnishing and placing the seed, watering of the seedbed, and all labor, equipment, tools and incidentals necessary to complete the work in accordance with these Specifications.

4.3.2. MULCH

All labor, equipment, tools, and incidentals necessary to place the mulch shall be included in the appropriate unit bid price.

A. HYDRO MULCH

When hydro seeding with mulch is specified, the cost of the mulch shall be included in the unit cost bid price for hydro seeding. If hydro mulching is a separate bid item it will be paid for at the unit cost bid price.

B. HAY OR STRAW MULCH

Hay or straw mulch when specified will be paid for at the unit bid price for the area covered by the mulch.