

requirements of ASTM A36/A36M. Nuts embedded in concrete shall conform to the requirements of ASTM F568 Class 4.6 (ASTM A307).

Anchor bolts, exposed nuts and washers shall conform to the requirements of ASTM F568 Class 8.8 (ASTM A449 or ASTM F1554, Grade 55) and shall be hot dipped galvanized in accordance with ASTM A153 or ASTM B695, Class 50, Type 1.

e. Stainless Steel Parts Cap screws, for fastening clamp bars and set screws for panel brackets shall conform to the requirements of ASTM F593, Alloy Group 1, Condition CW.

SECTION 717 - ROADSIDE IMPROVEMENT MATERIAL

717.01 Fertilizer Fertilizer shall be commercial fertilizer having available elements in conformity with the standards of the Association of Official Agricultural Chemist. The fertilizer shall be furnished in unopened bags with the weight, contents, and guaranteed analysis shown there on or on a securely attached tag.

- (a) Grass Seed Fertilizer shall be;
 - 21% Nitrogen, of which 40% is Urea and 60% is Urea Formaldehyde Slow Release
 - 10% Phosphorus
 - 21% Muriate of Potash, 60% of which is Potassium oxide

- (b) Slow Release Fertilizer tablets - Planting Tablets shall be a long lasting 20-10-5 plus minors 21 gram [$\frac{3}{4}$ oz] tablet.

- (c) Water Soluble Fertilizer shall be;
 - 20% Nitrogen
 - 10% Phosphorus
 - 20% Potassium

Completely water soluble, non-corrosive, without chlorides or carbonates, and containing a color tracer dye.

717.02 Agricultural Ground Limestone Agricultural ground limestone shall have the following mechanical analysis: At least 50 percent shall pass the 150 μm [No. 100] sieve,

90 percent shall pass the 850 μm [No. 20] sieve and 100 percent shall pass the 2 mm [No. 10] sieve. The total carbonates shall not be less than 80 percent.

Agricultural ground limestone may be shipped in containers or in bulk. Packaged material shall be delivered in the manufacturer's standard containers. The containers shall be new and so constructed to assure safe arrival at the site. The net weight of the contents shall not exceed 45 kg [100 lb] per container. The manufacturer's name, a guarantee analysis, and the net weight shall appear on each container. Bulk shipments shall be accompanied by certificates stating manufacturer's name, weight, and guarantee analysis.

Liquid lime may be substituted for agricultural ground limestone when seeding hydraulically. Liquid lime shall be a water soluble solution containing the following analysis:

Calcium Chloride - minimum 13.5%, maximum 14.5%

Ammonical Nitrogen - minimum 3.5%, maximum 4.5%

pH - minimum 10.25, maximum 10.75

Specific Gravity - minimum 1.14kg/l (9.55 lb/gal), maximum 1.15kg/l [9.65 lb/gal]

Liquid lime shall be delivered in the manufacturer's unopened containers. The manufacturer's name, a guaranteed analysis, and the quantity shall appear on each container.

717.03 Seed All seed shall be certified as to mixture, germination, purity, and live seed.

Each variety shall conform to the following:

A. Percent germination > 80%

B. Pure Live Seed > 85%

C. Percent Purity > 85%

D. Weed seed < 1%

E. All seed shall be from the current years crop unless recent tests by an approved testing agency demonstrate that older seed meets the above requirements

Seed Mixtures shall consist of seed proportioned percent by weight as follows:

A. Method #1 - Park Mixture

Creeping Red Fescue	45%
Kentucky Bluegrass	25%
Chewings Fescue	15%
Perennial Ryegrass	10%
Annual Ryegrass	5%.

B. Method #2 - Roadside Mixture #2

Red Fescue	50%
Sheep Fescue	25%
Red Top	5%
White Clover	10%
Annual Rye	10%

C. Method #3 - Roadside Mixture #3

Crown Vetch	50%
Perennial Lupine	25%
Crimson Clover	15%
Annual Rye	10%

717.04 Mulch

(a) Hay mulch shall consist of long fibered hay, reasonably free from weeds and other undesirable material. No material shall be used which is so wet, decayed or compacted as to inhibit even and uniform spreading. No chopped hay, grass clippings, or other short fibered material shall be used unless directed.

Straw mulch shall consist of long fibered straw derived from oats, wheat, rye or other cultivated grains, reasonable free from weeds and other undesirable material. No material shall be used which is so wet, decayed or compacted as to inhibit even and uniform spreading. No chopped hay, grass clippings, or other short fibered material shall be used unless directed.

(b) Cellulose fiber mulch shall consist of elongated wood fibers from virgin or recycled sources and post consumer newsprint. The woods fibers shall be tested to show no lead, asbestos or other heavy metals exceeding EPA toxic levels. Cellulose fiber mulch shall be free of refuse, physical contaminants, and material toxic to plant growth. Cellulose fiber shall not contain more than 30% post-consumer newsprint.

(c) Bark mulch shall consist of soft wood bark fragments that have been aged for at least 6 months. Bark mulch shall be free of refuse, physical contaminants, material toxic to plant growth, and reprocessed wood products. Bark mulch shall be a well-graded material conforming to the following:

1. pH between 4.0 - 8.0
2. Particle size 100% passing a 50 mm [2 inch] screen
- 3 Soluble salts content < 4.0 mmhos/cm

(d) Erosion control mix shall be an organic substance of source separated materials, separated at the point of waste generation, that may include; forest residues, bark, paper mill flume grit, stump grindings and aged wood waste. Erosion control mix shall be free of refuse, physical contaminants, material toxic to plant growth, and reprocessed wood products. Erosion control mix may contain rocks less than 100 mm [4 in] in diameter and shall be a well graded material conforming to the following:

1. pH between 5.0 - 8.0
2. Particle size (by weight):
 - a) 100% passing a 150 mm [6 in] screen
 - b) 75 to 85% passing a 19 mm [0.75 in] screen
3. Soluble salts content < 4.0 mmhos/cm
4. Organic Matter 20 to 100%, dry weight basis

(e) Stone mulch shall be clean native stone free of refuse, physical contaminants, material toxic to plant growth, and limestone. Stone mulch shall conform to the following:

1. Particle size:
 - a. 100% < 19 mm [$\frac{3}{4}$ in] screen
 - b. 90% > 6.3 mm [$\frac{1}{4}$ in] screen

717.05 Mulch Binder Shall consist of a commercially developed product for the tacking of hay or straw. Binder shall be free of refuse, physical contaminants, material toxic to plant growth, or asphalt. Paper fiber mulch may be used as a binder at the rate of 3 kg /m² [0.6 lb/ ft²]. Paper fiber mulch shall consist of 100% post consumer newsprint processed to be applied hydraulically.

717.061 Erosion Control Blankets Shall consist of a machine produced rolled blanket of biodegradable organic fibers, evenly distributed over the entire area of blanket, of a consistent thickness, sewn into a biodegradable mesh on the top and bottom surface using a cotton blend thread. The blanket shall remain in place when subject to shear stress of 7.57 kg/m² [1.55 lb/ft²]. The blanket shall remain intact until grass is established. See Section 618.10 - Seeding, Maintenance and Acceptance.

717.063 Ground Anchors Shall consist of metal staples or biodegradable stakes as recommended by the manufacturer of the erosion control blanket to be used.

717.07 Herbicide The herbicide shall be an approved chemical registered in the State of Maine for the required treatment.

717.09 Peat Humus Organic Humus shall be an organic substance meeting the following:

Minimum organic matter shall be 35% as determined by loss on ignition.

Particle size shall be 100% less than 25 mm [1 in].

Soluble salts shall be less than 4.0 mmhos/cm.

pH shall be between 4.5 and 8.0.

Material shall be Stable (>5) as measured by the Dewar Self Heating Test

Organic humus may be a natural peat from sedge, sphagnum or reed origin, or a compost from source separated materials that may include leaf and yard trimmings, food scrapes, food processing residues, manure and other agricultural residuals, or biosolids. Organic humus shall contain no visible admixture of refuse or other physical contaminants or any material toxic to plant growth.

SECTION 718 - TRAFFIC SIGNALS MATERIAL

718.01 Vehicular Signal Indications

a. Vehicular signal heads for traffic signals and flashing beacons shall conform to or exceed the current edition of the ITE "Standard for Adjustable Face Vehicle Traffic Control Signal Heads". Each housing section shall be complete with a one-piece, hinged door mounting for the lens and other parts of the optical system, watertight gaskets, and