32 05 16

LANDSCAPE ROCK

PART 1- GENERAL

1.01 Section Includes

A. Preparation of subsoil

B. Weed Barrier

C. Furnishing and installation of landscape rock

1.03 Quality Assurance

A. Planting foreman shall have previously and successively completed landscaping work similar in design, material, and extent, to the Work required by the Contract Documents.

1.04 Submittals

A. Product Data: Provide data on accessories describing size, finish, details of material.

1.05 Product Delivery, Storage and Handling

A. Provide stone material clean material, free of chips dust and other debris.

1.07 Warranty

A. Provide manufacture's standard warrantee for weed barrier.

PART 2 - PRODUCTS

2.01 Landscape Rock

A. Provide #3 size, multicolored river rock landsaping stone to a depth of a minimum of 5".

2.02 Weed barrier

A. Provide 5.8oz. weight, heavy-duty, woven landscape fabric. Product shall be wide enough to reach from building to sidewalk with no breaks or joints. Material roll shall be long enough to reach entire length of rock bed with no breaks or joints.

2.05 Accessories

A. Provide 6 Inch Landscape Staples, Garden Staples Galvanized Landscaping Fabric Pins Heavy Duty 11 Gauge Yard Ground Stakes for pinning weed barrier edges at 4'-0" c/c

PART 3 - EXECUTION

3.01 Rock Bed Preparation

A. Prepare subsoil to eliminate uneven areas. Scarify subsoil to a depth of three inches.

B. Excavate subsoil bed to provide positive drainage away from building.

C. Excavate subsoil bed to provide flush finish of rock surface to adjacent surfaces.

D. Weed Barrier
   1. Place weed barrier subsoil bed. Secure with landscape staples.
   2. Extend edges to provide no gaps exposing subsoil at perimeter.

E. Landscape Rock: Install with uniform thickness over entire installation.

3.06 Cleanup

A. Dispose of excess soil.

B. Remove all cuttings and waste material.

END OF SECTION

SECTION 32 11 23

CRUSHED AGGREGATE BASE COURSE

PART 1 - GENERAL

1.01 Section Includes

A. Furnishing and placing crushed aggregate base course as a foundation for asphaltic concrete pavement or Portland cement concrete pavement.

1.02 Related Sections

A. Section 01 45 16 – Testing Requirements.

1.03 References

A. ASTM C136 - Sieve Analysis of Fine and Coarse Aggregate.

B. ASTM D1557 - Standard Test Methods Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)).

C. Wisconsin Department of Transportation, Standard Specifications for Highway and Structure Construction, Current Edition (WisDOT).

1.04 Submittals

A. Submit aggregate gradation; ASTM C136.

B. Submit truck weight slips. Include as a minimum, truck number, date, time, gross weight, tare weight and net weight.

PART 2 - PRODUCTS

2.01 Crushed Aggregate

A. Meet material requirements of WisDOT.

B. Gradation
1. Except for reclaimed asphaltic pavement, conform to the gradations listed in the following table:

Sieve Size	Percentage Passing By Weight		
	3-Inch Base	1 1/4-Inch Base	3/4-Inch Base
3-Inch	90 - 100	- - -	- - -
1 1/2-Inch	60 - 85	- - -	- - -
1 1/4-Inch	- - -	95 - 100	- - -
1-Inch	- - -	- - -	100
3/4-Inch	40 - 65	70 - 93	95 - 100
3/8-Inch	- - -	42 - 80	50 - 90
No. 4	15 - 40	25 - 63	35 - 70
No. 10	10 - 30	16 - 48	15 - 55
No. 40	5 - 20	8 - 28	10 - 35
No. 200	2 - 12	2 - 12[a, c]	5 - 15[b]

   a. Limited to a maximum of 8 percent in base course placed between new and old pavement.
   b. 8 - 15 percent passing when base is ≥ 50% crushed gravel.
   c. 4 - 10 percent passing when base is ≥ 50% crushed gravel.

2. Use 1 1/4-Inch Base in top 4 or more inches of base. Use 3-Inch Base or 1 1/4-Inch Base in the lower base layers.
3. Use 3/4-Inch Base in the top 3 inches of unpaved portion of the shoulder. Also, if using 3-Inch Base in the lower base layers, use 3/4-Inch Base in the top 3 inches of the shoulder foreslopes. Use 3/4-Inch Base or 1 1/4-Inch Base elsewhere in shoulders.

2.02 Reclaimed Asphaltic Pavement

A. If Contract Documents allow reclaimed asphaltic pavement, the material shall conform to the following:

100 percent passing a 1 1/4-inch sieve.
75 percent or less passing a No. 4 sieve.
Asphalt content between 3 and 6.5 percent.

PART 3 - EXECUTION

3.01 Preparation

A. Check subgrade for conformity with grade and cross section.

B. Remove depressions and ruts that may have been caused after subgrade completion.

C. Proof-roll subgrade prior to placing aggregate with a loaded tandem-axle dump truck under the observance of the Engineer. Subgrade shall not rut or displace significantly under the weight of the loaded truck. Soft or unstable areas that cannot be improved by additional compaction shall be undercut, replaced with suitable fill material, and recompacted.

3.02 Lines and Grade

A. Construct the base course to the line, grade and cross section as shown on the Drawings or as directed by the Engineer.

B. For streets without curb and gutter, the Engineer will provide grade stakes at a minimum distance of 50 feet along the centerline. For streets with curb and gutter, the Engineer will stake the curb and gutter and will provide centerline cuts and fills from the curb stakes. Provide Engineer with a minimum of 48 hours notice of the need for grade stakes.

C. Contractor may use slope meters or GPS type controls on machines for grade control. However, the contractor is responsible for verifying the finish grade elevations with a level at a minimum of every 50 feet along the centerline.

3.03 Equipment

A. The weight, type, capacity and method of operation of all hauling and spreading equipment shall be appropriate for the work and shall not damage the subgrade or previously laid base course. Spreading equipment shall be designed and operated to spread the material in uniform layers without significant segregation.

B. Motor graders used for mixing and shaping shall have weight, rigidity and design suitable for the work.

C. Compaction equipment shall be of the rolling type, vibratory type or combination thereof. Tamping rollers shall exert a weight of not less than 150 pounds per square inch of tamping surface on each tamping foot in a transverse row. Pneumatic-tire rollers or other equipment shall have a weight of not less than 150 pounds per linear inch of overall rolling width.

3.04 Placing Base Course

A. Place material in a manner to minimize segregation and to facilitate spreading in a uniform layer.

B. Place material in maximum 6-inch thick compacted layers. If material is placed in more than one layer, each layer shall be approximately the same thickness.

C. Compact each layer to 95 percent of the maximum dry density in accordance with ASTM D1557. If material is deficient in moisture content for readily attaining the required density, moisten the material as necessary.

D. All material placed on the subgrade or previous layer shall be spread, shaped and compacted on the same day.

3.05 Tolerances

A. Smoothness: Maximum variation of 3/8 inch when measured with a 10-foot straight edge.

B. Compacted Thickness: Plus or minus 1/4 inch.

3.06 Proof Rolling

A. Proof roll the completed base course with a loaded tri-axle dump truck with a minimum gross weight of 30 tons. The surface shall not rut, displace, or roll under the weight of the loaded truck. Soft or unstable areas that cannot be improved by additional compaction shall be replaced and recompacted. Proof rolling shall be done in the presence of the Engineer.

3.07 Field Quality Control

A. Contractor is responsible for meeting the compaction requirements. The Engineer or authorized representative of the owner has the option to require the Contractor to hire an independent testing firm, at the Contractor's expense, to perform compaction tests to confirm the in-place density.

B. Field inspection will be performed by the Engineer or an authorized representative of the Owner.

C. Determination of moisture content shall be in accordance with ASTM D3017. Determination of density shall be in accordance with ASTM D2922.

D. If tests indicate the work does not meet the specified requirements, remove and replace the work.

END OF SECTION

SECTION 32 12 16

ASPHALTIC CONCRETE PAVEMENT

PART 1 - GENERAL

1.01 Section Includes

A. Construction of a one or two course asphaltic concrete pavement to the thickness and cross-section indicated on the Drawings or in the written Bid Documents.

B. Provide the mix indicated on the Drawings or in the written Bid Documents.

1.02 Related Sections

A. Section 01 45 16 – Testing Requirements.

1.03 References

A. State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, Current Edition (WisDOT).

1.04 Submittals

A. Preconstruction Submittals
   1. Submit mix design, meeting all necessary criteria for all mixtures to be used on the project. Conduct the mix design in accordance with WisDOT 460.

B. Construction Submittals:
   1. Submit density testing records.
   2. Submit truck weight slips.

1.05 Quality Assurance

A. Qualifications of Asphalt Producer: Use only materials which are furnished by a bulk asphalt concrete producer regularly engaged in the production of hot-mix, hot-laid asphalt concrete.

B. Qualifications of Testing Agency: Use only recognized commercial-testing laboratory experienced in testing asphalt concrete materials.

1.06 Job Conditions

A. Weather Limitations
   1. Asphalt concrete surface course material shall not be placed during the calendar period between November 1st and April 15th except with written approval of Engineer of a cold weather paving plan provided by the Contractor.
   2. Asphalt concrete material shall not be placed when air temperature is less than 36^0F as measured 3 feet above the ground in the shade and away from the effects of artificial heat.
   3. Asphalt concrete materials shall not be placed on frozen or excessively wet base course or when it is raining.

B. Traffic Control
   1. Maintain vehicular and pedestrian traffic during paving operations as required for other construction activities.
   2. Provide flagmen, barricades, warning signs and lights as needed to provide for safety and movement of traffic.

PART 2 - PRODUCTS

2.01 Asphaltic Mixture Design

A. Conduct the asphaltic mixture design in accordance with WisDOT Table 460-2. Mixture requirements are as follows:

Mixture Type	LT	MT
ESALs x 10^6 (20 yr design life)	< 2	2 to < 8
LA Wear (AASHTO T 96) 100 revolutions (max % loss) 500 revolutions (max % loss)	 13 50	 13 45
Soundness (AASHTO T 104) (sodium sulfate, max % loss)	12	12
Freeze/Thaw (AASHTO T 103) (specified counties, max % loss)	18	18
Fractured Faces (ASTM D5821) (one face/2 face, % by count)	65 / __	75 / 60
Thin or elongated (ASTM D4791) (max % by weight)	5 (5:1 ratio)	5 (5:1 ratio)
Fine Aggregate Angularity (AASHTO T 304, Method A, min)	40	43
Sand Equivalency (AASHTO T 176, min)	40	40
Gyratory Compaction Gyrations for N_{ini} Gyrations for N_{des} Gyrations for N_{max}	 6 40 60	 7 75 115
Air Voids, $\%V_a$	4. 0[6]	4. 0[6]
% G_{mm} @ N_{des}	96.0	96.0
% G_{mm} @ N_{ini}	≤91.5[1]	≤89.0[1]
% G_{mm} @ N_{max}	≤98.0	≤98.0
Dust to Binder Ratio[2] (% passing 0.075/P_{be})	0.6 - 1.2	0.6 - 1.2
Voids filled with Binder (VFB or VFA, %)	60 - 80 (4, 5)	65 - 75 (3, 4)
Tensile Strength Ratio - TSR (ASTM D4867) no antistripping agent with antistripping agent	 0.75 0.80	 0.75 0.80
Draindown at Production Temperature (%)	------	------

[1] The percent maximum density at initial compaction is only a guideline.
[2] For a gradation that passes below the boundaries of the caution zone (ref. AASHTO MP3), the dust to binder ratio limits are 0.6 - 1.6.
[3] For 9.5 mm and 12.5 mm nominal maximum size mixtures, the specified VFB range is 70 - 76%.
[4] For 25.0 mm nominal maximum size mixtures, the specified VFB lower limit is 67%.
[5] For 37.5 mm nominal maximum size mixtures, the specified VFB lower limit is 67%.
[6] Shall conform to current WisDOT ASP 6, 460.2.1, which includes the regression of air voids from 4.0% to 3.0% with asphalt cement.

2.02 Aggregate

A. Provide aggregate conforming to WisDOT Table 460-1. Aggregates shall consist of hard durable particles and shall not contain more than a combined total of one percent, by mass, of lumps of clay, loam, shale, soft particles, organic matter, adherent coatings, and other deleterious matter. The composite aggregates shall conform to the requirements of the Mixture Requirements Table and the Aggregate Gradation Table.

Aggregate Gradation Percent Passing By Weight				
Sieve Size	25.0 mm (#2)	19.0 mm (#3)	12.5 mm (#4)	9.5 mm (#5)
37.5 mm	100	- - -	- - -	- - -
25.0 mm	90 - 100	100	- - -	- - -
19.0 mm	90 max	90 - 100	100	- - -
12.5 mm	- - -	90 max	90 - 100	100
9.5 mm	- - -	- - -	90 max	90 - 100
4.75 mm	- - -	- - -	- - -	90 max
2.36 mm	19 - 45	23 - 49	28 - 58	20 - 65
75 um	1 - 7	2 - 8	2 - 10	2 - 10
% Min VMA	12.0	13.0	14.0	15.0

B. Unless otherwise designated in the contract, the nominal size of aggregate used in the mixture shall conform to the following:

Pavement Thickness	Aggregate Size	
	Binder	Surface
3”	12.5 mm	9.5 mm
3 1/2”	12.5 mm	12.5 mm
4”	19.0 mm	12.5 mm
4 1/2”	19.0 mm	12.5 mm
5”	19.0 mm	12.5 mm

2.03 Asphalt Cement

A. PG 58-28 S or H.

B. Tack Coat: Emulsified asphalt - Grade SS-1; WisDOT 455.2.5

2.04 Recycled Asphaltic Materials

A. Recycled Asphalt Shingles can be used as follows: 5-7% binder, 2% surface. WisDOT 460.2.5

2.05 Recovered Asphaltic Binders

A. WisDOT 460.2.6

PART 3 - EXECUTION

3.01 Lines and Grade

A. Lines and grade shall be as shown on the drawings or as given by the Engineer.

B. When curb & gutter is in place, the Contractor shall use the curb & gutter for line and grade. For streets without curb and gutter, the Engineer will provide grade stakes at a minimum distance of 50 feet along the centerline. Provide the Engineer with a minimum 48 hours’ notice of the need for grade stakes.

C. Parking lots will be staked as required.

3.02 Surface Preparation

A. Proof Roll
   1. Proof-roll prepared base surface using heavy rubber-tired roller or loaded tandem-axle dump truck under the observance of the Engineer. Aggregate surface shall not rut or displace significantly under the weight of the equipment. Soft or unstable areas that cannot be improved by additional compaction shall be undercut, replace with suitable fill material, and recompacted.
   2. Do not begin paving until necessary corrections are made.

B. Loose and Foreign Material
   1. Remove loose and foreign materials from compacted base or old surface course immediately before paving.
   2. Use power brooms or blowers and hand brooming as required.

C. Tack Coat (WisDOT 455.3.2.1)
   1. Dilute material with equal parts of water and apply to contact surfaces of previously constructed asphalt concrete or Portland cement concrete and similar surfaces.
   2. Apply at a rate of 0.05-0.07 gallons per square yard of surface with a power distributor.
   3. Apply only when air temperature is 36° F or higher.
   4. Apply tack coat by brush to contact surfaces of curbs, gutters, manholes and other structures projecting into or abutting asphalt concrete pavement.
   5. Apply tack coat between all layers. This work shall be incidental to the asphalt paving.

D. Existing Pavement Correction
   1. Fill potholes, sags and depressions.
   2. Material may be placed by hand.

3.03 Frame Adjustments

A. Prior to paving, set frames of subsurface structures to final grade. Covers shall be one-half inch below surface of adjacent pavement with the tops of manholes the same slope as the surrounding pavement.

3.04 Preparing the Mixture

A. Comply with applicable sections of WisDOT 450 for material storage, control, mixing and for plant equipment and operation.

3.05 Equipment

A. Provide size and quantity of equipment to complete the work specified within the project time schedule.

B. Paving shall be placed with a self-propelled spreading and finishing machine that spreads the hot-asphalt concrete mixture without tearing, shoving or gouging the surface and that controls pavement edges to true lines without use of stationary forms.

C. Rolling equipment shall be self-propelled steel-wheel rollers of the three-wheel, tandem or three-axle tandem type. Three-wheel and tandem rollers shall be rated at not less than 8 tons. Three-axle tandem rollers shall be rated at not less than 12 tons.

3.06 Placing the Mix

A. Do not place asphaltic mixture when the air temperature approximately three feet above grade, in shade, and away from artificial heat source is less than 36^0F.

B. Place asphalt concrete mixture on prepared surface, spread and strike off using paving machine.

C. Spread mixture at a temperature between 250^0F and 350^0F.

D. Inaccessible and small areas may be placed by hand.

E. Place each course at thickness so that when compacted, it will conform to the indicated grade cross section, finish thickness and density specified.

F. Compacted Thickness of Individual Layers:

Pavement Thickness	Layer Thickness	
	Binder	Surface
3”	1 1/2”	1 1/2”
3 1/2”	1 3/4”	1 3/4”
4”	2 1/4”	1 3/4”
4 1/2”	2 3/4”	1 3/4”
5”	3”	2”

G. Paver Placing
   1. Unless otherwise directed, begin placing along centerline of areas to be paved on crowned section and at high side of sections on one-way slope and in direction of traffic flow.
   2. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips.
   3. Complete binder course for a section before placing surface course.

H. Hand Placing
   1. Spread, tamp and finish mixture using hand tools in areas where machine spreading is not possible.
   2. Place mixture at a rate that will ensure handling and compaction before mixture becomes cooler than acceptable working temperature.

I. Joints
   1. Carefully make joints between old and new pavements or successive day's work to ensure a continuous bond between adjoining work.
   2. Clean contact surfaces free of sand, dirt or other objectionable material, and apply tack coat.
   3. Cut back edge of previously placed course to expose an even, vertical surface for full course thickness.

3.07 Compacting the Mix

A. While the mixture is still hot, compact thoroughly and uniformly by rolling. Provide sufficient number of rollers to obtain the required density and accomplish the rolling.

B. Begin rolling operations as soon after placing as the mixture will bear weight of roller without excessive displacement.

C. Do not permit heavy equipment, including rollers, to stand on finished surface before it has thoroughly cooled or set.

D. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

E. Start rolling longitudinally at extreme lower side of sections and proceed toward center of pavement. Roll to slightly different lengths on alternate roller runs.

F. Do not roll centers of sections first.

G. Breakdown Rolling
   1. Accomplish breakdown or initial rolling immediately following rolling of transverse and longitudinal joints and outside edge.
   2. Check crown grade and smoothness after breakdown rolling.
   3. Repair displaced areas by loosening at once with lutes or rakes and filling, if required, with hot loose material before continuing rolling.

H. Second Rolling
   1. Follow breakdown rolling as soon as possible while mixture is hot and in condition for compaction.
   2. Continue second rolling until mixture has been thoroughly compacted.

I. Finish Rolling
   1. Perform finish rolling while mixture is still warm enough for removal of roller marks.
   2. Continue rolling until roller marks are eliminated and course has attained specified density.

3.08 Pavement Density

A. Pavements shall be built with the Maximum Density Method, WisDOT 460.3.3, unless otherwise specified.

B. Ordinary Compaction: Compact leveling, wedging, patching layers, driveways, and other non-traffic areas to the degree that no further appreciable consolidation is evidenced under the action of the compaction equipment. Comply with WIDOT 450.3.2.6.

C. Maximum Density Method: All courses or layers thereof of plant mixed asphaltic mixtures for which the Maximum Density Method is used shall be compacted to a density not less than the percentage shown in the Table of Maximum Required Density, WisDOT Table 460-3, for the applicable mixture and course.

3.09 Pavement Density Determination

A. General
1. Density testing shall be performed by an independent testing firm, hired by the contractor or by a trained and qualified employee of the Contractor if approved by the Engineer. Densities may be determined on the basis of cored/sawed holes or nuclear methods.
2. Density determination will be made as soon as practical after placement and compaction and prior to placement of subsequent layers. Do not re-roll compacted mixtures represented by samples or tests having deficient densities. Do not operate below the specified maximum density on a continuing basis. Stop production until the source of the problem is determined and corrected.
3. A lot shall represent 1500 lineal feet of mixture, or the quantity placed in one day if less than 1500 lineal feet, for each density requirement. Densities of binder and surface course mixtures shall be determined on the basis of nuclear methods. Random testing locations will be established by the Engineer.

B. Tests: Five random tests will be taken on each lot. The lot density shall be the average of all samples taken.

C. Compact all layers to the percent of the target maximum density as shown in the following table.

Minimum Required Density (1)		
Location	Layer	% of Target Maximum Density Mixture Type LT and MT
Traffic Lanes (2)	Lower Upper	93.0 (3) 93.0
Shoulders and Appurtenances	Lower Upper	91.0 92.0

(1) The table values are for average lot density. If any individual test result falls more than 3% below the minimum required target maximum density, the engineer may investigate the acceptability of that material.
(2) Includes parking lanes as determined by Engineer.
(3) Minimum reduced by 2% when the first lift of lower layer constructed on crushed aggregate or recycled base courses.

D. Density Deficiency: When the density of a lot of compacted binder or surface course is less than the specified minimum, payment will be adjusted in accordance with the following table:

Adjusted Payment Schedule	
Percent Lot Density Below Specified Minimum	Percent of Contract Price
From 0.5 to 1.0 inclusive	98
From 1.1 to 1.5 inclusive	95
From 1.6 to 2.0 inclusive	91
From 2.1 to 2.5 inclusive	85
From 2.6 to 3.0 inclusive	70
More than 3.0	*

* The lot shall be removed and replaced with a mixture at the specified density and, when acceptably replaced, will be paid for at the contract price; or the Engineer may permit the unacceptable material to remain in place with a 50 percent reduction in payment.

3.10 Surface and Thickness Requirements

A. Surface Requirements

1. Provide final surface of uniform texture conforming to required grade and cross-section.
2. Test finished surface of each asphalt concrete course for smoothness using a 10-foot straightedge applied parallel to and at right angles to centerline of paved area.
3. Check surface areas at intervals directed by Engineer.
   a. Binder course: 1/4 inch in 10 feet.
   b. Surface course: 1/4 inch in 10 feet.

B. Thickness Requirements
1. If the Engineer believes that the thickness of the compacted base or surface course is not at the specified thickness, the Contractor may be required to obtain 4-inch diameter samples to verify the thickness. The samples shall be obtained by sawing or coring and all sample holes shall be repaired with fresh mix and compacted.
2. If the thickness is not as specified it will be the Engineer's option to adjust the contract price, require an overlay, or require some other remedial action.

3.11 Patching

A. Remove and replace defective areas.
1. Cut out and fill with fresh hot-asphalt concrete.
2. Compact by rolling to specified density and surface smoothness.
3. Remove deficient areas for full depth of course.
4. Cut sides perpendicular and parallel to direction of traffic with edges vertical.
5. Apply tack coat to exposed surfaces before placing new asphalt concrete mixture.

3.12 Cleaning and Protection

A. After final rolling, do not permit vehicular traffic on asphalt concrete pavement until it has cooled and hardened and, in no case, sooner than 6 hours.

B. Provide barricades and warning devices as required to protect pavement and the general public.

END OF SECTION

SECTION 32 13 13

CONCRETE SIDEWALK

PART 1 - GENERAL

1.01 Section Includes

A. Subgrade preparation.

B. Aggregate base course.

C. Furnishing, placement and finishing of concrete sidewalk, driveway and steps.

1.02 Related Sections

A. Section 03 31 01 – Sitework Concrete.

1.03 References

A. ASTM A185 - Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.

B. ASTM A615 - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

C. ASTM A616 - Rail-Steel Deformed and Plain Bars for Concrete Reinforcement.

D. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.

E. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds having Special Properties for Curing and Sealing.

F. ASTM D1557 - Test Method for Moisture-Density Relations of Soil and Soil-Aggregate Mixtures Using 10-lb. (4.5-kg) Rammer and 18-in. (457 mm) Drop.

G. ASTM D 1751 - Performed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

H. ASTM D 1752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.

I. ASTM D2487 - Classification of Soils for Engineering Purposes.

J. Wisconsin Department of Transportation, Standard Specifications for Highway and Structure Construction, Current Edition (WisDOT).

1.04 Submittals

A. Concrete delivery tickets.

B. Manufacturer’s data and installation instructions for curing/sealing compound.

1.05 Weather Limitations

A. Cold Weather Placement
   1. Do not place concrete when air temperature is 40 degrees F and falling. Placement may commence when air temperature is 35 degrees F and rising.
   2. Insulate concrete to maintain a minimum temperature of 50 degrees F for not less than 72 hours and a temperature above freezing for the remainder of the curing period.
   3. The subgrade shall be free of frost.
   4. Water and aggregates may be heated prior to mixing so that the temperature of the in-place concrete is between 50 and 85 degrees F.

B. Warm Weather: Temperature of in-place concrete shall not exceed 85 degrees F except where an

approved retarder is used. In no case shall the in-place temperature exceed 95 degrees F.

C. Do not place during rain, sleet or snow.

1.06 Equipment

A. Equipment, machines and tools shall have the capability of producing the required product, meeting grade controls, thickness control and smoothness requirements.

B. Slip forming machines shall be self-propelled, automatically controlled, crawler mounted, and capable of spreading, consolidating and shaping the plastic concrete to the desired cross section in one pass.

PART 2 - PRODUCTS

2.01 Materials

A. Concrete: Class D, air entrained concrete. See Section 03 31 00 or 03 31 01 for concrete.

B. Reinforcing Steel: ASTM A615 or A616, Grade 60, deformed bars; ASTM A185 welded wire fabric.

C. Curing/Sealing Material:
1. An acrylic resin curing, sealing, and hardening compound for exterior freshly placed concrete that provides a durable, long-lasting moisture impermeable finish that improves resistance to chemicals, grease, and de-icing salts.
2. Meet requirements of ASTM C1315, Type 1, Class B and ASTM C309, Type 1, Classes A and B.
3. Manufacturer: AS-1 Achro Seal 1315 OTC, TK Products; Seal Cure 309-30, W.R. Meadows; or equal.

D. Preformed Expansion Joint Fillers: ASTM D1751 or ASTM D1752.

E. Crushed Aggregate Base: Provide crushed aggregate base meeting gradation requirements of WisDOT 305 as reproduced below:

	Percentage Passing By Weight	
Sieve Size	1 1/4-Inch Base	3/4-Inch Base
1 1/4-Inch	95 - 100	- - -
1-Inch	- - -	100
3/4-Inch	70 - 93	95 - 100
3/8-Inch	42 - 80	50 - 90
No. 4	25 - 63	35 - 70
No. 10	16 - 48	15 - 55
No. 40	8 - 28	10 - 35
No. 200	2 - 12	5 - 15

F. Common Fill: Natural soil free from organic matter, debris, vegetation, stones larger than six inches, and frozen material and classified as GW, GP, GM, GC, SW, SP, SC, ML or CL in ASTM D2487.

PART 3 - EXECUTION

3.01 Lines and Grade

A. Construct sidewalk to lines and grade shown on the Drawings or as given by the Engineer.

B. Engineer will provide grade stakes at 50-foot intervals on straight sections, at 25-foot intervals on curves, and at tangent points.

C. Inform Engineer at least 48 hours in advance of the need for grade stakes.

D. Use short vertical curves where change in grade exceeds two percent.

E. Normal cross slope is two percent towards the street.

F. Do not exceed a four percent longitudinal slope for a distance of two feet from the top and bottom of steps.

3.02 Subgrade Preparation

A. Excavate to required subgrade and compact to 95 percent of the maximum dry density in accordance with ASTM D1557.

B. Use common fill for areas needing fill. Place in maximum 8-inch compacted layers. Compact to 95 percent of the maximum dry density in accordance with ASTM D1557. Unless otherwise indicated on the Drawings, the top of the fill shall extend one foot beyond the edge of the walk.

3.03 Base

A. Place crushed aggregate base material on prepared subgrade to a minimum compacted thickness of three inches. Compact to 95 percent of the maximum dry density.

3.04 Forms

A. Wood or metal forms, straight, and of sufficient strength to resist placement during pouring. Wood forms shall be surfaced plank, 2-inch nominal thickness. Steel forms shall be channel-formed sections with a flat top surface. Forms shall be at least equal to the thickness of the concrete.

B. Clean and oil forms prior to use.

3.05 Placing and Finishing

A. Place concrete on moistened base material in one layer. Consolidate sufficiently to bring moisture to the surface and strike off. Placing, consolidating and striking may be by hand or with a slip forming machine.

B. Finish surface with a smooth wood float until the surface is true to grade and section and uniform in texture. Before mortar has set steel trowel the surface and brush troweled surface with a broom or brush transverse to the direction of traffic.

C. Do not remove forms until the concrete has been in place for at least 12 hours.

D. Edges of walk and edge of joints shall be rounded with a 1/4 inch radius edger.

E. Surface and edges shall be true and free from tool marks.

F. After forms are removed, paint honey-combed areas with mortar.

3.06 Contraction Joints

A. Provide transverse contraction joints at five foot intervals. If sidewalk is greater than 12 feet wide, provide a longitudinal joint at the midpoint.

B. Form joints by cutting the concrete not less than 1/4 of the depth with a pointed trowel or other suitable tool. Finish edges with a 1/4-inch radius tool. Joints shall have a minimum width of 1/8 inch and a minimum depth of 1 inch.

3.07 Expansion Joints

A. Form expansion joints with 1/2 inch thick preformed filler. Filler shall extend the full depth of the concrete with the top slightly lower than the concrete surface.

B. Place expansion joints at uniform intervals not exceeding 100 feet, between walk and abutting curb, between walk and driveway approaches, and between walk and buildings or other rigid structures.

3.08 Reinforcement

A. Install reinforcement when crossing sewer, water main, and lateral trenches and as indicated.

3.09 Steps

A. Construct steps in accordance with the Drawings or as directed by the Engineer.

B. Provide a rubbed finish on riser surfaces and sides of steps.

3.10 Handicap Ramps

A. Provide handicap ramps at all intersections. Provide handicap ramps at other locations, as indicated on the Drawings or as directed by the Engineer.

B. The ramp surface shall have one of the following detectable warning surfaces as shown on the Drawings or as directed by the Engineer:
   1. Provide Truncated Dome Panels: Neenah R-4984 DWP 2'x4'.
   2. Provide plastic truncated dome tiles in accordance with Section 32 17 26 when indicated on the Drawings.

3.11 Curing and Protection

A. Cure and seal concrete with a uniform coating of membrane curing/sealing compound.

B. Apply with sprayer in accordance with the manufacturer's printed instructions.

C. Apply two coats at right angles to each other.

D. Do not apply if the temperature of the concrete is less than 40^0F.

E. Protect concrete from all traffic for three days and from vehicular traffic for seven days.

3.12 Defects

A. If sidewalk cracks between contraction joints, settles, or spalls within one year of placement, the Engineer may require the defective concrete to be removed and replaced at no expense to Owner.

B. Full blocks from joint to joint shall be removed.

END OF SECTION

SECTION 32 31 19

VINYL FENCE

PART 1 - GENERAL

1.01 Related Documents

A. Drawings and general provisions of the contract apply to this section.

1.02 Summary

A. This section includes the following:
   1. Polyvinyl chloride (PVC) fence and gate components.
   2. Reinforcing steel for concrete-filled, reinforced fence posts.
   4. Concrete for post footings and for concrete filled reinforced fence posts.

1.03 Definitions

A. Posts are the vertical structure support members of the fence.

B. Rails are the horizontal structural support members of the fence or gate frame.

C. Pickets are the vertical, non-structural members between bottom and top rails.

D. Gate Uprights are the vertical structural support members of the gate frame.

1.04 Submittals

A. General: Submit the following according to the conditions of the contract.

B. Product Data: In the form of manufacturer's technical data, specifications, and installations for fence, posts, gate uprights, post caps, gates, gate hardware and accessories.

C. Samples for verification of PVC color in form of 3-inch lengths of actual product to be used in color selection.

D. Shop Drawings showing fence design.

1.05 Quality Assurance

A. Installer Qualifications: Engage an experienced installer who has at least three years experience and has completed at least five PVC fence projects with same material and of similar scope to that indicated for this project with a successful construction record of in-service performance.

B. Single-Source Responsibility: Obtain PVC fences and gates, including accessories, fittings, and fastenings, from a single source.

1.06 Project Conditions

A. Field Measurements. Verify layout information for fences and gates shown on the drawings in relation to the property survey and existing structures. Verify dimensions by field measurements.

1.07 Warranty

A. Manufacturer's Warranty. Lifetime non-prorated limited transferable warranty applies to original homeowner/consumer, or 30 year non-prorated limited warranty applies to commercial applications.

PART 2 - PRODUCTS

2.01 Fence Materials

A. General: Provide PVC fence materials recognized to be of type indicated and tested to show compliance with indicated performances.

B. Available Manufacturer: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include:
1. Bufftech, 231 Ship Canal Parkway, Buffalo, NY 14218 (800) 333-0569
2. Style Name: Brookline
   Height: 6'-0"
3. Color Match Bufftech Colonial White

2.02 Polyvinyl Chloride (PVC) Fence Components

A. General: Woodgrain textured posts, rails, pickets, gate uprights, post caps, and accessories shall be of high impact, Ultra Violet (U.V.) resistant, rigid PVC, and shall comply with ASTM D 1784, Class 14344B.

B. Fence Posts: One piece extruded, of lengths indicated and pre-routed to receive rails at spacing indicated.
1. Surface to contain smooth texture.
2. Cross Section: 5" x 5" minimum
3. Wall Thickness: 0.170" minimum
4. Corner Radius: 3/8"R minimum

C. Rails: One piece extruded, of lengths indicated pre-routed to receive pickets at spacing indicated.
1. Surface to contain smooth texture.
2. Cross Section: 2" x 6" Rail minimum
3. Wall Thickness: 0.090" minimum
4. Corner Radius: 5/16"R minimum

D. Pickets: One piece extruded, of lengths indicated.
1. Surface to contain smooth texture.
2. Cross Section: 7/8" x 7" minimum
3. Wall Thickness: 0.060" minimum
4. Corner Radius: 3/16"R minimum
5. Picket Spacing: full privacy.
6. Pickets per section: 13 pickets .

E. Post Caps: Molded, one piece.
1. Surface to contain smooth texture.
2. Cross Section: Match post or gate upright cross section.
3. Thickness:0.080" minimum.
4. Configuration: Flat or four-sided as required for installation to top of posts and gate.

F. Accessories: Manufacturers' standard gate brace, screw caps, rail end reinforcers, and other accessories as required.

2.03 Miscellaneous Materials

A. Stiffener Channels: Galvanized steel structural channel. Configure channels for concealed installation within PVC rails with pre-drilled holes for drainage. Aluminum extruded channel available upon request.
   1. Cross Section: 1.775 x 1.700 galvanized steel channel
   2. Thickness: 0.040 Gauge (minimum)

B. Fasteners and Anchorage: Stainless Steel. All fasteners to be concealed or colored heads to match. Provide sizes as recommended by fence manufacturer.

C. PVC Cement: As recommended by fence manufacturer.

2.04 Concrete

A. Concrete: Provide concrete consisting of portland cement per ASTM C 150, aggregates per ASTM C 33, and potable water. Mix materials to obtain concrete with a minimum 28-day compressive strength of 2000 psi. Use at least four sacks of cement per cubic yard, 1-inch maximum size aggregate, 3-inch maximum slump. Use 1/2-inch maximum size aggregate in post where required.

B. Packages Concrete Mix: Mix dry-packaged normal-weight concrete conforming to ASTM C 387 with clean water to obtain a 2 to 3 inch slump.

2.06 Reinforcement for Filled Posts

A. Reinforcing Steel.
   1. Steel Reinforcing Bars: ASTM A 615, Grade 60. Deformed (#4 or 1/2"). Install 2 bars for each post to a length of 5' feet.

PART 3 EXECUTION

3.01 Installation, General

A. Install fence in compliance with manufacturer's written instructions. During installation, PVC components shall be carefully handled and stored to avoid contact with abrasive surfaces. Install components in sequence as recommended by fence manufacturer.
   1. Install fencing as indicated on the drawings provided.
   2. Variations from the installation indicated must be approved.
   3. Variations from the fence and gate installation indicated and all costs for removal and replacement will be the responsibility of the contractor.

3.02 Fence Installation

A. Excavation: Drill or hand-excavate (using post hole digger) holes for posts to diameters and spacings indicated, in firm, undisturbed or compacted soil.
   1. If not indicated on drawings, excavate holes for each post to a minimum diameter of 12" inches.
   2. Unless otherwise indicated, excavate hole depths not less than 40 inches or to frost line.

B. Posts: Install posts in one piece, plumb and in line. Space a maximum of 8' feet o.c. unless otherwise indicated. Enlarge excavation as required to provide clearance indicated between post and side of excavation.
   1. Protect portion of posts above ground from concrete splatter. Place concrete around posts and vibrate or tamp for consolidation. Check each post for vertical and top alignment and hold in position during placement and finishing operations.
      a. Unless otherwise indicated, terminate top of concrete footings 3 inches below adjacent grade and trowel to a crown to shed water.

b. Secure posts in position for manufacturers' recommendations until concrete sets.
c. After installation of rails and unless otherwise indicated, install reinforcing in posts in opposing corners of post as shown and fill end and gate posts with concrete to level as indicated. Concrete fill shall completely cover the reinforcing steel and gate hardware fasteners. Consolidate the concrete by striking the post face with a rubber mallet, carefully tamping around the exposed post bottom.
d. Install post caps. Use #8 screws, nylon washers and snap caps.
e. Remove concrete splatters from PVC fence materials with care to avoid scratching.

C. Top and Bottom Rails: Install rails in one piece into routed hole fabricated into posts to receive top and bottom rails, and middle where necessary. Except at sloping terrain, install rails level.
1. Prior to installation of rails into posts, insert concealed steel channel stiffeners in top rail, where necessary. Bottom rails shall include minimum (2) 1/4" drainage holes.
2. At posts to receive concrete fill, tape rail ends to prevent seepage when filling post with concrete.

D. Middle Rails: Where necessary, install middle rails in one piece into routed hole in posts with larger holes facing down. Except at sloping terrain, install middle rails level. Secure mid rail to pickets with 2-8# x 1-1/2" screws evenly spaced.
1. At posts to receive concrete fill, tape rail ends to prevent seepage when filling post with concrete.

E. Pickets: Install pickets in one piece as per manufacturer recommendations. Install pickets plumb.

F. Fence Installation at Sloping Terrain: At sloping terrain rails may be racked (sloped) or stepped to comply with manufacturer's recommendations.

3.03 Gate Installation

A. Assemble gate per manufacturer's recommendations. Bottom rail shall include minimum (2) 1/4" drainage holes.

B. Assemble gate prior to fence installation to accurately locate hinge and latch post. Align gate horizontal rails with fence horizontal rails.

C. Install gates plumb, level, and secure for full opening without interference according to manufacturer's instructions.

D. Gate Latch Installation. Install gate latch according to manufacturer's instructions. Adjust for smooth, trouble-free operation.

E. Allow minimum 72 hours to let concrete set-up before opening gates.

3.04 Adjusting and Cleaning

A. Remove all traces of dirt and soiled areas.

3.05 Demonstration

A. Instruct the owner's personnel on proper operation and maintenance of fence components.

END OF SECTION

SECTION 32 92 19

SOIL PREPARATION AND SEEDING

PART 1 - GENERAL

1.01 Section Includes

A. Preparation of subsoil.

B. Placing topsoil.

C. Fertilizer.

D. Seeding.

E. Mulching.

1.02 Quality Assurance

A. Comply with requirements of state regulations regarding grass seed and fertilizer.

B. Fertilizer
   1. Each container shall be plainly marked with the analysis of the contents showing the minimum percentages of total nitrogen, available phosphorous and soluble potash. Containers or packages shall be new and unopened.
   2. When furnished in bulk, each shipment shall be accompanied by an invoice indicating minimum percentages of the contents listed above.

C. Seed
   1. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging and location of packaging. Containers or packages shall be new and unopened.
   2. Seed shall not be used later than one year later than the test date appearing on the label.
   3. Sampling and testing of seed for purity, germination and weed seed content shall be in accordance with "Rules for Testing Seed" published by the Association of Official Seed Analysts.

1.03 Submittals

A. Submit composition of fertilizer and seed mixture.

B. Submit, upon request, manufacturer's certification that materials meet specification requirements.

C. Submit, upon request, results of seed purity and germination tests.

D. Submit topsoil test results for all topsoil borrow.

PART 2 - PRODUCTS

2.01 Topsoil

A. Provide reclaimed topsoil from the site unless the contract documents require topsoil borrow.

B. Reclaimed Topsoil: Topsoil stripped from the site consisting of loam, sandy loam, silt loam, or silty-

clay loam, or clay loam, humus-bearing soil, adapted to sustaining plant life. The soil shall be free of subsoil, foreign matter, plant material, objects larger than one inch in any dimension, and toxic or other substances harmful to plant growth.

C. Topsoil Borrow: Topsoil from offsite consisting of natural loam, sandy loam, silt loam, or silty-clay loam, clay loam, humus-bearing soil, adapted to sustaining plant life. The soil shall be free of subsoil, foreign matter, plant material, objects larger than one inch in any dimension, and toxic or other substances harmful to plant growth. The soil shall have a pH range of 5.5 to 8.0 and a maximum soluble salt level of 500 PPM. Topsoil originating from agricultural fields shall be free of residual herbicide and other contaminants.

2.02 Fertilizer

A. Standard commercial fertilizer with the following available nutrients by weight:
   1. Nitrogen - not less than 10%.
   2. Phosphoric Acid - not less than 10%
   3. Potash - not less than 10%

2.03 Seed

A. Seed mixtures shall be Olds Seeds or equal of grass species and varieties, proportions by weight, and minimum percentages of purity and germination as indicated in the following schedule.

Species	Purity Min. %	Germination Min. %	Quick-2-Gro	Survivor	Boulevard	Wear-n-Tear
Kentucky Bluegrass	98	85	25	15		50
Creeping Red Fescue	97	85	25	30	25	10
Turf Type Tall Fescue	98	85		40	25	
Fine Fescue	97	85				
Dawson Red Fescue	97	85				
Perennial Ryegrass	97	85	25	15	25	40
Annual Ryegrass	97	90	25			
Alkaligrass	98	85			25	

Unless otherwise provided in the Contract Documents, the selection of seed mixtures shall be as follows:

1. Quick-2-Gro: Use for general seeding within new subdivisions.
2. Survivor: Use for seeding lawns where soils are light and sandy.
3. Wear-n-Tear: Use for seeding lawns where soils are loam or clay.
4. Boulevard: Use for boulevard areas behind curb to sidewalk or ROW, from shoulder to ROW on rural section roads, and street or parking lot islands.

2.04 Mulch Materials

A. Hay: Straw or hay in air-dry condition substantially free from noxious weed seeds or objectionable foreign matter.

B. Paper Fiber: Mulch consisting of recycled newsprint fibers, wetting agent, deforming agent and green dye with a dry moisture content of 9 to 15 percent.

C. Wood Cellulose: Wood cellulose fibers manufactured from virgin wood fibers that form a blotter-like ground cover that readily absorbs water and allows infiltration to the underlying soil. Moisture content shall not exceed 15 percent at the time of delivery. The mulch shall be dyed green and

shall have the property of becoming dispersed and suspended when agitated in water.

D. Erosion Control Revegetative Mat: A light duty, organic, non-netted mat with a minimum thickness of 3/8 inch and biodegradable yarn or glue on 12 inch maximum centers in the longitudinal direction. The mat shall be capable of withstanding moderate foot traffic without tearing or puncturing. Acceptable products are those listed in the Wisconsin Department of Transportation, Erosion Control Product Acceptability Lists for Class I, Type Urban mats. Anchoring devices shall be biodegradable, non-splintering and shall last for at least two months and shall substantially degrade in four months.

2.05 Tackifiers

A. Latex-Base: A latex emulsion polymer with a composition by weight of 48 percent styrene, 50 percent butadiene and 2 percent additive; 42 to 46 percent solids; and a pH of 8.5 to 10.

B. Guar Gum: Guar gum tackifiers consisting of a minimum of 95 percent Guar gum by weight with the remaining consisting of dispersing and cross-linking additives.

C. Other: Water soluble natural vegetable gums or guar gums blended with gelling and hardening agents or a water soluble blend of hydrophilic polymers, viscosifiers, sticking aids and other gums.

PART 3 - EXECUTION

3.01 Inspection

A. Examine area to receive soil preparation to ensure subsoil is ready for finish grading.

B. Do not proceed with soil preparation until unsatisfactory conditions are corrected.

3.02 Preparation of Subsoil

A. Eliminate uneven areas or low spots. Make changes in gradual and blend slopes into level areas.

B. Do not prepare or place frozen soils or soils with excessive moisture.

C. Remove weeds, roots, trash, debris, concrete, asphalt, crushed aggregate, and any stones larger than two inches in any dimension.

D. Scarify subsoil to a depth of three inches.

3.03 Placing of Topsoil

A. Spread topsoil evenly to a compacted depth of five inches.

B. Place during dry weather.

C. Grade to eliminate rough or low areas and to ensure positive drainage. Grading shall be approved by the Engineer.

D. Remove stones and other objects larger than one inch in any dimension.

3.04 Fertilizing

A. Apply fertilizer at a rate of seven pounds per 1000 square feet.

B. Apply fertilizer uniformly, incorporating it into the soil by light disking or harrowing.

C. Apply fertilizer prior to seeding.

3.05 Seeding

A. Do not sow seed on frozen soil or when wind exceeds 5 MPH.

B. Do not use wet seed or seed that is moldy or otherwise damaged in transit or storage.

C. Seeding Dates:
1. Spring/Summer: April 1 to August 14.
2. Fall: August 15 to October 1.

D. Application Rate:

Application Rate

Mixture	Lbs/1000 Sq. Ft.
Quick-2-Gro	5 - 6
Survivor	5 - 6
Wear-n-Tear	4 - 5
Boulevard	5 - 6

E. Broadcasting
1. Sow seed evenly with a spreader or seeding machine.
2. Do not broadcast or drop seed when wind velocity exceeds 5 MPH.
3. Broadcast one half of seed.
4. Broadcast remaining half of seed at right angles to first seed pattern.
5. Cover seed to a depth of 1/4" by raking, dragging or cultipacting.
6. Roll seeded area with roller weighing a maximum of 150 pounds per foot of roller width.
7. Water seeded area with fine spray, if required, to promote growth.

F. Drilling
1. Drill seed following elevation contours.
2. Seed to uniform depth.
3. Roll seeded area with roller weighing a maximum of 150 pounds per foot of roller width.
4. Water seeded area with fine spray, if required, to promote growth.

3.06 Mulching

A. Place mulch on same day that the area is seeded.

B. Do not place straw or hay mulch or sprayed-on mulches during periods of high wind.

C. Mulch type and method is the Contractor's option unless a specific type or method is indicated on the Drawings or in the Contract Documents.

D. Hay/Straw Mulch
1. Method 1 - Spread straw or hay treated with a tackifier over the area using a blowing machine. Spread the material uniformly to a depth of 1/2 to 1 inch using 1 1/2 to 3 tons of material per acre. The amount of tackifier used shall be in accordance with the manufacturer's recommendations.
2. Method 2 - Spread hay or straw over the area by hand or using a blowing machine. Spread the material uniformly to a depth of 1/2 to 1 1/2 inch using 1 1/2 to 3 tons of material per acre. Immediately after spreading, anchor the mulch into the soil using a mulch tiller.

E. Paper Fiber: Apply with hydraulic spray equipment in a water slurry at the rate necessary to provide

a 1/4 inch layer. Use the color of the material as a metering agent. Take care not to spray material on adjacent surfaces.

F. Wood Cellulose: Apply with hydraulic spray equipment in a water slurry at the rate of 1500 pounds per acre. Use the color of the material as a metering agent. Take care not to spray material on adjacent surfaces.

G. Mat: Remove all clods, stones or other materials that could damage the mat. Place mat over seeded area without overlapping. Anchor mat in accordance with the manufacturer's recommendations.

3.07 Establishment

A. Establishment Period:
   1. For areas seeded during the spring or summer planting season the establishment period shall be 90 days.
   2. For areas seeded during the fall planting season the establishment period shall be through June 1 of the following year.

B. Acceptable Establishment: At the end of the establishment period the grass shall be healthy, uniform in density and color, and substantially free of weeds with uniform coverage of at least 70 percent of a representative one square yard plot and bare spots not exceeding 6 inches by 6 inches.

C. Re-seed areas that fail to grow an acceptable stand of grass.

3.08 Protection

A. Protect all seeded areas, as necessary, to prevent trampling and/or damage by erecting temporary fences, barriers, signs, etc.

END OF SECTION