SEAL COAT SPECIFICATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Seal coats using a polymer-modified asphalt emulsion blended with fine aggregate.

B. Related Requirements:
   1. Site Demolition Specification
   2. Pavement Markings Specification
   3. Traffic Signs and Signals Specification

1.2 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

B. ASTM International (ASTM)

   1. ASTM C 136 - Method of Sieve Analysis of Fine and Coarse Aggregate
   2. ASTM D 217 - Method for Cone Penetration of Lubricating Grease
   3. ASTM D 244 - Test Methods for Emulsified Asphalts
   4. ASTM D 562 - Method for Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using a Stormer-Type Viscometer
   5. ASTM D 977 - Emulsified Asphalt
   6. ASTM D 2397 - Cationic Emulsified Asphalt
   7. ASTM D 2042 - Method for solubility of Asphalt Materials in Trichloroethylene
   8. ASTM D 3910 - Practice for Design, Testing, and Construction of Slurry Seal
   9. ASTM D 6690 - Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

1.3 ADMINISTRATIVE REQUIREMENTS

A. Pre_installation Meeting: Convene a pre_installation meeting at the site at least two weeks prior to commencing work of this Section. Require attendance of parties directly affecting work of this Section, including, but not limited to, the store manager, Contractor, and job foreman.
   1. Contact Wal_Mart Construction Manager three weeks prior to pre_installation conference to confirm schedule.
   2. Record discussions of meeting and decisions, agreements reached, and furnish copy of record to each party attending. Review foreseeable methods and procedures related to paving work, including the following:
      a. Review preparation and installation procedures and coordinating and scheduling required with related work (including all required striping).
      b. Review proposed sources of materials.
      c. Tour, inspect, and discuss condition of existing pavement and other preparatory work such as patching and crack sealing. If crack sealing is needed (reference section 2.4.C below) or other areas of pavement distress are noted during tour, submit appropriate RFI to project team for review.
      d. Review requirements for protecting paving work, including restriction and redirection of traffic during installation and curing period.
      e. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment, traffic control devices, and facilities needed to make progress and avoid delays.
      f. Review paving requirements (drawings, specifications, and other contract documents).
      g. Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions.
   h. Review health and safety precautions relating to handling and placement of seal coat.

1.4 QUALITY ASSURANCE

A. Contractor Qualifications: The seal coat applicator shall have not less than 3 years documented experience in the application of emulsion seal coats.

1.5 SITE CONDITIONS

A. Weather Limitations: Apply seal coat only under the following weather conditions:
1. The atmospheric temperature is between 50 and 90 F and is expected to remain above 50 F for 24 hours.
2. Pavement temperature is above 55 F.
3. Surface is dry and no moisture is expected within 24 hours.
4. Weather and wind conditions are such that overspray is preventable and will allow proper curing and opening to traffic within a reasonable time.

B. Maintain access for vehicular and pedestrian traffic as required by the Wal-Mart Store and Construction Manager. Utilize temporary striping, flagmen, barricades, warning signs, and warning lights as required.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Aggregate: Aggregate shall be 100 percent passing the No. 16 (1.18 mm) sieve when tested in accordance with ASTM C 136. Aggregate shall consist of hard, washed, dry natural or manufactured particles free of dust, trash, clay, organic materials or other contaminants.
B. Asphalt Emulsion: Comply with ASTM D977 or ASTM D2397 for SS-1h or CSS-1h. The penetration of the residue from the distillation test shall be 20 to 60. Clay stabilized emulsion, with a pH not greater than 10, and solids content not less than 45 percent may be used. The polymer material shall be milled or blended into the asphalt or emulsifier solution prior to the emulsification process. The minimum amount and type of polymer modifier shall be determined by the laboratory performing the mix design.
C. Coal Tar: Coal tar emulsion or coal tar/asphalt emulsion shall not be used as a substitute for asphalt emulsion.
D. Water: Water shall be potable and free of harmful soluble salts or reactive chemicals and any other contaminants and at least 50 F.
E. Additives: Additives shall be included and approved as part of the mix design and be compatible with the other components of the mix.
F. Crack Sealant: Crack sealant shall conform to ASTM D6690, Type II or higher and compatible with the specified seal coat emulsion.

2.2 COMPOSITION

A. Composition. Seal coat shall consist of a mixture of the specified emulsion, water, aggregate, and additives and be proportioned to meet the requirements shown in the following Table 1.

TABLE 1 - Undiluted Seal Coat Design Properties

Method	Minimum	Maximum
Weight (per gallon), ASTM D 244, lbs	9.0	
Cone Penetration, ASTM D 217, mm	340	700
% Non-Volatile[1]	50	
% Non-Volatile Residue Soluble in Trichloroethylene, ASTM D 2042	10	35
Wet Track Abrasion Loss, ASTM D 3910, g		35
Viscosity, ASTM D 562, KU	75	
Dried Film Color	Black	

[1]Weigh 10 g of homogeneous product into a previously tared, small ointment can. Place in an oven at 325°F for 90 minutes. Cool, reweigh and calculate non-volatile residue as a percent of the original mass.

2.3 EQUIPMENT

A. Distributors. Distributors or spray units used for the spray application of the seal coat shall be self-propelled and capable of uniformly applying 0.10 to 0.30 gallons per square yard of material over the required width of application. Distributors shall be equipped with tachometers, pressure gauges, and volume measuring devices. The mix tank shall have a mechanically powered, full sweep, mixer with sufficient power to move and homogeneously mix the entire contents of the tank.
B. Spray Nozzles. Nozzles shall be free from clogs and debris and set at the same angle.
C. Mixing Equipment. The mixing machine shall have a continuous flow mixing unit capable of accurately delivering a predetermined proportion of aggregate, water, and emulsion, and of discharging the thoroughly mixed product on a continuous basis. The mixing unit shall be capable of thoroughly blending all ingredients together and discharging the material without segregation.
D. Spreading Equipment. Spreading equipment shall be a mechanical type squeegee/brush distributor attached to the mixing machine, equipped with flexible material in contact with the surface to prevent loss of slurry from the spreader box. It shall be maintained to prevent loss of slurry on varying grades and adjusted to assure uniform spread. There shall be a lateral control device and a flexible strike off capable of being adjusted to lay the slurry at the specified rate of application. The spreader box shall have an adjustable width. The box shall be kept clean. Emulsion and aggregate build up on the box shall not be permitted.
E. Clean equipment with a petroleum solvent if previously used with a different material.
F. Hand Squeegee or Brush Application. Hand spreading application shall be used only in places not accessible to the mechanized equipment or to accommodate neat trim work at curbs, etc. Material that is applied by hand shall meet the same standards as that applied by machine.
G. Calibration. Spreading equipment shall be provided with a method of calibration by the manufacturer. Equipment shall be calibrated to assure that it will produce and apply a mix that conforms to the job mix formula. Calibrations shall be made with the approved job materials prior to application of the seal coat.

2.4 PREPARATION

A. Remove all existing striping in areas subject to seal coating as noted in plans. Reference applicable specification section in Site Demolition.
B. Remediate distressed areas of existing pavement by saw-cutting and removing existing pavement, regrading and compacting the underlying base course and replacing with full depth asphalt at locations and as shown on the drawings.
   1. Repairs not specifically shown on the plans but considered necessary by the contractor, store manager or construction manager (CM) shall be identified and submitted as an RFI to the project team prior to commencement of repairs.
   2. Repairs submitted by RFI and approved shall be performed as directed by the CEC. … for such work directed and performed will be paid for in accordance with the "Changes in the Work" Clause of the General Conditions.
C. Longitudinal and traverse cracks in excess of 0.25 inch, but less than 1 inch shall be sealed with a crack sealant. Cracks that contain weed or other live vegetable matter shall be treated with a locally approved, non-oil based sterilant prior to applying the crack filler.
D. Existing crack sealants in the parking lot shall be evaluated for compatibility with the specified emulsion. If not compatible with each other they can't be used together. Immediately prior to applying the seal coat, the surface shall be cleared of all loose material, dirt, dust, grease, oil, vegetation and other objectionable material. If water is used, cracks shall be allowed to dry thoroughly before applying the seal coat.
E. Protect existing manholes, inlets, vaults, valve boxes, meter boxes, etc. as necessary to maintain free accessibility upon completion of seal coat application. Surfaces adjacent to seal coat application areas such as sidewalks, curb and/or gutter, storefronts, etc. shall be protected by use of felt paper anchored with clean aggregate or by shielding components with plywood during application.
F. Coordinate limits of seal coat application operations with Owner's Construction Manager and Store Manager to avoid interruption to store operations. Protect adjacent areas of the parking lot outside of current seal coat application limits to avoid tracking onto adjacent areas. Partition off limits of current seal coat operations until surface is traffic ready.
G. Coordinate with Store Manager to deactivate lawn sprinkler systems least 48 hours prior to placing the seal coat and remain off for at least 24 hours after the seal coat application.

2.5 APPLICATION

A. Apply seal coat at a total rate (undiluted) of 0.17gal./SY.
B. Dampen pavement with a fog spray of water if ambient temperatures exceed 80°F. No standing water shall remain on the surface.
C. Apply the coat uniformly in a manner such that the combined application of the coat equals the total rate specified above.
D. Suspend application when the distribution tank has less than 100 gallons left and refill to prevent irregular patterns or misses.
E. The coat shall be allowed to dry and cure initially a minimum of 2-4 hours before applying any markings. The initial drying shall allow evaporation of water of the applied mixture, resulting in the coating being able to sustain light foot traffic. The initial curing shall enable the mixture to withstand vehicle traffic without damage to the seal coat.
F. The finished surface shall present a uniform texture with no streaks.
G. The single coat shall be allowed to dry a minimum of eight hours in dry daylight conditions before opening to traffic, and initially cure enough to support vehicular traffic without damage to the seal coat.
H. Where marginal weather conditions exist during the eight hour drying time, additional drying time shall be allowed. The length of time shall be as specified by the supplier. The surface shall be checked after the additional drying time for trafficability before opening the section to vehicle traffic.

END OF SECTION

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SPECIFICATIONS SHEET 2

SHEET CSS-2

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