



2616 Central Parkway
Cincinnati, OH 45214
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ADDENDUM #:1

To: All Registered Bidders

From: Matt Latham, RLA

Date: December 2, 2011

Project: Pavement Work: DeSoto-Bass Courts and Hilltop Homes

AMP#5, OH5-2, 2A, 5, and 9 Site

DNK Project #1119

INFORMATION IN THIS ADDENDUM SUPERSEDES AND SUPPLEMENTS ALL PORTIONS OF THE BIDDING DOCUMENTS WITH WHICH IT CONFLICTS. BIDDERS SHALL VERIFY RECEIPT OF THE ADDENDUM IN THEIR BIDS.

1. Refer to DNK Meeting Notes for the Pre-Bid Meeting held on 11/22/11 for information and clarification by DMHA and DNK Architects, Inc. The attached meeting notes shall become part of this Addendum by reference.
2. Delete the entire Bid Form and replace with the attached revised Bid Form dated December 2, 2011 and marked "Revised per Addendum #1" in the upper right corner of the page.
3. Where the drawings call for "slurry seal," refined coal tar emulsion slurry seal surface treatment that complies with Federal Aviation Administration Specification P-630 (attached) is acceptable.
4. In areas of full depth pavement removal/replacement (including parking lots/driveways and concrete walkways), the subgrade shall be proof rolled per the requirements of City of Dayton Standard Specification 203.14. Where the subgrade is shown to be soft, yielding, or unstable, Contractor shall correct the unstable areas in accordance with City of Dayton Standard Specification 203.13.
5. Contractor shall provide Testing and Inspection Services. Testing and Inspection Services includes compaction testing of the aggregate base course where full depth pavement removal / replacement is indicated. Contractor shall retain and pay an independent testing agency to perform compaction tests to establish that the aggregate base meets the requirements of City of Dayton Standard Specification 304.04. Provide one test for each parking lot (indicated by "item" numbers on the drawings).
6. On sheet L-6, specification section 01 00 00 – General Requirements:
 - a. Delete Items 1.7 A & B.
 - b. Item 1.12 A, replace "DMHA reserves the right to accept any alternates in any order," with "DMHA reserves the right to accept alternates in the order listed on the Bid Form."
 - c. Delete Item 1.15 A 2
 - d. Item 1.15 A 6, replace the words, "requested by Contractor and not part of the Contract Documents," with "services." All testing and inspection services (as called for in Addendum #1 Item 5) shall be the Contractor's responsibility.
7. END OF ADDENDUM NO. 1

Any information in or designated as an attachment to this document is meant only for the addressees or their specified designee. If you have received this in error, please discard at once and contact the sender.

Page 1 of 1

Bid Form

To: The Dayton Metropolitan Housing Authority
400 Wayne Avenue
Dayton, Ohio 45410
Phone: 937.910.7500 Fax: 937.222.3554

Having carefully read and examined the "Scope of Work", "Specifications", "Plans", and all addenda for:

Pavement Work **Desoto Bass Courts (OH5 - 2, 2A, 5)** **and Hilltop Homes (OH5 - 9)** **Dayton, Ohio 45417**

As prepared by:

DNK Architects, Inc.
2616 Central Parkway
Cincinnati, Ohio 45214
Phone: 513.948.4146
Fax: 513.679.4712

And having inspected the premises and all conditions affecting the work, the undersigned proposes to furnish all materials and perform all labor necessary for the performance and completion of the work indicated below, all in compliance with the documents named above, agrees that, if any or all of said bids are accepted, he will enter into a Contract according to the form required by the Owner for the faithful performance of the labor and the furnishing of all materials included in such bid or bids so accepted.

Submitted by: _____

Contracting Firm

Having read and examined the Contract Documents for the above-referenced Project, and the following Addenda:

Addendum No.	Date of Receipt
_____	_____
_____	_____
_____	_____
_____	_____

Bid Bond or Certified Check is included as part of Contractor's Bid Submittal: ____ Yes ____ No
Initial here: ____

BASE BID:

Provide a Lump Sum Price to complete the work described in the Drawings and Specifications, including all accessories, coordination and ancillary work necessary for a complete and functioning installation.

	Figures	Words
Labor	\$ _____	_____
Materials	\$ _____	_____
Pothole Patching Allowance*	\$ _____	_____
Total	\$ _____	_____

*Pothole Patching Allowance shall be for 150 square yards of patching potholes per ODOT 253 in parking lots receiving overlay or slurry sealing.

Unit Price per square yard of pothole patching: \$ _____

ALTERNATES:

Contractor shall complete all items for bid to be considered. Alternates will be taken in the order they are listed. Item numbers and associated work are shown on the drawings. For each item, provide a stipulated sum deduction from the Contract Sum for the difference in cost.

Alternate Description

	Deduct Amount		
	Labor	Materials	Total
A. Delete Item 12 – Parking area south of buildings 5-6, site OH5-5.	\$ _____	\$ _____	\$ _____
B. Delete Item 10 – Office parking lots, site OH5-5.	\$ _____	\$ _____	\$ _____
C. Delete Item 13 – Custer Place: Parking / driveway for buildings 3, 4, 5, 6. OH5-5.	\$ _____	\$ _____	\$ _____
D. Delete Item 6 – Driveway / parking at bldg F-1, site OH5-2A.	\$ _____	\$ _____	\$ _____
E. Delete Item 4 – Parking lot, buildings C-6, C-7, C-8, C-9, D-5. Site OH5-2.	\$ _____	\$ _____	\$ _____
F. Delete Item 3 – Parking lot, buildings D-2, D-3, D-4, A-3. Site OH5-2.	\$ _____	\$ _____	\$ _____
G. Delete Item 2 – Parking lot, buildings C-3, C-4, C-5, C-6, D-1. Site OH5-2.	\$ _____	\$ _____	\$ _____
H. Delete Item 1 – Parking lot, buildings A-1, B-1, C-1, C-2. Site OH5-2.	\$ _____	\$ _____	\$ _____
I. Delete Item 7 – Driveway / parking at buildings F-2, F-3, F-5, F-7. Site OH5-2A.	\$ _____	\$ _____	\$ _____
J. Delete Item 11 – Upton Place (Parking / driveway for buildings F-8 and B-7), site OH5-5.	\$ _____	\$ _____	\$ _____

ALTERNATES (CONTINUED):

Alternate Description	Deduct Amount		Total
	Labor	Materials	
K. Delete Item 8 – Benning Place, site OH5-5.	\$ _____	\$ _____	\$ _____
L. Delete Item 9 – Bragg Place, site OH5-5.	\$ _____	\$ _____	\$ _____
M. Delete Item 5 – Parking lot between buildings F-2 and F-7 on West Stewart St. Site OH5-2A.	\$ _____	\$ _____	\$ _____
N. Delete all sidewalk work on drawing sheets L-2 and L-3. Site OH5-9.	\$ _____	\$ _____	\$ _____
O. Delete Item 17 – Wexford Place in front of buildings 7, 8, 26, 27, 28, 29. Site OH5-9.	\$ _____	\$ _____	\$ _____
P. Delete Item 16 – Wexford Place in front of buildings 13, 14, 15, 30, 31, 32. Site OH5-9.	\$ _____	\$ _____	\$ _____
Q. Delete Item 18 – Wexford Place in front of buildings 34, 35, 36.	\$ _____	\$ _____	\$ _____
R. Delete Item 15 – Wexford Place in front of buildings 16-17. Site OH5-9.	\$ _____	\$ _____	\$ _____

UNIT PRICE SCHEDULE:

Contractor shall complete all unit price items for bid to be considered. Unit prices will be used to calculate costs for any Change Directives or Change Orders, which can be used to add or subtract work from the Contract. Owner may also use unit costs if unforeseen conditions are encountered during construction, making certain changes necessary, or if the Owner desires to order additional Work or delete part of the Work as shown. Unit prices will be reviewed closely and can be a determining factor in awarding the Contract. **All unit prices shall include Contractor's overhead and profit. Prices should include all accessories, coordination and ancillary work necessary for a complete installation.**

Item Description (To meet the requirements of the plans and specifications.)	Unit	Price Per Unit (Labor & Materials)
1. Crack sealing.	Lin. Ft.	\$ _____
2. Slurry seal.	Sq. Yd.	\$ _____
3. New line striping.	Lin. Ft.	\$ _____
4. ADA parking symbol.	Each	\$ _____
5. Remove existing asphalt pavement to full depth, compact sub-grade, and replace with new asphalt pavement and base.	Sq. Yd.	\$ _____
6. Mill existing pavement 1-1/2" depth and overlay with new asphalt surface course.	Sq. Yd.	\$ _____
7. Speed hump, 12' length	Lin. Ft. of Width	\$ _____
8. Rebuild catch basin (re-use existing casting).	Each	\$ _____
9. Removal / salvage of existing bumper blocks.	Each	\$ _____
10. Reset bumper blocks.	Each	\$ _____

Item Description

(To meet the requirements of the plans and specifications.)

	Unit	Price Per Unit (Labor & Materials)
11. Saw cut and remove existing concrete pavement to full depth, re-compact subgrade, install new asphalt pavement and base materials.	Sq. Yd.	\$ _____
12. Remove and replace damaged concrete curb and gutter.	Lin. Ft.	\$ _____
13. Remove and replace damaged concrete barrier curb.	Lin. Ft.	\$ _____
14. Rebuild existing manhole (re-use existing casting).	Each	\$ _____
15. Rebuild top (only) of existing catch basin (re-use existing casting).	Each	\$ _____
16. Remove and replace concrete walk.	Sq. Ft.	\$ _____
17. New concrete walk (where none currently exists).	Sq. Ft.	\$ _____
18. Remove existing concrete walk (no replacement).	Sq. Ft.	\$ _____

Notes:

1. Unit prices for pavements shall include excavation and base materials.
2. Unit prices shall include earthwork, if needed, as an incidental item.
3. Unit prices shall include restoration and seeding, if needed, as an incidental item.
4. Unit prices shall include saw cutting, if needed, as an incidental item.
5. Tack coat shall be included in asphalt pavement price as an incidental item.
6. Where pavement is being removed and replaced, removal and salvage of existing bumper blocks shall be included as an incidental item.
7. Paint markings on speed humps shall be included in speed hump price as an incidental item.
8. Sealed expansion joints shall be included in concrete sidewalk price as an incidental item.
9. Concrete trash can pads shall be paid the same as concrete walkways.

TIME FOR COMPLETION:

The Time for Completion for the Contract shall not exceed one hundred-twenty (120) calendar days from date of Notice to Proceed. Time shall be divided between work to Substantial Completion, ninety (90) days, Punch List, fifteen calendar (15) days, and Administrative Closeout, fifteen calendar (15) days.

Contractor proposes a Time for Completion for the Contract:

Calendar Days to Substantial Completion	_____ days
Punch/Closeout	_____ days
Total	_____ days from the Notice to Proceed.

The full name and address of all persons and parties interested in the foregoing proposals as principals are as follows:

Bidder _____

Address _____

Phone _____ Fax _____

If the Contractor is entering into a partnership to perform the work, provide the following information for the partnering firm:

Bidder _____

Address _____

Phone _____ Fax _____

Addenda Received: (Please list) _____

Bidder's Signature _____

Typed Name _____

Title _____

Note: The Bidder will sign his bid on the line indicated above; if it will be a partnership, the firm name will be signed, followed by the signature of the partner signing. If a corporation, name will be signed followed by the signature and the official title of the officer signing name.

Bidder's Certification

The Bidder hereby acknowledges that the following representations in this bid are material and not mere recitals:

1. The undersigned, having carefully read and examined the "Notice to Bidders", "Instructions to Bidders", "General Conditions", "General Requirements", "Specifications", "Plans" and all addenda for: **Pavement Work: Desoto Bass Courts (OH5 - 2, 2a, 5) and Hilltop Homes (OH5 - 9), Dayton, Ohio 45417**, as prepared by **DNK Architects, Inc.**, and having inspected the premises and all conditions affecting the work, the undersigned proposes to furnish all materials and perform all labor necessary for the performance and completion of the work indicated below, all in compliance with the documents named above, and further agrees that each separate item or trade or employment entered in this Proposal shall be considered as a separate bid for that kind of work. The undersigned further agrees that, if any or all of said bids are accepted, he will enter into a Contract according to the form required by the Owner for the faithful performance of the labor and the furnishing of all materials Included in such bid or bids so accepted.
2. In submitting this bid it is understood that the Dayton Metropolitan Housing Authority reserves the right to reject any and all bids. It is agreed that this bid may not be withdrawn for a period of **one hundred twenty (120) days** subsequent to the opening of bids without the consent of Dayton Metropolitan Housing Authority.
3. Security In the sum of _____ Dollars (\$ _____) in the form of _____ is submitted herewith in accordance with the Specifications.
4. Attached hereto is an affidavit in proof that the undersigned has not entered into collusion with any person in respect to this bid or any other bid or the submitting of bids for the contract for which this bid is submitted. Also attached is a statement of Contractor's qualifications.
5. Bidder hereby agrees to comply with all City, State and Federal Statutes relating to Liability Insurance, Working Hour, Safety and Sanitary Regulations. Bidder further agrees that their bid amount includes all fees for permits, taxes, and insurance required or applicable to the work.
6. The Bidder will sign his bid on the line Indicated below; if it will be a partnership the firm name will be signed, followed by the signature of the partner signing, his own name to be signed on the line beginning with the work "By"; if a corporation, name will be signed followed by the signature and the official title of the officer signing name
7. The Bidder has read and understands the Contract Documents and agrees to comply with all requirements of the Contract Documents, regardless of whether the Bidder has actual knowledge of the requirements and regardless of any statement or omission made by the Bidder which might indicate a contrary intention.
8. The Bidder represents that the bid is based upon the Standards specified in the Contract Documents.
9. The Bidder has visited the project site, become familiar with the local conditions and has correlated personal observations about the requirements of the Contract Documents. The Bidder has no outstanding questions regarding the interpretation or clarification of the Contract Documents.
10. The Bidder and each person signing on behalf of the Bidder certifies, and In the case of a joint or combined bid, each party thereto certifies as to such parties organization, under penalty of perjury, that to the best of the undersigned's knowledge and belief: a) the Base Bid, any Unit Prices, and any Alternates in the bid having been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition as to any matter relating to such Base Bid, Unit Prices or Alternates, with any other; b) unless otherwise required by law, the Base Bid, any Unit Prices and any Alternates in the bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to the bid opening, directly or indirectly, to any other Bidder who would have any interest in the Base Bid, Unit Prices or Alternates; c) no attempt has been made or will be made by the Bidder to induce any other individual, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

11. The Bidder will enter into and execute the Contract with Dayton Metropolitan Housing Authority (DMHA). If a Contract is awarded on the basis of this bid, and if the Bidder does not execute a Contract for any reason, other than as authorized by law, the Bidder and the Bidder's Surety are liable to DMHA as indicated in the Instructions to Bidders and in the General Conditions of the Contract.
12. The Bidder certifies that upon the award of a Contract, the Contractor will make a good faith effort to ensure that all of the Contractor's employees, while working on the project site, will not purchase, transfer, use or possess illegal drugs or alcohol or abuse prescription drugs in any way.

If the Bidder is a Corporation, partnership or sole proprietorship, an officer, partner or principal of the Bidder, as applicable, shall print or type the legal name of the Bidder on the line provided and **sign the Bid Form**. If the Bidder is a joint venture, an officer, partner or principal, as applicable, of each member of the joint venture shall print or type the legal name of the applicable member on the line provided and **sign the Bid Form**. All signatures must be original.

Bidder's Name: _____

Authorized Signature: _____

Print Name: _____

Title: _____

Company Name: _____

Mailing Address: _____

Telephone Number: _____

Facsimile Number: _____

Where incorporated: _____

Federal Identification Number: _____

Dunn and Bradstreet Number: _____

Contact Person for Contract Processing:
(Please print) _____

Additional Signature for Joint Venture:

Bidder's Name: _____

Authorized Signature: _____

Print Name: _____

Title: _____

Company Name: _____

Mailing Address: _____

Telephone Number: _____

Facsimile Number: _____

Where incorporated: _____

Federal Identification Number: _____

Dunn and Bradstreet Number: _____

Contact Person for Contract Processing:
(Please print) _____

ITEM P-630 REFINED COAL TAR EMULSION WITHOUT ADDITIVES, SLURRY SEAL SURFACE TREATMENT

630-1.1 GENERAL. This item shall consist of a mixture of refined coal tar emulsion, mineral aggregate, and water properly proportioned, mixed, and applied as a slurry seal on new or existing (aged) asphalt concrete pavement.

MATERIALS

630-2.1 Refined Coal Tar Emulsion. A refined coal tar emulsion prepared from a high temperature refined coal tar conforming to the requirements of ASTM specification D 490 for grade 11-12. The use of oil and water gas tar is not allowed. Base refined coal tar emulsion must conform to all requirements of Federal Specification R-P-355.

630-2.2 Aggregate. The aggregate shall be washed dry silica sand or boiler slag free of dust, trash, clay, organic materials or other deleterious substances. The aggregate shall meet the gradation requirements of Table 1, when tested in accordance with ASTM C 136.

TABLE 1. GRADATION OF AGGREGATES*

Sieve Size		Percent Retained	
		Minimum	Maximum
#20 or coarser	(0.850 mm)	0	2
#30	(0.600 mm)	0	12
#40	(0.425 mm)	2	60
#50	(0.300 mm)	5	60
#70	(0.212 mm)	5	60
#100	(0.150 mm)	5	30
#140	(0.106 mm)	0	10
#200	(0.075 mm)	0	2
Finer than #200		0	0.3

* Table 1 represents the maximum range of aggregate gradations.

In all cases the refined coal tar emulsion supplier is to give written approval of the aggregate used in the mix design.

630-2.3 Water. Water for mixing shall be potable, free of harmful soluble salts and at least 50°F (10°C).

630-2.4 Crack Sealant. Crack sealant shall be certified for compatibility with the refined coal tar emulsion by the manufacturer of the refined coal tar emulsion, and approved by the engineer.

630-2.5 Oil Spot Primer. Oil spot primer shall be certified for compatibility with the refined coal tar emulsion by the manufacturer of the refined coal tar emulsion, and approved by the engineer.

630-2.6 Pavement Primer. Pavement primer shall be certified for compatibility with the refined coal tar emulsion by the manufacturer of the refined coal tar emulsion, and approved by the engineer.

COMPOSITION AND APPLICATION

630-3.1 Composition. The refined coal tar emulsion seal coat is to consist of a mixture of refined coal tar emulsion, water and aggregate, and be proportioned as shown in Table 2. The composition must have written approval of the coal tar emulsion manufacturer.

630-3.2 Job Mix Formula. The contractor shall submit the recommended formulation of water, emulsion, aggregate and application rate proposed for use to a testing laboratory together with sufficient materials to verify the formulation at least [] days prior to the start of operations. The mix design shall be within the range shown in Table

2. No seal coat shall be produced for payment until a job mix formula has been approved by the Engineer. The formulation shall pass the fuel resistance test in Appendix A.

The job mix formula for each mixture shall be in effect until modified in writing by the Engineer.

Improper formulations of coal-tar pitch emulsion seal produce coatings that crack prematurely or do not adhere properly to the pavement surface. A minimum of 5 days is recommended for job mix approval.

**TABLE 2.
COMPOSITION OF MIXTURE PER 100 GAL OF REFINED COAL TAR EMULSION**

Application	Refined Coal Tar Emulsion	Water	Aggregate	Formula Rate of Application of Mix per Square Yard (Square Meter)	
				Minimum Gallons (Liters)	Maximum Gallons (Liters)
	Gallons (Liters)	Gallons (Liters)	LBS (Kilograms)	Minimum Gallons (Liters)	Maximum Gallons (Liters)
Prime Coat (where required) as specified by the coal tar emulsion manufacturer.					
1st Seal Coat	100 (379)	25-30 (95-114)	300-500 (136-228)	0.12 (0.54)	0.17 (0.77)
2nd Seal Coat	100 (379)	25-30 (95-114)	300-500 (136-228)	0.12 (0.54)	0.17 (0.77)

The numbers shown in Table 2 represent the maximum recommended range of values. In all cases, the refined coal tar emulsion supplier is to give written approval of specific composition numbers to be used in the mix design.

Some specifications covering this type of coating have allowed sand loadings in excess of 10 pounds per gallon of refined coal tar emulsion. These coatings have not performed well in the field due to poor fuel resistance and loss of adhesion and are not recommended.

Additional coats may be specified for greater wearability.

630-3.3 Application Rate. Application rates are not to exceed 0.17 gal/yd.²/coat (0.77 liters/m²/coat), and at no time are total coats to exceed 0.51 gal/yd² (2.3 liters/m²).

630-3.4 Test Section. Prior to full production, the Contractor shall prepare a quantity of mixture in the proportions shown in the approved mix design. The amount of mixture shall be sufficient to place a test section a minimum of 250 square yards at the rate specified in the job mix formula. The area to be tested will be designated by the Engineer and will be located on a representative section of the pavement to be seal coated. The actual application rate will be determined by the Engineer during placement of the test section and will depend on the condition of the pavement surface.

The test section shall be used to verify the adequacy of the mix design and to determine the application rate. The same equipment and method of operations shall be used on the test section as will be used on the remainder of the work.

If the test section should prove to be unsatisfactory, the necessary adjustments to the job mix formula, mix composition, application rate, placement operations, and equipment shall be made. Additional test sections shall be placed and evaluated, if required. Full production shall not begin without the Engineer's approval. Acceptable test sections shall be paid for in accordance with paragraph 630-7.1.

The test section affords the Contractor and the Engineer an opportunity to determine the quality of the mixture in place as well as the performance of the equipment.

The application rate depends on the surface texture.

If operational conditions preclude placement of a test section on the pavement to be seal coated, it may be applied on a pavement with similar surface texture.

The only test required on the composite mix placed in the field is the viscosity test. The fuel resistance test may be specified, however, this test takes 96 hours to run.

CONSTRUCTION METHODS

630-4.1 Weather Limitations. The seal coat shall not be applied when the surface is wet or when the humidity or impending weather conditions will not allow proper curing. The seal coat shall be applied only when the atmospheric or pavement temperature is 50°F (10 degrees C) and rising and is expected to remain above 50°F (10°C) for 24 hours, unless otherwise directed by the Engineer.

630-4.2 Equipment and Tools. The Contractor shall furnish all equipment, tools, and machinery necessary for the performance of the work.

a. Distributors. Distributors or spray units used for the spray application of the seal coat shall be self-propelled and capable of uniformly applying 0.12 to 0.55 gallons per square yard (0.54 to 2.5 liters per square meter) of material over the required width of application. Distributors shall be equipped with removable manhole covers, 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.

The distributor shall be equipped with a positive placement pump so that a constant pressure can be maintained on the mixture to the spray nozzles.

b. 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 to the spreader box without segregation.

c. Spreading Equipment. Spreading equipment shall be a mechanical-type squeegee 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; coal-tar emulsion and aggregate build-up on the box shall not be permitted.

d. Hand Squeegee or Brush Application. The use of hand spreading application shall be restricted to 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.

e. Calibration. The Contractor shall furnish all equipment, materials and labor necessary to calibrate the equipment. It shall be calibrated to assure that it will produce and apply a mix that conforms to the job mix formula. Commercial equipment should be provided with a method of calibration by the manufacturer. All calibrations shall be made with the approved job materials prior to applying the seal coat to the pavement. A copy of the calibration test results shall be furnished to the Engineer.

630-4.3 Preparation of Existing Asphalt Pavement Surfaces. Existing asphalt pavements indicated to be seal coated shall be prepared as follows:

- Patch bituminous pavement surfaces that have been softened by petroleum derivatives or have failed due to any other cause. Remove damaged pavement to the full depth of the damage and replace with new bituminous concrete similar to that of the existing pavement. If a solvent containing cold-applied material is used, complete patching a minimum of 90 days prior to the planned application of the sealer to permit solvent to escape before sealing.
- Remove all vegetation and debris from cracks to a minimum depth of 1". If extensive vegetation exists treat the specific area with a concentrated solution of a water-based herbicide approved by the engineer. Fill all cracks, ignoring hairline cracks (< 1/4" wide) with a crack sealant. Wider cracks (over 1/2" wide (38.4 mm)), along with soft or sunken spots, indicate that the pavement or the pavement base should be repaired or replaced as stated above.
- Clean pavement surface immediately prior to placing the prime coat or seal coat by sweeping, flushing well with water leaving no standing water, or a combination of both, so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film.
- Remove oil or grease that has not penetrated the asphalt pavement by scraping or by scrubbing with a detergent, then wash thoroughly with clean water. After cleaning, treat these areas with the oil spot primer.
- To insure adhesion to sound but oxidized pavements, mix and apply a prime coat of a type and at a rate recommended by the coal tar emulsion manufacturer, after all loose aggregate is removed.

630-4.4 Preparation of New Asphalt Pavement Surfaces. New asphalt pavements indicated to be seal coated shall be prepared as follows:

- Cure new asphalt pavement surfaces so that there is no concentration of oils on the surface.
- A period of at least 60 days at +70°F daytime temperatures must elapse between the placement of a hot mixed asphalt concrete surface course and the application of the seal coat.
- Perform a water-break-free test to confirm that the surface oils have degraded and dissipated. (Cast one gallon of clean water out over the surface. The water should sheet out and wet the surface uniformly without crawling or showing oil rings.) If asphalt does not pass this test, additional time must be allowed for extra curing and retesting prior to sealing.
- Clean pavement surface immediately prior to placing the prime coat or seal coat by sweeping, flushing well with water leaving no standing water, or a combination of both, so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film.
- Where oil spot priming is needed, remove oil or grease that has not penetrated the asphalt pavement by scraping or by scrubbing with a detergent, then wash thoroughly with clean water. After cleaning, treat these areas with the oil spot primer.

630-4.5 Mixing. Blend the coal tar emulsion mixture in the equipment described in paragraph 630-4.2 using the ingredients described in Table 2. The mixing must produce a smooth homogeneous mixture of uniform consistency. (Consult coal tar emulsion supplier for its recommended order of addition of the ingredients.) During the entire mixing and application process, no breaking, segregating or hardening of the emulsion, nor balling or lumping of the sand is to be permitted. Continue to agitate the seal coat mixture in the mixing tank at all times prior to and during application so that a consistent mix is available for application.

Small additional increments of water may be needed to provide a workable consistency, but in no case is the water content to exceed the specified amount.

630-4.6 Application of Slurry Seal Coat. The aggregate filled slurry seal coat shall be applied at a uniform rate determined in paragraph 630-3.4.

In order to provide maximum adhesion, the pavement shall be dampened with a fog spray of water if recommended by the supplier. No standing water shall remain on the surface.

If a prime coat is required, mix and apply the prime coat as specified in paragraph 630-4.3 for existing pavements or paragraph 630-4.4 for new pavements.

Apply the first coat uniformly to obtain the rate determined in paragraph 630-3.4.

Each coat shall be allowed to dry and cure initially before applying any subsequent coats. 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.

Apply the second coat in the same manner as outlined for the first coat.

Additional coats shall be applied over the entire surface as directed by the engineer.

The finished surface shall present a uniform texture.

The final 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.

Where marginal weather conditions exist during the eight hour drying time, additional drying time shall be required. 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.

Where striping is required, the striping paint utilized shall meet the requirements of P-620, shall be compatible with the seal coat and as recommended by the coal tar emulsion manufacturer.

QUALITY CONTROL

630-5.1 CONTRACTOR'S CERTIFICATION. The Contractor shall furnish the manufacturer's certification that each consignment of emulsion shipped to the project meets the requirements of Federal specification R-P-355, except that the water content shall not exceed 50 percent. The certification shall also indicate the solids and ash content of the emulsion and the date the tests were conducted. The certification shall be delivered to the Engineer prior to the beginning of work. The manufacturer's certification for the emulsion shall not be interpreted as a basis for final acceptance. Any certification received shall be subject to verification by testing samples received for project use.

The Contractor shall also furnish a certification demonstrating a minimum of three years' experience in the application of coal-tar emulsion seal coats.

630-5.2 INSPECTION. The Owner shall have an independent technical consultant on the job site at the beginning of operations for application of coal-tar emulsion seal coats. The consultant shall have knowledge of the materials, procedures, and equipment described in this specification and shall assist the Contractor regarding proper mixing of the component materials and application of the seal coat. The consultant shall have a minimum of 3 years' experience in the use of coal-tar seal coats. Documentation of this experience shall be furnished to the Engineer prior to the start of operations. The cost of the technical consultant shall be paid for by the Owner.

630-5.3 SAMPLING. A minimum of one sample per day shall be tested for the properties of Table 2. A random sample of approximately one-quart of the composite mix will be obtained daily by the contractor and stored in a glass container. The containers shall be sealed against contamination and retained in storage by the Owner for a period of six months. Samples shall be stored at room temperature and not be subjected to freezing temperatures.

A sample of undiluted coal-tar emulsion shall be obtained from each consignment shipped to the job.

630-5.4 ENGINEER'S RECORDS. The Engineer will keep an accurate record of each batch of materials used in the formulation of the seal coat.

METHOD OF MEASUREMENT

630-6.1 The refined coal tar emulsion shall be measured by the [gallon (liter)] [ton (kg)]. Only the actual quantity of undiluted refined coal tar emulsion will be measured for payment.

630-6.2 Aggregate shall be measured by the ton (kg) of dry aggregate.

BASIS OF PAYMENT

630-7.1 Payment shall be made at the contract unit price per [gallon (liter)] (ton (kg)) for the refined coal tar emulsion and at the contract price per ton (kg) for aggregate.

These prices shall be full compensation for furnishing all materials, preparing, mixing, and applying these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-630-7.1	Refined Coal Tar Emulsion for Slurry Coat—per [gallon (liter)] [ton (kg)]
Item P-630-7.2	Aggregate—per ton (kg) of dry aggregate.

TESTING REQUIREMENTS

ASTM C 67	Sampling and Testing Brick and Structural Clay Tile
ASTM C 136	Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM D 160	Practice of Sampling Bituminous Materials
ASTM D 2939	Standard Test Methods for Emulsified Bitumens used as Protective Coatings.

MATERIAL REQUIREMENTS

ASTM D 490	Standard Specification for Road Tar
ASTM D 692	Standard Specification for Coarse Aggregate for Bituminous Paving Mixtures
ASTM C 3699	Kerosene

ASTM D 4866	Standard Performance Specification for Coal Tar Pitch Emulsion Pavement Sealer Mix Formations Containing Mineral Aggregates and Optional Polymeric Admixtures
ASTM D 5727	Emulsified Refined Coal Tar (Mineral Colloid Type)
FED SPEC R-P-355	Pitch, Coal-tar Emulsion (Coating for Bituminous Pavements) ASTM D 5727 Emulsified Refined Coal Tar (Mineral Colloid Type)