

# **SCOPE OF WORK**

## **ELM AVENUE RESURFACING SCOPE OF WORK**

- Pavement Planing
- Pavement Repair
- Asphalt Surface Course
- Asphalt Rejuvenating Agent
- Catch Basin Adjustments / Reconstruction
- Pavement Markings

*Engineer's Opinion of Construction Cost for this project is \$105,000*

## **SPECIAL PROVISIONS**

### **ITEM 207 - TEMPORARY SEDIMENT AND EROSION CONTROLS**

The Contractor shall take extreme care to prevent unnecessary erosion, water pollution and siltation at all points of the project. Temporary seeding and mulching, straw bales, slope drains, etc., shall be used as necessary or as directed by the Engineer. The cost of all temporary erosion control measures shall be incidental to the Contract.

### **FULL-DEPTH PAVEMENT SAWING**

All existing pavement to be widened and/or removed shall be sawed full depth at the limits of removal, using a diamond saw blade to provide a uniform edge and prevent damage to pavement that is to remain in place. The cost of the sawing shall be incidental to the applicable pavement removal item.

### **ITEMS 251 / 253 - PAVEMENT REPAIR**

The plans show dimensions and locations of pavement areas which are to be repaired under "Item 251, Partial Depth Pavement Repair", "Item 253, Pavement Repair," or The Contractor shall note that these dimensions and locations are only approximations and may be changed and/or adjusted. The final areas to be repaired under these items will be designated in the field by the Engineer and the quantity of work to be covered under these items will be based upon the measurement of those designated areas.

The unit price bid for Item 251, Partial Depth Pavement Repair, shall include all the costs incurred in the removal of the existing concrete pavement to a depth specified by the Engineer, and the placing of the asphalt pavement as per plan.

The unit price bid for Item 253, Pavement Repair, shall include all the costs incurred in the removal of the existing asphalt pavement, the compaction of the subgrade as required, and the construction of the pavement courses as per plan.

The unit price bid for "Item 255, Full Depth Pavement Removal and Rigid Placement" shall include all costs incurred in the saw cutting and removal of the existing concrete pavement, the compaction of the subgrade as required, the placement of expansion material and dowels, and new concrete pavement as per plan.

Item 253, "Pavement Repair, Miscellaneous: Slag Stabilization," shall be paid for under a separate item and is included in the Contract as a contingency item for the repair and replacement of unsound base material as directed by the Engineer.

**The Contractor shall plane off the existing pavement as shown on the typical details. The Engineer will then mark the location, size and type of repair to be made. Weather permitting, the Contractor shall complete the pavement repairs within five (5) working days from when the planing operations have been completed.**

**All curb repairs, asphalt repairs and utility adjustments are to be completed before the asphalt surface work begins.**

### **ITEM 254 - PAVEMENT PLANING**

The work of this item consists of removing the existing asphalt-wearing surface to the depths and limits specified or as directed by the Engineer, the intent of which is to restore adequate curb height and/or to remove deteriorated portions or irregularities in the existing wearing surface. Removal shall be by the method of cold surface planing, as described in Item 254.

The Contractor shall be responsible for notifying all residents of parking restrictions 24 hours in advance of any and all planing operations. Care shall be exercised during planing operations so as not to damage manhole covers, grates, chambers, valves, valve boxes, etc. Any utility castings damaged by the Contractor's operations shall be replaced by the Contractor at his expense.

After removing the wearing course, the Contractor shall immediately clean and tack coat an area at least four feet (4') in radius around all utility castings within the removal area and place an asphalt concrete wedge, thoroughly compacted in accordance with Item 401, around the castings in the four-foot (4') radius area. As an alternate method, the Contractor may choose at the time the wearing course is removed to leave a four-foot radius wedge of existing surface course around the utility casting to protect traffic, but will not be allowed to remove these wedges until the day previous to placing asphalt concrete surfacing on the street. Where manholes or valve chambers within an area where wearing course is removed have previously been adjusted with adjusting rings, the Contractor shall also have the option of removing the adjustment ring.

If the Contractor chooses to remove the adjustment rings, he shall re-install the rings immediately prior to resurfacing the street. No additional compensation will be paid for the placing of asphalt wedges, the removal and re-installation of adjustment rings, or the separate removal of existing wearing course left around the castings. These costs shall be included in the cost of removing the wearing course. All material removed shall be the property of the Contractor.

The Contractor shall note that the maintenance of proper drainage patterns will be of special concern, especially where proposed work is to meet existing pavement. The Contractor may be required to survey areas in question, using an automatic level or other appropriate equipment to assure proper grade and cross-slope. The cost of all operations required to assure and to demonstrate that proper drainage patterns have been maintained shall be included in the unit price bid for the pertinent pavement removal item.

**ITEM 401 - SEALING EDGES**

All edges of the asphalt concrete surface course constructed under this Contract shall be sealed with asphalt cement as directed by the Engineer, the cost of same to be included in the unit price bid for Item 441 Asphalt Concrete. After completion of the surface course, gutters shall be sealed with asphalt cement as directed by the Engineer. The material shall be applied at a uniform width of approximately 4 inches and at a rate just sufficient to fill surface voids. Sealing edges at building walls, foundations, or other visible surfaces shall be done neatly and without more than one-half (1/2) inch of the sealant being visible on the surface. Any extra sealant applied to visible surfaces shall be carefully and thoroughly removed by the Contractor at no additional cost to the Owner.

**ITEM 401 - ASPHALT CONCRETE PAVEMENTS**

401.16      Compaction: Add: Achieve an in-place density of the compacted material ranging between 92.0% and 96.9% as determined by the material testing consultant.

**ITEM 407 - NON-TRACKING TACK COAT**

**DESCRIPTION:** This work consists of preparing and treating a paved surface with a non-tracking tack asphalt emulsion.

Furnish materials according to the ODOT approved list.

Meet all requirements of Item 407 Tack Coat in the Construction and Materials Specifications required by the contract, except as noted below.

**MATERIAL:** Meet all properties of the approved manufacturer's non-tracking tack specification requirements on file with the laboratory at time of placement.

**ACCEPTANCE AND SAMPLING OF MATERIALS:** Supply certified test data to the Engineer and to the district laboratory demonstrating the non-tracking tack supplied was tested for and meets all material properties shown on the ODOT's approved list.

During construction, personnel will sample from the distributor and supply the ODOT test lab a minimum of one quart of non-tracking tack for every 25,000 gallons used on the project. The Contractor is responsible for supplying the proper plastic quart sampling container. Clearly mark on the sample with the manufacturer's name, project number, and the words "non-tracking tack coat".

**EQUIPMENT:** Follow manufacturer's recommendations for correct distributor settings. Thoroughly clean all equipment if previously used material charge is different than the proposed material.

**APPLICATION OF ASPHALT MATERIAL:** Uniformly apply the non-tracking tack with a distributor according to the manufacturer's instructions. If non-tracking tack is stored for an extended period of time, prior to application, agitate or gently circulate the material.

Ensure all nozzles and spray patterns are identical to one another along the distributor spray bar. Place the angle of the nozzle at a 15 to 30 degree angle to the spray bar axis to maximize overlap or as recommended by the nozzle manufacturer. Contact the manufacturer's representative for required spray nozzle size and distributor and nozzle settings.

Apply at a rate of 0.04 to 0.1 gallons per square yard. Do not dilute non-tracking tack. Recommended application temperature is 160° F to 180° F. Do not exceed 180° F. The Engineer will approve the quantity, rate of application, temperature, distributor settings, and areas to be treated before application of the non-tracking tack coat. The Engineer will determine the actual application in gallons per square yard by a check on the project.

**PERFORMANCE OF NON-TRACKING TACK COAT:** Determine the time to set for the material to become non-tracking. The Engineer will report any issues with excessive time to set, or after set issues with stickiness, or pickup of the tack to the District Testing Engineer and new Product Engineer, 614-351-2882.

If the certified test data fails to meet the lab testing criteria, or field samples fail to meet the lab test criteria, or the non-tracking tack fails to perform satisfactorily in the field, as noted above, the Contractor will be required to replace and supply another approved non-tracking tack product for the remainder of the project at no additional cost.

A tack coat shall be applied to the area to be surfaced in accordance with Item 407, Non-Tracking Tack Coat. The residual asphalt content of the tack coat shall be 0.04 to 0.06 gallons per square yard. SS-1, SS-1h, CSS-1, or CSS-1h materials used shall be diluted 50 percent with potable water. Over-spray on curbs, adjoining pavements, and other roadside facilities shall not be tolerated, and the Contractor shall be responsible for clean-up of any areas or facilities receiving over-spray.

#### **ITEM 441 - MEETING EXISTING PAVEMENT**

Where an asphalt concrete resurfacing project begins or ends, the surface course shall meet the existing on a neat, straight line. Unless otherwise directed by the plans, the Contractor shall construct a ten- foot (10') long butt joint (see detail).

#### **ITEM 441 - ASPHALT CONCRETE**

448.03 Reports and 448.04 Acceptance: Acceptance requirements have been modified in these Special Provisions to adjust for smaller quantity projects and assure each day of paving meets the design criteria of the Job Mix Formulas (JMF). Except as modified in this provision, all other requirements of the ODOT 441 Specification still apply.

Acceptance of all 448 asphalt will be based on the results of extraction and gradation tests performed by the material testing consultant. The testing consultant will obtain four (4) samples for each day of paving in accordance with ODOT Supplement 1035. The consultant will do extraction and gradation tests, in accordance with ODOT Supplements 1038 and 1039, for two (2) of the samples, the other two (2) will be hold samples. A Lot as used in 403.08 will be defined by the total cubic yards of asphalt placed for each specific pay item for each JMF. Acceptance of a Lot will be based on the average of a minimum of four (4) tests. In addition to each Lot, each day of paving will be subject to the tolerance criteria shown in Tables 403.08-1 and 403.08-2.

The Contractor is still required to perform all tests and submit reports per ODOT 441.

#### **ITEM 441 - BROOMING AND CLEANING**

The existing surface shall be cleaned and prepared in accordance with Item 401.12. The cost for such work is to be included in the unit price bid for Item 441, Asphalt Concrete.

#### **ITEM 499 - CONCRETE - GENERAL**

If the averages of all sets of three consecutive strength test results meet the following strengths, an extended guarantee will be required on all concrete work.

- a) 3500 psi to 3799 psi - 3-year guarantee
- b) 3800 psi to 3999 psi - 2-year guarantee

#### **ITEM 503 - SHEETING AND SHORING**

The Contractor shall furnish, put in place, and maintain such piling, sheeting, bracing, etc., as is required by the Industrial Commission and the Department of Industrial Relations, State of Ohio, in their Bulletin No. 1C-3, "Specific Safety Requirements Relating to Building and Construction Work," as revised. The Contractor shall furnish, put in place, and maintain and remove such sheeting, shoring, planking and bracing as may be required to support the sides of the excavations and to prevent any movement which could in any way injure the work, human life, or adjacent structures and property, obstruct surface drainage channels or waterways, or otherwise injure or delay the work. If required at any time by the Engineer, the Contractor shall furnish and install such additional sheeting, shoring and bracing as may be necessary to protect the work, but compliance with such orders or failure on the part of the Engineer to give such orders shall in no case release the Contractor from liability for any damages or injuries caused by weak or insufficient sheeting, shoring and bracing, nor from his responsibility to protect the work or adjacent property.

Except when ordered left in place, all wood sheeting above the top of the pipe, steel sheet piling, braces, shorer, walers or stringers, shall not be withdrawn until the backfill is practically complete. As the backfill progresses to the elevation of a set of walers and braces, such bracing shall be

removed. All sheeting and bracing specified, shown on the plans, or directed by the Engineer to be left in place shall not be removed. All sheeting left in place shall be cut off at least two (2) feet below final finish grade. During the removal of sheeting, care must be taken to prevent movement of the sides of the excavation. All voids left by the withdrawal of sheeting shall immediately be carefully refilled by ramming with tools adapted to the purpose, pneumatic or other approved type, or by flushing sand into the voids.

Whenever the Engineer, in writing, orders any type sheeting, shoring, bracing or foundation material left in place, or when so shown on the plans or specified, the Contractor will be paid for the actual amount so left in place at prices stipulated for the applicable items. Sheeting, shoring and bracing left in place by the Contractor for his own convenience will not be paid for under any item.

### **ITEM 608 - DETECTABLE WARNINGS DEVICES**

Detectable warning devices shall be in overall compliance with ODOT Standard Drawings BP-7.1

The detectable warning device shall be a reinforced polymer composite material and an approved product found in the ODOT Office of Roadway Engineering Service's Detectable Warnings Approved List and also approved by the Village of Terrace Park.

### **ITEM 611 - REVIEW OF DRAINAGE FACILITIES**

Before any work is started on the project and again before final acceptance by the Owner, the Contractor, with the Engineer, shall make an inspection of the existing sewers within the work limits, which are to remain in service and which may be affected by the work. The condition of the existing conduits and their appurtenances shall be determined from field observations. Written records of the inspection and/or photographic documentation shall be kept by the Engineer.

All existing sewers inspected initially by the above-mentioned parties shall be maintained and left in a condition reasonably comparable to that determined by the original inspection. Any change in the condition resulting from the Contractor's operations shall be corrected by the Contractor to the satisfaction of the Engineer. All existing and/or new conduits, inlets, catch basins, and manholes constructed and/or cleaned as a part of the project shall be free of all foreign matter and in a clean condition before the project will be accepted by the Owner. Payment for all operations described above shall be included in the unit prices bid for the pertinent item.

### **ITEM 611 - RESTORATION OF AREAS DISTURBED BY DRAINAGE FEATURE INSTALLATION**

Soil areas disturbed by installation of new underdrains, trench drains, conduits, catch basins or other drainage features shall be regraded to drain properly and then restored with top soil, seeding and mulching. The cost of restoration of these soil areas is to be included in the unit price bid for the pertinent drainage feature.

If new pavement, walks, drives, curbs, etc. **are shown** to be constructed at the location of the drainage feature and have separate payment items, the cost for the repairs/replacement of the affected pavement, walks, drives, curbs, etc. shall be paid for at the unit price for the pertinent new pavement, walks, drives, curbs, etc. item.

If new pavement, walks, drives, curbs, etc. **are not shown** to be constructed at the location of the drainage feature, the cost for the repairs/replacement of the affected pavement, walks, drives, curbs, etc. shall be incidental to the associated drainage feature unit cost.

#### **ITEM 611 - TRENCH FOR SEWER CONSTRUCTION**

Trench excavation for sewer construction shall be adequately maintained and protected with barricades at all times.

Placement of proposed sewer pipe and backfill material shall follow as closely as possible behind excavation operations. The length of sewer trench, which is open at any one time, shall be held to a minimum and shall, at all times, be subject to the approval of the Engineer.

#### **ITEM 611 - PIPE CUT-OFFS**

When bell-and-spigot pipe is used, any necessary pipe cut-offs shall be made at the spigot end of the length of pipe adjacent to the end length. When tongue-and-groove pipe is used, the length of pipe next to the end length shall be cut and a butt joint formed with a collar as detailed in Standard ODOT Drawing DM-1.1.

#### **ITEM 611 - CONDUIT END TREATMENT**

Immediately after placement of any conduits, the Contractor shall construct the end treatments required by the plans at both the outlet and inlet ends. This shall include headwalls, concrete riprap, rock channel protection, sodding, etc. The cost of the necessary reconstruction and/or regrading of swales or disturbed areas at the inlets and outfalls of all proposed conduits shall be included in the price bid for the pertinent conduit and inlet items.

#### **ITEM 611 - MANHOLES, CATCH BASINS AND INLETS**

All castings for manholes, catch basins and inlets shall conform to those specified in the standard construction drawings. Grated inlet tops shall be placed as specified on the plans. Tops of casting elevations are subject to final adjustments as approved by the Engineer. All castings used shall be subject to the final approval of the Engineer.



**ITEM 611 - CATCH BASIN RECONSTRUCTION**

The Contractor shall remove and clean the existing castings, remove the existing concrete slab tops, and remove the existing walls down to any point of cracking or wall failure, as directed by the Engineer. The Contractor will then rebuild the walls using brick and mortar, set castings, and/or concrete slab tops at the proper final grade. Castings and concrete slab tops will be inspected by the Engineer to determine their suitability for re-use. As directed by the Engineer, broken or deteriorated castings and/or concrete slab tops shall be replaced during the catch basin reconstruction work.

All catch basins designated as CB-3, CB-3A, 2-2-B, etc., are similar but not necessarily exactly equal to current ODOT Standards. Contractor to verify prior to ordering any parts.

Existing frames, grates and hoods are to be reused on the rebuilt catch basins unless noted otherwise, or as directed by the Engineer.

Any conduit necessary for the relocation and construction of catch basins shall be incidental to the pertinent item.

Payment for "Item 611, Catch Basin Reconstructed to Grade," shall include all labor, equipment and materials necessary to remove catch basin tops, rebuild walls, and reset castings and/or concrete slab tops on a per-unit basis.

**ITEMS 611 - REMOVAL OF EXISTING PIPE AND HEADWALLS**

Where proposed conduit and/or catch basin construction requires the removal of existing pipe and/or headwalls, the removal of same shall be included in the respective unit prices bid for Items 611 and 611. Where existing conduit, headwalls, and/or other facilities are to be removed and no proposed drainage facilities are to be constructed, the cost of the necessary removals shall be included in either the removal item, if specified, or in the pertinent excavation item.

**ITEM 608 - WALKS, CURB RAMPS, AND STEPS**

The unit price bid for Item 608 shall include all labor, material, and equipment necessary for the removal and disposal of the existing concrete walk, the placement of the new concrete walk, and the restoration of the grass areas adjacent to the walk with topsoil and seed. The walk shall be five (5) inches in thickness, except in walk areas through the driveway aprons, curb ramps and area adjacent to the traveled roadway, where the thickness shall be increased to seven (7) inches.

The Engineer shall mark in the field the walk to be replaced under this item. Replacement walk shall match the line and grade of the existing walk and the same joint pattern shall be maintained. Prefomed expansion joint material, 1/2-inch thick, shall be placed adjacent to all existing remaining

walk or structures. Where integral lug curb is a part of the walk to be repaired, the cost of replacement of the curb shall be included in the price bid for the walk.

Curb ramp construction shall conform to Item 608.07. Curb ramp standard dimensions will be adjusted as required by the Engineer in the field to provide adequate access for handicapped persons in the vicinity of poles or other fixed objects behind the curb. Curb ramps in both new and existing concrete walks will be measured as the number of each complete and shall include the cost of any additional materials, grading, forming and finishing not included in the concrete walk item (separate), which is measured through the curb ramp area.

Curb ramp construction shall conform to Item 608.07. Curb ramp standard dimensions will be adjusted as required by the Engineer in the field to provide adequate access for handicapped persons in the vicinity of poles or other fixed objects behind the curb. Curb ramps in new concrete walk will be measured by the number of each completed curb ramp. Curb ramps in existing walk will be measured by the number of square feet of finished surface completed. Payment shall include the cost for saw cutting, excavation, disposal of material, backfill, base course material, reinforcing steel, expansion joint material, grading, forming, all materials, finishing of the curb and walk of the ramp, restoration, installation of the truncated domes, detectable warning inserts, and incidentals necessary to complete the specified items.

It is the Contractor's responsibility to protect the new surface until it cures.

#### **ITEMS 608 / 452 - SIDEWALK AND/OR DRIVE APRON FINISH**

The finish applied to the Portland cement concrete surface used as a sidewalk or driveway apron shall be a broom finish. All joints and outside edges of the pavement shall be tooled with an edger or joint tool after brooming the final finish. Final finish, joints, and edges shall be subject to the approval of the Engineer.

It is the Contractor's responsibility to protect the new surface until it cures.

#### **ITEM 609 - CURBING, CONCRETE MEDIANS, AND TRAFFIC ISLANDS**

The unit price bid for Item 609 shall include all labor, equipment and material necessary to saw cut, remove and dispose of existing curb, construct the replacement curb, and restore the adjacent grass areas with topsoil, seeding, and mulching. The replacement curb shall, in general, match the existing curb as to line and grade, except where there are existing drainage problems. The Contractor shall grade the new curb to drain in conformance with the drainage patterns of the street.

It is the Contractor's responsibility to protect the new surface until it cures.

Existing Contraction joint pattern in the curb shall be maintained, but the maximum spacing between Contraction joints shall be ten (10) feet. Expansion joints shall be constructed on a maximum spacing of forty (40) feet. Where replacement curb begins or ends at an existing expansion joint, the Contractor shall install new expansion joint material, the cost of which is to be included in the unit price bid for the curb replacement. Finish of the replacement curb shall be a light brush finish.

Unless otherwise directed by the Engineer, where curb is to be replaced at driveway locations the Contractor shall construct the curb so as to facilitate ingress and egress of vehicles and to match the grade of the existing drive. If required, the Contractor shall construct the portion of the curb through the drive entrance as a drop curb with transition areas on each side of the driveway approach. The Contractor shall note that the concrete curb details, as shown on the plans, may be modified by the Engineer in the field in order to properly match the various dimensions of the existing curb, which is to be removed.

Existing downspout leaders outletting at the curb shall be replaced as per the detail, "Downspout Extension detail". The cost for the labor and material necessary to replace the downspout leader shall be incidental to the pertinent curb replacement item for each downspout replaced three (3) feet in length. Topsoil and seeding shall be incidental costs. If more than three (3) feet of downspout needs to be replaced to obtain positive slope, the additional work shall be paid on a per foot basis in bid item 611, 3" PVC pipe SCH 40. However, all new downspout pipe shall be installed with as few joints as possible, regardless of how payment is made. Any necessary vertical or horizontal bends shall be included and paid for on the above basis.

#### **ITEM 614 - MAINTAINING TRAFFIC**

The Contractor shall maintain traffic at all times in accordance with the requirements of Item 614.

Specific attention will be directed toward the proper use of flaggers, lights, drums, and temporary pavement markings. In general, the Contractor shall utilize ODOT Standard Construction Drawing MT-97.11 for flagging operation. The Contractor shall furnish, effect and maintain all necessary signs and provide temporary striping. The Contractor shall also provide all plating, temporary pavement and pavement control measures necessary. The cost of all temporary traffic control items necessary to safely maintain traffic shall be included with payment for Item 614 - Maintaining Traffic.

During the removal of the asphalt wearing course, the repair of the base pavement and/or the construction of the asphalt courses for the roadway, the Contractor will be permitted to close one lane of pavement while maintaining traffic in the other lane on an alternating flow basis. The Contractor will be held strictly to the flagging requirements listed under Item 614.08. The closing of the lane to traffic will be permitted during the above operations and for the periods of time consistent with the requirements of the specifications for the protection of the completed asphalt concrete courses.

The Contractor may proceed with construction on the project with the following restrictions:

- A. The Contractor must maintain interrupted two-way traffic at all times. Contractor must use flaggers when temporarily stopping one direction of traffic and ODOT Construction Drawing MT-97.11, for traffic control. Since these are residential streets, no work shall take place at night. These restricted hours are 10:00 PM to 7:00 AM, Monday through Friday; 9:00 PM to 10:00 AM Saturday, Sunday, and legal holidays.

- B. The Contractor shall allow access to driveways between the hours of 5:01 PM and 7:59 AM weekdays (Monday through Friday).
- The Contractor shall provide means to permit access to the driveway. This shall consist of, but is not limited to, 304 Aggregate material, steel plates, etc. to span open trenches, new curbs, or other concrete.
- C. If applicable, the Contractor shall place new curbs within 24 hours of removal. The Contractor shall keep driveways closed for a 48-hour period after concrete placement to permit the curing of concrete curbs, driveway aprons, or sidewalk across driveways.
- The Contractor shall note that any interim material used for providing driveway ingress and egress will not be a separate pay item, and the cost of said interim material shall be included in the lump sum price bid for Item 614.
- D. The cost for all material and labor to place, maintain, and remove all items necessary for maintaining traffic (including for emergency purposes) shall be included in 614 - Maintaining Traffic.
- E. No work will be permitted Saturdays, Sundays, or legal holidays.
- F. The Contractor shall give written notice to residents two (2) working days prior to commencing work which will temporarily restrict access.
- The Contractor shall make provisions to provide access to vehicles for emergency access.

Maintenance of traffic shall be ongoing throughout the duration of the project, including all periods of inactivity by the Contractor, until final acceptance of the project.

### **ITEMS 641 / 642 - PAVEMENT MARKING, PAINT**

The unit price bid for each Item 641 / 642 shall include the layout for the work to be performed. All 642 pavement marking shall be made with one (1) paint application of an alkyd traffic paint with an application of glass beads.

Location and type of pavement markings will be as existing in the area before the improvements are made or as otherwise directed by the Engineer either in these plans or in the field.

**The pavement markings shall be applied to the asphalt pavement a minimum of 72 hours after the asphalt rejuvenating agent, has been applied to the asphalt surface.**

### **ITEM 659 - SEEDING AND MULCHING**

A Class1 – lawn mixture shall be used for the areas that need to be restored with seed and mulch. The cost shall be incidental to the project.

**ITEM 659 - COMMERCIAL FERTILIZING**

All areas to be seeded and mulched under Item 659 shall have commercial fertilizer (12-12-12) applied to the rate of 20 pounds per 1000 square feet, the cost of which shall be incidental to the Contract.

## **ITEM SPECIAL – ASPHALT REJUVENATING AGENT**

### **ASPHALT REJUVENATING AGENT**

#### **I. Scope**

This work shall consist of furnishing all labor, material, and equipment necessary to perform all operations for the application of an asphalt rejuvenating agent to asphaltic concrete surface courses. The rejuvenation of surface courses shall be spray application of a cationic rejuvenating agent composed of petroleum oils and resins emulsified with water. All work shall be in accordance with the specifications, the applicable drawings, and subject to the terms and conditions of this Contract.

#### **II. Material Specifications**

The asphalt rejuvenating agent shall be an emulsion composed of a petroleum resin oil base uniformly emulsified with water. Each bidder must submit a certified statement from the asphalt rejuvenator manufacturer showing that the asphalt rejuvenating emulsion conforms to the required physical and chemical requirements.

ITEM SPECIAL - ASPHALT REJUVENATING AGENT

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**SPECIFICATIONS**

<b>TESTS</b>	<b>TEST METHOD</b>		<b>REQUIREMENTS</b>	
	<b>ASTM</b>	<b>AASHTO</b>	<b>MIN.</b>	<b>MAX.</b>
<b>Tests on Emulsion:</b>				
Viscosity @ 25°C, SFS	D-244	T-59	15	40
Residue, % W <sup>1</sup>	D-244 (Mod.)	T-59 (Mod.)	60	65
Miscibility Test <sup>2</sup>	D-244 (Mod.)	T-59 (Mod.)	No Coagulation	
Sieve Test, % W <sup>3</sup>	D-244 (Mod.)	T-59 (Mod.)	-	0.1
Particle Charge Test	D-244	T-59	Positive	
Percent Light Transmittance <sup>4</sup>	GB	GB	-	30
<b>Tests on Residue from Distillation:</b>				
Flash Point, COC, °C	D-92	T-48	196	-
Viscosity @ 60°C, cSt	D-445	-	100	200
Asphaltenes, % w	D-2006-70	-	0.4	0.75
Maltene Dist. Ratio	D-2006-70	-	0.3	0.6
$\frac{PC + A_1^5}{S + A_2}$				
PC/S Ratio <sup>5</sup>	D-2006-70	-	0.5	-
Saturated Hydrocarbons, S <sup>5</sup>	D-2006-70	-	21	28

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- 1 ASTM D-244 Modified Evaporation Test for Percent of Residue is made by heating 50 gram sample to 149 C (300 F) until foaming ceases, then cool immediately and calculate results.
  - 2 Test procedure identical with ASTM D-244-60, except that .02 Normal Calcium Chloride Solution shall be used in place of distilled water.
  - 3 Test procedure identical with ASTM D-244, except that distilled water shall be used in place of two percent sodium oleate solution.
  - 4 Test procedure is attached.
  - 5 Chemical composition by ASTM Method D-2006-70:

PC = Polar Compounds  
 A<sub>2</sub> = Second Acidaffins

A<sub>1</sub> = First Acidaffins  
 S = Saturated Hydrocarbons

## ITEM SPECIAL - ASPHALT REJUVENATING AGENT

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**III. Performance**

The rejuvenating agent shall have a record of at least five years of satisfactory service as an asphalt rejuvenating agent and in-depth sealer. Satisfactory service shall be based on the capability of the material to decrease the viscosity and increase the penetration value of the asphalt binder as follows: The viscosity shall be reduced by a minimum of 45 percent and the penetration value shall be increased by a minimum of 25 percent. Testing shall be performed on extracted asphalt cement from a pavement to a depth of three eighths inch (3/8"). In addition, the pavement shall be in-depth sealed to the intrusion of air and water.

The Bidder must submit with his bid the manufacturer's certification that the material proposed for use is in compliance with the specified requirements. The bidder must submit with his bid previous use documentation and test data conclusively demonstrating that the rejuvenating agent has been used successfully for a period of five years by government agencies such as cities, counties, etc. and that the asphalt rejuvenating agent has been proven to perform, as heretofore required, through field testing by government agencies as to the required change in the asphalt binder viscosity and penetration number. Testing data shall be submitted indicating such product performance on a sufficient number of projects, each being tested do a minimum period of three years to insure reasonable longevity of the treatment, as well as produce consistency. RECLAMITE®, manufactured by Golden Bear Oil Corporation, is a product of know quality and accepted performance.

**IV. Product Standards and Alternates**

The product "Reclamite"® for the asphalt, rejuvenating agent as manufactured by Witco Corporation is the standard for these specifications and the prices quoted on the bid sheet base bid shall be for this standard.

Bidders may offer an alternate for the standard specified in the specifications provided the Bidder adheres to the following and submits same with the bid:

- a. List the proposed alternate on the bid sheet form giving the product name and price.
- b. Furnish complete specifications and descriptive literature for the alternate as well as a one-gallon sample of the material proposed for use. Such descriptive and detailed information shall be complete and at least equal in detail to the City's requirements for the standard item for which the alternate is offered.
- c. Submit a current Material Safety Data Sheet for the alternative materials.



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The alternate will be given consideration by the City. The Contractor may furnish only those alternate items included in his proposal and approved by the City prior to award of the contract.

If no alternate is indicated on the bid sheet, the contractor shall furnish the standard (brand) specified in the attached specifications.

**V. Application Temperature / Weather Limitations**

The temperature of the asphalt rejuvenating emulsion at the time of application shall be as recommended by the manufacturer. The asphalt rejuvenating agent shall be applied only when the existing surface to be treated is thoroughly dry and when it is not threatening to rain. The asphalt rejuvenating agent shall not be applied when the ambient temperature is below 40° F.

**VI. Application Experience**

The asphalt rejuvenating agent shall be applied by an experienced applicator of such material. The Bidder shall have a minimum of three years' experience in applying the product proposed for use. He must submit with his bid a list of five projects on which he applied said rejuvenator. He shall indicate the project dates, number of square yards treated in each and the name and phone number of the government official in charge of each project.

A project superintendent, knowledgeable and experienced in application of the asphalt rejuvenating agent, must be in control of each day's work. The Bidder shall submit a written experience outline of the project superintendent.

**VII. Handling of Asphalt Rejuvenating Agent**

Contents in tank cars or storage tanks shall be circulated at least forty-five minutes before withdrawing any material for application. When loading the distributor, the asphalt rejuvenating agent concentrate shall be loaded first and then the required amount of water shall be added. The water shall be added into the distributor with enough force to cause agitation and thorough mixing of the two materials. To prevent foaming, the discharge end of the water hose or pipe shall be kept below the surface of the material in the distributor which shall be used as a spreader. The distributor truck will be cleaned of all of its asphalt materials and washed out to the extent that no discoloration of the emulsion may be perceptible. Cleanliness of the spreading equipment shall be subject to the approval and satisfaction of the Engineer.

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**VIII. Application Equipment**

The distributor for spreading the emulsion shall be self-propelled and shall have pneumatic tires. The distributor shall be designed and equipped to distribute the asphalt rejuvenating agent uniformly on variable widths of surface at readily determined and controlled rates from 0.05 to 0.5 gallons per square yard of surface and with an allowable variation from any specified rate not to exceed five (5) percent of the specified rate.

Distributor equipment shall include full circulation spray bars, pump tachometer, volume measuring device and a hand hose attachment suitable for application of the emulsion manually to cover areas inaccessible to the distributor. The distributor shall be equipped to circulate and agitate the emulsion within the tank.

A check of distributor equipment, as well as application rate accuracy and uniformity of distribution, shall be made when directed by the Engineer.

The truck used for sanding shall be equipped with a spreader that allows the sand to be uniformly distributed onto the pavement. The spreader shall be able to apply 1/2 pound to three (3) pounds of sand per square yard in a single pass. The spreader shall be adjustable so as not to broadcast sand onto driveways or treelawns.

The sand to be used shall be free flowing, without any leaves, dirt, stones, etc. Any wet sand shall be rejected from the job site.

Any equipment which is not maintained in full working order, or is proven inadequate to obtain the results prescribed, shall be repaired or replaced at the direction of the Engineer.

**IX. Resident Notification**

The Contractor shall distribute by hand, a typed notice to all residences and businesses on the street to be treated. The notice will be delivered no more than 24 hours prior to the treatment of the road. The notice will have a local phone number that residents may call to ask questions. The notice shall be of the door hanger type which secures to the door handle of each dwelling. Unsecured notices will not be allowed. The Contractor shall also place the notice on the windshield of any parked cars on the street. Hand distribution of this notice will be considered incidental to the contract.

**X. Application of Rejuvenating Agent**

The temperature of the asphalt rejuvenating emulsion, at the time of application, shall be as recommended by the manufacturer. The asphalt rejuvenating agent shall be applied only when the existing surface to be treated is thoroughly dry. Additionally, application of the asphalt rejuvenating agent shall be prohibited when weather forecasts indicate a chance of a rain event in

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the work area, which would produce in excess of 0.10 inches of rain within four hours of the application of the asphalt agent. The asphalt rejuvenating agent shall not be applied when the ambient temperature is below 40°F (40 degrees Fahrenheit). The asphalt rejuvenating agent shall be applied by a distributor truck at the temperature recommended by the manufacturer and at the pressure required for the proper distribution. The emulsion shall be so applied that uniform distribution is obtained at all points of the areas to be treated. Distribution shall be commenced with a running start to insure full rate of spread over the entire area to be treated. Areas inadvertently missed shall receive additional treatment as may be required by hand sprayer application.

Application of asphalt rejuvenating agent shall be on one-half width of the pavement at a time. When the second half of the surface is treated, the distributor nozzle nearest the center of the road shall overlap the previous application by at least one-half the width of the nozzle spray. In any event, the centerline construction joint of the pavement shall be treated in both application passes of the distributor truck.

Before spreading, the asphalt rejuvenating agent shall be blended with water at the rate of two (2) parts rejuvenating agent to one (1) part water, by volume or as specified by the manufacturer. The combined mixture of asphalt rejuvenating agent and water shall be spread at the rate of 0.05 to 0.10 gallons per square yard, or as approved by the Engineer following field testing.

The Contractor, in the presence of the Engineer or his authorized representative, shall mark off two areas of pavement surface on the street equal to one square yard each. The rejuvenating agent shall be applied accurately to said test areas at the rate of 0.04 and 0.08 gallons per square yard respectively. The method of application shall be approved by the Engineer. The results of these tests shall determine the rate of application required on each street. The results of the tests shall be reported to the Engineer prior to application.

Where more than one application is to be made, succeeding applications shall be made as soon as penetration of the preceding application has been completed and approval is granted for additional applications by the Engineer.

Grades or super elevations of surfaces that may cause excessive runoff, in the opinion of the Engineer, shall have the required amounts applied in two or more applications as directed.

After the street has been treated, the area within one foot of the curb line on both sides of the road shall receive an additional treatment of the asphalt rejuvenating emulsion uniformly applied at 1/2 the established rate, using a hand spray hose.

After the rejuvenating emulsion has penetrated, a coating of dry sand shall be applied to the surface in sufficient amount to protect the traveling public, as required by the Engineer.

The Contractor shall furnish a quality inspection report, showing the source, manufacturer, and the date shipped, for each load of asphalt rejuvenating agent. When directed by the Engineer, the Contractor shall take representative samples of material for testing.

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**XI. Street Sweeping**

The Contractor shall be responsible for sweeping and cleaning of the streets prior to and after treatment.

Prior to treatment, the street will be cleaned of all standing water, dirt, leaves, and foreign materials by using a power broom.

All sand used during the treatment must be removed no later than 48 hours after treatment of the street. This shall be accomplished by a combination of hand and mechanical sweeping. All turnouts, cul-de-sacs, etc., must be cleaned of any material to the satisfaction of the Engineer. Street sweeping will be included in the price bid per square yard for asphalt rejuvenating agent.

If, after sand is swept and in the opinion of the Engineer a hazardous condition exists on the roadway, the Contractor must apply additional sand and sweep same no later than 24 hours following reapplication. No additional compensation will be allowed for reapplications and removal of sand.

**XII. Traffic Control**

The Contractor shall schedule his operations and carry out the work in a manner to cause the least disturbance and/or interference with the normal flow of traffic over the areas to be treated. Treated portions of the pavement surfaces shall be kept closed and free from traffic until penetration, in the opinion of the Engineer, has become complete and the area is suitable for traffic.

When, in the opinion of the Engineer, traffic must be maintained at all times on a particular street, then the Contractor shall apply asphalt rejuvenating agent to one lane at a time. Traffic shall be maintained in the untreated lane until the traffic may be switched to the completed lane.

The Contractor shall be responsible for all traffic control and signing required to permit safe travel. The Contractor shall notify the police and fire departments as to the streets that are to be treated each day. The signage shall include traffic signs that warn traffic of the case sand.

If, in the opinion of the Engineer, proper signing is not being used, the Contractor shall stop all operations until safe signing and barricading is achieved.

**XIII. Basis for Payment**

The accepted quantities, measured as provided for above, will be paid for at the contract unit price for asphalt rejuvenating agent.

Asphalt rejuvenating agent shall be paid for PER SQUARE YARD, which shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified and required.

## **PROTECTION OF EXISTING STREET PAVERS**

The Contractor shall take care when applying the noted pavement treatment not to damage the existing street pavers adjacent to the project limits. Damage includes, but is not limited to, settlement caused by the Contractor's equipment, chipping/cracking caused by the Contractor's equipment, staining caused by the Contractor's equipment (oil, hydraulic fluid, etc.), staining caused by the application of the project pavement treatment, etc. The Contractor shall take precautions to both prevent equipment from damaging/staining the street pavers and if necessary provide a covering on the street pavers to prevent any damage.

If street pavers are structurally damaged, they shall be replaced at the Contractor's expense. If the street pavers are stained by the Contractor's operations, the Contractor shall attempt to clean the stained street pavers. The Contractor shall submit a plan for cleaning the street pavers to the Public Works Department for review and if accepted, shall do a small test area to verify the effects of the cleaning material on the street pavers. If cleaning the affected street paver is not satisfactory, as determined by the Public Works department, the affected street pavers will be replaced at the Contractor's expense.

All work noted above shall be incidental to the associated pavement treatment line item.

# ELECTRIC UTILITY NOTES

## DUKE ENERGY

1. **DANGER** - Contractor shall contact the company prior to excavation in vicinity of electric underground facilities (approximate plan location shown) or when working near overhead electric facilities.
  - (A) For Field Inspector to locate underground electric line, in Ohio call "Ohio Utilities Protection Service" at 1-800-362-2764, and in Kentucky call "Kentucky Underground Protection Service (KUPS)" at 1-800-752-6007 (at least 48 hours in advance), excluding hours Sat., Sun., and State Legal Holidays.
  - (B) For notification of construction activity near energized electric facilities, call Mr. Bob Schroeder, 513-287-3426.
  - (C) For additional underground electric record information, call 513-287-2454.
  - (D) For electric engineering notification, agreements and correspondence, address to Mr. Tom Birkenhauer, Duke Energy Corporation, Distribution Design Engineering, Room 467A, 139 East Fourth Street, P.O. Box 960, Cincinnati, Ohio 45202-0960.
2. Contractor shall be responsible for all damages to electric facilities during construction.
3. Electric facilities to be kept in service at all times.
4. Contractor shall be responsible for supporting existing electric facilities affected by the proposed construction.
  - A. Where high pressure oil filled pipe type cable installations are exposed or otherwise interfered with by the Contractor, protection by the Contractor will be required against damage to the coating or surrounding thermal sand envelope.
  - B. Where concrete encased conduit systems or direct buried cable systems are exposed or otherwise interfered with, the Contractor shall protect the system as necessary against damage. As soon as feasible, the Contractor shall take additional appropriate steps to provide permanent measures to restore support. The methods used shall be based on conditions to be determined by the utility.
  - C. Where poles or anchors that support overhead electric facilities are exposed or otherwise interfered with, the Contractor shall protect them from damage and provide temporary support to insure the integrity of the system. As soon as feasible, the Contractor shall take additional appropriate steps to provide permanent measures to restore support. The methods used shall be based on conditions to be determined by the utility.
  - D. Where the depth of excavation for the proposed work is greater than five (5) feet, the Contractor shall sheet and shore the trench to continuously maintain the support of electric facilities at locations where the electric facilities are within the zone of influence adjacent to the excavation as determined by the natural angle of repose of the soil.
  - E. All damage to electric facilities and services requiring adjustments, relocations and/or repairs will be made at the Contractor's cost.
5. Contractor shall not backfill exposed electric facilities until the company has inspected its facility or performed any adjustments and/or maintenance that may be required.

**NOTE:** Should Contractor damage electric facilities, Contractor shall immediately notify the Electric Service Desk through the Company Operator (513-421-9500). Contractor shall keep everyone clear of damaged electric facilities until company personnel arrive at the work site.

# **GAS FACILITY NOTES**

## **DUKE ENERGY**

### **Gas Facility Notes**

- I. For Gas Engineering Notification, agreements, and official correspondence, address to:

Duke Energy  
Gas Distribution Engineering  
P.O. Box 960, Room 460-A  
Cincinnati, Ohio 45273-9598

- II. The gas main information provided shows the approximate locations and depths of cover and is provided to comply with statutory regulations. This information should be used only for planning, not construction.
- III. All gas main depths of cover noted are approximate depths of cover recorded at the time of installation. Any resulting grade changes since the time of the main installation will cause the existing depth of cover to be different. Extreme care must be taken to ensure safe excavation when approaching known or suspected gas facilities.
- IV. All gas services were installed at a minimum of 1'-6" of cover. See Item III above.
- V. For additional gas facility record information, call (513) 287-3636.
- VI. To comply with federal and state regulations concerning damage prevention programs, the utility companies must be contacted at least 48 hours (two working days) prior to excavation by calling the Ohio Utilities Protection Service (OUPS), toll free, at 1-800-362-2764.

### **Construction Notes**

- I. Gas facilities are to be kept in service at all times.
- II. The Contractor shall be responsible for all damages to gas facilities during or as a result of the Contractor's construction. All damage to gas facilities requiring adjustments, relocations and/or repairs will be made at the Contractor's cost.
- III. The Contractor shall sheet and shore all excavations as required to continuously support gas facilities within the zone of influence (as determined by the natural angle of repose of the soil).

**GAS FACILITY NOTES  
DUKE ENERGY**

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- IV. Crossing buried gas facilities with heavy construction equipment may cause damage to the gas facilities. Contact the Gas Engineering Department for details on how to protect the gas facilities from damage.
- V. The Contractor shall not backfill exposed gas facilities until the utility has inspected its facilities and performed any maintenance and/or adjustments that may be required.
- VI. The Contractor is responsible for preventing any damage to our gas facilities. This includes protection of coatings and wrappings on steel gas mains. It also includes any damage with may have occurred to plastic gas mains, such as crimps or gouges.
- VII. When cast iron or similar gas facilities are exposed or interfered with by the Contractor, replacement or reinforcement by Duke Energy may be required at the Contractor's expense. Backfill with control low strength material will be required.
- VIII. Blasting or other construction procedures which may transmit loads or vibrations in the vicinity of gas facilities must be approved by Duke Energy's Gas Engineering Department. A blasting plan, identifying all pertinent information, must be submitted in writing by a blasting expert prior to any work.

**Proposed Developments at Gas R/W & Easements (If Applicable)**

- I. Proposed development plans around and near gas facilities within private easements must be submitted to Duke Energy's Gas Engineering Dept. for review. These plans must be approved before any work may begin within our easements.
- II. Specified easement widths must be maintained in order for Duke Energy to protect its facilities.
- III. No permanent structures may be built within the easements.
- IV. Cuts and fills are generally not permitted within the easements. Some fills may be allowed, and will be reviewed on an individual basis. Any permitted fills will be limited to an amount which will allow Duke Energy to properly maintain its facilities.
- V. Perpendicular utility crossings of gas easements are acceptable, provided proper clearances are maintained. Parallel installations are normally not allowed.