SECTION 02740
PAVEMENT REPAIR

PART 1. GENERAL

1.01 SCOPE

A. The Work specified by this section consists of repairing or replacing all damaged pavement, regardless of pavement type and whether public or private. Shoulders (paved or unpaved), roads, streets, drives, and walks are to be restored to equal or better than their original condition.

B. These Specifications and the Drawings make reference to the current edition of the Standard Specifications of the Tennessee Department of Transportation (TDOT). Weather limitations, construction methods, and material specifications contained in the TDOT Specifications shall apply wherever applicable to the Work called for by this Section. The "Basis for Payment" contained in the TDOT Specifications shall not be considered applicable to this Project.

1.02 REFERENCES

A. For construction in City of Knoxville streets, see pavement repair detail on Drawings and this Specification.

B. For construction in Knox County streets, conform to latest version of Knox County Specifications.

C. For construction in TDOT highways, conform to the latest version of TDOT Specifications.

1.03 SUBMITTALS

A. Informational Submittal: Test reports for crushed stone aggregate, Bituminous materials, asphaltic concrete design mixes and portland cement concrete mixes.

PART 2. PRODUCTS

2.01 BASE COURSE

A. Grading B or B-M (TDOT specifications, Section 307).

2.02 ASPHALTIC CONCRETE BINDER

A. Grading C (TDOT Specifications, Section 307).

2.03 BITUMINOUS TACK COAT

A. Emulsified Asphalt SS-1, RS-2, or AE-3 (TDOT Specifications, Section 403).

2.04 ASPHALTIC CONCRETE SURFACE

A. Grading D (TDOT Specifications, Section 411).

2.05 MINERAL AGGREGATE BASE

A. TDOT Mineral Aggregate Base Class A Aggregate Grading D - Crusher Run (TDOT specifications, Section 903.05).

B. TDOT Mineral Aggregate Base Class A Aggregate Grading D - Pug Mix (TDOT specifications, Section 903.05).

C. TDOT Mineral Aggregate Base Size No.7 (TDOT specifications, Section 903.22).

D. TDOT Mineral Aggregate Base Size No. 57 (TDOT specifications, Section 903.22).

2.06 TEMPORARY ASPHALTIC CONCRETE SURFACE

A. Hot Mix, Grading B or B-M (TDOT Specifications, Section 307).

B. Cold Mix (TDOT Specifications, Section 410): Cold mix shall be composed of an emulsified bituminous binder, mineral filler, and aggregates.

2.07 PORTLAND CEMENT CONCRETE PAVEMENT

A. Specification KUB Standards Section 02770, Concrete for Utilities and Concrete Pavement Construction.

2.08 QUICK DRY TRAFFIC MARKING PAINT (WHITE AND YELLOW)

A. TDOT Specifications. Section 910.05.

PART 3. EXECUTION

3.01 GENERAL

A. Prior to initiating work in roadways, notify the appropriate agency having jurisdiction over the corresponding roadway pursuant to the agency's notice requirements. Pavement repair shall be as specified herein, or to the satisfaction of the agency having primary jurisdiction over the associated pavement. The more stringent requirement shall govern.

B. Repair damaged base on either side of a trench wherever necessary. Pavement undermined during construction operations shall be removed to straight lines back to an area of firm ground. Concrete pavement shall be cut in a manner to prevent spalling or cracking at the edges of the cut.

3.02 SUBGRADE

A. Before any base material is installed, compact the subgrade in preparation for the installation of temporary pavement repair (to grade) in order to minimize disruption to traffic. Maintain the temporary repair until the permanent pavement is installed. At that time, excavate to the required depth, dispose of the excavated material in compliance with all applicable laws and regulations and in accordance with KUB Standards Section 02321, Excavation, Bedding, and Backfill for Utilities and compact the backfill to meet the minimum requirements for backfill herein.

B. Backfill shall be in accordance with KUB Standards Section 02321, Excavation, Bedding, and Backfill for Utilities.

3.03 BASE COURSE

A. Install a minimum 8-inch asphalt concrete base course in 4-inch lifts, or as specified by OWNER, compacted to a minimum of 92% maximum theoretical density. Place base course above a minimum thickness of 12 inches of No. 7 or No. 57 compacted stone.

B. When base course is installed, cut the existing pavement straight and vertical to 12-inches beyond the excavated trench width unless otherwise directed by OWNER. Take special care to ensure good compaction of the new base course at joints. Apply and compact the surface to conform to the existing pavement so that it

will have no surface irregularity. Ensure straight vertical cuts at the joints. Reference KUB Paving Detail Sheet.

C. Existing concrete streets that have been overlaid with asphalt pavement shall be repaired with new asphalt pavement. Install a minimum 8-inch asphalt concrete base course in 4-inch lifts, or as specified by OWNER, compacted to a minimum of 92% maximum theoretical density. Place base course above a minimum thickness of 12-inches of No.7 or No. 57 compacted stone.

3.04 ASPHALTIC CONCRETE BINDER

A. If asphalt concrete binder is to be placed as directed by OWNER, carefully place the material to avoid segregation of the mix. Broadcasting of the material will not be permitted. Remove lumps that do not readily break down.

3.05 ASPHALTIC CONCRETE SURFACE

A. If the surface course is to be placed on a binder course or base course as directed by OWNER, then apply specified bituminous tack coat at a rate of 0.05 to 0.10 gallon per square yard. Apply tack coat without splashing material on exposed faces of curbs, gutters, walls, walks, trees, etc. Should such splashing occur, remove the bituminous material immediately. After the tack coat has been properly cured, apply the asphaltic concrete surface to match the existing depth, a minimum 2-inch thickness, or as specified by OWNER.

3.06 PORTLAND CEMENT CONCRETE PAVEMENT

A. City and County Streets: Install Portland cement concrete pavement to a minimum thickness of 8-inches, doweled in to existing concrete pavement per City of Knoxville Specifications Section 11 or the latest version of Knox County Specifications, whichever applies.

B. TDOT Roadways: Install Portland cement concrete pavement to a minimum thickness of 9-inches, doweled into existing concrete pavement per the latest version of TDOT Specifications.

3.07 BRICK PAVEMENT

A. Brick or stone pavement restoration shall be preceded by installation of an underlying 6-inch minimum concrete slab, installed per KUB Standards Section 02770, Concrete for Utilities and Concrete Pavement Construction.

B. Brick or stone pavement shall match the existing brick or stone pavement removed.

3.08 SMOOTHNESS

A. Finished surfaces shall conform to the lines and grades that existed prior to construction. No deviations, variations, or irregularities exceeding 1/4 inch in the direction of travel, when tested with a 12-foot straightedge will be permitted in the finished work, nor will any depressions that will not drain. Correct all such defects.

3.09 THERMALLY BONDED ASPHALT

A. If thermally bonded asphalt is to be placed as directed by OWNER, backfill the excavation with materials in accordance with KUB Standards Section 02321, General Excavation, Bedding, and Backfill for Utilities.

B. Existing concrete streets that have been overlaid with asphalt pavement shall be repaired with new asphalt pavement. Install a minimum 8-inch asphalt concrete base course in 4-inch lifts, or as specified by OWNER, compacted to a minimum of 92% maximum theoretical density. Place base course above a minimum thickness of 12-inches of No.7 or No.57 compacted stone.

C. Clear loose and foreign material off the vertical edges of the pavement, and apply a tack coat to the vertical face of the existing asphalt before placing the new asphalt.

D. At this time, the repair shall be left to settle for at least 7 days, or as directed by OWNER.

E. After the settling period, the repair shall be completed by the thermal bonding method.
1. Clear the repair of loose and foreign material.
2. Lower the thermal bonding heating unit parallel with the repair. Heat the existing asphalt repair and three inches beyond the edges.
3. Scarify the softened asphalt and remove if necessary to a minimum depth of 1-1/2 inches.
4. Apply a rejuvenator (Reclamite or equal) to the remaining asphalt at the rate of 1/10 gallon per square yard.
5. Place the new asphalt material by hydraulically augering it from the heated storage compartment, molding it to the existing asphalt.

6. Compact with approved compactor or roller.

3.10 SAMPLING AND TESTING

A. Submit to OWNER test reports made by an independent testing laboratory on the crushed stone aggregate, bituminous materials, asphaltic concrete design mixes and portland cement concrete mixes. Obtain OWNER's approval of these reports before starting paving operations.

B. OWNER will conduct tests on the completed elements of the pavement to ascertain the compacted thickness of the base and surface courses. If sections with deficient thicknesses are found, the full section for a reasonable distance on each side of the deficiency shall be refused. Remove and reinstall such sections. Patch test holes in connection with thickness tests. Repairs shall be made at no cost to OWNER.

C. When OWNER is formally evaluating the restored pavement, the CONTRACTOR shall accompany OWNER's Representative to document and mark all surface defects for corrections.

3.11 TEMPORARY PAVEMENT REPAIR

A. Trenches in paved areas shall be completely backfilled to pavement grade temporarily, using materials and compaction specified in KUB Standards Section 02321, General Excavation, Bedding, and Backfill for Utilities.

B. This temporary repair shall be made the same day to allow for traffic flow, except under extenuating circumstances as determined by OWNER. The repair shall be maintained by CONTRACTOR either until the permanent pavement is restored or until the project is accepted by OWNER.

C. Temporary Pavement Repair:

1. The temporary pavement repair shall be a minimum 6-inch thickness of Class A Grade D aggregate compacted in maximum 6-inch lifts OR 2-inches of hot or cold temporary binder compacted to match the existing pavement surface. The pavement repair shall be placed within 14 calendar days of backfill (or 28 days if approved by owner). Primary collector or arterial streets as listed in the City of Knoxville's Technical Specification 34 Construction Area Traffic Control must have 2" of temporary binder (hot or cold) within 2 calendar days of backfill.

2. Temporary pavement repair shall be maintained by

CONTRACTOR until permanent pavement restoration is completed.

3. The temporary pavement repair shall not remain for more than 14 days before the permanent repair is installed. The temporary pavement repair may remain up to 28 days under extenuating circumstances if approved by OWNER.

END OF SECTION