Section 2212. Base Cleaning and Repair

2212.01 DESCRIPTION.
Clean and repair pavement in preparation for resurfacing with HMA.

2212.02 MATERIALS.
Meet the following requirements:

A. Hot Mix Asphalt.

1. Surface Patches.
Apply Article 2530.02, A. For patches on the Interstate system use a 1/2 inch or 3/4 inch (12.5 mm or 19 mm) mixture size.

2. Partial Depth Repair Patches.
Apply Article 2530.02, A. For patches on the Interstate system, use a 1/2 inch or 3/4 inch (12.5 mm or 19 mm) mixture size.

3. Full Depth Repair Patches.
Apply Article 2529.02.

B. Portland Cement Concrete.

1. Partial Depth Repair Patches.
Apply Article 2530.02.

2. Full Depth Repair Patches.
Apply Article 2529.02.

2212.03 CONSTRUCTION.

A. Equipment.
Use equipment meeting the requirements of Section 2001 and the following:

1. Bituminous Distributor.
Apply Article 2001.12.

2. Portland Cement Concrete Equipment.
Apply Section 2301.

3. Mechanical Tampers.
Apply Article 2001.04.

4. Sand Spreader.
Apply Article 2001.13, C.

5. Weighing Equipment.
Apply Article 2001.07.

6. Equipment for Heating Bituminous Materials.
Apply Article 2001.11.

7. Field Laboratory.
Apply Section 2520.

B. Preparation and Repair of Base.
Before any HMA surface patch, base, leveling, strengthening, wedge, intermediate, or surface course is placed, clean and repair the old pavement surface in the following manner:

1. Cleaning and Preparation of Base.
a. Remove spalled and scaled material, old patch and joint material, debris, and all other loose material that can be removed by hand tools, such as picks or air blast, as directed

by the Engineer. Use mechanical hammers when required by the Engineer. On both concrete and bituminous surfaces, remove existing bituminous patch materials that are unstable to the degree that they have distorted under traffic or contain fractures or spalled particles.

b. Bituminous seal coats, or other bituminous layers that may not be as well cured or may be flushed at the surface but that lack sufficient thickness to cause instability to themselves or the new resurfacing, may be allowed to remain in place.

c. Clean cracks more than 3/4 inch (20 mm) wide to a depth of at least 1 inch (25 mm), and to a depth up to 3 inches (80 mm) if the material is readily removable. Use scrapers, air hoses, or brooms as necessary to ensure the base is free of foreign material at the time the resurfacing is spread.

d. All material removed from the pavement becomes the property of the Contractor. Remove the material from the work site according to Article 1104.08. Remove (by blading) portions of the earth shoulder that would interfere with placement of base, intermediate, or surface courses.

e. The Contractor may be required to mow grass on the shoulder, or otherwise prepare that surface, when a guide string line reference is to be positioned on the adjacent shoulder.

2. Base Repair.

a. General.

1) Repairing pavement for base repair consists of the following:

- Surface Patches.
- Partial Depth Repair Patches.
- Full Depth Repair Patches.

2) The Engineer will identify the areas to be repaired.

3) When specified in the contract documents, full depth or partial depth repair patches may be PCC, HMA, or a combination. The Engineer may require HMA patches where sight distance is restricted.

4) For HMA repair patches, ensure the final surface of the patch is level with (or not more than 1/4 inch (5 mm) above) the surrounding pavement.

5) For PCC full depth and partial depth repair patches, finish the concrete to be level with (or not more than approximately 1/4 inch (5 mm) above) the existing surface for repair of PCC pavements that are to be resurfaced. For composite patches, finish the surface of the repair patch at approximately the level of the old PCC surface. Then finish the patch to the surface of the surrounding pavement with HMA at the direction of the Engineer.

6) Cure PCC full depth and partial depth repair patches according to Article 2529.03, H.

7) Curing compound will not be allowed on repair patches.

8) If sawed joints are required in repair patches, the curing protection may be removed from each patch immediately prior to sawing and must be replaced immediately after sawing joints in that patch. Do not seal joints on repair patches.

9) Allow PCC repair patches to cure a minimum of 5 hours, or as directed by the Engineer, prior to resurfacing with HMA. Prior to covering the patch with HMA, tack the patch area and edges.

10) For PCC patches when dowel bars are not required at the transverse edges, ensure the transverse edge of the existing pavement is vertical with a roughened face. The severance may be made at the patch edge using a wheel saw. Do not use a blade saw for a full depth severance at the patch edge.

11) A 10 inch (250 mm) severance will be considered full depth if the adjacent pavement exceeds that thickness. Perform all work in a manner that will not damage concrete that is to remain. Do not use heavy equipment adjacent to new concrete until the curing is completed. Remove material not designated for salvage according to Article 1104.08. Removed material becomes the property of the Contractor.

b. Full Depth Repair Patches.

1) Construct full depth repair patches according to Section 2529 with the following exceptions:

a) If the thickness of full depth repair patches is not shown in the contract documents, base the thickness on the existing pavement type.

b) Construct patches to be no less than:

(1) 6 inches (150 mm) for County Roads.

(2) 9 inches (230 mm) for Primary Roads.

(3) 12 inches (300 mm) for Interstate Roads.

2) Base maximum full depth repair patch thickness on the following:

a) Portland Cement Concrete Repair Patch.

(1) Rigid Pavement: Pavement thickness, but not more than 12 inches (300 mm).

(2) Rigid Pavement resurfaced with HMA (composite patch): Rigid pavement thickness and the patch covered with HMA surface.

(3) Flexible Pavement: Same as above for resurfaced rigid pavement.

b) Hot Mix Asphalt Repair Patch.

(1) Rigid Pavement: Pavement thickness, but not more than 12 inches (300 mm).

(2) Rigid Pavement resurfaced with HMA: Thickness of pavement, including resurfacing, but not more than 12 inches (300 mm).

(3) Flexible Pavement: Thickness of surface and base course, but not more than 12 inches (300 mm).

c. Surface Patches.

1) In areas where spalled concrete or old patching material is removed according to Article 2212.03, B, 1, for a depth greater than 1 inch (25 mm), but less than the total thickness of the old pavement:

a) Clean the depressions.

b) Apply a tack coat.

c) Fill depressions with hot HMA. Deposit the HMA in layers which, after compaction, will not exceed 3 inches (80 mm) in thickness.

2) Thoroughly compact each layer, while hot, by rolling with an adequately weighted pneumatic tire or by tamping with a mechanical tamper until it has attained a density satisfactory to the Engineer.

3) Succeeding layers may be placed as soon as the preceding layer has been properly compacted.

4) Ensure the final compacted surface is level with (or not in excess of 1/4 inch (5 mm) above) the surrounding surface.

d. Partial Depth Repair Patches.

Construct partial depth repair patches according to Section 2530, except patch edges do not need to be sawed with a blade saw.

C. Limitations of Operations.

1. Conduct work on only one lane at a time unless road is closed.

2. On two-way roadways, do not disturb the pavement for full depth or partial depth repair patches or surface patches unless the patch can be completed before the end of the working day.

3. Unless the road is closed, traffic shall be permitted to use the pavement during construction operations. Conduct operations to provide a minimum of inconvenience to traffic.

4. Adjust the work schedule so that excavating, placing backfill material, compacting, and finishing of each patch will be completed in 1 day for two lane roads. For roads with multiple lanes in each direction, the work area may include one lane in each direction or as allowed by the traffic control details. If unforeseen conditions result in excavated section being left overnight, assign flaggers to warn and direct traffic from the time construction operations have stopped until they have resumed. No extra payment will be made for the necessary flaggers.

5. Apply Articles 1107.08, 1107.09, and 1108.03.

2212.04 METHOD OF MEASUREMENT.

Measurement for the various items involved in base repair will be according to the following:

A. Cleaning and Preparation of Base.

The length shown in the contract documents.

B. Full Depth Repair Patches.
Computed in square yards (square meters) to the nearest 0.1 square yards (0.1 m^2) from measurements of areas of concrete removed and replaced. Each patch less than 2 square yards (2 m^2) in area will be counted as 2 square yards (2 m^2).

C. Partial Depth Repair Patches.

1. PCC: The Engineer will calculate the area of each patch in square feet (square meters) from surface measurements. The area of each patch less than 1 square foot (0.1 m^2) will be counted as 1 square foot (0.1 m^2).

2. HMA: The Engineer will calculate the area of each patch in square yards (square meters) from surface measurements to the nearest 0.1 square yards (0.1 m^2).

3. If the patch area is increased by the Contractor to accommodate milling equipment, only the area designated by the Engineer will be measured for payment.

D. Patches by Count.
In addition to the measurements described in Paragraph B, the Engineer will count the total number of full depth patches placed. Patches in each traffic lane will be individually counted.

E. HMA Surface Patches.
Tons (megagrams) as provided in Article 2303.04, A.

F. Primer or Tack Coat Bitumen.
Not measured for payment.

G. Hot Mix Asphalt (Composite Section).
According to Article 2529.04, C.

H. CD and CT Joints.
According to Article 2529.04, B.

I. Hot Mix Asphalt Mixtures.
In addition to the measurement described in Paragraph C, the Engineer will measure the weight (mass) of HMA placed in partial depth patches according to Article 2303.04. If the patch area is increased to accommodate milling equipment, only the quantities for the area designated by the Engineer will be measured for payment. Asphalt binder and tack coat will not be measured separately for payment.

2212.05 BASIS OF PAYMENT.
Payment for construction of the various items involved in the base repair, measured as specified above, will be the contract unit price as follows:

A. Cleaning and Preparation of Base.
Per mile (kilometer).

B. Full Depth Repair Patches.

1. Per square yard (square meter).

2. Payment is full compensation for:
- Removal of the old pavement,
- Restoring the subgrade or subbase,
- Furnishing and installation of tie bars,
- Restoring longitudinal reinforcement for continuously reinforced patches,
- Furnishing and placing the patching material, including the asphalt binder,
- Tack coat, curing, and joint sealing, and
- Placing backfill material in the disturbed area.

3. Payment for overdepth patches will be made according to Article 2529.05, A, 2.

C. Partial Depth Repair Patches.

1. PCC: Per square foot (square meter).

2. HMA: Per square yard (square meter).

3. Payment is full compensation for removal of old pavement according to Article 1104.08 and for all materials and other items involved in construction of these patches.

D. Patches by Count.

1. Each, in addition to payment described in Paragraph B, for the number of individual full depth patches placed.

2. Payment is full compensation for sawing or cutting necessary, for furnishing and installation of dowel bars at patch edges, and for traffic control associated with that patch.

E. HMA Surface Patches.

1. Per ton (megagram).

2. Payment includes compensation for asphalt binder in the mixture and tack coat.

F. Primer or Tack Coat Bitumen.
Incidental to the work item.

G. Hot Mix Asphalt (Composite Section).
According to Article 2529.05, C.

H. CD and CT Joints.
According to Article 2529.05, B.

I. Hot Mix Asphalt Mixture.
In addition to the payment described in Paragraph C, HMA for partial depth repair patches will be paid for according to Article 2530.05, B, 1, c.