

SUPPLEMENTAL SPECIFICATIONS  
INDIANA DEPARTMENT OF TRANSPORTATION  
1999 STANDARD SPECIFICATIONS

REVISION TO 1999 STANDARD SPECIFICATIONS

SECTION 303, DELETE LINES 29 AND 30.

SECTION 304, BEGIN LINE 3, DELETE AND INSERT AS FOLLOWS:

**304.01 Description.** This work shall consist of a foundation course of selected material, placed and compacted as a subbase on a prepared subgrade, in accordance with ~~these specifications, and in reasonably close conformance with the lines, grades, thickness, and typical cross sections shown on the plans or as directed~~ 105.03.

SECTION 305, BEGIN LINE 3, DELETE AND INSERT AS FOLLOWS:

**305.01 Description.** This work shall consist of reconditioning an existing road or an existing surface, ~~considered as a base, by~~ *rubblizing and compacting*, repairing, patching, widening, *placing retrofitted load transfer assemblies*, sealing cracks and joints, cleaning and reconditioning the ditches, shaping the shoulders, or a combination of these, in accordance with ~~these specifications and in reasonably close conformance with the lines, grades, thickness, and typical cross section shown on the plans or as directed~~ 105.03.

SECTION 305, AFTER LINE 17, INSERT AS FOLLOWS:

Dowel Bars.....	910.01(b)10
Joint Materials.....	906
Portland Cement.....	901.01(b)

*Rapid setting patch materials shall be selected from the Department's list of approved Rapid Setting Patch Materials.*

SECTION 305, LINE 55, DELETE AND INSERT AS FOLLOWS:

**305.04 ~~Blank~~ Rubblizing Existing PCCP.** The existing pavement shall be rubblized with a self-contained, self-propelled resonant frequency pavement breaking unit capable of producing low amplitude, 8900 N (2000 lbf) blows at a rate of not less than 44 per s or with a self-contained, self-propelled, multiple headed, impact hammer with the heads directly adjacent to each other and the lift height of each head independently adjustable. The sequence of impacts shall be on a random basis. The unit shall be equipped with a water system to suppress dust generated by the operation.

*The operating speed of the unit shall be such that the existing pavement is reduced into particles ranging from sand sized to pieces not exceeding 150 mm (6 in.) in the largest dimension, the majority being a nominal 25 to 50 mm (1 to 2 in.) in size. The concrete from the surface to the top of the reinforcement shall be reduced to the 25 to 50 mm (1 to 2 in.) size to the fullest extent possible. Continuous coverage, overlapped if necessary, with the breaking shoe or impact hammers shall be used. Additional passes of the resonator or multiple headed impact hammer may be required if larger sizes remain above the reinforcement.*

*Rubblizing shall begin at the edge of pavement and proceed to the center of the pavement. The rubblization of the first lane shall extend 150 mm (6 in.) into the adjoining lane.*

*Subsurface drains shall be installed along the edges of the pavement prior to the rubblization.*

*Prior to placing the HMA mixtures, the complete width of the rubblized pavement shall be compacted by means of vibratory steel wheel and pneumatic-tired rollers in the following sequence; two initial passes with a vibratory roller, two passes with a pneumatic-tired roller, and then four final passes with a vibratory roller. The last two passes shall be on the same day as the paving operations. When the multiple headed impact hammer is used, a Z-pattern steel grid vibratory roller shall be used for additional particle break-down to the satisfaction of the Engineer. This roller shall be a self-contained, self-propelled vibratory steel wheel roller with a Z-pattern grid cladding bolted to the surface of the drum.*

*The rolling equipment shall be in accordance with 408.03. The vibratory roller shall be operated in the vibration mode at a speed not to exceed 1.8 m (6 ft) per s. All depressions, 25 mm (1 in.) or greater in depth from that of the immediate surrounding area, that result from the rubblizing or compaction effort shall be filled with aggregate No. 73 and struck off level with the surrounding area. Filled depressions shall be compacted with the same roller and compactive effort previously described.*

*Reinforcement in the rubblized pavement shall be left in place. However, all reinforcement exposed at the surface as a result of rubblizing or compaction operations shall be cut off below the surface and removed from the site. All loose joint fillers, expansion material, or other similar materials shall also be removed from the rubblized surface.*

*Except at restricted crossover and ramp crossings, traffic will not be allowed on the rubblized pavement before the HMA base or intermediate courses are in place. Rubblized material dislodged by construction traffic shall be removed from the pavement. Not more than 48 h shall elapse between rubblizing and placement of the initial HMA course. However, in the event of rain, this time limitation may be waived to allow sufficient time for the rubblized pavement to dry to the satisfaction of the Engineer. Crossover and ramp crossings shall be maintained in the same compacted state as other areas until the initial HMA course is placed.*

*The preceding rubblizing operations shall be scheduled after widening or shoulder work has progressed up to the elevation of the existing pavement grade. These areas may then be utilized to support the breaking unit while the existing pavement is being rubblized. Shoulders may then be completed in conjunction with the placement of HMA pavement courses over the compacted rubblized pavement.*

*A joint shall be saw cut full depth or load transfer devices shall be severed at an existing joint on ramps or mainline where the rubblizing abuts concrete pavement which is to remain in place.*

SECTION 305, LINE 79, INSERT AS FOLLOWS:

*Mixtures will be sampled, tested, and accepted in accordance with 402.06(a) unless the mixtures are supplied in accordance with 401.08 as allowed in 402.03. When mixtures in accordance with 401.08 are supplied, all applicable requirements of 401.02 shall be met and acceptance will be in accordance with 402.06(b).*

Each course shall be compacted by approved mechanical equipment such as rollers, rammers, or other acceptable means. In small inaccessible areas, hand tamping will be permitted. Rammers shall be capable of exerting a minimum compacting force equivalent to that exerted by the drive wheels of an approved three wheel roller.

SECTION 305, BEGIN LINE 97, DELETE AND INSERT AS FOLLOWS:

**305.06 Patching Rigid PCCP Pavement or Rigid PCCP Base.** Areas to be patched will be marked on the surface. Unless otherwise directed or specified, the depth of the concrete

SECTION 305, BEGIN LINE 111, DELETE AS FOLLOWS:

Areas to be patched shall be outlined with full depth drilled holes spaced no more than 150 mm (6 in.) apart and sawed. ~~to the bottom of the steel mesh with a minimum depth of 50 mm (2 in.), or they may be sawed full depth. Where the existing rigid~~

SECTION 305, DELETE LINES 114 THROUGH 122.

SECTION 305, BEGIN LINE 127, DELETE AND INSERT AS FOLLOWS:

**(a) Patching with Portland Cement Concrete PCC.** Forms shall be set for the outside edges of the existing pavement. Forms and setting shall be in accordance with the applicable provisions of ~~501.06~~ 507.04(c). ~~Wood forms no less than 50 mm (2 in.) nominal thickness may be used.~~ If a patch extends from one traffic lane into an adjacent one, forms shall be placed with the face at the line separating the lanes and the new concrete on the face side placed and finished. After the newly poured side is opened to traffic, the forms and any remainder of the old pavement shall be removed and the remaining portion of the patch shall be placed and finished. Although a butt joint is formed, no load transfer steel will be required.

Concrete used for concrete patches shall be in accordance with ~~501.03~~ 506.03. *Materials and construction requirements shall be in accordance with the applicable requirements of 500.*

SECTION 305, DELETE LINES 138 THROUGH 143.

SECTION 305, BEGIN LINE 160, DELETE AND INSERT AS FOLLOWS:

19.0 mm. Mixture adjustments in accordance with 904.02(a) will not apply. *Mixtures will be sampled, tested, and accepted in accordance with 402.06(a) unless the mixtures are supplied in accordance with 401.08 as allowed in 402.03. When mixtures in accordance with 401.08 are supplied, all applicable requirements of 401.02 shall be met and acceptance will be in accordance with 402.06(b).* Surface tolerances shall be in accordance with 402.16.

**305.07 Blank Retrofit Load Transfer for PCCP.** Retrofit load transfer consists of cutting slots and the placement of retrofitted dowel bar assemblies in the PCCP, parallel to the centerline of the roadway without damaging adjacent PCCP. Burrs and bumps remaining in the base of the slots after cutting shall be removed with hand or mechanical chipping hammers. Mechanical chipping equipment shall not exceed a nominal 7 kg (15 lbs) in mass (weight) and shall be operated at a maximum angle of 45 degrees from the pavement surface.

All surfaces of the slots shall be thoroughly cleaned by sand blasting and all cracks in the slots shall be sealed with a silicone sealer. The slots shall be cleaned and blown dry with compressed air.

Dowel bar assemblies shall be as shown on the plans. Prior to placement, the assemblies shall be coated with a bond breaking material and placed on non-metallic supports in the slots. Dowel bars shall be parallel to the pavement surface.

Rapid setting patch material shall be placed in the slots, troweled to match existing adjoining PCCP and cured in accordance with the manufacturer's recommendations.

Transverse contraction joints with retrofitted load transfers shall be sawed for the full lane width and sealed in accordance with 503.03(a) except the joint shall be cut in one operation. Transverse random cracks with retrofitted load transfer slots shall be routed and sealed for the full lane width in accordance with 503.05.

PCCP damaged outside the area of the slots due to Contractor's operations shall be repaired or replaced.

SECTION 305, DELETE LINES 185 THROUGH 200.

SECTION 305, AFTER LINE 201, DELETE AND INSERT AS FOLLOWS:

**305.10 Widening.** Widening shall be as shown on the plans or as specified. The subgrade in the widened area shall be compacted in accordance with 207 prior to the placing of the widening materials. The outside face of the excavated area shall be left as nearly vertical as the nature of the material will permit and not wider than the outside limits of the widening section when forms are not used.

**(a) Widening with HMA Mixture.** The widened section shall consist of courses of HMA mixture as shown on the typical section or as directed. The compacted depth of each course shall not exceed three times the maximum particle size as shown on the JMF. Except for surface mixtures, the course flush with the top of the existing surface shall be compacted with a three wheel roller and a pneumatic tire roller.

Widening with QC/QA – HMA mixtures shall be in accordance with 401 except density will be accepted in accordance with 401.16(c).

*Widening with HMA mixtures shall be in accordance with 402. Mixtures will be sampled, tested, and accepted in accordance with 402.06(a) unless the mixtures are supplied in accordance with 401.08 as allowed in 402.03. When mixtures in accordance with 401.08 are supplied, all applicable requirements of 401.02 shall be met and acceptance will be in accordance with 402.06(b).*

**(b) Widening with Cement Concrete PCC.** If the existing rigid concrete base is to be widened with ~~portland cement concrete~~ PCC, the concrete shall be placed directly against the existing pavement edges, which shall be free from all foreign materials. Unless otherwise

SECTION 305, BEGIN LINE 213, DELETE AND INSERT AS FOLLOWS:

Materials and construction requirements shall be in accordance with the applicable requirements of ~~501~~ 502.

SECTION 305, BEGIN LINE 229, DELETE AND INSERT AS FOLLOWS:

Smoothness shall be in accordance with the applicable requirements of ~~501.16~~ 502.20 from a line ~~0.9 mm~~ 1.0 m (3 ft) out from the edge of the existing pavement being widened to the outside edge of the new widening. The new concrete adjacent to the existing pavement shall be at the same elevation as the old pavement.

Curing shall be in accordance with the applicable requirements of ~~501.17~~ 504. If resurfacing is a part of the contract, the surface of the newly placed concrete shall be finally finished by dragging with wet burlap or cotton fabric or by the use of a wooden float. In lieu of curing with earth, asphalt emulsion, AE-T *in accordance with 406*, may be used as curing material. No traffic shall be permitted on this application until the concrete has attained its required curing, which shall be no less than 48 h.

SECTION 305, AFTER LINE 267, INSERT AS FOLLOWS:

*Retrofit load transfer will be measured by each dowel bar assembly installed, complete in place. Sawing and sealing of transverse joints will be measured by the meter (linear foot), complete in place.*

*Routing and sealing of transverse random cracks in the slots for retrofitted load transfer assemblies will not be measured.*

*Construction activities for the cutting, cleaning of the PCCP, dowel bars, dowel bar supports, dowel bar end caps, foam core board, patching material and all other incidentals will not be measured.*

*Rubblized PCCP will be measured by the square meter (square yard) of rubblized pavement. The quantity of filler aggregate No. 73 will be measured by the megagram (ton) of aggregate placed.*

SECTION 305, AFTER LINE 271, INSERT AS FOLLOWS:

*The accepted quantities of retrofit load transfer will be paid for at the contract unit price per each assembly installed, complete in place. Sawing and sealing of transverse joints will be paid for at the contract unit price per meter (linear foot).*

*Rubblized PCCP will be paid for at the contract unit price per square meter (square yard) for rubblized pavement. Aggregate, No. 73 will be paid for at the contract unit price per megagram (ton) complete in place.*

SECTION 305, BEGIN LINE 276, DELETE AND INSERT AS FOLLOWS:

Aggregate, No. 73.....	Mg (TON)
Cement Concrete.....	m2 (SYS)
Compacted Aggregate for _____, _____, _____	Mg (TON)
type      size	
Compacted Aggregate for Patching.....	Mg (TON)
Cracks and Joints in Asphalt Pavement, Seal .....	Mg (TON)
Cracks and Joints in Concrete Pavement or Base, Fill.....	Mg (TON)
HMA <del>for</del> Patching for Asphalt Pavement.....	Mg (TON)
HMA Patching for Rigid Pavement or Base .....	Mg (TON)
HMA <del>for</del> Patching, Temporary .....	Mg (TON)
Portland Cement Concrete for Patching _____	m2 (SYS)
Pavement type	
Repairing.....	km (MILE)
Retrofit Load Transfer.....	EACH
Rubblized PCCP .....	m2 (SYS)
Sawing and Sealing Transverse Joints .....	m (LFT)
Water for Reconditioning .....	kL (KGAL)
Widening with Compacted Aggregate, _____, _____	Mg (TON)
type      size	
Widening with HMA.....	Mg (TON)
Widening with QC/QA-HMA .....	Mg (TON)

SECTION 305, AFTER LINE 304, INSERT AS FOLLOWS:

*The cost of cutting of slots, cleaning, dowel bars, dowel bar supports, dowel bar end caps, foam board, mortar, and curing materials shall be included in the cost of the pay item retrofit load transfer.*

*The cost of sawing, cleaning, sealant materials, and all incidentals shall be included in the cost of the pay item sawing and sealing transverse joints.*

*The cost of routing and sealing of transverse random cracks shall be included in the cost of the other pay items.*

*Replacement of pavement damaged by the Contractor's operations shall be without additional payment.*

*The cost of removal of pavement for patches shall be included in the pay item for the material used to repair the patches.*

*The costs of furnishing all labor, materials, and equipment necessary to rubblize, suppress dust, cut and remove exposed reinforcement, cut and remove joint fillers or similar materials, saw cutting of the pavement, severing existing joints, compacting and maintaining the compacted condition of the rubblized pavement shall be included in the cost of rubblized PCCP.*

*The costs of furnishing, hauling, placing, leveling, and compacting the aggregate to fill the depressions in the rubblized PCCP shall be included in the cost of aggregate, No. 73.*

SECTION 307, BEGIN LINE 3, DELETE AND INSERT AS FOLLOWS:

**307.01 Description.** This work shall consist of constructing a course of portland cement concrete *PCC* base, with or without reinforcement as specified, on a prepared surface in accordance with these specifications and in reasonably close conformance with the established lines, grades, and typical cross sections shown on the plans or as directed *105.03*.

### **MATERIALS**

**307.02 Materials.** Materials shall be in accordance with the following:

Air-Entertaining Admixtures.....	912.03
Asphalt Emulsions, <i>AE-T</i> .....	<del>902.01(b)</del> 902.04(b)
Coarse Aggregate, Class AP, Size No. 8.....	904.02
<del>Coarse Aggregate, Class AP.....</del>	<del>904.02</del>
Curing Materials .....	912.01
Cutback Asphalts.....	902.01(c)
Fine Aggregate, No. 23 <del>Sand</del> .....	904.01
Fly Ash.....	901.02
Portland Cement.....	901.01(b)
Reinforcing Steel.....	<del>910.01</del>
Water .....	913.01

### **CONSTRUCTION REQUIREMENTS**

**307.03 General Requirements.** All applicable requirements of ~~500~~ *502* will apply except as otherwise provided herein. Regardless of the placing method used, the tolerance for smoothness of the final surface shall be 5 mm (3/16 in.) instead of 3 mm (1/8 in.) in accordance with ~~501.16~~ *501.20*.

SECTION 307, BEGIN LINE 35, DELETE AND INSERT AS FOLLOWS:

Unless the base is poured in traffic lane widths, longitudinal joints shall, except as ~~hereinafter~~ set out *herein*, be in accordance with applicable provisions of ~~501.14(b)~~ *503.03(b)*. If sawed joints are used, sawing shall be done before the base is opened to traffic or within seven days after the concrete is placed, whichever is earlier.

If the base is constructed in separate lanes, longitudinal joints shall be of the longitudinal construction type in accordance with ~~501.14(b)~~ *503.03(d)*.

**307.05 Placing Steel Blank.** ~~No steel, other than the necessary bars for joints,~~  
will

SECTION 307, DELETE LINES 44 AND 45.

SECTION 307, BEGIN LINE 60, DELETE AND INSERT AS FOLLOWS:

If the contract does not provide for a HMA mixture to be placed on the newly constructed base, the curing *shall be methods* in accordance with ~~501.17~~ *504.04* ~~may be used.~~

SECTION 307, BEGIN LINE 81, DELETE AND INSERT AS FOLLOWS:

sand mortar, applied with a wooden float. The curbing shall then be cured by one of the methods in accordance with ~~501.17~~ *504.04*.

SECTION 307, BEGIN LINE 103, DELETE AND INSERT AS FOLLOWS:

If ~~portland cement concrete~~ *PCC* base is found to be deficient in thickness, ~~only the reduced price~~ *adjustments* in accordance with ~~501.24~~ *502.23* will be paid *determined.*

SECTION 310, LINE 1, DELETE AND INSERT AS FOLLOWS:

**SECTION 310 -- CEMENT CONCRETE PAVEMENT PATCHING *BLANK***

SECTION 310, DELETE LINES 2 THROUGH 242.