PRECAST CONCRETE PAVEMENT SLAB SYSTEMS (Tollway)

DESCRIPTION
This specification covers material and fabrication requirements for precast concrete pavement slab systems. The precast concrete pavement slab system must be the Tollway’s generic system or an alternate system approved by the Tollway.

SYSTEM APPROVAL
An alternate precast pavement slab system designer must submit the following information to the Tollway for review. After the Tollway reviews the submitted information, the system designer will be required to perform a trial installation as detailed herein.

A. Fabricator Standard Drawings. Section 504 of the Standard Specifications shall apply.
   Include the following details:
   • Transverse joint support type, locations, spacing, and the mechanism used to transfer loads across transverse joints after slabs are placed.
   • Longitudinal joint tie type, locations, spacing and the mechanism used to tie adjacent slabs together.
   • Lifting insert type, location, positioning, and capping or backfill method.
   • Grout port type, location, positioning, and capping or backfill method.
   • Exterior forms during fabrication shall be steel. Side forms shall have form plates of sufficient thickness, shall be sufficiently braced, and shall be anchored, so as to withstand the forces due to vibratory placement of the concrete and to maintain correct alignment. The ends or sides of adjacent sections of form, which are butt joined, shall match smoothly and tightly and shall result in proper alignment. The side forms shall be cross tied above the finished surface of the member at sufficiently close spacing to maintain true cross sectional dimensions.
   • Maximum dimensional tolerances are ± ⅛” depth and ± ⅛” length and/or width. It is intended that the dimensions of all members shall be well within these tolerances and that the maximum values shall be permitted to be approached or equaled only occasionally.
   • Reinforcement bars shall be rigidly fastened together by wire ties, and extra tie bars shall be furnished as may be necessary for maintaining satisfactory rigidity during handling and placing. Spot welding will be permitted where approved by the Engineer. Sufficient thermoplastic or wire chairs shall be furnished for supporting the reinforcement at the proper distance from horizontal surfaces. Wire chairs may also be used as spacers to hold reinforcement at the proper distance from vertical surfaces. The concrete cover over all reinforcements shall be within plus or minus ¼ inch of the specified cover. All metal chairs and miscellaneous metal left in the concrete shall be hot dip galvanized to at least 1⅛ inches from concrete surfaces.
   • Miscellaneous accessories to be cast into the concrete or for forming holes or recesses shall be carefully located and rigidly held in place by bolts, clamps, or other effective means.

B. Installation Instructions. Twenty-one (21) days prior to constructing and erecting precast concrete slabs, the Contractor shall submit detailed installation working drawings to the Engineer for approval in accordance with Article 105.04 of the Tollway Supplemental Specifications, except as may be otherwise specified herein. Erection drawings shall be prepared and signed by a Structural Engineer licensed in the State of Illinois. It is specifically understood that the approval of the Engineer shall not be considered as relieving the
Contractor of either responsibility for the safety method and equipment, or responsibility from carrying out the work in full accordance with the Plans and Specifications. Provide installation instructions, including any special equipment and materials to address the following:

1. Removal and Subbase Preparation. Specific procedures for sawcutting and removal if needed and instructions for any recommended subbase preparation.

2. Slab Installation. Instructions, methods, and equipment for lifting, moving, protecting, lowering, and adjusting the slabs into position.

3. Bed and Level Slabs. Instructions to ensure slabs are fully supported by underlying layers at the correct line, grade, and cross slope while meeting contract smoothness requirements. Slabs may be either:
   • Placed on a precisely graded bedding layer and grouted in-place to fill any small, isolated voids between the slabs and bedding layer (grade-supported).
   • Placed at final position on flowable fill material, or placed or held near final position and jacked into place (grout-supported).
   • Placed by other methods approved by the Tollway Materials Manager.
For grade-supported slabs, include all pertinent bedding and leveling instructions, including:
   • Bedding material composition and gradation.
   • Bedding grout mix design and anticipated strength gain. Bedding grouts must develop a minimum compressive strength of 575 psi in 12 hours.
   • Method used to place the bedding material and grout beneath the slab.
   • Method used to ensure complete bedding when placed.
For grout-supported slabs, include all pertinent bedding and leveling instructions, including:
   • Material properties, composition, mix design, and anticipated strength gain of any slab-jacking or flowable fill material.
   • Method used to place the flowable fill before slab installation or place the slab-jacking material beneath the slab after installation.
   • Method used to ensure complete slab contact with jacking material when placed.

4. Backfilling Pavement Hardware. Instructions to completely encase load transfer tie devices, longitudinal joint ties, lifting inserts, and grout ports. Include all pertinent information, including:
   • Material properties, composition, mix design, and anticipated strength gain of any backfill material that is not named in Backfill Material for Pavement Hardware, or, revised instructions for those materials if the manufacturer’s instructions are not followed.
   • Method used to place backfill material.
   • Method used to ensure complete hardware encasement.

5. Joint Sealing. Instructions, methods, and equipment for filling all joints with hot poured sealant.

Subsequent to system approval, any change to approved installation instructions must be submitted to, and approved by, the Tollway. The Tollway reserves the right to require additional trial installations if the changes are deemed significant.

C. Trial Installation. Perform a trial installation at a location agreeable to the Tollway. Ensure Tollway personnel are present. Place 4 (minimum) 12 foot x 12 foot slabs simulating 2 lanes of
traffic. Provide a drill rig, with operator, capable of retrieving 4-inch mm diameter cores through any portion of the slab, and a technician capable of fabricating test specimens in accordance with AASHTO T106. As a minimum, the following will be evaluated:


3. Backfill Material Properties and Completeness of Placement. If a material identified in this specification as Backfill Material for Pavement Hardware (under Material Requirements) is used in accordance with the manufacturer's written instructions, no further material testing is required. If a different material is used (or if a material is not used in accordance with the manufacturer's instructions), fabricate a sufficient amount of test specimens to determine the properties identified in Section C of the Backfill Material Requirements for either mortar or polymer materials as required by the manufacturer, when tested in accordance with AASHTO T106 or the referenced ASTM Standard.

4. Dimensions and Tolerances. Slabs must conform to the Fabricator Standard Drawings and be capable of being placed in an essentially true plane.

5. Instruction Completeness. Manufacturer's instructions must accurately reflect the processes used in the trial installation.

6. Load Transfer Efficiency (LTE). The Tollway reserves the right to conduct falling weight deflectometer testing to determine LTE at the joints. Poor LTE (≤ 70 %) is cause for rejection.

MATERIAL REQUIREMENTS
Section 504 of the Standard Specifications shall apply, except as noted herein.

A. Concrete. The concrete shall be a Class PC according to Section 1020, and shall have a minimum compressive strength of 4500 psi at 28 days.

B. Reinforcement. Article 1006.10 shall apply. Reinforcement shall be epoxy coated. Provide 2-inch (minimum) concrete cover between the mat and the slab bottom. Fabricate mats using a size and spacing of steel (in both directions) that results in a steel area to cross-sectional area ratio of 0.002 (minimum). Maximum bar spacing is 18 inches.

The manufacturer may provide additional reinforcement based on jobsite loading conditions. (A typical example is when slabs must be loaded before a bedding grout is placed.)

C. Backfill Material for Pavement Hardware. If the precast slab system requires a backfill material around pavement hardware or tie device, use DBR Retrofit Mortar, HD-50, Five Star Highway Patch or a two component urethane polymer system as recommended by the manufacturer, or an alternate material submitted as an approved equal. If the brands or material types named above are mixed in accordance with their manufacturer's written instruction, no further testing is required. If an alternate material is proposed for use, the material must meet the Backfill Material Requirements listed below when tested in accordance with AASHTO T106 or the referenced ASTM Standard.
### BACKFILL MATERIAL REQUIREMENTS FOR MORTARS

<table>
<thead>
<tr>
<th>Property</th>
<th>Minimum</th>
<th>Maximum</th>
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</thead>
<tbody>
<tr>
<td>Compressive Strength, Opening to Traffic</td>
<td>2500 psi</td>
<td></td>
</tr>
<tr>
<td>Compressive Strength, 28 Day</td>
<td>4000 psi</td>
<td></td>
</tr>
<tr>
<td>Expansion</td>
<td>-</td>
<td>0.40 %</td>
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<tr>
<td>Contraction</td>
<td>-</td>
<td>0.05 %</td>
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<tr>
<td>Freeze - Thaw Loss (25 cycles at 10% NaCl)</td>
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<td>1.0 %</td>
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<tr>
<td>Bond Strength (to dry PCC)</td>
<td>300 psi</td>
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<tr>
<td>Initial Set Time</td>
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<tr>
<td>Chloride Content</td>
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<td>0.05 %</td>
</tr>
<tr>
<td>Sulfate Content</td>
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<td>5.0 %</td>
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</tbody>
</table>

### BACKFILL MATERIAL REQUIREMENTS FOR URETHANE POLYMERS

<table>
<thead>
<tr>
<th>Cured Property</th>
<th>Minimum</th>
<th>Maximum</th>
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</thead>
<tbody>
<tr>
<td>Compressive Strength, (ASTM C-39)</td>
<td>3,282 psi</td>
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</tr>
<tr>
<td>Hardness, Durometer D, (ASTM D-2240)</td>
<td>70</td>
<td></td>
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<tr>
<td>Specific Gravity, (ASTM D-792)</td>
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<tr>
<td>Tensile Strength, (ASTM D-412)</td>
<td>4,300 psi</td>
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<tr>
<td>Elongation at Break, (ASTM D-412)</td>
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<tr>
<td>Tear Strength, (ASTM D-624)</td>
<td>275</td>
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<tr>
<td>Bond Strength to PCC</td>
<td>350 psi</td>
<td>500 psi</td>
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</table>

D. Flowable Fill Leveling Material. The flowable fill mix placed only on tangent sections before slab installation to level the precast pavement slabs shall consist of Portland cement, fly ash, coarse and/or fine aggregates, water, air entraining admixture (optional), and any other admixture needed to control the initial and final set times of the mixture. The contractor shall submit the proposed mix design for flowable fill to the Engineer for Tollway approval prior to placement. Trial batches shall be required on any mix design that has not been previously approved. The flowable fill produced shall be in accordance with the following:

1. Portland cement shall be Type 1 cement in accordance with Section 1001 of the Standard Specifications.

2. Fly Ash shall be in accordance with Section 1010 of the Standard Specifications.

3. Fine aggregate shall be in accordance with Section 1003 of the Standard Specifications.

4. Coarse aggregate, if used, shall be in accordance with Section 1004 of the Standard Specifications with a maximum aggregate size of 12.5 mm.

5. If an air entrainment admixture is used, the air content of the flowable fill shall not exceed 35% of the flowable fill volume.

6. The compressive strength of the flowable fill mixture shall not be less than 50 psi at 3 days, nor less than 75 psi or greater than 150 psi at 28 days.
7. The final set time for each mix design shall be determined through trial batch sampling and test procedures ASTM C 403 performed on a trial batch specimen. Recorded final set times shall be no more than 1 1/2 hours after the batch time.

E. High Density Polyurethane Leveling/Support Material. For precast slabs supported and leveled by high-density foam placed after the slab installation, the high-density form shall be expanding polyurethane foam having a water insoluble diluent and shall be in accordance with the following:

- Density.......................................................................................................................... 6.0 min.
- Tensile Strength (psi) ASTM D 1623 ........................................................................ 100 min.
- Elongation ...................................................................................................................... 5.1
- Compressive Strength (psi) ASTM D 1621 (At Yield) ............................................ 100 min.
- Volume Change (% of original) .................................................................................. 0

The manufacturer shall provide documentation that the lot(s) of foam meet the specified properties. Manufacturer’s certification shall list lot number(s) and documentation of compliance with the specification.

F. Joint Sealer. Hot poured joint sealer shall be in accordance with Article 1050.02 of the Standard Specifications. Any proposed sealant product shall be approved in writing by the Engineer prior to the delivery to the work site.

DRAWINGS
Section 504 of the Standard Specifications shall apply, except as noted herein. Provide job-specific Fabricator Working Drawing(s), from the system designer, for each contract. Use these drawings, in conjunction with approved Fabricator Standard Drawing(s), to manufacture the pavement slabs. Copies of approved working drawings will be returned to the system designer. If the manufacturer is not the system designer, include the manufacturer’s name, address, and telephone number on the drawings.

FABRICATION
Section 504 of the Standard Specifications shall apply, except as noted herein. Precast slabs can be produced by any Illinois DOT Certified Precast Concrete Producer.

TEXTURE
Either an astro turf drag finish or a combination of the turf drag finish followed by a tined finish in accordance with Article 420.09(e)(1) of the Standard Specifications shall be applied to the top surface of the slab as required in the slab design schedule on the contract documents.

CURING
When membrane curing compound is the selected curing method and the slabs are exposed to sunlight while curing, use a white pigmented membrane curing compound from the Illinois Department of Transportation Approved List instead of a clear compound with fugitive dye.

SAMPLING AND TESTING
The Illinois Department of Transportation’s Manual for Fabrication of Precast Prestressed Concrete Products as referenced in Section 504 of the Standard Specifications shall apply.
FINAL PRODUCTION INSPECTION
The Illinois Department of Transportation's Manual for Fabrication of Precast Prestressed Concrete Products as referenced in Section 504 of the Standard Specifications shall apply.

HANDLING, STORING AND TRANSPORTING
Section 504 of the Standard Specifications shall apply.

BASIS of ACCEPTANCE
Section 504 of the Standard Specifications shall apply in addition to the following:
• The system must be approved by the Tollway based on compliance with the Special Provision for Precast Concrete Pavement Slab Systems.
• Written approval from the system designer to use the approved system if the manufacturer is not the system designer.
DOWEL BAR RETROFIT (Tollway)

Effective: March 30, 2009
Revised: April 19, 2011

DESCRIPTION

This work shall consist of furnishing and installing epoxy coated round steel dowels into existing concrete pavement across transverse joints and/or cracks, in accordance with this Specification, at locations shown in the Plans and/or as directed by the Engineer. This work shall include sawing channels into the pavement, cleaning the channels, placing dowel into the channels, filling the channels and transverse joints with adhesive, sawing and sealing the retrofitted joints, cleanup and other related work.

MATERIALS

(a) Dowels. The dowel bars shall consist of a smooth, round, epoxy and bond breaker coated 14-inch long, 1.5-inch diameter steel dowels meeting the requirements of Article 1006.06(b).

(b) Bond Breaker. Acceptable bond-breaker compounds include white pigmented curing compound, concrete form oil, or other approved bond breaker materials.

(c) Expansion Caps. Use tight-fitting, commercial quality end caps made of a non-metallic, non-organic material that allows for 1/2 inch of movement at each end of the dowel bar.

(d) Dowel Bar Support Chairs. Use chair devices for supporting the dowel bars that conform to the epoxy-coated steel requirements of ASTM A 884. Dowel bar chairs are used to firmly hold the dowels centered in the slots during backfill operations. The dowel bar chairs must hold the bar a minimum of 1/2 inch above the bottom of the slot while the backfill material is placed and consolidated.

(e) Caulking Filler. Caulking filler used for sealing the existing transverse or crack at the bottom and sides of the slot shall be concrete sealant that is compatible with the patch material being used.

(f) Non-Shrink Concrete Backfill Material. The backfill material shall be:
   (1) Five Star Highway Patch, as manufactured by Five Star Products, Inc., Fairfield, Connecticut;
   (2) Highway DB Retrofit Mortar, as manufactured by Dayton Superior, Miamisburg, Ohio; or
   (3) A Tollway approved equivalent tested as Rapid Set Concrete Patching materials per AASHTO National Transportation Product Evaluation Program (NTPEP) which conforms to ASTM C 928.

The material shall:
   (1) Provide a compressive strength of 4,000 psi in 24 hours (opening to traffic after 3,000 psi) per ASTM C 39;
   (2) Exhibit expansion of less than 0.10 percent per ASTM C 531; and
   (3) have a calculated durability factor of 90.0 percent minimum at the end of 300 freeze-thaw cycles per ASTM C 666.
The Contractor shall submit the proposed concrete backfill material to the Engineer 14 days prior to any placement operations. For any backfill material that is extended with aggregate, the maximum aggregate size shall be no more than 3/8 inch.

(g) Curing Compound. Use a Type I, II, or III curing compound to cure the approved concrete backfill material that conforms to Article 1022.01 of the Standard Specifications.

(h) Joint / Crack Sealer. Hot poured joint / crack sealer used at retrofitted joints shall be in accordance with Article 1050.02 of the Standard Specifications. Any proposed sealant product shall be approved in writing by the Engineer prior to the delivery to the work site. The backer rod if needed shall consist of a material capable of withstanding the application temperatures of hot poured sealant to 400° F. The backer rod shall be extruded from a cross-linked, closed cell polyolefin and shall be available in a variety of diameters to readily meet the requirements of any particular application.

EQUIPMENT

(a) A template shall be used to locate the sawcuts on any nonskewed crack or joint in order to align the sawcuts consistently. Either single diamond bladed saws or diamond bladed gang saws shall be used to make the saw cuts to allow for dowel bar placements within the specified tolerances.

(b) Chipping hammers shall be hand held and have a maximum weight of 30 lbs. prior to any handle modification where applicable to minimize damage to the concrete pavement that remains.

(c) The compressor for air blasting shall have a minimum capacity of 120 cu. ft. per minute. The compressed air shall be free from oil and other contaminants.

(d) Consolidation equipment used to consolidate the concrete repair material in the dowel bar slats shall be internal vibrators with a maximum diameter of 1 inch and shall have a resilient covering that will not damage the epoxy coated reinforcement during use.

(e) Equipment for mixing and pumping any backfill materials for retrofitting the dowel bars shall be in accordance with the material manufacturer's instructions and specifications.

(f) Routing or sawing equipment for crack sealer, where required, shall be power driven and be capable of cutting the cracks to the required dimensions without excessive spalling of the adjacent surface. Equipment for heating and placing hot poured sealant material shall be an oil jacketed, double boiler type, heating kettle or other thermostatically controlled equipment of a type approved by the Engineer, capable of heating the material to 400° F (205° C) and pumping the material into the prepared crack or joint.

SUBMITTALS

Submit samples to the Engineer for approval prior to the installation of the following items:
   a. Dowel bars
   b. Dowel bar chairs
   c. Dowel bar end caps
   d. Backfill material
   e. Aggregate for extension of backfill material

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Submit the material samples, except for the backfill and aggregate, at least 10 days prior to use. Submit backfill material and aggregate used for extension 30 days prior to use.

**DRAWINGS**

The proposed location of the dowel bars is shown in the Plans. Before any fabrication is started, the Contractor shall prepare and submit shop drawings and/or catalog cuts to the Engineer for approval, in accordance with the provisions of Article 105.04 of the Tollway Supplemental Specifications. The shop drawings shall give full detailed dimensions and sizes of the channels to be sawed and the dowel bar retrofit.

**CONSTRUCTION METHODS**

Install dowel bars in the existing portland cement concrete pavement as shown on the Plans and in the Specifications.

(a) Concrete Removal. Create slots to a depth and length that allows the center of the dowel to be placed at mid-depth in the pavement slab and parallel to the pavement surface. Slots can be created with a gang saw, or by making saw cuts and removing the concrete between the saw cuts with a 30-lb maximum jackhammer or handtools. Slots are to be parallel to each other and to the centerline of the roadway with a maximum tolerance of ½ inches per 12 inches of dowel bar length to allow for the dowel bar to be placed parallel to the centerline of the roadway. For non-skewed cracks and joints, the saw cut locations shall be pre-marked using a template. Skewed joints or cracks may require slots longer than the length specified in the plans to allow for equal length of the dowel bar to be placed across the transverse joint or crack. Remove water and residue immediately after sawing. If the concrete removal operations cause damage to the pavement that is to remain, discontinue concrete removal operations and only resume after taking corrective measures. Repair or replace pavement damaged during concrete removal operations at no additional expense to the Tollway. The bottom of the slot must be flat and level. Dispose of any concrete removal debris.

(b) Slot Cleaning and Preparation. Sandblast all exposed surfaces in the dowel bar slot to remove saw slurry and debris such that clean aggregate is exposed. After sandblasting, clean the slot by blowing with moisture-free, oil-free compressed air having a minimum capacity of 120 cu. ft. per minute to remove any dust, residue or debris left in the slot.

(c) Sealing Joints and Cracks in Slot before Backfilling. Seal the existing transverse contraction joint and/or all cracks at the bottom and the sides of the dowel bar slot with an approved caulking or silicone filler to prevent any of the backfill material from entering these areas. The caulking filler should not be placed any farther than ½ inch outside either side of the joint. Excessive sealant around the slot does not allow the concrete patching material to bond to the sides of the slot. Prior to slot sealing, ensure that surfaces receiving the caulking filler are clean and free of moisture. Do not extend the caulking filler beyond 3/8 inches of each side of the existing joint or crack.

(d) Placing Dowel Assembly in Slot. Prevent contamination of the cleaned slot before or while placing dowel assemblies to limit the potential of bonding loss with the backfill material. Place the dowel bars to within 0.5 inches of the midpoint of the slab. Ensure that the bar is parallel to the traffic lane centerline and the top of the roadway surface within a tolerance of
¼ inch per 12 inches of dowel bar length. Center dowels at the nonskewed transverse joints such that at least 6 inches of the dowel extends into each adjacent panel. For dowel bars at any skewed joint and at all cracks, the dowel shall be centered over the joint or crack in each slot. Cease and adjust operations if the chairs do not hold dowel bars securely in place during placement of the backfill material.

Place a foam core insert at the middle of the dowel bar and to the surface of the pavement. Place insert so it covers the existing transverse joint or crack and is capable of remaining in a vertical position, tight to all edges during backfill placement operations. Re-establish the joint or crack above the foam core insert within 4 hours of backfill placement by sawing after the backfill material has hardened sufficiently.

(e) Mixing and Placing Backfill Material. Mix backfill material in accordance with the manufacturer’s instructions and the specifications. Refer to manufacturer’s information on handling, mixing, and placing backfill material.

Fill each dowel bar slot with backfill material after placement of the caulking filler, the coated dowel bar, expansion caps, support chairs, and the foam core insert. Ensure that the foam core inserts remain upright, extends to the surface of existing pavement, and is over the existing joint or crack during the backfill process. Vibrate the backfill material with a small hand held vibrator capable of thoroughly consolidating the backfill material into the slot around the dowel bars and support chairs.

Slightly overfill the slot and finish the surface of the filled slot level with no more than ¼" above the existing concrete. Any slots insufficiently filled below existing pavement surfaces shall be redone at the contractor’s expense. Cure the backfill material in accordance with the manufacturer’s recommendations. Apply curing compound per the manufacturer’s recommendation.

(f) Sawing Cracks after Backfilling. After installation of dowel bars and backfill material is completed for retrofitting mid-slab cracks, where the foam insert is not observed present on the finished surface of the patch the patched channels shall be saw cut by the Contractor between existing crack openings within 24 hours of placement to a nominal 1.5 inch depth to reduce surface stress and spalling at the surface of the backfilled slot. Such sawcutting will be at no additional cost to the Tollway.

**METHOD OF MEASUREMENT**

This work will be measured for payment in units of each dowel bar assembly installed.

**BASIS OF PAYMENT**

This work will be paid at the contract unit price per each for DOWEL BAR RETROFIT.
PRECAST REPLACEMENT OF CONCRETE PAVEMENT SLABS (Tollway)

Effective: March 30, 2009
Revised: September 8, 2011

DESCRIPTION. This work shall consist of the removal of existing concrete pavement, restoration of the subbase material, the installation of precast concrete pavement slabs in accordance with the contract documents, and the sealing of joints at locations designated by the Engineer, or as shown in the Plans, or described in the Special Provisions. The precast slab system shall be the Tollway's generic system or an alternate system approved by the Tollway based on compliance with the Tollway special provision for Precast Concrete Pavement Slab Systems.

MATERIALS. The materials must meet the requirements of the Tollway special provision for Precast Concrete Pavement Slab Systems and the requirements of the designer of the approved system.

CONSTRUCTION REQUIREMENTS.

1. General. For replacements using the Tollway's generic precast system, the pavement areas to be repaired will be initially delineated by the Engineer on shoulder pavement using spray paint furnished by the Contractor and noted to qualify for either a 12'-6" or 13'-6" standard slab repair or require a custom slab repair. Standard slab placement shall only be allowed where the length of the patch is no longer than 6'-0", the width between existing longitudinal joints is measured at a right angle to the joints to be either between 11'-5" and 12'-6" or between 12'-6" and 13'-6", and if on-site saw cutting of the slabs is possible to be performed. At all locations initially marked to possibly receive a standard precast slab, the widths between existing longitudinal joints shall be measured by the Contractor under maintenance of traffic provided by the Contractor. The Contractor's width measurements shall be used to determine the need for any on-site sawcuts of the longitudinal edges of standard slabs to fit the opening and to align the saw cut edge(s) with any existing longitudinal joints. The longitudinal edges of any standard slab shall not be sawed cut more than 6 inches off the original edge. No new longitudinal joint shall, of a cut standard slab, be allowed inside of the existing longitudinal joint by more than ½ inch. If the tolerances for Tollway standard slabs can not be met, then a custom slab shall be required at the location. The locations designated to receive a custom precast slab shall be fully surveyed by the Contractor under maintenance of traffic provided by the Contractor to determine the specific dimensions and diagonals required by the system manufacturer to fabricate the precast slab. The dimension requirements for fabrication of all custom slabs shall be summarized in a table that complies with the example table shown on the Tollway's Standard Drawing A18 and submitted to the Engineer for review and approval before any fabrication work proceeds.

For replacements using any Tollway approved alternate (non-generic) precast system, the pavement areas to be repaired will be initially delineated by the Engineer on shoulder pavement using spray paint furnished by the Contractor. It shall be the Contractor's responsibility to survey all slab locations and mark saw cut locations that comply with the alternate system requirements for alignment. The locations designated to receive an alternate system slab shall be fully surveyed by the Contractor to determine the specific dimensions and diagonals required by the system manufacturer to fabricate the precast slab.
For replacements using any precast system, the slab lengths of any designated repair area shall comply with the menu for precast concrete slabs as identified on the design detail drawings unless concrete deterioration that occurred since the initial design survey was performed requires a modified length to the repair area. Any areas of pavement removed and replaced outside the final limits established by the Engineer shall be done entirely at the Contractor's expense. After removal of the concrete pavement and any aggregate subbase in a repair area, the Engineer shall determine the suitability of the existing subbase material and the steps necessary to restore the subbase in accordance with the Tollway special provision for "Aggregate For Base Course Restoration, Special".

2. Quality Control Plan. The Contractor's Quality Control Plan (QCP) shall include a detailed back up plan for temporary filling of any removed repair location where the precast slab cannot be set before the time for peak hour traffic arrives. Any placement and removal of temporary fill material to allow for the pavement to be opened to traffic during peak hours shall be at the Contractor's expense. The backfill material shall be cement or asphalt treated material approved by the Engineer that will support traffic for 24 hours or more until the precast pavement is able to be placed.

3. Meetings. Convene a pre-placement meeting within 14 calendar days of the planned start of slab installation with the Engineer, manufacturer, supplier, system designer of an alternate precast slab system, and any relevant subcontractors to review and coordinate all aspects of pavement removal, placement and inspection including equipment and personnel requirements to install slabs to the line and grade depicted in the contract documents ± ¼ inch.

4. Technical Assistance for Alternate Precast Systems. Several processes in this specification are performed in accordance with the system designer's instructions. The system designer must supply on-site technical assistance at the beginning of the installation until the Engineer determines the assistance is no longer required. Provide approved system designer instructions to the Engineer at least 30 calendar days before starting work associated with slab installation.

5. Weather Limitations. Article 420.07 of the Standard Specifications shall apply.

6. Pavement Removal. Removal of existing pavement shall be in accordance with Section 440 of the Standard Specifications except as modified herein.

   The outer limits of the repair area will be sawcut full depth and shall not extend (overcut) by more than 10 inches into the adjacent concrete that is to remain in place. Overcuts shall be filled with a product acceptable to the Tollway Materials Engineer. The outer limits for repair shall be marked out by the Contractor and approved by the Engineer prior to any sawcutting. Removal of concrete within the perimeter sawcuts shall be by the lift-out method, and any concrete removed between sawcuts for dowel bar retrofits shall be removed using the jackhammer and hand tool equipment specified in the Tollway special provision for Dowel Bar Retrofit.

   Equipment and methods used for removing old pavement shall be such as to prevent cracking, shattering or spalling of the pavement remaining in place. Should the remaining pavement be damaged by this operation the Contractor shall immediately change equipment and/or methods to prevent damage to any more pavement. Care shall be
exercised in the removal of the pavement to prevent damage to load transfer devices, tie bars, or adjacent concrete surfaces or edges in portions of the pavement that are to remain in place. Adjacent pavement or bars damaged as a result of the removal process shall be replaced at the Contractor’s expense to the satisfaction of the Engineer.

7. Disposal of Excavated Materials. Materials resulting from the removal of concrete pavement and materials removed for base course restoration, as required, shall be disposed of by the Contractor at his expense, in accordance with the applicable portions of Article 202.03 of the Standard Specifications.

8. Subbase Course. The subbase shall be prepared to the requirements of Tollway special provision “Subgrade Aggregate, 12-inch” for new construction and add-on lanes. For pavement repair over dense graded capping aggregates, any areas of a dense graded subbase that are below the required elevation of the finished subbase, due to the Contractor’s operations in breaking or removing old pavement, shall be built up to meet the level of the surrounding subbase to the satisfaction of the Engineer in accordance with the contract documents at the Contractor’s expense. For repairs over porous granular subbase or if the Engineer determines that the existing granular subbase is unsuitable for the intended purpose, the Contractor shall remove the unsuitable material in the pavement removal areas to the depth specified by the Engineer and no less than 2 inches and replace the material removed with an equal thickness of new material placed and compacted in accordance with the requirements of the Tollway special provision for “Aggregate For Base Course Restoration, Special”. Follow the system designer’s instruction for any final subbase preparation prior to slab installation. Do not disturb the prepared surface before installation.

9. Slab Installation. Install the slabs in accordance with the approved system instructions. Set grade-supported slabs to achieve maximum contact with the prepared subbase.

10. Joints for an Alternate Precast System. Submit a proposed joint layout with the Fabricator Working Drawings, in accordance with the Tollway special provision for “Precast Concrete Pavement Slab Systems.” Align joints both transversely and longitudinally between butting precast slabs, i.e., do not stagger joints, except where approved on the joint layout. When tying precast slabs to existing concrete pavement, such as an add-on lane, joint alignment is not required. However, do not drill and anchor longitudinal joint ties within 24 inches of a transverse joint in the existing pavement.

11. Joint Widths. Install slabs such that the joint widths on the remaining concrete surfaces are less than ½ inch, regardless of joint orientation. These dimensions apply to joints between adjacent precast slabs or joints between precast slabs and existing pavement.

12. Bed and Level Slabs. Bed and level slabs in accordance with the system instructions such that the vertical differential across any corner is ¼ inch or less.

13. Backfill Pavement Hardware. Backfill around pavement hardware in accordance with the approved system instructions.

14. Smoothness (Pavement’s Remaining Concrete Surface). Where profile grinding of a precast repair is required by design, the Tollway special provision for Profile Diamond Grinding of Concrete Pavements shall apply for pavement smoothness.
15. Corrective Action for Smoothness. Immediately after the slab has been set and leveled, survey the vertical elevation across all corners to verify that the vertical difference between adjacent slabs across any corner does not exceed ¼ inch. If the difference exceeds ¼ inch, then the slab shall be removed and reset or the surface shall receive a corrective diamond grind at the contractor’s expense after any required bedding grout or leveling material has been placed.

Upon completion of any corrective work, the surface of the patch shall be resurveyed. Corrective work shall be at no additional cost to the Tollway.

16. Opening to Traffic shall be per the approved system requirements

**METHOD OF MEASUREMENT.** This work will be measured for payment in square feet of area of slab delivered and placed, and accepted in accordance with the Contract.

Reinforcement and other such items incidental and necessary to provide complete assemblies, as shown on the Plans, will not be measured separately for payment.

**BASIS OF PAYMENT.** This work will be paid for at the contract unit price per square foot for STANDARD PRECAST CONCRETE PAVEMENT SLABS of length specified, and CUSTOM PRECAST CONCRETE PAVEMENT SLABS.

The work for any required profile grinding of precast slabs will be paid at the contract unit price per square yard for PROFILE DIAMOND GRINDING OF CONCRETE PAVEMENT.

The work for any necessary restoration to the existing subbase will be paid at the contract unit price per ton for AGGREGATE FOR BASE COURSE RESTORATION, SPECIAL.
FABRICATION GENERAL NOTES

1. DEVELOP WORKING DRAWINGS FOR THE SLAB, VIEW AND HATCHING DIAGRAMS FOR LENGTH AND WIDTH ARE NOTED ON THE DRAWINGS.

2. ANY CUSTOM SLAB IS 6 FT. IN LENGTH THAT WILL BE FIXED TO FIT THE MANUFACTURER SPECIFICATIONS. THE SPECIFICATIONS FOR SLAB LENGTH MUST BE PROVIDED IN THE CONTRACT DOCUMENTS.

3. Plan for the installation of the slab must be made in accordance with the manufacturer's recommendations. The slab must be placed on a firm base that is capable of supporting the load of the slab. A firm base that is capable of supporting the load of the slab must be provided. The slab must be placed on a firm base that is capable of supporting the load of the slab. The slab must be placed on a firm base that is capable of supporting the load of the slab.

4. Plan for the installation of the slab must be made in accordance with the manufacturer's recommendations. The slab must be placed on a firm base that is capable of supporting the load of the slab. A firm base that is capable of supporting the load of the slab must be provided. The slab must be placed on a firm base that is capable of supporting the load of the slab. The slab must be placed on a firm base that is capable of supporting the load of the slab.

5. Plan for the installation of the slab must be made in accordance with the manufacturer's recommendations. The slab must be placed on a firm base that is capable of supporting the load of the slab. A firm base that is capable of supporting the load of the slab must be provided. The slab must be placed on a firm base that is capable of supporting the load of the slab. The slab must be placed on a firm base that is capable of supporting the load of the slab.

6. Plan for the installation of the slab must be made in accordance with the manufacturer's recommendations. The slab must be placed on a firm base that is capable of supporting the load of the slab. A firm base that is capable of supporting the load of the slab must be provided. The slab must be placed on a firm base that is capable of supporting the load of the slab. The slab must be placed on a firm base that is capable of supporting the load of the slab.

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8. Plan for the installation of the slab must be made in accordance with the manufacturer's recommendations. The slab must be placed on a firm base that is capable of supporting the load of the slab. A firm base that is capable of supporting the load of the slab must be provided. The slab must be placed on a firm base that is capable of supporting the load of the slab. The slab must be placed on a firm base that is capable of supporting the load of the slab.

9. Plan for the installation of the slab must be made in accordance with the manufacturer's recommendations. The slab must be placed on a firm base that is capable of supporting the load of the slab. A firm base that is capable of supporting the load of the slab must be provided. The slab must be placed on a firm base that is capable of supporting the load of the slab. The slab must be placed on a firm base that is capable of supporting the load of the slab.

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11. Plan for the installation of the slab must be made in accordance with the manufacturer's recommendations. The slab must be placed on a firm base that is capable of supporting the load of the slab. A firm base that is capable of supporting the load of the slab must be provided. The slab must be placed on a firm base that is capable of supporting the load of the slab. The slab must be placed on a firm base that is capable of supporting the load of the slab.

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STANDARD 13'-6" WIDE PANEL LAYOUT FOR ISOLATED PLACEMENT WITH EMBEDDED BOWELS FOR PRECAST WIDE MOUTH SLOTS IN ADJACENT PAVEMENT.

NOTES:

1. THE WIDTH AND LENGTH OF PRECAST SLABS SHALL BE THE INCREASED DIMENSIONS x 1/2.

2. FOR MIDDLE LANE SLAB SPAN/PACKETS LESS THAN 13'-6" IN WIDTH AND GREATER THAN 13'-6" IN INSTALL THE STANDARD PRECAST SLAB CAN BE CUT OUT ON SITE TO FIT THE SPANS AND TO MAINTAIN ALIGNMENT WITH EXISTING LRV, PAVEMENT JOINTS, ETC.

3. SLAB THICKNESS SHALL BE 8" +/- 1/2.


5. SEE SHEET 7 FOR SECTION DETAILS.

6. IT SHALL BE THE CONTRACTORS OPTION TO INCLUDE ANY CAST-IN-PLACE BOWELS OR PRECUTTED SLABS AS SHOWN ON THESE DRAWINGS WITH PLAINT METRICIZED BOWELS AND FIELD MANUFACTURED BIG CHIPS. THE CONTRACTOR SHALL USE AN APPROVED PLACEMENT TO LOCATE THE END JOINTS REQUIRED FOR PRECAST PANELS AND CONFORM TO THE PANEL BOWELS IN ACCORDANCE WITH THESE DRAWINGS. SHAPING OVER HARD SURFACES SHALL BE USED TO MAKE SLAB CUTS PERPENDICULAR TO THE EUROPEAN SURFACE JOINT TO ALLOW FOR CORRECT HARD SURFACES BENEATH THE SPECIFIED DIMENSIONS.

6. SEE NOTE 8 ON SHEET 7 FOR LOCATING UNDERLACING OUTPUT PORTS.

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PRECAST PAVEMENT SLABS

SHEET 5 OF 19
STANDARD 12'-6" WIDE PANEL LAYOUT FOR ISOLATED PLACEMENT WITH NARROW MOUTH PREFORRED DOWEL SLOTS TO ALIGN WITH PREDRILLED HOLES IN ADJACENT PAVEMENT.

NOTES:
1. THE WIDTH AND LENGTH OF PRODUCED SLABS SHALL BE THE INDICATED DIMENSIONS ± 3/8".
2. FOR MIDDLE LINE SLAB SPACING NOT LESS THAN 12'-6" IN WIDTH AND GREATER THAN 31'-6" IN WIDTH, THE 12'-6" WIDE STANDARD PRECAST SLAB CAN BE SPACED ON-OFF-SET TO FIT THE OPENING AND TO MAINTAIN ALIGNMENT WITH EXISTING CONCRETE JOINTS, SIMULTANEOUSLY.
THE SLAB PATCH LOCATION MUST BE AGREED UPON BY THE CONTRACTOR AND THE SLAB PRODUCER AS A OPTION B.
3. FOR MIDDLE LINE SLAB SPACING NOT LESS THAN 12'-6" IN WIDTH AND GREATER THAN 31'-6" IN WIDTH, THE 15'-6" WIDE STANDARD PRECAST SLAB CAN BE SPACED ON-OFF-SET TO FIT THE OPENING AND TO MAINTAIN ALIGNMENT WITH EXISTING CONCRETE JOINTS, SIMULTANEOUSLY.
THE SLAB PATCH LOCATION MUST BE AGREED UPON BY THE CONTRACTOR AND THE SLAB PRODUCER AS A OPTION B.
4. SLAB THICKNESS SHALL BE 16'-6" ± 3/8".
6. SEE SHEET 7 FOR SECTIONS DETAILS.
7. SEE NOTE #1 ON SHEET 1 FOR LOCATION OF REINFORCING DOWEL PORTS.

STANDARD 13'-6" WIDE PANEL LAYOUT FOR ISOLATED PLACEMENT WITH NARROW MOUTH PREFORRED DOWEL SLOTS TO ALIGN WITH PREDRILLED HOLES IN ADJACENT PAVEMENT.

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PRECAST PAVEMENT SLABS

STANDARD A18-01
DETAIL A
SHRUT PIPE STAND

SECTION A-A
TRANSVERSE WINGED HOOD S/D
DETAIL FOR ISOLATED SLABS

SECTION B-B
TRANSVERSE WINGED HOOD S/D
DETAIL FOR CONSECUTIVE SLABS

SECTION C-C
SHRUT PIPE STAND ELEVATION

SECTION D-D
TRANSVERSE WINGED HOOD S/D
DETAIL FOR ISOLATED SLABS

SECTION E-E
TRANSVERSE WINGED HOOD S/D
DETAIL FOR CONSECUTIVE SLABS

DETAIL B
TRANSVERSE WINGED HOOD S/D
DETAIL FOR ISOLATED SLABS

SECTION F-F
TRANSVERSE WINGED HOOD S/D
DETAIL FOR CONSECUTIVE SLABS

SECTION G-G
TRANSVERSE WINGED HOOD S/D
DETAIL FOR ISOLATED SLABS

SECTION H-H
TRANSVERSE WINGED HOOD S/D
DETAIL FOR CONSECUTIVE SLABS

SECTION I-I
TRANSVERSE WINGED HOOD S/D
DETAIL FOR ISOLATED SLABS

SECTION J-J
TRANSVERSE WINGED HOOD S/D
DETAIL FOR CONSECUTIVE SLABS

FABRICATION DETAILS

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PRECAST PAVEMENT SLABS
STANDARD A18-01
NOTES:
2. EITHER SINGLE CLEAN-EDGE SLABS OR SLABS WITH CLEAN EDGE SHALL BE LAYED TO PROVIDE THE REQUIRED WIDTH OF THE SLABS AT THE BOTTOM OF THE SLABS WITH THE CURB.
3. SEE NOTE 2 ON SHEET 7 FOR LOCATING MONUMENTS AND CUSTOM SLABS.
4. SEE SHEET 7 FOR DETAIL DETAILS.

DATE: PRECAST PAVEMENT SLABS

STANDARD A8-01
INSTALLATION GENERAL NOTES

1. ACROSS CUSTOM MADE SLABS.

2. THE INSTALLATION OF CUSTOM MADE PRECAST CONCRETE SLABS SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE CONTRACT DOCUMENTS.

3. ALL CONCRETE SLABS SHALL BE REFINISHED TO REMOVE PROJECTIONS AND PLACED.

4. THE INSTALLATION OF CUSTOM MADE PRECAST CONCRETE SLABS SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE CONTRACT DOCUMENTS.

5. ALL CONCRETE SLABS SHALL BE REFINISHED TO REMOVE PROJECTIONS AND PLACED.

6. THE INSTALLATION OF CUSTOM MADE PRECAST CONCRETE SLABS SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE CONTRACT DOCUMENTS.

7. ALL CONCRETE SLABS SHALL BE REFINISHED TO REMOVE PROJECTIONS AND PLACED.

8. THE INSTALLATION OF CUSTOM MADE PRECAST CONCRETE SLABS SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE CONTRACT DOCUMENTS.

9. ALL CONCRETE SLABS SHALL BE REFINISHED TO REMOVE PROJECTIONS AND PLACED.

10. THE INSTALLATION OF CUSTOM MADE PRECAST CONCRETE SLABS SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE CONTRACT DOCUMENTS.

11. ALL CONCRETE SLABS SHALL BE REFINISHED TO REMOVE PROJECTIONS AND PLACED.

12. THE INSTALLATION OF CUSTOM MADE PRECAST CONCRETE SLABS SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE CONTRACT DOCUMENTS.

13. ALL CONCRETE SLABS SHALL BE REFINISHED TO REMOVE PROJECTIONS AND PLACED.

14. THE INSTALLATION OF CUSTOM MADE PRECAST CONCRETE SLABS SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE CONTRACT DOCUMENTS.

15. ALL CONCRETE SLABS SHALL BE REFINISHED TO REMOVE PROJECTIONS AND PLACED.
LEAVING MATERIAL PLACED IMMEDIATELY AFTER SLAB INSTALLATION SHALL ONLY BE A FLOOR MATERIAL THAT IS EFFECTIVE FOR DOT GOVERNMENT, PLACEMENT OF POLYURETHANE SLABS SHALL FALL ALL VOLUMES BETWEEN THE FLOOR MATERIALS IN THE SLAB. THE POLYURTHANE SLABS SHALL BE FLOODED WITH A SPECIAL WATER BASED POLYMER MIXTURE THAT WILL NOT BOND TO THE UNDERLAYING MATERIAL. ALL POLYURETHANE SLABS SHALL BE APPLY TO A MINIMUM THICKNESS OF 1/8 INCH.

31. FOLLOWING REMOVAL OF EXISTING FLOORING AND ACCEPTABLE FLOORING UNITS, THE CONTRACTOR SHALL APPLY ALL EXISTING FLOORING UNITS PRIOR TO REINSTALLING FLOORING MATERIAL. INSTALLATION OF TILING AND INSTALLING A WINDOW TRIM SHIPMENT SHALL NOT DAMAGE THE ANCHORED URETHANE SLABS PRIOR TO OR DURING FLOOR INSTALLATION.

32. FLOOR MATERIALS SHALL BE REINFORCED THO A .05 INCH., AND SHALL BE INSTALLED IN SUCH A MANNER THAT THE SUBDIMENSION OF ANY REINFORCED FLOORING IS NOT DAMAGED DURING INSTALLATION. FLOORING PLACEMENT OF THE SLABS, IF DURING INSTALLATION. FLOORING PLACEMENT OF THE SLABS, IF DURING INSTALLATION, SHALL BE MADE TO A MINIMUM THICKNESS OF 1/4 INCH.

33. FOLLOWING THE INSTALLATION OF THE SLABS, THE CONTRACTOR SHALL COMPLETE ALL EXISTING FLOORING PRINCIPLES PRIOR TO REINSTALLING FLOORING MATERIAL. INSTALLATION OF TILING AND INSTALLING A WINDOW TRIM SHIPMENT SHALL NOT DAMAGE THE ANCHORED URETHANE SLABS PRIOR TO OR DURING FLOOR INSTALLATION.

34. FOLLOWING THE INSTALLATION OF THE SLABS, THE CONTRACTOR SHALL COMPLETE ALL EXISTING FLOORING PRINCIPLES PRIOR TO REINSTALLING FLOORING MATERIAL. INSTALLATION OF TILING AND INSTALLING A WINDOW TRIM SHIPMENT SHALL NOT DAMAGE THE ANCHORED URETHANE SLABS PRIOR TO OR DURING FLOOR INSTALLATION.

35. FOLLOWING THE INSTALLATION OF THE SLABS, THE CONTRACTOR SHALL COMPLETE ALL EXISTING FLOORING PRINCIPLES PRIOR TO REINSTALLING FLOORING MATERIAL. INSTALLATION OF TILING AND INSTALLING A WINDOW TRIM SHIPMENT SHALL NOT DAMAGE THE ANCHORED URETHANE SLABS PRIOR TO OR DURING FLOOR INSTALLATION.

36. FOLLOWING THE INSTALLATION OF THE SLABS, THE CONTRACTOR SHALL COMPLETE ALL EXISTING FLOORING PRINCIPLES PRIOR TO REINSTALLING FLOORING MATERIAL. INSTALLATION OF TILING AND INSTALLING A WINDOW TRIM SHIPMENT SHALL NOT DAMAGE THE ANCHORED URETHANE SLABS PRIOR TO OR DURING FLOOR INSTALLATION.

37. FOLLOWING THE INSTALLATION OF THE SLABS, THE CONTRACTOR SHALL COMPLETE ALL EXISTING FLOORING PRINCIPLES PRIOR TO REINSTALLING FLOORING MATERIAL. INSTALLATION OF TILING AND INSTALLING A WINDOW TRIM SHIPMENT SHALL NOT DAMAGE THE ANCHORED URETHANE SLABS PRIOR TO OR DURING FLOOR INSTALLATION.

38. FOLLOWING THE INSTALLATION OF THE SLABS, THE CONTRACTOR SHALL COMPLETE ALL EXISTING FLOORING PRINCIPLES PRIOR TO REINSTALLING FLOORING MATERIAL. INSTALLATION OF TILING AND INSTALLING A WINDOW TRIM SHIPMENT SHALL NOT DAMAGE THE ANCHORED URETHANE SLABS PRIOR TO OR DURING FLOOR INSTALLATION.

39. FOLLOWING THE INSTALLATION OF THE SLABS, THE CONTRACTOR SHALL COMPLETE ALL EXISTING FLOORING PRINCIPLES PRIOR TO REINSTALLING FLOORING MATERIAL. INSTALLATION OF TILING AND INSTALLING A WINDOW TRIM SHIPMENT SHALL NOT DAMAGE THE ANCHORED URETHANE SLABS PRIOR TO OR DURING FLOOR INSTALLATION.

40. FOLLOWING THE INSTALLATION OF THE SLABS, THE CONTRACTOR SHALL COMPLETE ALL EXISTING FLOORING PRINCIPLES PRIOR TO REINSTALLING FLOORING MATERIAL. INSTALLATION OF TILING AND INSTALLING A WINDOW TRIM SHIPMENT SHALL NOT DAMAGE THE ANCHORED URETHANE SLABS PRIOR TO OR DURING FLOOR INSTALLATION.

41. FOLLOWING THE INSTALLATION OF THE SLABS, THE CONTRACTOR SHALL COMPLETE ALL EXISTING FLOORING PRINCIPLES PRIOR TO REINSTALLING FLOORING MATERIAL. INSTALLATION OF TILING AND INSTALLING A WINDOW TRIM SHIPMENT SHALL NOT DAMAGE THE ANCHORED URETHANE SLABS PRIOR TO OR DURING FLOOR INSTALLATION.
DETAIL D - WIDE MOUTH DOWEL BAR PLACEMENT

DETAIL FOR STANDARD PRECAST PANELS

FOR APPLICATION WITH ALL ISOLATED STANDARD SLABS AND WITH INITIAL PLACEMENT OF CONSECUTIVE STANDARD SLABS

NOTES:
1. PLACE CONCRETE JOINTS TO THE TOP OF PAVER.
2. UPON COMPLETION, THE FINISHED SURFACE OF THE CONCRETE PAVEMENT SLAB SHALL NOT BE BELOW THE EXISTING CONCRETE SURFACE.

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PRECAST PAVEMENT SLABS
STANDARD A(8-01)
DETAIL E - WIDE MOUTH DOWEL BAR PLACEMENT DETAIL FOR CONSECUTIVE STANDARD PRECAST PANELS

NOTES
1. MANAGE DOWEL BARS TO THE TOP OF PLATE.
2. UPON COMPLETION, THE FINISHED SURFACE OF THE CONCRETE MUST BE AT LEAST 1/2" ABOVE THE EXISTING CONCRETE SURFACE.

Sheet 15 of 19
DETAIL F. WIDE MOUTH DOWEL BAR PLACEMENT DETAIL FOR THE LAST TRANSFER JOINT OF CONSECUTIVELY PLACED STANDARD PRECAST PANELS

SECTION F-F

NOTES
1. PLACE FORM BOARDS TO THE TOP OF PARAPET
2. UPON COMPLETION, THE FINISHED SURFACE OF THE CONCRETE DOWEL BAR MATERIAL SHALL NOT BE BELOW THE EXISTING CONCRETE SURFACE
DETAIL M - LONGITUDINAL TIE BAR STITCHING FOR PRECAST PANELS

NOTES FOR TIE BAR STITCHING:

1. Drill holes that are initiated at 48" x 48" square to the pavement surface so that they penetrate the structural slab. At least 8 holes are required, it is important to start drilling the hole at a consistent distance from the edge, in order to consistently cross at the middepth of the slab.

2. Holes containing the perpendicular to the joint plan view at each location being drilled.

3. Select a drill that minimizes damage to the concrete surface. A 3/8" diameter drill, 1/2" deep, with a drill diameter 1/2" less than the tie-bar diameter is sufficient. A larger diameter drill is preferable in order to achieve a desired capacity of the tie bar.

4. Drill holes with no less than a 3/4" bar spacing, adjacent holes are drilled in opposite directions around the area. The holes and their location shall be as specified for holes initiated from any existing transverse joint or any precast or repair transverse joint.

5. Drill bottoming all non-specs into the slab bottom.

6. Air blow the holes to remove dust and debris after drilling.

7. Insert tie bar into the hole, leaving some volume for the bar to occupy the hole, ensuring the adhesive is acceptable for small quantities.

8. Insert the tie bar up to the pavement surface, leaving about 3 in from the top of bar to the pavement surface. The bar shall be epoxy coated.

9. Remove excess adhesive and finish flush with the pavement surface.

ILLINOIS TOLLWAY
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