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<th>STANDARD NUMBERS</th>
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<tr>
<td>MD 550.01</td>
<td>SQUARE FOOT AREAS OF PAVEMENT MARKING LETTERS, SYMBOLS, ARROWS, AND NUMBERS</td>
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<tr>
<td>MD 558.01</td>
<td>RECESSED PAVEMENT MARKERS</td>
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<tr>
<td>MD 572.21</td>
<td>REINFORCED CONCRETE PAVEMENT REQUIREMENT FOR LOAD TRANSFER DEVICES</td>
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<tr>
<td>MD 572.23</td>
<td>STANDARD DOWEL BAR ASSEMBLY CONTRACTION JOINTS</td>
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<tr>
<td>MD 572.61</td>
<td>CONCRETE PAVEMENT LONGITUDINAL TIE DEVICES</td>
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<td>CONCRETE PAVEMENT LOCATION OF JOINTS</td>
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<td>CONCRETE PAVEMENT TYPES OF JOINTS</td>
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<td>TERMINAL JOINT FOR CONTINUOUSLY REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT</td>
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<tr>
<td>MD 577.01</td>
<td>CONVENTIONALLY REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT REPAIRS SAW CUTS FOR LIFT OUT METHOD</td>
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<td>METHOD 'A' PLAIN PORTLAND CEMENT CONCRETE PAVEMENT TYPE 1 REPAIRS</td>
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<td>METHOD 'B' PLAIN OR CONVENTIONALLY REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT TYPE 1 AND TYPE 2 REPAIRS</td>
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<td>METHOD 'C' PLAIN OR CONVENTIONALLY REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT TYPE 1 AND TYPE 2 REPAIRS</td>
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<td>MD 577.06</td>
<td>METHOD 'E' PLAIN OR CONVENTIONALLY REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT TYPE 1 AND TYPE 2 REPAIRS</td>
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<td>02/25/16</td>
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### Square Foot Areas of Symbols and Arrows

<table>
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<tr>
<th>Symbol</th>
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<tr>
<td>↑</td>
<td>Through Lane-use</td>
<td>12.5</td>
</tr>
<tr>
<td>↑</td>
<td>Turn Lane-use (Left or Right)</td>
<td>15.5</td>
</tr>
<tr>
<td>↑</td>
<td>Turn and Through Lane-use (Left or Right)</td>
<td>25.5</td>
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<tr>
<td>↑</td>
<td>Left and Right Turn Lane-use</td>
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<tr>
<td>↑</td>
<td>All Directions Lane-use</td>
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<tr>
<td>↑</td>
<td>Lane Reduction (Left or Right)</td>
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<tr>
<td>↑</td>
<td>Freeway, Expressway and Ramp Arrow</td>
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<tr>
<td>↑</td>
<td>Wrong Way Arrow</td>
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<tr>
<td>↑</td>
<td>HOV Lane</td>
<td>13.5</td>
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<tr>
<td>🔴</td>
<td>Accessibility Symbol (Blue Background)</td>
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<tr>
<td>🚪</td>
<td>40”x40” (Standard)</td>
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<tr>
<td>🚪</td>
<td>48”x48” (Special)</td>
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<tr>
<td>🚪</td>
<td>Railroad Crossing</td>
<td>64.7 (Total)</td>
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<tr>
<td>❡</td>
<td>&quot;H&quot; (6’ High)</td>
<td>3.6 (Each)</td>
</tr>
<tr>
<td>❡</td>
<td>&quot;X&quot; (20’ High)</td>
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<tr>
<td>🔴</td>
<td>Yield Ahead Triangle</td>
<td>43.0</td>
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<tr>
<td>🔴</td>
<td>Posted Speed Limit 45 MPH or Greater</td>
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<td>Posted Speed Limit Less Than 45 MPH</td>
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<td>Sharks Teeth</td>
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<td>Posted Speed Limit Less Than 45 MPH</td>
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<td>🔴</td>
<td>24”x36”</td>
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<tr>
<td>🔴</td>
<td>BIKE LANE DEJECTOR 12”X43”</td>
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<tr>
<td>🔴</td>
<td>BIKE LANE (Sharrow) 40”x112”</td>
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<tr>
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<td>BIKE LANE ARROW 24”X72”</td>
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<td>BIKE LANE (Sharrow) 40”x112”</td>
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<tr>
<td>🔴</td>
<td>BIKE LANE (Alternate not for use on state roadways) 40”x12”</td>
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### Square Foot Areas of Legends

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<tr>
<td>AHEAD</td>
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<tr>
<td>LEFT</td>
<td>8’ High (Standard)</td>
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<tr>
<td>ONLY</td>
<td>8’ High</td>
<td>18.2</td>
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<tr>
<td>PED</td>
<td>8’ High</td>
<td>17.3</td>
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<tr>
<td>RIGHT</td>
<td>8’ High</td>
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<tr>
<td>SCHOOL</td>
<td>8’ High (Standard)</td>
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<tr>
<td>SLOW</td>
<td>10’ High (Across Two Lanes)</td>
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<tr>
<td>STOP</td>
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<td>TURN</td>
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<td>5.8</td>
<td>5.8</td>
<td>5.1</td>
<td>6.1</td>
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<th>Size 5</th>
<th>Size 6</th>
<th>Size 7</th>
<th>Size 8</th>
<th>Size 9</th>
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<td>3.3</td>
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<td>2.1</td>
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<tr>
<td>LARGE</td>
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<td>7.1</td>
<td>4.8</td>
<td>6.1</td>
<td>5.9</td>
<td>4.7</td>
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### Square Foot Areas of Pavement Marking Letters, Symbols, Arrows, and Numbers

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

SQUARE FOOT AREAS OF PAVEMENT MARKING LETTERS, SYMBOLS, ARROWS AND NUMBERS

STANDARD NO. MD 550.01
INSTALLATION

1. THE GROOVE SHALL BE CUT AS SHOWN.

2. THE CUT PATTERN SHALL BE CLEANED, AND DRIED BY COMPRESSED AIR BEFORE PLACING THE ADHESIVE. THE ADHESIVE SHALL BE PLACED PER THE MANUFACTURERS RECOMMENDATIONS.

3. EPOXY ADHESIVE SHALL BE INSTALLED DURING WEATHER CONDITIONS CONSISTENT WITH MANUFACTURERS RECOMMENDATIONS.

4. REFLECTIVE MARKER SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND SHALL BE SELECTED FROM THE QUALIFIED PRODUCTS LIST (QPL).

5. THE MARKER SHALL BE PROTECTED FROM TRAFFIC UNTIL THE ADHESIVE HAS PROPERLY HARDENED.
NOTES
1. DOWELs SHALL BE ASSEMBLED IN A RIGID FRAMEWORK OF A LENGTH EQUAL TO A LANE WIDTH. THE EXPANSION JOINt FRAMEWORK SHALL PROVIDE ADEQUATE SUPPORT TO MAINTAIN THE PREMOLDED JOINT FILLER IN THE PROPER HORIZONTAL AND VERTICAL ALIGNMENT.
2. APPROVED FASTENERS SHALL BE USED TO SECURE THE FRAMEWORK AGAINST ANY MOVEMENT ALONG THE SUBGRADE.
3. THE DOWELs AND SUPPORTING FRAMEWORK SHALL BE STABLE AGAINST OVERTURNING, INDEPENDENT OF ANY APPROVED FASTENERS.
4. THE FREE MOVING OR UNANCHORED END OF ALL DOWEL BARS IN BOTH CONTRACTION AND EXPANSION JOINTS SHALL BE COATED WITH APPROVED LUBRICANT APPLIED WITH A GLOVED HAND. THIS SAME END OF ALL EXPANSION JOINT DOWEL BARS SHALL BE CAPPED WITH A SNUG FITTING CLOSED END METAL EXPANSION SLEEVE TEMPORARILy SECURED TO THE BAR SO AS TO PROVIDE A 1" LONG OPEN SOCKET BEYOND THE BAR END AND TO LAP BACK 2" ON THE BAR AT THE TIME OF INSTALLATION.
5. THE DOWEL (D) SIZES SHOWN BELOW WILL BE USED FOR THE PAVEMENT THICKNESS INDICATED UNLESS OTHERWISE STATED IN THE SPECIAL PROVISIONS.
6. SEE 908.02 FOR DOWEL BAR MATERIAL SPECIFICATIONS.
7. DOWEL BAR TO BE 18", BAR SHALL BE CENTERED.

NEW CONCRETE OR PATCHING EXISTING CONCRETE

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<td>6 1/2&quot;</td>
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<td>12&quot;</td>
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<td>10&quot;</td>
<td>5&quot;</td>
<td>1 1/4&quot;</td>
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Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

JOINTED CONCRETE PAVEMENT REQUIREMENT FOR LOAD TRANSFER DEVICES

STANDARD NO. MD 572.21
NOTES:
1. WELD ALTERNATE BARS AT OPPOSITE ENDS.
2. ENTIRE BAR TO BE LUBRICATED.
3. STAKING PINS, A MINIMUM SIX PER ASSEMBLY, THREE TO EACH SIDE.
4. THE DEVICE FOR SUPPORTING DOWELS SHALL BE SO CONSTRUCTED THAT IT WILL HOLD THE DOWELS FIRMLY IN POSITION, PARALLEL TO THE SURFACE AND CENTERLINE OF THE SLAB.
5. NO MEMBERS SHALL BE PLACED SO THAT THEY WILL INTERFERENCE WITH THE FREE FLOW OF CONCRETE BETWEEN THE DOWELS.
6. ASSEMBLY AND WELDING OF ALL MEMBERS SHALL BE SUCH AS TO ENSURE A GOOD WORKMANLIKE JOB, WITH ALL JOINTS TRUE AND SQUARE.
7. ASSEMBLIES WHICH HAVE BECOME WARPED OR DAMAGED IN TRANSIT OR STORAGE SO THEY WILL NOT CONFORM TO THE SUBGRADE SHALL NOT BE USED.
8. A SAMPLE OF THE SUPPORTING DEVICE SHALL BE SUBMITTED FOR APPROVAL PRIOR TO THE FILLING OF JOB ORDERS.
9. THE DIAMETER (D) OF ALL BARS SHALL BE AS SHOWN ON STD. NO MD 572.21. SAND SHOES ADDED WHEN SPECIFIED ARE TO BE USED UNDER THE FRAME TO HOLD DOWEL UNITS IN TRUE ALIGNMENT. SAND SHOES ADDED IN THE FIELD. THE UNITS ARE TO BE STAKED IN PLACE BY DRIVING #0 GA. PINS IN NUMBERS AND TO A DEPTH AS SUBGRADE CONDITIONS MAKE NECESSARY ALONG BOTH SIDES OF THE FRAME. A MINIMUM OF SIX (6) STAKES SHALL BE USED FOR EACH ASSEMBLY. THE UNITS ARE TO BE SHOP FABRICATED AS TO FRAME. ETC. ALTERNATIVE LOAD TRANSFER ASSEMBLIES MAY BE SUBMITTED TO OMT'S PAVEMENT & GEOTECHNICAL DIVISION FOR CONSIDERATION OF APPROVAL.

SPECIFICATION | CATEGORY CODE |
------------- |---------------|
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES |
STANDARD DOWEL BAR ASSEMBLY CONTRACTION JOINTS |
STANDARD NO. | MD 572.23 |

APPROVAL | SHA REVISIONS | APPROVAL | FEDERAL HIGHWAY ADMINISTRATION |
------------ | --------------- | ---------- | -------------------------------|
APPROVAL | 7-7-67 | APPROVAL | 7-7-67 |
REVISED | 10-1-01 | REVISED | 7-2-85 |
REVISED | 3-25-10 | REVISED | |
REVISED | 12-13-18 | REVISED | 11-29-18 |
BLANK FOR DOWEL TUBE

MATERIAL: 23 GA. 1.025 THICK STEEL

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<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
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TUBE FOLDED FOR USE
LONGITUDINAL TIE DEVICE "J" BAR MODIFIED

T = PAVEMENT THICKNESS

FOR APPLICABLE NOTES REFER TO STANDARD 572.61-01
LONGITUDINAL TIE DEVICE – ONE – PIECE BAR

SOLID BAR & SLEEVE MAY BE REPLACED BY TUBE WITH INTERNAL THREAD

SEE NOTE 4

SEE NOTE 5

LONGITUDINAL TIE DEVICE – TWO – COMPONENT BAR

T = PAVEMENT THICKNESS

NOTES

1. SEE 908.09 FOR TIE-BAR MATERIAL SPECIFICATIONS.

2. ANY SIMILAR DEVICE MAY BE SUBMITTED FOR CONSIDERATION BY THE ENGINEER AND DOT’S PAVEMENT & GEOTECHNICAL DIVISION. IF THE GENERAL TYPE OF A SUBSTITUTION IS APPROVED, THE DEVICE MUST STILL MEET THE STRENGTH REQUIREMENTS APPEARING IN THE SPECIFICATIONS OR SPECIAL PROVISIONS.

3. THE PORTION OF THE DEVICE INITIALLY INSTALLED MUST BE HELD FIRMLY IN PLACE BY TAP BOLTS INSERTED THROUGH DRILLED HOLES. IF HOLES IN THE FORMS HAVE BEEN FORMED BY ANY OTHER METHOD THAN DRILLING THEN STEEL WASHERS MUST BE USED IN ADDITION TO THE TAP BOLTS AS DIRECTED BY THE ENGINEER.

4. TAP BOLTS REQUIRED FOR INITIAL INSTALLATION IF FORMS ARE USED FOR PLACEMENT OF CONCRETE. OTHERWISE THE FEMALE END OF A TWO-COMPONENT TIE-BAR SHALL BE PLACED ON CHAIRS OR PLACED INTO CONCRETE WHEN SUFFICIENT STRENGTH HAS BEEN REACHED TO SUPPORT THE BAR IN THE SPECIFIED POSITION IN THE SLAB. ANOTHER METHOD IS TO DRILL HOLES INTO THE LONGITUDINAL JOINT FACE AND INSERT THE TIE-BAR INTO THE HOLE AND SECURE WITH BONDING MATERIAL SPECIFIED IN 902.11.

5. #4 EPOXY COATED DEFORMED, GRADE 40 TIE-BAR PLACE 3'-0" C/C. SEE NOTES 6 AND 7.

6. ONE-PIECE TIE-BARS SHALL BE STRAIGHT OR NINETY-DEGREE BENT TIE-BARS. BENT TIE-BARS ARE INSERTED INTO LONGITUDINAL JOINT FACE DURING PAVING AND STRAIGHTENED BY COLD BENDING PRIOR TO PLACING ADJACENT SLAB. ONE-PIECE TIE-BAR PLACEMENT IN LONGITUDINAL JOINT IS THE SAME AS THE FEMALE END PLACEMENT OF THE TWO-COMPONENT BAR (SEE NOTE 4).

7. THE FIRST LONGITUDINAL TIE-BAR SHOULD BE OFFSET BY A MINIMUM OF 18" FROM THE NEAREST TRANSVERSE JOINT.

8. REPAIR DAMAGED EPOXY AREAS AS SPECIFIED IN 465.03.
TRANSVERSE JOINT SPACING FOR UNREINFORCED CONCRETE PAVEMENT

NOTES
1. NEW JOINT SPACING SHALL MATCH ANY EXISTING JOINT SPACING REMAINING IN PLACE, NOT TO EXCEED A 15' MAXIMUM SPACING.

2. TIE-BARS SHALL BE OMITTED WITHIN 36" OF EITHER SIDE OF THE NEW JOINT WHEN TYING INTO EXISTING CONCRETE.
EXPANSION JOINTS SHALL ONLY BE PLACED AT FIXED ROADWAY STRUCTURES, OR AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

EXPANSION JOINT

SAWED DUMMY JOINT
REFER TO STD. MD 577.07

\( \frac{1}{4}'' \) PREMOLDED JOINT FILLER. SEE SPECIAL PROVISIONS.

APPROVED LOAD TRANSFER DEVICE SEE STANDARD MD 572.21 & SPECIAL PROVISIONS & PLANS.

SAWED DUMMY CONTRACTION JOINT

LOCATION OF JOINT AS NOTED ON PLANS

SAWED DUMMY JOINT
REFER TO STD. MD 577.07

WIDTH OF POUR = W (26'' MAX.)

DEFORMED STEEL TIE BARS (SEE STANDARD 572.61)

SAWED LONGITUDINAL DUMMY CONSTRUCTION JOINT

LOCATION OF JOINT AS NOTED ON PLANS

INITIAL POUR

LOCATION OF JOINT AS NOTED ON PLANS

WIDTH OF POUR

COST OF JOINTS SHALL BE INCIDENTAL TO THE PRICE BID FOR CONCRETE PAVEMENT.

REFER TO STD. MD 577.07 FOR JOINTS.

LONGITUDINAL CONSTRUCTION JOINT

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
CONCRETE PAVEMENT TYPES OF JOINTS

STANDARD NO. MD 572.92
NOTES

1. CONCRETE FOR LUG ANCHORS SHALL BE POURED AGAINST COMPACTED SUBGRADE. CONCRETE FOR LUGS AND ANCHOR SLAB MAY BE POURED MONOLITHICALLY OR POURED USING RAISED KEY CONSTRUCTION JOINT METHOD.

2. ADEQUATE CONSOLIDATION OF CONCRETE IN LUGS SHALL BE OBTAINED WITHOUT DISPLACING LONGITUDINAL CONTINUOUS STEEL BY THE USE OF INTERNAL VIBRATION.

3. WHEN LESS THAN FULL WIDTH LUG AND PAVEMENT SLAB IS PLACED, THE #5 TRANSVERSE STEEL IN THE LUGS SHALL BE EXTENDED, LAPPED AND SPLICED AT LEAST 25 DIAMETERS.

4. WHEN THE SHOULDERS ARE JOINTED CONVENTIONAL OR CONTINUOUSLY REINFORCED CONCRETE PAVEMENT THE TERMINAL JOINT AND THE SLEEPER SLAB SHALL EXTEND THROUGH THE SHOULDER WIDTH.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
TERMINAL JOINT FOR CONTINUOUSLY REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT

STANDARD NO. MD 573.01
PLAN

NOTES

1. SHOULDER JOINT CUTS MAY BE CUT DIRECTLY ON THE EXISTING JOINT.
2. REFER TO STANDARD MD 572.61-01 FOR TIE DEVICES.
3. SAW CUTS MAY BE MADE INTO THE SHOULDER.
4. DASHED LINES INDICATE CUTS TO BE MADE.
5. SEE STANDARDS MD 577.02, MD 577.03, MD 577.04, MD 577.05 AND MD 577.06 FOR DETAILS OF TYPE 1 AND TYPE 2 REPAIR METHODS.
6. ALL SAW CUTS ARE INCIDENTAL TO THE SPECIFIC CONCRETE PAVEMENT REPAIRS ITEM IN THE INVITATION FOR BIDS.

SECTION A-A

LONGITUDINAL JOINT DETAILS
METHOD 'A' REPAIRS PERFORMED AT AN EXISTING TRANSVERSE JOINT EVEN THOUGH ONLY ONE SIDE NEEDS REPAIR.

SECTION A-A

REPAIR GUIDELINES

1. TYPE 1 REPAIRS ARE 6 FT TO LESS THAN 15 FT IN LENGTH AND REQUIRE NO REINFORCEMENT.
2. REPAIR SLABS AND REMAINTS OF EXISTING SLABS SHALL NOT BE LESS THAN 6 FT IN LENGTH.
3. EXISTING DOWELS AND ASSEMBLIES SHALL BE COMPLETELY REMOVED WHEN A REPAIR IS PERFORMED AT A TRANSVERSE JOINT.

NOTES

1. REPAIRS SHALL BE MADE IN ACCORDANCE WITH SECTION 522 OF THE SPECIFICATIONS.
2. REPAIRS SHALL BE MADE USING CONCRETE MEETING THE REQUIREMENTS OF 522.02 OF THE SPECIFICATIONS.
3. WHEN THE SUBBASE MATERIAL IS DETERMINED TO BE UNSUITABLE BY THE ENGINEER, COMPACT THE MATERIAL WITH A VIBRATORY COMPACTOR OR REMOVE THE UNSUITABLE MATERIAL AND REFILL WITH COMPACTED GRADED AGGREGATE BASE IN LIFTS NO GREATER THAN 4 INCHES IN DEPTH, AS DIRECTED BY THE ENGINEER.
4. HOLES FOR THE DOWELS AND LOAD TRANSFER TIE DEVICES SHALL BE DRILLED SIMULTANEOUSLY TO THE REQUIRED DEPTH USING FRAME MOUNTED DRILLS WHICH WILL MAINTAIN THE DRILLS IN A LONGITUDINALLY PARALLEL POSITION.
5. JOINTS SHALL BE MADE IN ACCORDANCE WITH SECTION 520 OF THE SPECIFICATIONS AND STANDARD MD 577.01.
6. ALL LOAD TRANSFER DOWELS SHALL BE EPOXY COATED.
7. SEE STANDARD MD 577.01 FOR PAVEMENT REPAIR SAW CUTS FOR LIFT OUT METHOD.
8. LOAD TRANSFER DEVICES: PLAIN DOWELS 18" LONG AND 1/2" C/C LOCATED IN EACH WHEEL PATH. WHEEL PATH IS DEFINED AS A DISTANCE OF 16" TO 56" (WIDTH OF 40") FROM THE LEFT OR RIGHT OF THE CENTERLINE OF THE ROADWAY TRAVEL LANE. REFER TO STANDARD MD 572.21.

SPECIFICATION 522

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
METHOD 'A' JOINTED PORTLAND CEMENT CONCRETE PAVEMENT TYPE 1 REPAIRS

STANDARD NO. MD 577.02
METHOD ‘B’ REPAIRS PERFORMED AT AN EXISTING TRANSVERSE JOINT WHEN THE REPAIR EXCEEDS 3 FT. ON ONLY ONE SIDE OF THE JOINT. (NOTE THAT THE 3 FT. OFFSET IS TO ALLOW FOR THE REMOVAL AND REPLACEMENT OF DOWELS.)

EXISTING TRANSVERSE JOINTS

LONGITUDINAL TIE DEVICES REFER TO STANDARD MD 572.61-01

EXISTING LONGITUDINAL JOINT

DIRECTION OF TRAFFIC

NO TIE DEVICES

FULL DEPTH SAW CUTS

EXISTING SHOULDER

REPAIR LENGTH

PLAN

EXISTING PAVEMENT

EXISTING BASE

PLAIN SMOOTH LOAD TRANSFER DEVICES

FOR JOINT DETAILS SEE STANDARD MD 577.07

1/2

T = PAVEMENT THICKNESS

SECTION A-A

REPAIR GUIDELINES

1. TYPE 1 REPAIRS ARE 6 FT TO LESS THAN 15 FT IN LENGTH AND DO NOT REQUIRE REINFORCEMENT. MAXIMUM TRANSVERSE JOINT SPACING SHALL BE 15 FEET AND THERE SHALL BE NO MID-SLAB REINFORCEMENT.

2. REPAIR SLABS AND REMAINS OF EXISTING SLABS SHALL NOT BE LESS THAN 6 FT IN LENGTH.

3. EXISTING DOWELS AND ASSEMBLIES SHALL BE COMPLETELY REMOVED WHEN A REPAIR IS PERFORMED AT A TRANSVERSE JOINT.

NOTES

1. REPAIRS SHALL BE MADE IN ACCORDANCE WITH SECTION 522 OF THE SPECIFICATIONS.

2. REPAIRS SHALL BE MADE USING CONCRETE MEETING THE REQUIREMENTS OF 522.02 OF THE SPECIFICATIONS.

3. WHEN THE SUBBASE MATERIAL IS DETERMINED TO THE UNSUITABLE BY THE ENGINEER, COMPACT THE MATERIAL WITH A VIBRATORY COMPACTOR OR REMOVE THE UNSUITABLE MATERIAL AND REFILL WITH COMPACTED GRADED AGGREGATE BASE NO GREATER THAN 4 INCHES IN DEPTH, AS DIRECTED BY THE ENGINEER.

4. HOLES FOR THE DOWELS AND LOAD TRANSFER TIE DEVICES SHALL BE DRILLED SIMULTANEOUSLY TO THE REQUIRED DEPTH USING FRAME MOUNTED DRILLS WHICH WILL MAINTAIN THE DRILLS IN A LONGITUDINALLY PARALLEL POSITION.

5. JOINTS SHALL BE MADE IN ACCORDANCE WITH SECTION 520 OF THE SPECIFICATIONS AND STANDARD MD 577.07.

6. ALL LOAD TRANSFER DOWELS SHALL BE EPOXY COATED.

7. SEE STANDARD MD 577.01 FOR PAVEMENT REPAIR SAW CUTS FOR LIFT OUT METHOD.

8. LOAD TRANSFER DEVICES; PLAIN DOWELS 18" LONG AND 12 C/C LOCATED IN EACH WHEEL PATH. WHEEL PATH IS DEFINED AS A DISTANCE OF 16" TO 56" (WIDTH OF 40") FROM THE LEFT OR RIGHT OF THE CENTERLINE OF THE ROADWAY TRAVEL LANE. REFER TO STANDARD MD 572.21.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
METHOD ‘B’ JOINTED PORTLAND CEMENT CONCRETE PAVEMENT TYPE 1 AND TYPE 2 REPAIRS

STANDARD NO. MD 577.03
METHOD ‘C’ REPAIRS EXCEEDING 3 FT. ON BOTH SIDES OF AN EXISTING TRANSVERSE JOINT.

REPAIR GUIDELINES

1. TYPE 1 REPAIRS ARE 6 FT. TO LESS THAN 15 FT. IN LENGTH AND REQUIRE NO REINFORCEMENT.
   TYPE 2 REPAIRS ARE 15 FT. AND GREATER IN LENGTH AND REQUIRE NO REINFORCEMENT.
   MAXIMUM TRANSVERSE JOINT SPACING SHALL BE 15 FT. AND THERE SHALL BE NO MID-SLAB REINFORCEMENT.
2. REPAIR SLABS AND REMAINS OF EXISTING SLABS SHALL NOT BE LESS THAN 6 FT. IN LENGTH.
3. ALL REPAIRS OFFSET MORE THAN 3 FT. ON EITHER SIDE OF AN EXISTING TRANSVERSE JOINT SHALL BE EXTENDED TO A MINIMUM OF 6 FT. AND DOWEL ASSEMBLIES SHALL BE PLACED ADJACENT TO THE EXISTING TRANSVERSE JOINT.
4. EXISTING DOWELS AND ASSEMBLIES SHALL BE COMPLETELY REMOVED WHEN A REPAIR IS PERFORMED AT A TRANSVERSE JOINT.

NOTES

1. REPAIRS SHALL BE MADE IN ACCORDANCE WITH SECTION 522 OF THE SPECIFICATIONS.
2. REPAIRS SHALL BE MADE USING CONCRETE MEETING THE REQUIREMENTS OF 522.02 OF THE SPECIFICATIONS.
3. WHEN THE SUBBASE MATERIAL IS DETERMINED TO BE UNSUITABLE BY THE ENGINEER, COMPACT THE MATERIAL WITH A VIBRATORY COMPACTOR OR REMOVE THE UNSUITABLE MATERIAL AND REFILL WITH COMPACTED GRADED AGGREGATE BASE IN LIFTS NO GREATER THAN 4 INCHES IN DEPTH, AS DIRECTED BY THE ENGINEER.
4. HOLES FOR THE DOWELS AND LOAD TRANSFER TIE DEVICES SHALL BE DRILLED SIMULTANEOUSLY TO THE REQUIRED DEPTH USING FRAME MOUNTED DRILLS WHICH WILL MAINTAIN THE DRILLS IN A LONGITUDINALLY PARALLEL POSITION.
5. JOINTS SHALL BE MADE IN ACCORDANCE WITH SECTION 520 OF THE SPECIFICATIONS AND STANDARD MD 577.07.
6. ALL LOAD TRANSFER DOWELS SHALL BE EPOXY COATED.
7. SEE STANDARD MD 577.01 FOR PAVEMENT REPAIR SAW CUTS FOR LIFT OUT METHOD.
8. LOAD TRANSFER DEVICES: PLAIN DOWELS 18" LONG AND 12" C/C LOCATED IN EACH WHEEL PATH. WHEEL PATH IS DEFINED AS A DISTANCE OF 16" TO 56" (WIDTH OF 40") FROM THE LEFT OR RIGHT OF THE CENTERLINE OF THE ROADWAY TRAVEL LANE. REFER TO STANDARD MD 572.21.
**REPAIR GUIDELINES**

1. **TYPE 1 REPAIRS** ARE 6 FT. TO LESS THAN 15 FT. IN LENGTH AND REQUIRE NO REINFORCEMENT.
   **TYPE 2 REPAIRS** ARE 15 FT. AND GREATER IN LENGTH AND REQUIRE NO REINFORCEMENT.
   MAXIMUM TRANSVERSE JOINT SPACING SHALL BE 15 FT. AND THERE SHALL BE NO MID-SLAB REINFORCEMENT.

2. REPAIR SLABS AND REMAINS OF EXISTING SLABS SHALL NOT BE LESS THAN 6 FT. IN LENGTH.

3. EXISTING DOWELS AND ASSEMBLIES SHALL BE COMPLETELY REMOVED WHEN A REPAIR IS PERFORMED AT A TRANSVERSE JOINT.

4. ALL REPAIRS OFFSET MORE THAN 3 FT. ON EITHER SIDE OF AN EXISTING TRANSVERSE JOINT SHALL BE EXTENDED TO A
   MINIMUM OF 6 FT AND DOWEL ASSEMBLIES SHALL BE PLACED ADJACENT TO THE EXISTING TRANSVERSE JOINTS AS SHOWN IN
   REPAIR METHOD "C" ON STANDARD MD 577.04.

**NOTES**

1. REPAIRS SHALL BE MADE IN ACCORDANCE WITH SECTION 522 OF THE SPECIFICATIONS.
2. REPAIRS SHALL BE MADE USING CONCRETE MEETING THE REQUIREMENTS OF 522.02 OF THE SPECIFICATIONS.
3. WHEN THE SUBBASE MATERIAL IS DETERMINED TO BE UNSUITABLE BY THE ENGINEER, COMPACT THE MATERIAL WITH A
   VIBRATORY COMPACTOR OR REMOVE THE UNSUITABLE MATERIAL AND REFILL WITH COMPACTED GRADED AGGREGATE BASE
   IN LIFTS NO GREATER THAN 4 INCHES IN DEPTH, AS DIRECTED BY THE ENGINEER.
4. HOLES FOR THE DOWELS AND LOAD TRANSFER TIE DEVICES SHALL BE DRILLED SIMULTANEOUSLY TO THE REQUIRED DEPTH
   USING FRAME MOUNTED DRILLS WHICH WILL MAINTAIN THE DRILLS IN A LONGITUDINALLY PARALLEL POSITION.
5. JOINTS SHALL BE MADE IN ACCORDANCE WITH SECTION 520 OF THE SPECIFICATIONS AND STANDARD MD 577.07.
6. ALL LOAD TRANSFER DOWELS SHALL BE EPOXY COATED.
7. SEE STANDARD MD 577.01 FOR PAVEMENT REPAIR SAW CUTS FOR LIFT OUT METHOD.
8. LOAD TRANSFER DEVICES: PLAIN DOWELS 18" LONG AND 1/2" C/C LOCATED IN EACH WHEEL PATH. WHEEL PATH IS DEFINED
   AS A DISTANCE OF 16" TO 56" (WIDTH OF 40") FROM THE LEFT OR RIGHT OF THE CENTERLINE OF THE ROADWAY TRAVEL
   LANE. REFER TO STANDARD MD 512.21.

**SPECIFICATION**

**CATEGORY CODE ITEMS**

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**STATE HIGHWAY ADMINISTRATION**

STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

METHOD 'D' PLAIN OR CONVENTIONALLY
REINFORCED PORTLAND CEMENT CONCRETE
PAVEMENT TYPE 1 AND TYPE 2 REPAIRS

**STANDARD NO.**

MD 577.05
METHOD 'E' REPAIRS PERFORMED AT MID-SLAB OR A MINIMUM OF 6 FT. FROM AN EXISTING TRANSVERSE JOINT.

REPAIR GUIDELINES
1. TYPE 1 REPAIRS ARE 6 FT. TO LESS THAN 15 FT. IN LENGTH AND REQUIRE NO REINFORCEMENT.
2. TYPE 2 REPAIRS ARE 15 FT. AND GREATER IN LENGTH AND REQUIRE NO REINFORCEMENT.
   MAXIMUM TRANSVERSE JOINT SPACING SHALL BE 15 FT. AND THERE SHALL BE NO MID-SLAB REINFORCEMENT.
3. REPAIR SLABS AND REMAINS OF EXISTING SLABS SHALL NOT BE LESS THAN 6 FT. IN LENGTH.
4. EXISTING DOWELS AND ASSEMBLIES SHALL BE COMPLETELY REMOVED WHEN A REPAIR IS PERFORMED AT A TRANSVERSE JOINT.

NOTES
1. REPAIRS SHALL BE MADE IN ACCORDANCE WITH SECTION 522 OF THE SPECIFICATIONS.
2. REPAIRS SHALL BE MADE USING CONCRETE MEETING THE REQUIREMENTS OF 522.02 OF THE SPECIFICATIONS.
3. WHEN THE SUBBASE MATERIAL IS DETERMINED TO BE UNSUITABLE BY THE ENGINEER, COMACT THE MATERIAL WITH A VIBRATORY COMPACTOR OR REMOVE THE UNSUITABLE MATERIAL AND REFILL WITH COMPACTED GRADED AGGREGATE BASE IN LIFTS NO GREATER THAN 4 INCHES IN DEPTH AS DIRECTED BY THE ENGINEER.
4. HOLES FOR THE DOWELS AND LOAD TRANSFER DEVICE SHALL BE DRILLED SIMULTANEOUSLY TO THE REQUIRED DEPTH USING FRAME MOUNTED DRILLS WHICH WILL MAINTAIN THE DRILLS IN A LONGITUDINALLY PARALLEL POSITION.
5. JOINTS SHALL BE MADE IN ACCORDANCE WITH SECTION 520 OF THE SPECIFICATIONS AND STANDARD WD 577.07.
6. ALL LOAD TRANSFER DOWELS SHALL BE EPOXY COATED.
7. SEE STANDARD WD 577.01 FOR PAVEMENT REPAIR SAW CUTS FOR LIFT OUT METHOD.
8. LOAD TRANSFER DEVICES: PLAIN DOWELS 18" LONG AND 12" C/C LOCATED IN EACH WHEEL PATH. WHEEL PATH IS DEFINED AS A DISTANCE OF 16" TO 56" (WIDTH OF 40") FROM THE LEFT OR RIGHT OF THE CENTERLINE OF THE ROADWAY TRAVEL LANE. REFER TO STANDARD MD 572.21.
NOTES

1. W = NOMINAL 3/4" FOR TRANSVERSE EXPANSION JOINTS UNLESS FIELD CONDITIONS REQUIRE A LARGER OPENING.
   D = W FOR TRANSVERSE EXPANSION JOINTS, UNLESS SILICONE JOINT SEALANT IS USED, THEN D = 1/2 W.
   B = NOMINAL 1/8" FOR TRANSVERSE CONTRACTION JOINTS & LONGITUDINAL JOINTS.
   D = 1/3 FOR TRANSVERSE CONTRACTION JOINTS & LONGITUDINAL JOINTS. SEE NOTE 4.

2. THE CONTRACTOR MAY ELECT TO USE TAPE OR BACKER ROD TO MAINTAIN THE SPECIFIED SHAPE FACTORS FOR THE JOINT SEALANT. THE ENGINEER MAY REQUIRE THE USE OF THE BACKER ROD IF THE TAPE METHOD DOES NOT PROHIBIT BOND OF THE JOINT SEALANT TO THE BOTTOM OF THE RESERVOIR OR IF THE BOTTOM OF THE RESERVOIR IS TOO LOW TO MAINTAIN THE SHAPE FACTOR AND THE 1/4" TO 1/8" CLEARANCE BETWEEN TOP SURFACE OF JOINT SEALANT AND THE ROADWAY SURFACE.

3. SEE SECTION 520 OF THE SPECIFICATIONS.

4. SAWCUT DEPTH SHALL BE 1/3 UNLESS EARLY ENTRY SAWING IS PERMITTED, IF ADEQUATE CRACK CONTROL CAN BE DEMONSTRATED WITH EARLY ENTRY SAWING, A shallower depth is acceptable.

5. COST OF JOINTS SHALL BE INCIDENTAL TO THE PRICE BID FOR CONCRETE PAVEMENT REPAIRS OR CONCRETE PAVEMENTS.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
JOINTS FOR PLAIN PORTLAND CEMENT CONCRETE PAVEMENTS

STANDARD NO. MD 577.07
NOTES
1. COST OF THE DOWEL, DRILLED HOLES, RETENTION DISK, BONDING MATERIAL, ALL EQUIPMENT, TOOLS, AND LABOR SHALL BE INCIDENTAL TO THE RESPECTIVE TYPE 1 OR 2 REPAIR PAY ITEM IN THE INVITATION FOR BIDS.
2. BONDING MATERIAL PER 902.11. SEE NOTE 5.
3. SEE STANDARD MD 572.21 FOR LENGTH.
4. ALL DOWELS AND CHAIRS SHALL BE EPOXY COATED.
5. IF NONSHRINK GROUT WILL BE USED, DIAMETER SHALL BE 0.2" TO 0.25" LARGER THAN LOAD TRANSFER DEVICES. IF A DIFFERENT MATERIAL WILL BE USED, DIAMETER SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND APPROVED BY THE ENGINEER.
REPAIR GUIDELINES

1. SAW CUT THE AREA TO BE PATCHED. IF THE EXISTING TRANSVERSE CRACKS ARE WITHIN 1 FT. OF THE PATCH AREA ON EITHER SIDE, THE PATCH LENGTH SHOULD BE EXTENDED TO COVER THE TRANSVERSE CRACKS ON EITHER SIDE OF THE PATCH. INSTALL REINFORCEMENT BARS AND PLACE THE PCC PATCH MIXTURE AT THE SAME GRADE AS THE EXISTING CONCRETE PAVEMENT. OPEN THE LANE TO TRAFFIC AFTER PCC HAS CURED TO ACHIEVE OPENING STRENGTH OR AS APPROVED BY THE ENGINEER.

2. EXISTING PAVEMENT SHALL BE REMOVED BY SAWING THE EXTERIOR TRANSVERSE PATCHING LIMITS TO A DEPTH OF 2" TO 3". CARE SHALL BE TAKEN TO AVOID SAW CUTTING THE EXISTING STEEL REINFORCEMENT. LONGITUDINAL LIMITS SHALL BE FULL-DEPTH SAW CUT.

NOTES

1. REPAIR SHALL BE MADE IN ACCORDANCE WITH SECTION 522 OF THE SPECIFICATIONS AND APPLICABLE MD STANDARDS.

2. WHEN THE SUBBASE MATERIAL IS DETERMINED TO BE UNSUITABLE BY THE ENGINEER, COMPACT THE MATERIAL WITH A VIBRATORY COMPACTOR OR REMOVE THE UNSUITABLE MATERIAL AND BACKFILL WITH COMPACTED GRANED AGGREGATE BASE IN LIFTS NO GREATER THAN 4" DEPTH, AS DIRECTED BY THE ENGINEER.

3. ALL REINFORCEMENT BARS SHALL BE EPOXY COATED.

4. SEE STANDARD NO. MD 577.01 FOR PAVEMENT REPAIR SAW CUTS FOR LIFT OUT METHOD.

5. THE CONCRETE IN THE END SECTIONS SHALL BE REMOVED FULL-DEPTH BY METHODS THAT WILL NOT BEND OR GOUZE THE REINFORCING STEEL OR DAMAGE THE ADJACENT CONCRETE THAT IS TO REMAIN IN PLACE AS APPROVED BY THE ENGINEER.

6. REINFORCEMENT STEEL OVERLAP SHALL BE 18" MINIMUM FOR NO. 5 STEEL BARS AND 22" MINIMUM FOR NO. 6 STEEL BARS.
REPAIR GUIDELINES

1. SAW CUT THE AREA TO BE PATCHED. IF THE EXISTING TRANSVERSE CRACKS ARE WITHIN 1 FT. OF THE PATCH AREA ON EITHER SIDE, THE PATCH LENGTH SHOULD BE EXTENDED TO COVER THE TRANSVERSE CRACKS ON EITHER SIDE OF THE PATCH. SQUARE-OFF THE SIDES OF THE PATCH WITH VERTICAL FACETS. INSTALL LOAD TRANSFER BARS AND PLACE THE PCC PATCH MIXTURE AT THE SAME GRADE AS THE EXISTING CONCRETE PAVEMENT. OPEN THE LANE TO TRAFFIC AFTERCURED TO ACHIEVE OPENING STRENGTH OR AS APPROVED BY THE ENGINEER.

2. WHILE DRILLING DOWEL HOLES, IF TRANSVERSE STEEL IS ENCOUNTERED WITHIN 7" THE PATCH LENGTH SHOULD BE EXTENDED PAST THE TRANSVERSE STEEL WITH A NEW SAWCUT.

NOTES

1. REPAIR SHALL BE MADE IN ACCORDANCE WITH SECTION 520 OF THE SPECIFICATIONS AND APPLICABLE MD STANDARDS.
2. WHEN THE SUBBASE MATERIAL IS DETERMINED TO BE UNSUITABLE BY THE ENGINEER, COMPACT THE MATERIAL WITH A VIBRATORY COMPACTOR OR REMOVE THE UNSUITABLE MATERIAL AND BACKFILL WITH COMPACTED GRADED AGGREGATE BASE IN LIFTS NO GREATER THAN 4" DEPTH, AS DIRECTED BY THE ENGINEER.
3. FOR LOAD TRANSFER DEVICES, REFER TO MD STANDARDS 572.21, 572.61 AND 572.61-01. ALL LOAD TRANSFER DEVICES SHALL BE EPOXY COATED.
4. SEE STANDARD NO. MD 577.01 FOR PAVEMENT REPAIR SAW CUTS FOR LIFT OUT METHOD.
5. HOLES FOR THE LOAD TRANSFER DEVICES SHALL BE DRILLED TO THE REQUIRED DEPTH USING FRAME-MOUNTED GANG DRILLS WHICH WILL MAINTAIN THE DRILLS IN A LONGITUDINAL PARALLEL POSITION.
6. JOINT SPACING SHALL BE 15 FT. MAXIMUM, MINIMUM SPACING BETWEEN PATCHES SHALL BE 8 FT. MINIMUM PATCH LENGTH SHALL BE 6 FT. JOINTS SHALL BE MADE IN ACCORDANCE WITH SECTION 520 OF THE SPECIFICATIONS AND STANDARD MD 577.01.
7. LOAD TRANSFER DEVICES: PLAIN DOWELS 18" LONG AND 12" C/C LOCATED IN EACH WHEEL PATH. WHEEL PATH IS DEFINED AS A DISTANCE OF 16" TO 56" (WIDTH OF 40") FROM THE LEFT OR RIGHT OF THE CENTERLINE OF THE ROADWAY TRAVEL LANE. REFER TO STANDARD MD 572.21.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
CONTINUOUSLY REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT REPAIRS USING PLAIN CONCRETE PAVEMENT

STANDARD NO. MD 577.10-01
### NOTES

1. THIS STANDARD IS TO BE USED IN ACCORDANCE WITH SECTIONS 505 AND 522. THE ROADWAY SHALL BE PATCHED WITH THE SAME TYPE MATERIAL REMOVED UNLESS NOTED IN THE SPECIFICATIONS. PORTLAND CEMENT CONCRETE PAVEMENT REPAIR SHALL BE IN ACCORDANCE WITH STANDARDS S77.02, S77.03, S77.04, S77.05, S77.06, OR S77.10.

2. THE TOP 1 FT. OF THE TRENCH SHALL BE FILLED WITH NO. 57 AGGREGATE, TRENCH TO BE EXTENDED TO DITCH LINE.

3. WHEREVER A TRENCH Crosses A CONCRETE ROADWAY THAT HAS JOINT INSTALLATIONS THE ENTIRE SLAB BETWEEN THE EDGE OF THE TRENCH AND NEAREST JOINT SHALL BE REMOVED IF THE DISTANCE IS LESS THAN 6 FT.

4. CLEAN AND WET EDGES OF CUT AND SUBBASE BEFORE PLACING CONCRETE. MATERIAL CONFORMING TO SECTION 303, CR-6. NO. 57 AGGREGATE WRAPPED IN SE GEOTEXTILE, CLSM OR GAB.

5. ALL WORK SUCH AS TRENCH BACKFILL, CURING OF CONCRETE, MATERIALS USED, ETC. SHALL BE IN ACCORDANCE WITH SECTIONS 201, 505 AND 522 OF THE SPECIFICATIONS OR AS SPECIFIED IN THE PERMIT.

6. ALL COSTS FOR SAWCUTS, TRENCH EXCAVATION, BACKFILL, APPROVED ASPHALT MIX, CONCRETE, MATERIAL CONFORMING TO SECTION 303, CR-6, NO. 57 AGGREGATE WRAPPED IN SE GEOTEXTILE, CLSM OR GAB, MATERIALS, TOOLS, LABOR AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE OF THE UTILITY ITEMS.

7. CLSM - CONTROLLED LOW STRENGTH MATERIAL.

8. NO. 57 AGGREGATE SHALL BE COMPLETELY WRAPPED IN SE GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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### Maryland Department of Transportation

STATE HIGHWAY ADMINISTRATION

STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

REPAIRING PAVEMENT OPENINGS FOR UTILITY TRENCHES

**STANDARD NO.** MD 578.01
FLEXIBLE PAVEMENT - FULL DEPTH PATCH

FLEXIBLE PAVEMENT - PARTIAL DEPTH PATCH

NOTES
1. TACK COAT TO BE APPLIED TO THE HORIZONTAL AND VERTICAL FACES OF THE PATCH. APPLY EVENLY WITH PRESSURIZED SPRAY WAND.
COMPOSITE PAVEMENT - FULL DEPTH PATCH

1. FULL-DEPTH COMPOSITE PATCHING MAY BE COMPLETED IN THE FOLLOWING ORDER:
   STEP 1 - SAW CUT THE AREAS TO BE PATCHED. IN ADDITION, A TWO-FOOT WIDTH OF EXISTING ASPHALT MIX ON EACH SIDE WILL NEED TO BE REMOVED TO ACCOMMODATE THE STEEL PLATE.
   STEP II - REMOVE THE EXISTING ASPHALT MIX AND PCC PAVEMENT. INSTALL TIE BARS AND DOWEL BARS AND PLACE PCC PATCH MIXTURE TO MATCH THE EXISTING PCC ELEVATION AFTER WHICH A STEEL PLATE MAY BE Placed.
   STEP III - AFTER PCC HAS CURLED TO OPENING STRENGTH, REMOVE STEEL PLATE. REMOVE THE ASPHALT USED TO SUPPORT THE STEEL PLATE AND PATCH WITH APPROVED ASPHALT MIX TO THE ELEVATION OF THE EXISTING ROADWAY, AS PER THE PARTIAL-DEPTH PATCH DETAIL.

NOTES

1. THIS STANDARD IS TO BE USED IN ACCORDANCE WITH SECTIONS 505 AND 522. THE ROADWAY SHALL BE PATCHED WITH THE SAME TYPE MATERIAL REMOVED UNLESS NOTED IN THE SPECIFICATIONS. PORTLAND CEMENT CONCRETE PAVEMENT REPAIR SHALL BE IN ACCORDANCE WITH STANDARDS 577.02, 577.03, 577.04, 577.05, 577.06, OR 577.10.
2. SAW-OFF FOUR SIDES OF THE PATCH WITH VERTICAL FACE.
3. EXISTING ASPHALT MIX OR OTHER SUPPORT MAY BE LEFT IN PLACE TO KEEP STEEL PLATE FLUSH WITH THE EXISTING ASPHALT MIX SURFACE.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PERMANENT PATCHING FOR COMPOSITE PAVEMENT

STANDARD NO. MD 578.03-01
NOTES

1. D - SLAB THICKNESS.
2. PCC SLOT TO BE FILLED WITH RAPID HARDENING CEMENTITIOUS MATERIAL.
3. REFER TO STANDARD MD 572.21 FOR DOWEL BAR SIZES.
4. DASHED LINES INDICATE CUTS TO BE MADE.
5. 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 FILLER TO PREVENT ANY OF THE BACKFILL MATERIAL FROM ENTERING THESE AREAS. PRIOR TO SEALING, ENSURE THAT SURFACES RECEIVING THE CAULKING FILLER ARE CLEAN AND FREE OF MOISTURE. DO NOT EXTEND THE CAULKING FILLER BEYOND 1/16 IN OF EACH SIDE OF THE EXISTING JOINT OR CRACK. WIDEN THE TRANSVERSE JOINTS OR CRACKS BY DIAMOND SAW CUTTING AFTER COMPLETION OF THE RETROFIT DOWEL INSTALLATION IF DIAMOND GRINDING IS NOT EMPLOYED, OR AFTER THE GRINDING HAS BEEN COMPLETED. SEAL JOINTS AND CRACKS WITH AN APPROPRIATE SEALANT AS SPECIFIED IN THE STANDARD SPECIFICATIONS.
NOTES

1. REPAIRS SHALL BE MADE IN ACCORDANCE WITH SECTION 522 OF THE SPECIFICATIONS.

2. WHEN THE SUBBASE MATERIAL IS DETERMINED TO BE UNSUITABLE BY THE ENGINEER, COMPACT THE MATERIAL WITH A VIBRATORY COMPACTOR OR REMOVE THE UNSUITABLE MATERIAL AND REFILL WITH COMPACTED GRADED AGGREGATE BASE IN LIFTS NO GREATER THAN 4 INCHES IN DEPTH, AS DIRECTED BY THE ENGINEER.

3. FOR EXISTING CONCRETE AND COMPOSITE PAVEMENTS ONLY, HOLES FOR THE DOWELS AND LOAD TRANSFER TIE DEVICES SHALL BE DRILLED SIMULTANEOUSLY TO THE REQUIRED DEPTH USING FRAME MOUNTED DRILLS WHICH WILL MAINTAIN THE DRILLS IN A LATERALLY PARALLEL POSITION.

4. JOINTS SHALL BE MADE IN ACCORDANCE WITH SECTION 520 OF THE SPECIFICATIONS AND STANDARD MD 577.07.

5. ALL LOAD TRANSFER DOWELS SHALL BE EPOXY COATED.

6. SEE STANDARD MD 577.01 FOR PAVEMENT REPAIR SAW CUTS FOR LIFT OUT METHOD.

7. LOAD TRANSFER DEVICES: FOUR TO FIVE PLAIN DOWELS 18" LONG AND 12" C/C LOCATED IN EACH WHEEL PATH. REFER TO STANDARD NO. MD 572.21.

8. MAXIMUM TRANSVERSE JOINT SPACING SHALL BE 15 FEET AND THERE SHALL BE NO MID SLAB REINFORCEMENT.
NOTES

1. THIS WORK IS TO BE DONE AT THE CONTRACTOR'S OPTION. THIS 1' WIDTH (MAXIMUM) EXCAVATION MAY BE USED FOR CURB AND GUTTER FORM PLACEMENT. THE ADDITIONAL EXCAVATION WIDTH IS TO BE FILLED WITH PCC MIX NO. 3 OR MIX 9 CONCRETE TO THE BOTTOM OF THE FINAL ASPHALT MIX COURSE. PAYMENT SHALL BE INCIDENTAL TO THE LINEAR FOOT ITEM FOR CURB AND GUTTER. JOINTS SHALL MATCH THOSE OF THE CURB AND GUTTER. NO BOWL BARS ARE NEEDED.

2. ALL COSTS FOR ITEMS, MATERIALS, TOOLS, AND LABOR FOR EXCAVATION, PCC MIX, 6" MINIMUM GAB, AND FULL DEPTH SAW CUT EXCEPT FOR ASPHALT MIX SURFACE SHALL BE INCIDENTAL AND INCLUDED IN THE PRICE OF THE LINEAR FOOT ITEM FOR CURB AND GUTTER.

3. REFER TO STANDARD NDS. MD 620.02 AND 620.02-01 FOR COMBINATION CURB AND GUTTER DIMENSIONS.
NOTE

IF A SPALL OCCURS AT A JOINT OR CRACK, RE-ESTABLISH THE JOINT OR CRACK.
1. Concrete curb type A: Refer to Std. MD 620.02
2. Longitudinal tie devices: Refer to Std. MD 572.61
3. 9" minimum jointed plain concrete pavement - Mix #7
4. Variable depth graded aggregate base
5. 4" minimum graded aggregate base
6. Type "C" combination curb and gutter: Refer to Std. MD 602.02-01

**ROUNDABOUT PAVEMENT DETAIL**

- **Plain/Smooth Load Transfer Devices**: Place in all contraction joints. Refer to Std. MD 572.21
- **Contraction Joint**: Refer to Std. MD 572.92
- **Expansion Joint**: Refer to Std. MD 572.92
- **15' Max.**

**NOTE:**

Every attempt shall be made to have equal and consistent joint spacing around the truck apron.

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**Maryland Department of Transportation**

**STATE HIGHWAY ADMINISTRATION**

STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

**ROUNDABOUT PAVEMENT SECTION**

**STANDARD NO.** MD 580.05
2" SUPERPAVE ASPHALT MIX 9.5mm FOR SURFACE, PG64-22, LEVEL 2
3" SUPERPAVE ASPHALT MIX 19.0mm FOR BASE, PG64-22, LEVEL 2
6" GRADED AGGREGATE BASE

PARK & RIDE – FLEXIBLE PAVEMENT SECTION – PASSENGER VEHICLES

2" SUPERPAVE ASPHALT MIX 9.5mm FOR SURFACE, PG64-22, LEVEL 2
3" SUPERPAVE ASPHALT MIX 19.0mm FOR BASE, PG64-22, LEVEL 2
4" GRADED AGGREGATE BASE

PARK & RIDE – FLEXIBLE PAVEMENT SECTION – BUS LANE

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STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

PARK & RIDE PAVEMENT SECTIONS
FLEXIBLE PAVEMENT

STANDARD NO. MD 580.06
6" NOMINAL

5" JOINTED PLAIN CONCRETE - MIX #7. MAXIMUM JOINT SPACING SHALL BE 6'. NO LOAD TRANSFER DEVICES ARE NEEDED. REFER TO STD. NO. MD 577.07.
6" GRADED AGGREGATE BASE

PARK & RIDE - RIGID PAVEMENT SECTION - PASSENGER VEHICLES

6" NOMINAL

9" JOINTED PLAIN CONCRETE - MIX #7. REFER TO STD. NOS. MD 572.21, MD 572.61 AND MD 572.91
6" GRADED AGGREGATE BASE

PARK & RIDE - RIGID PAVEMENT SECTION - BUS LANE AND BUS STOP PAD

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

PARK & RIDE PAVEMENT SECTIONS
RIGID PAVEMENT

STANDARD NO. MD 580.07
1. 1.5" Superpave Asphalt Mix 9.5mm for surface, PG64-22, Level 2
2. 2.5" Superpave Asphalt Mix 19.0mm for base, PG64-22, Level 2
3. 4" Graded Aggregate Base

**DRIVEWAYS & BIKE PATHS - FLEXIBLE PAVEMENT SECTION**

4. 5" Jointed Plain Concrete - Mix #7
5. 3" Graded Aggregate Base

**BIKE PATHS - RIGID PAVEMENT SECTION**

**NOTES**

1. The joint spacing shall be 5 feet. There are no load transfer requirements for bike paths.
2. For rigid driveways, refer to standards MD 630.01 through MD 630.03.
2" SUPERPAVE ASPHALT MIX 12.5 mm FOR SURFACE, PG64-22, LEVEL 2
8" SUPERPAVE ASPHALT MIX 25.0 mm FOR BASE, PG64-22, LEVEL 2 (TWO LIFTS)
24" GRADED AGGREGATE BASE (FOUR LIFTS) FOR 30' CLOSEST TO BRIDGE OR 12" GRADED AGGREGATE BASE BEYOND 30' (TWO LIFTS).

BRIDGE APPROACHES - LIGHT TRAFFIC

2" SUPERPAVE ASPHALT MIX 12.5 mm FOR SURFACE, PG76E-28, LEVEL 4
10" SUPERPAVE ASPHALT MIX 25.0 mm FOR BASE, PG64-22, LEVEL 2 (TWO LIFTS)
24" GRADED AGGREGATE BASE (FOUR LIFTS) FOR 30' CLOSEST TO BRIDGE OR 12" GRADED AGGREGATE BASE BEYOND 30' (TWO LIFTS).

BRIDGE APPROACHES - MEDIUM TRAFFIC

2" SUPERPAVE ASPHALT MIX 12.5 mm FOR SURFACE, PG76E-28, LEVEL 4
12" SUPERPAVE ASPHALT MIX 25.0 mm FOR BASE, PG64-22, LEVEL 2 (THREE LIFTS)
24" GRADED AGGREGATE BASE (FOUR LIFTS) FOR 30' CLOSEST TO BRIDGE OR 12" GRADED AGGREGATE BASE BEYOND 30' (TWO LIFTS).

BRIDGE APPROACHES - HEAVY TRAFFIC

NOTES
1. LIGHT TRAFFIC - ADT < 10,000 VEHICLES/DAY
2. MEDIUM TRAFFIC - ADT > 10,000 TO LESS THAN < 30,000 VEHICLES/DAY
3. HEAVY TRAFFIC - ADT > 30,000 VEHICLE/DAY

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
BRIDGE APPROACH
PAVEMENT SECTIONS
STANDARD NO. MD 580.09
PERMEABLE PAVEMENT SECTION

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NOTES

1. REFER TO SPECIAL PROVISION 904 OPEN GRADED FRICTION COURSE FOR POROUS ASPHALT.
2. REFER TO SPECIAL PROVISION 902 PERVIOUS CONCRETE.
3. RESERVOIR LAYER THICKNESS SHALL BE DESIGNED TO MEET HYDRAULIC EVENT REQUIREMENTS.
4. USE FILTER COURSE AS DIRECTED ELSEWHERE IN THE CONTRACT.
5. USE FILTER FABRIC AS DIRECTED ELSEWHERE IN THE CONTRACT.
6. USE LONGITUDINAL UNDERDRAIN AS DIRECTED ELSEWHERE IN THE CONTRACT. REFER TO STANDARD NOS. MD 387.11, 387.11-01, 387.12, 387.21, AND 387.21-01.
7. OR AS DIRECTED ON THE PLAN OR BY THE ENGINEER.