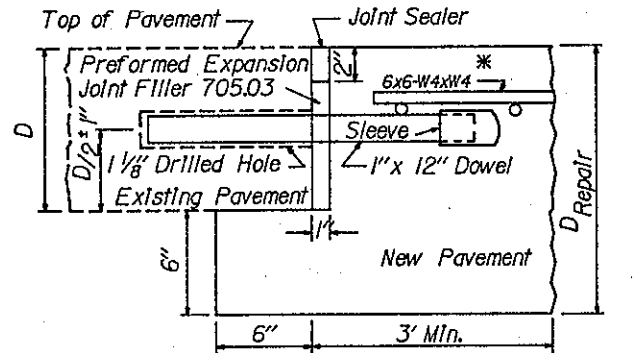
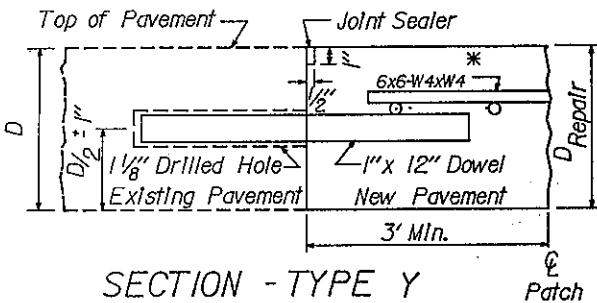


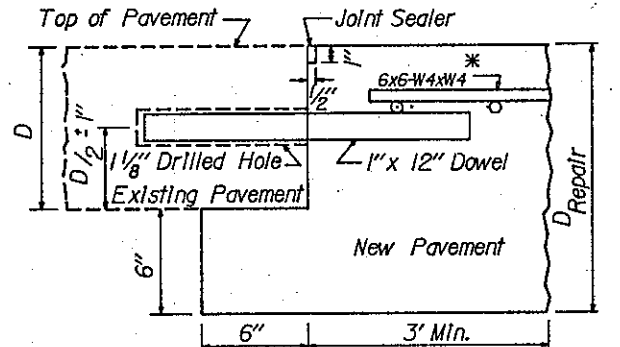
SECTION - TYPE X  
(Expansion)



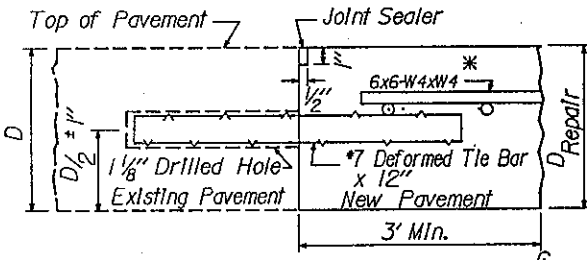
SECTION - TYPE XU  
(Undercut: Expansion)



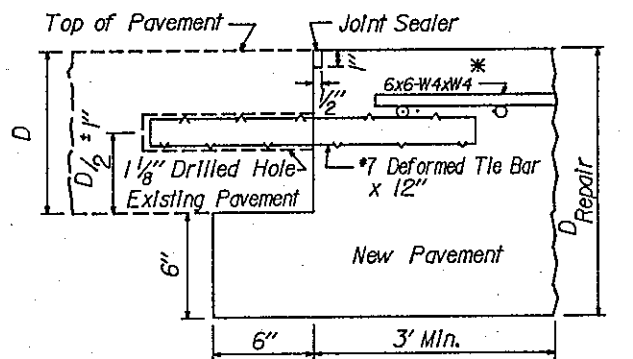
SECTION - TYPE Y  
(Contraction)



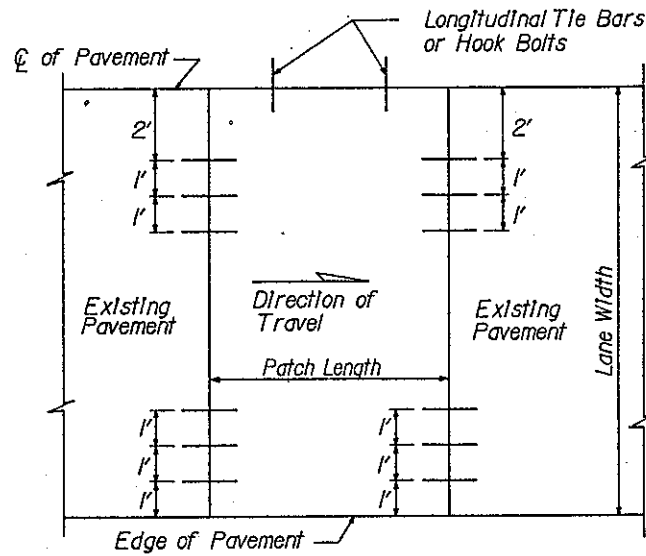
SECTION - TYPE YU  
(Undercut: Contraction)



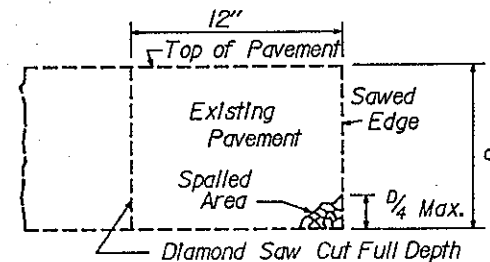
SECTION - TYPE T  
(Tied)



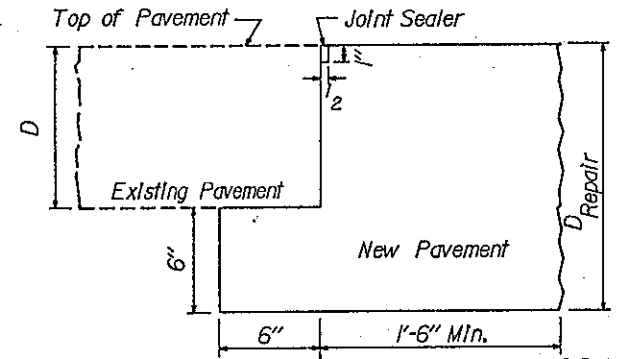
SECTION - TYPE TU  
(Undercut: Tied)



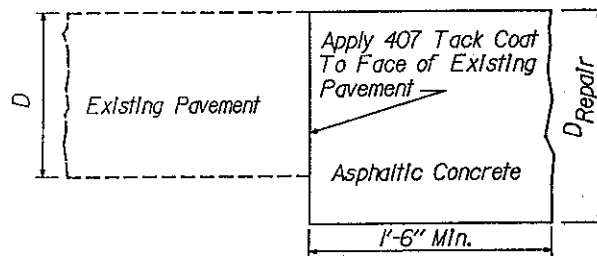
DOWEL / TIE BAR PLACEMENT DETAIL



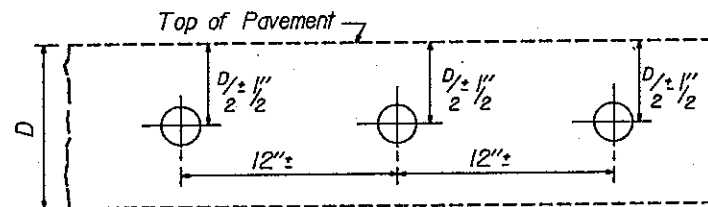
ADDITIONAL PAVEMENT REMOVAL



SECTION - TYPE U  
(Undercut)



SECTION - TYPE F  
(Flexible)



HOLE DRILLING DETAIL

NOTES

GENERAL: All joints shall be constructed normal to the centerline of the pavement lane unless otherwise specified in the plans.

All dowel holes shall be drilled by a mechanical device that will allow independent adjustment of all drill shafts in the horizontal and vertical direction. The device shall be capable of drilling holes in a skewed joint to the proper depth and parallel to the pavement surface and the centerline of the pavement lane. The device shall also be capable of drilling a minimum of two holes at one time.

All smooth dowels shall be coated with a "bond-breaking" material of the type specified in Standard Drawing BP-4 after they have been installed in the existing pavement and just prior to placing the patch. All dowels shall be placed parallel to the pavement surface and the centerline of the pavement lane.

PREFORMED EXPANSION JOINT FILLER: The expansion joint filler shall be held rigidly in position and shall be continuous for the full width of the patch. Proper size dowel holes shall be field punched or drilled into the preformed expansion joint filler after the dowels for the joint have been installed to ensure a proper fit of the material around the dowels.

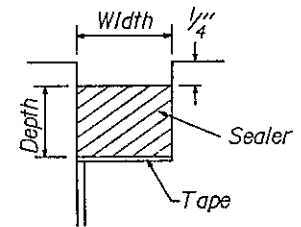
TYPE N JOINT: Joints referred to as Type N joints on the plan shall be constructed as contraction joints as per Standard Drawing BP-4.

TYPE X, XU JOINT: The sleeve shall meet the requirements of Standard Drawing BP-4.

ADDITIONAL PAVEMENT REMOVAL: If, after the sawing and removal of the pavement from the area to be repaired, the face of the remaining pavement is spalled or deteriorated for a height greater than one-fourth (1/4) the thickness of the rigid pavement, an additional saw cut shall be made as shown in the plans. This additional work shall be measured for additional payment for full depth pavement sawing, rigid pavement removal and replacement.

LONGITUDINAL JOINT: For patches 6 feet or greater in length, the longitudinal joint shall be constructed as a Type T or a Butt Joint as per Standard Drawing BP-3. Spacing of the tie bars or hook bolts shall be no more than 30" nor less than 24".

\* The clearance from the end of the wire fabric to the edge of pavement or new transverse joint shall be 4" +/- 2". If the patch length exceeds 20 feet, the fabric shall consist of W9 or D9 longitudinal wires spaced 6" c/c and W4 or D4 transverse wires spaced 12" c/c.



JOINT SEALER DETAIL

BUREAU OF LOCATION AND DESIGN  
OHIO DEPARTMENT OF TRANSPORTATION

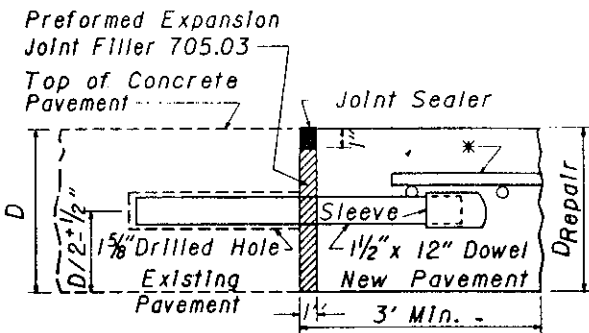
DATE  
1-11-85

PAVEMENT REPAIRS

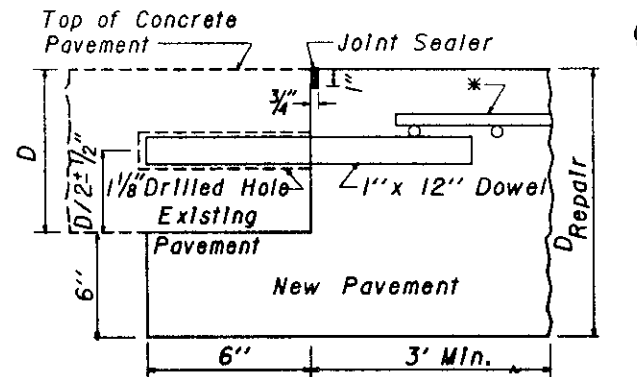
STANDARD  
CONSTRUCTION  
DRAWING

BP-13

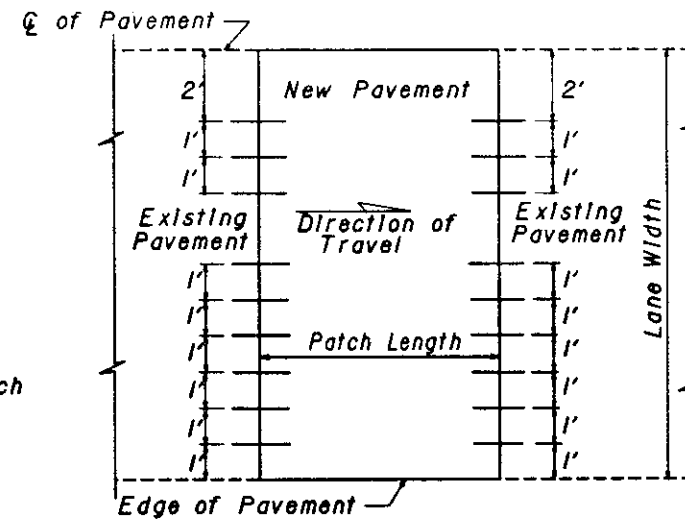
APPROVED: *E. L. Unger* ENGR., L. & D.



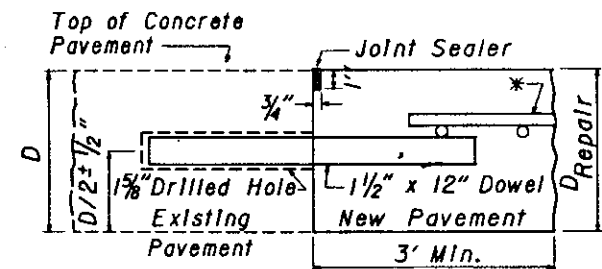
SECTION - TYPE X  
(Expansion)



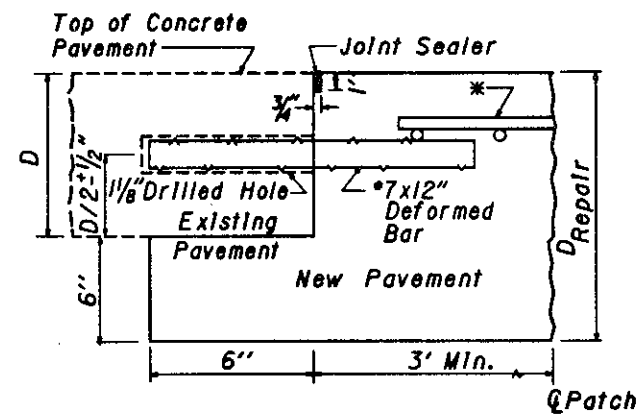
SECTION - TYPE YU  
(Undercut: Contraction)



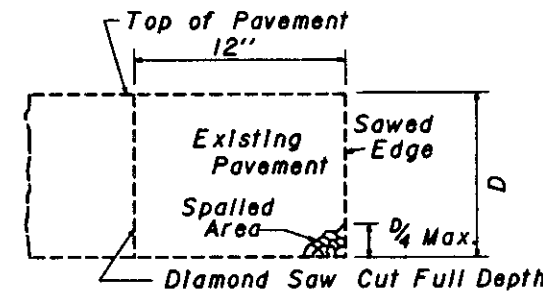
DOWEL / TIE BAR PLACEMENT DETAIL



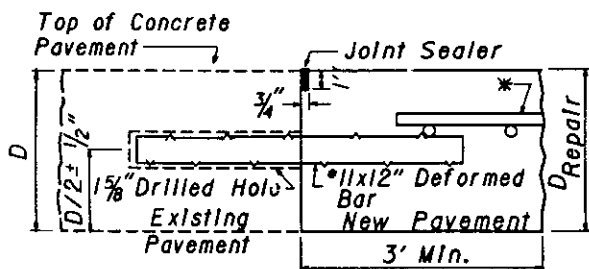
SECTION - TYPE Y  
(Contraction)



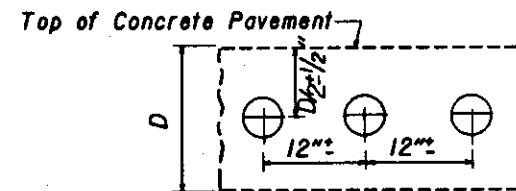
SECTION - TYPE TU  
(Undercut: Tied)



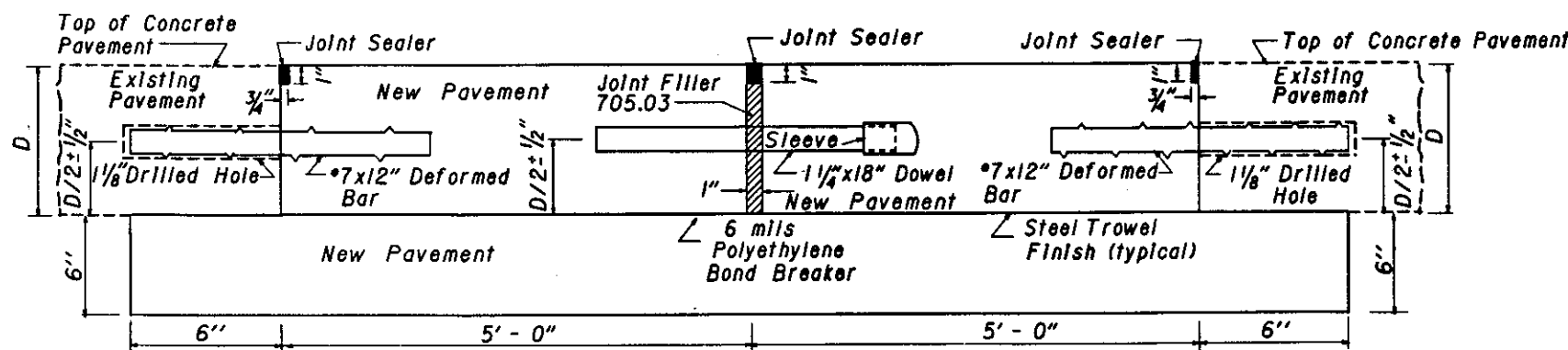
ADDITIONAL PAVEMENT REMOVAL



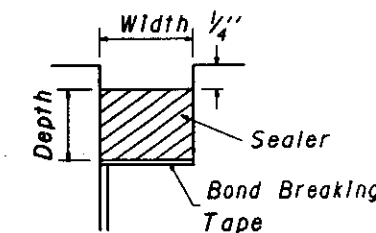
SECTION - TYPE T  
(Tied)



HOLE DRILLING DETAIL



SECTION - TYPE E  
(Expansion)



JOINT SEALER DETAIL

NOTES

GENERAL: All joints shall be constructed normal to the centerline of the pavement lane unless otherwise specified in the plans.

All dowel holes shall be drilled by a mechanical device that will allow independent adjustment of all drill shafts in the horizontal and vertical direction. The device shall be capable of drilling holes in a skewed joint to the proper depth and parallel to the pavement surface and the centerline of the pavement lane. The device shall also be capable of drilling a minimum of three holes at one time.

All smooth dowels shall be coated with a "bond-breaking" material of the type specified in Standard Drawing BP-4 after they have been installed in the existing pavement and just prior to placing the patch. All dowels shall be placed parallel to the pavement surface and the centerline of the pavement lane.

This standard drawing is intended for use in repairing both concrete and composite pavements. For clarity, asphalt overlays are not shown.

TYPE X JOINT: The sleeve shall meet the requirements of Standard Drawing BP-4.

The expansion joint filler shall be held rigidly in position and shall be continuous for the full width of the patch. Proper size dowel holes shall be field punched or drilled into the preformed expansion joint filler after the dowels for the joint have been installed to ensure a proper fit of the material around the dowels.

TYPE E JOINT: The expansion joint assemblies shall conform to the requirements of BP-4.

TYPE N JOINT: Joints referred to as Type N joints on the plan shall be constructed as contraction joints as per Standard Drawing BP-4.

ADDITIONAL PAVEMENT REMOVAL: If, after the sawing and removal of the pavement from the area to be repaired, the face of the remaining pavement is spalled or deteriorated for a height greater than one-fourth (1/4) the thickness of the rigid pavement, an additional saw cut shall be made as shown and as directed by the Engineer. This additional work shall be measured for additional payment for full depth pavement sawing, rigid pavement removal and replacement.

LONGITUDINAL JOINT: For patches 10 feet or greater in length, the longitudinal joint shall be constructed as a type T joint or a butt joint as per standard drawing BP-3. Spacing of the tie bars or hook bolts shall be no more than 30' nor less than 24'. The self drilling anchor shall not be used.

\*Reinforcement will be required for all repairs greater than 10 feet in length or for repairs which will be opened to traffic within 24 hours of placement. The fabric shall consist of W8.5 or DB.5 longitudinal wires spaced 6" c/c and W4 or D4 transverse wires spaced 12" c/c. The clearance from the end of the wire fabric to the edge of pavement or new transverse joint shall be 4" ± 2".

BUREAU OF LOCATION AND DESIGN  
OHIO DEPARTMENT OF TRANSPORTATION

RIGID  
REPLACEMENT

DATE  
1-11-85  
5-8-87

STANDARD  
CONSTRUCTION  
DRAWING  
BP-13

APPROVED *D. J. Quittner* ENGR., L. & D.

NOTES

**GENERAL:** All joints shall be constructed normal to the centerline of the pavement lane unless otherwise specified in the plans.  
 All dowel holes shall be drilled by a mechanical device that will allow independent adjustment of all drill shafts in the horizontal and vertical direction. The device shall also be capable of drilling a minimum of three holes at one time.

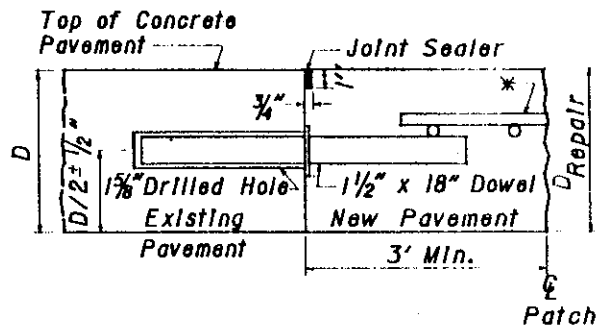
All smooth dowels shall be coated with a "bond-breaking" material of the type specified in Standard Drawing BP-4 after they have been installed in the existing pavement and just prior to placing the patch. All dowels shall be placed parallel to the pavement surface and the centerline of the pavement lane.  
 This standard drawing is intended for use in repairing both concrete and composite pavements. For clarity, asphalt overlays are not shown.

**TYPE N JOINT:** Joints referred to as Type N joints on the plan shall be constructed as contraction joints as per Standard Drawing BP-4.

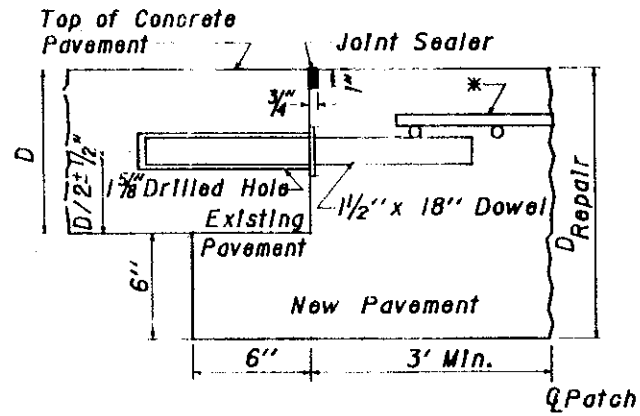
**ADDITIONAL PAVEMENT REMOVAL:** If, after the sawing and removal of the pavement from the area to be repaired, the face of the remaining pavement is spalled or deteriorated for a height greater than one-fourth (1/4) the thickness of the rigid pavement, an additional saw cut shall be made as shown and as directed by the Engineer. This additional work shall be measured for additional payment for full depth pavement sawing, rigid pavement removal and replacement.

**LONGITUDINAL JOINT:** For patches 10 feet or greater in length, the longitudinal joint shall be constructed as per standard drawing BP-3. Spacing of the tie bars or hook bolts shall be no more than 30" nor less than 24".

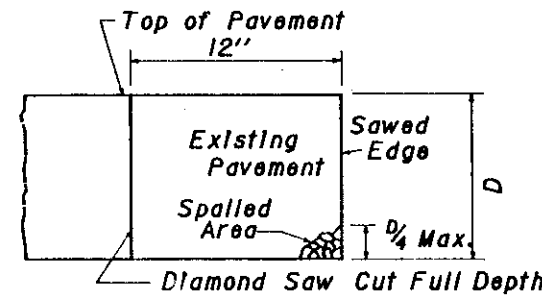
\*Reinforcement will be required for all repairs greater than 10 feet in length or for repairs which will be opened to traffic within 24 hours of placement. The fabric shall consist of W8.5 or D8.5 longitudinal wires spaced 6"c/c and W4 or D4 transverse wires spaced 12"c/c. The clearance from the end of the wire fabric to the edge of pavement or new transverse joint shall be 4"±2"



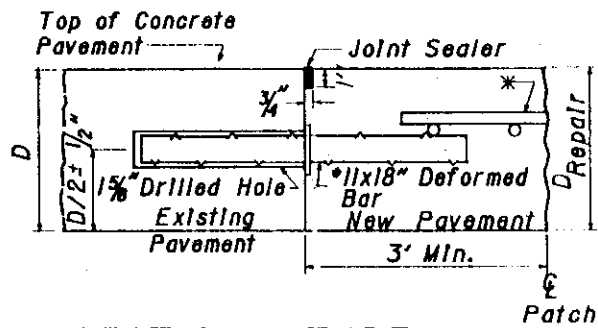
SECTION - TYPE Y  
(Contraction)



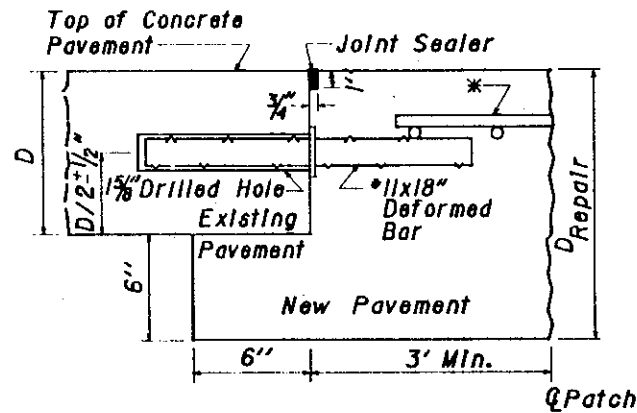
SECTION - TYPE YU  
(Undercut: Contraction)



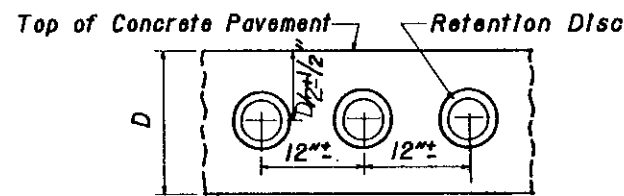
ADDITIONAL PAVEMENT REMOVAL



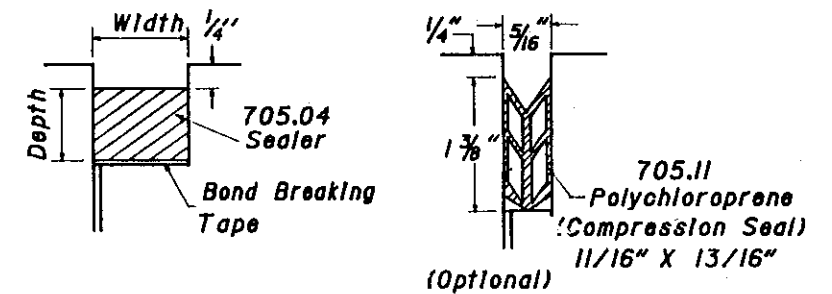
SECTION - TYPE T  
(Tied)



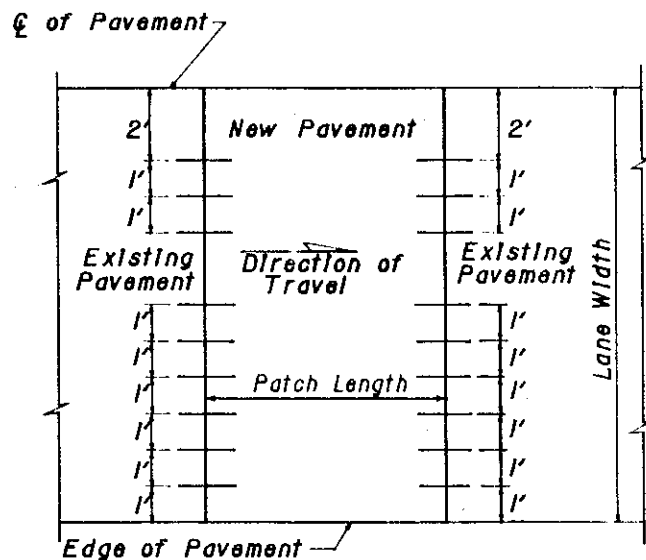
SECTION - TYPE TU  
(Undercut:Tied)



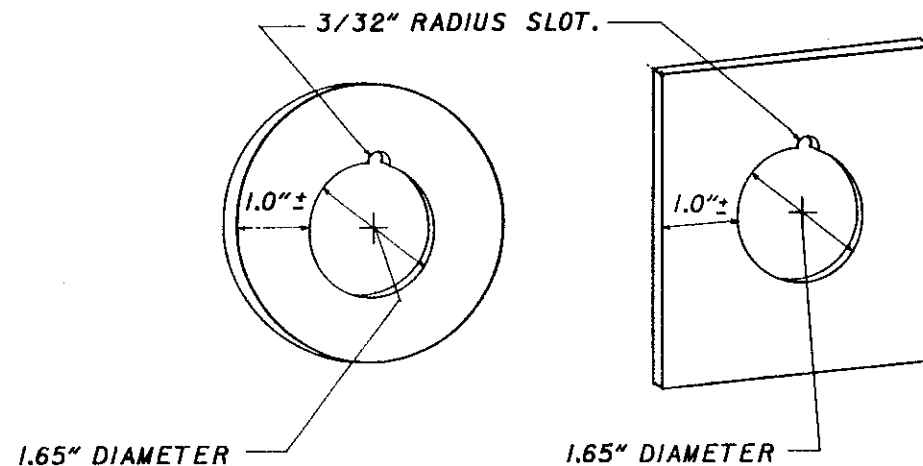
HOLE DRILLING DETAIL



JOINT SEALER DETAIL



DOWEL / TIE BAR PLACEMENT DETAIL



NYLON OR PLASTIC GROUT RETENTION DISCS  
(1/16" Min. Thickness)

|  |              |
|--|--------------|
| BUREAU OF LOCATION AND DESIGN<br>OHIO DEPARTMENT OF TRANSPORTATION |              |
| RIGID<br>REPLACEMENT   |              |
| STANDARD<br>CONSTRUCTION<br>DRAWING                                |              |
| BP-13  |              |
| APPROVED <i>D.K. Hulman</i>  | ENGR., L.&D. |
| DATE<br>1-11-85<br>5-8-87<br>1-23-90                               |              |