

NOTES

ALL JOINTS shall be sawed full depth, however, the cut may be made in two passes. To reduce the possibility of saw binding, joints should be cut, if possible, on overcast days and/or when the temperature is less than 70°.

ON CURBED PAVEMENTS the pressure relief joint shall be cut through to the back of curb. After filling the joint, asphalt concrete shall be formed and tamped in place to conform to the adjacent curb.

ON PAVEMENTS WITH CONCRETE SHOULDERS, the pressure relief joint shall be cut through to the outer edge of the shoulder.

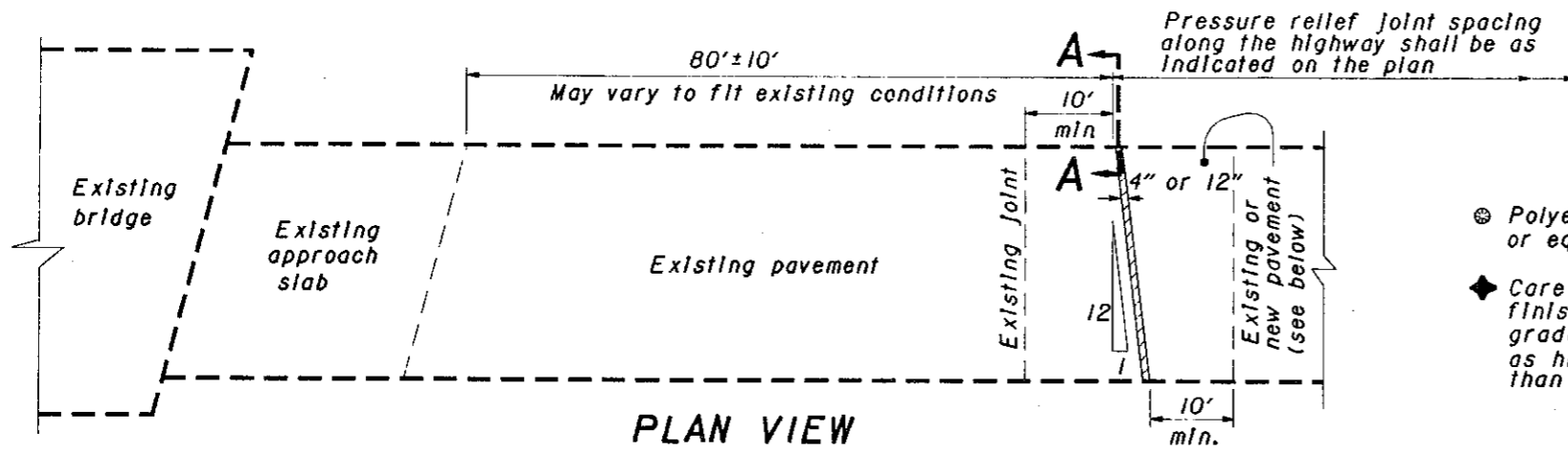
SKEW of the pressure relief joint shall be 12:1 or greater unless otherwise directed by the Engineer.

ANY OF THE PRESSURE RELIEF JOINT TYPES shown may be filled with two or three lifts of loosely compacted 405 or 921 asphalt concrete. * In pavement that is not to be resurfaced in the near future the Type D joint may be filled with material manufactured for pressure relief joints (in accordance with manufacturer's instructions), such as Meadows Sealight Ceramar or Froth Pak urethane foam or approved equal.

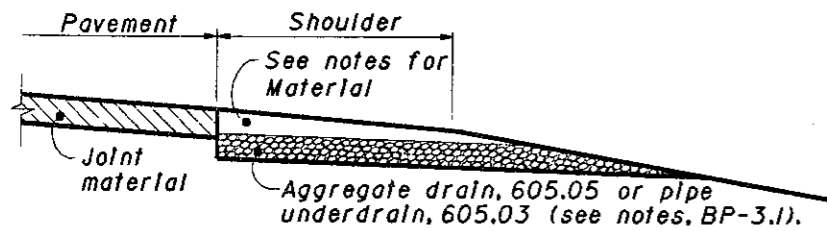
AGGREGATE DRAINS shall be provided from the low end (or ends) of each pressure relief joint to the embankment slope or ditch inslope. A drain will be required at both ends of the joint if the pavement is crowned with transverse slopes toward both edges. If a feasible outlet is not available for aggregate drains, then metal pipe underdrains, with perforated pipe and aggregate backfill, shall be provided instead of aggregate drains and the pipe extended to a suitable outlet. The material above the filter aggregate of the drain in paved shoulder area may be the same as the shoulder pavement or may be the same as the asphalt material used in the pressure relief joint and included in 605 for payment.

MEASUREMENT of the pressure relief joint for pay purposes shall be along the centerline of the joint, edge to edge of pavement when asphalt shoulders are used, edge to edge of shoulder when concrete shoulders are used, or back to back of curbs. Payment shall be per linear foot for Item Special, Pressure Relief Joint, Type —, which shall include all work and materials necessary to complete the joint except for the aggregate drains or pipe underdrains which shall be constructed and paid for as Item 605.

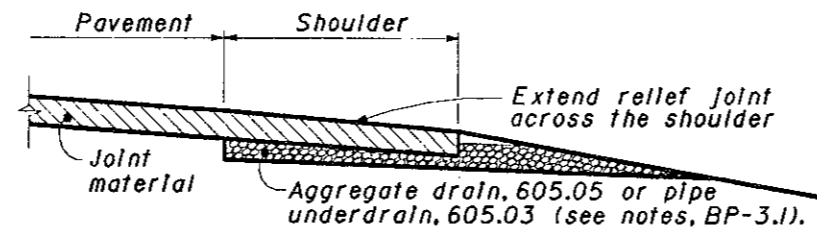
CEMENT other than the 701.05 specified may be used if approved by the Engineer, provided an accelerating admixture meeting the requirements of ASTM-C 494 Type C or E, and an air entraining admixture meeting the requirements of 705.10 is added at the mixer.



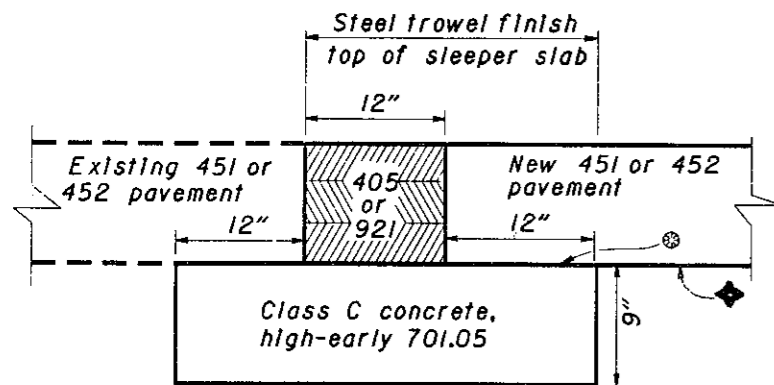
- ⊗ Polyethylene bond-breaker or equal.
- ◆ Care shall be taken to finish the subbase or sub-grade surface smooth and as high or slightly higher than the sleeper slab.



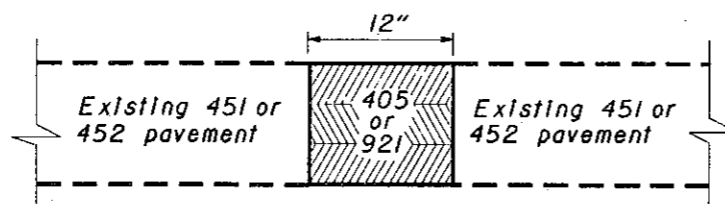
**SECTION A-A
WITH ASPHALT SHOULDERS**



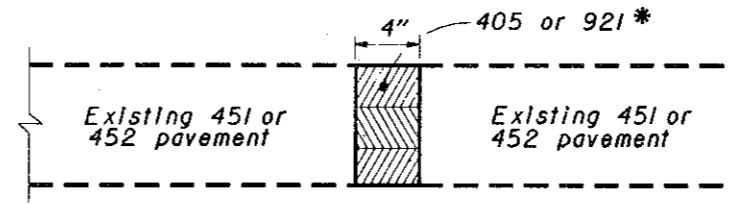
**SECTION A-A
WITH CONCRETE SHOULDERS**



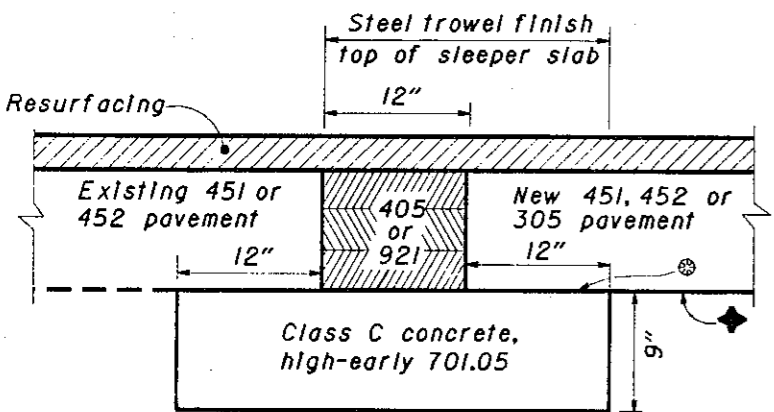
TYPE B



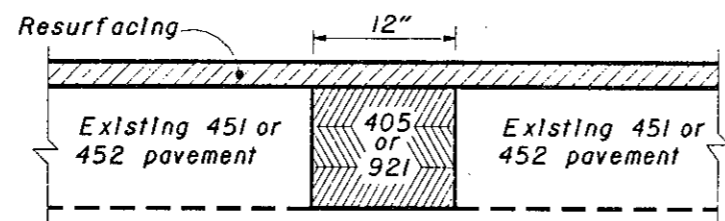
TYPE C



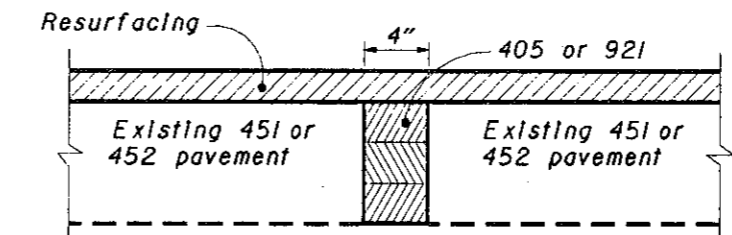
TYPE D



**TYPE B-WITH
RESURFACING**



**TYPE C-WITH
RESURFACING**



**TYPE D-WITH
RESURFACING**

BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
PRESSURE RELIEF JOINT TYPES B, C & D	
STANDARD CONSTRUCTION DRAWING	BP-2.4
APPROVED <i>R.K. Hulman</i> ENGR., L & D	
DATE 2-21-92	

NOTES

JOINTS: All joints shall be sawed full depth, however, the cut may be made in two passes. To reduce the possibility of saw binding, joints should be cut, if possible, on over-cast days and/or when the temperature is less than 21° C.

CURBED PAVEMENTS: The pressure relief joint shall be cut through to the back of curb. After filling the joint, asphalt concrete shall be formed and tamped in place to conform to the adjacent curb.

PAVEMENTS WITH CONCRETE SHOULDERS: The pressure relief joint shall be cut through to the outer edge of the shoulder.

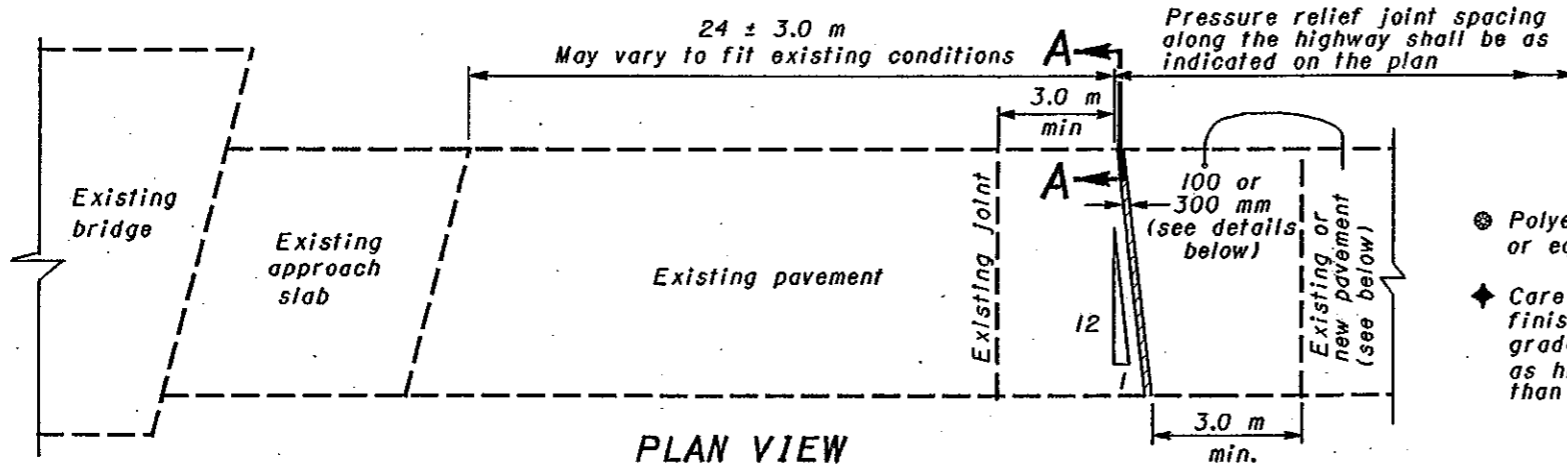
SKEW: The pressure relief joint skew shall be 12:1 or greater unless otherwise directed by the Engineer.

ANY OF THE PRESSURE RELIEF JOINT TYPES: shown may be filled with two or three lifts of loosely compacted Item 405 or 921 asphalt concrete. *In pavement that is not to be resurfaced in the near future the Type D joint may be filled with material manufactured for pressure relief joints (in accordance with manufacturer's instructions), such as Meadows Sealight Ceramar or Froth Pak urethane foam or approved equal.

AGGREGATE DRAINS: shall be provided from the low end (or ends) of each pressure relief joint to the embankment slope or ditch inslope. A drain will be required at both ends of the joint if the pavement is crowned with transverse slopes toward both edges. If a feasible outlet is not available for aggregate drains, then metal pipe underdrains, with perforated pipe and aggregate backfill, shall be provided instead of aggregate drains and the pipe extended to a suitable outlet. The material above the filter aggregate of the drain in paved shoulder area may be the same as the shoulder pavement or may be the same as the asphalt material used in the pressure relief joint and included in Item 605 for payment.

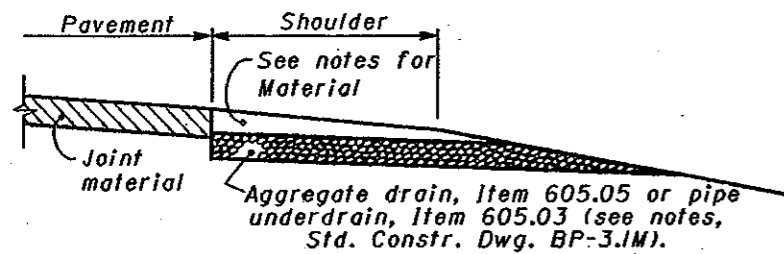
MEASUREMENT: Pressure relief joint measurement for pay purposes shall be along the centerline of the joint, edge to edge of pavement when asphalt shoulders are used, edge to edge of shoulder when concrete shoulders are used, or back to back of curbs. Payment shall be per meter for Item Special, Pressure Relief Joint, Type ____, which shall include all work and materials necessary to complete the joint except for the aggregate drains or pipe underdrains which shall be constructed and paid for as Item 605.

CEMENT: Cement other than the Item 701.05 specified may be used if approved by the Engineer, provided an accelerating admixture meeting the requirements of ASTM C 494 Type C or E, and an air entraining admixture meeting the requirements of Item 705.10 is added at the mixer.

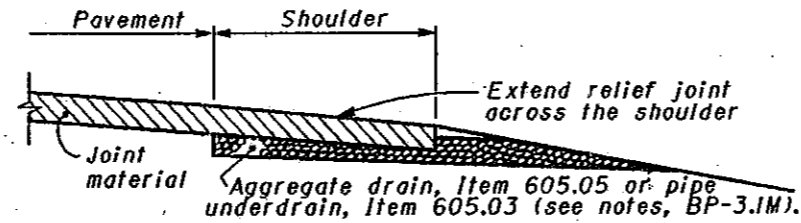


● Polyethylene bond-breaker or equal.

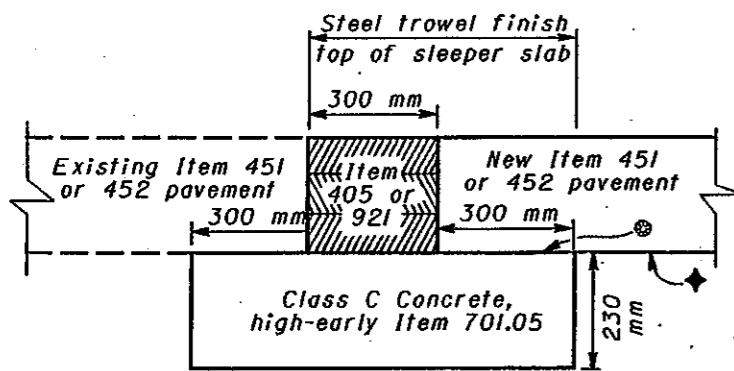
◆ Care shall be taken to finish the subbase or sub-grade surface smooth and as high or slightly higher than the sleeper slab.



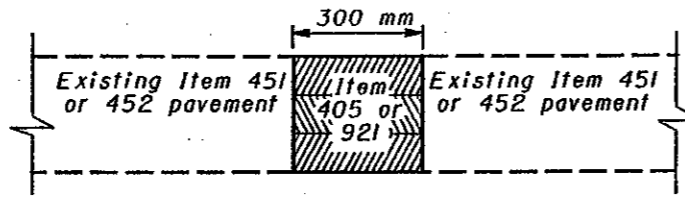
SECTION A-A WITH ASPHALT SHOULDERS



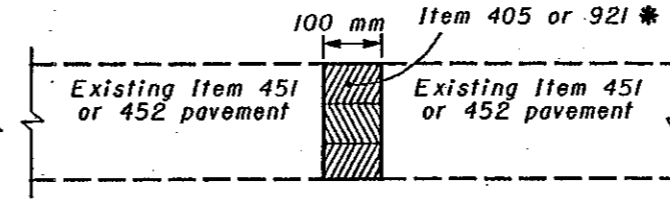
SECTION A-A WITH CONCRETE SHOULDERS



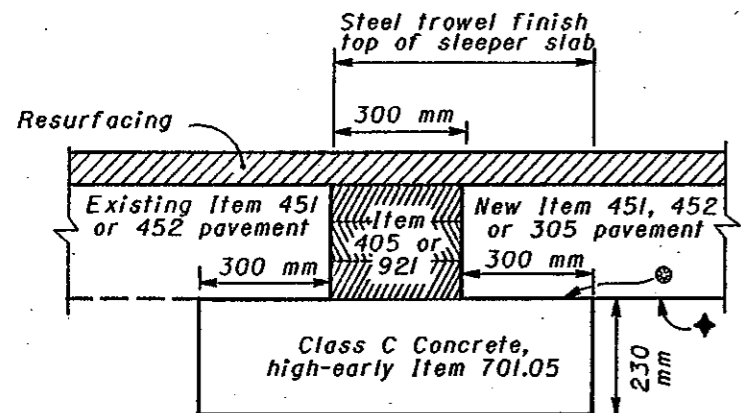
TYPE B



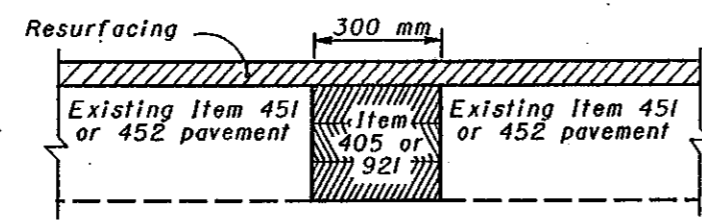
TYPE C



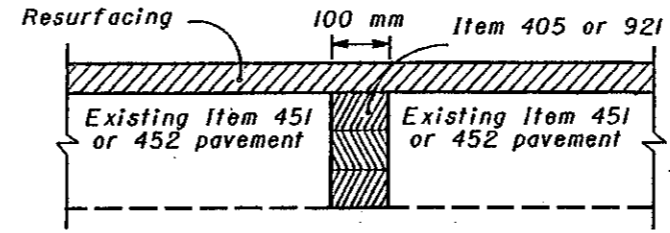
TYPE D



TYPE B - WITH RESURFACING



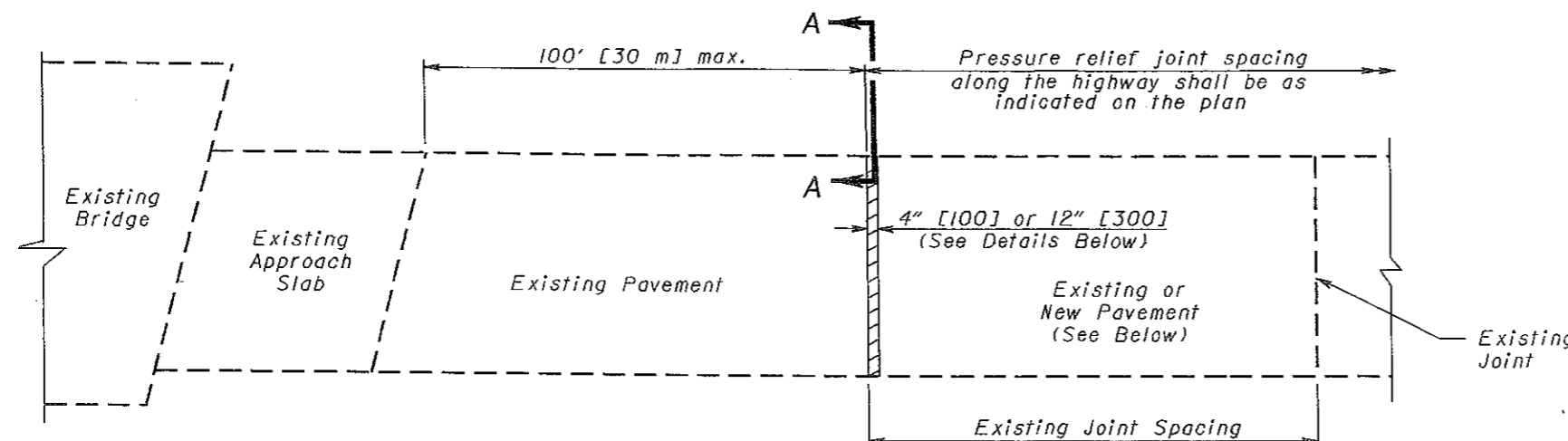
TYPE C - WITH RESURFACING



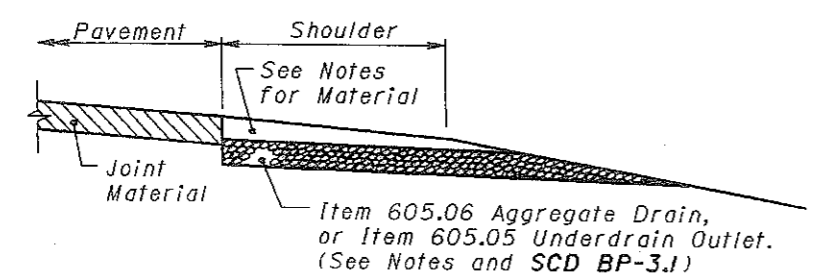
TYPE D - WITH RESURFACING



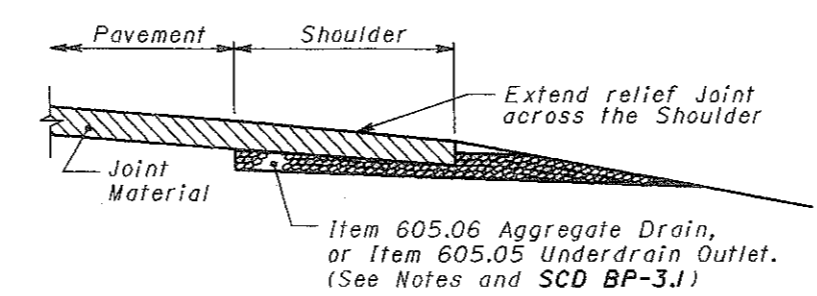
BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
PRESSURE RELIEF JOINT TYPES B, C, & D	DATE 10-28-94
STANDARD CONSTRUCTION DRAWING BP-2.4M	
APPROVED <i>W.K. Hehman</i>	
ENGR., L & D	



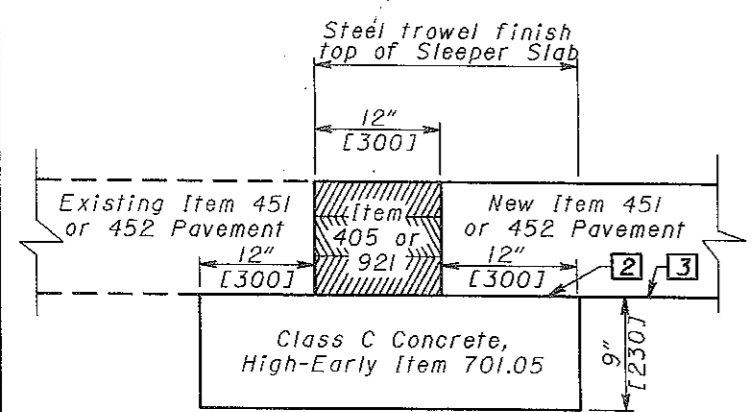
PLAN VIEW



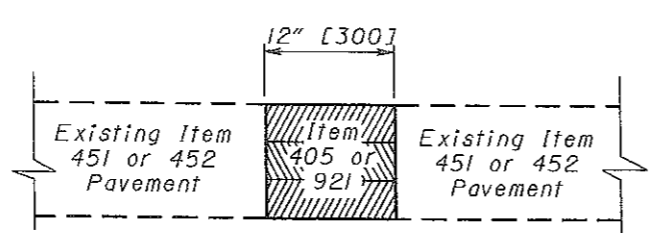
SECTION A-A WITH ASPHALT SHOULDERS



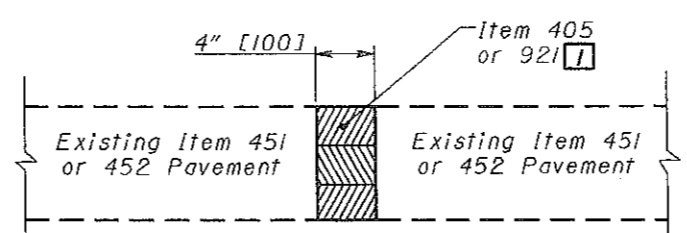
SECTION A-A WITH CONCRETE SHOULDERS



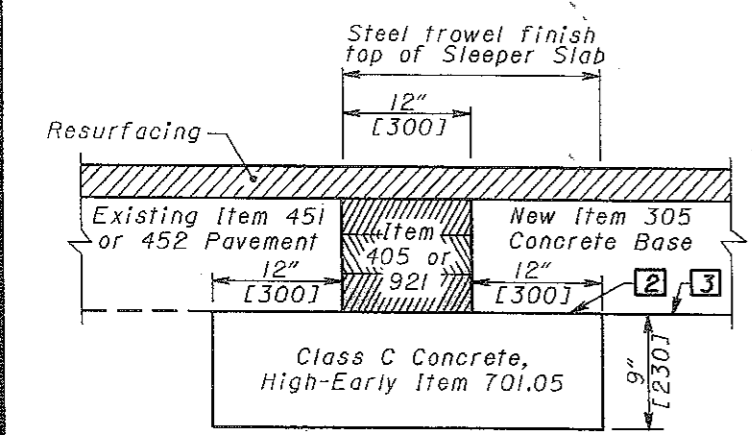
TYPE B



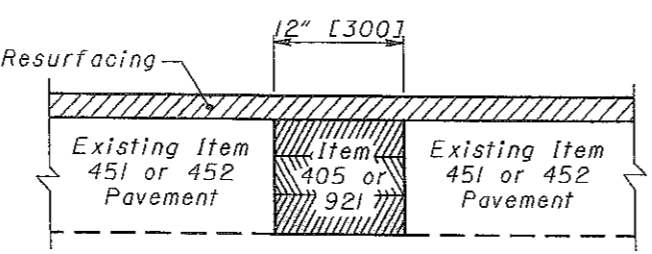
TYPE C



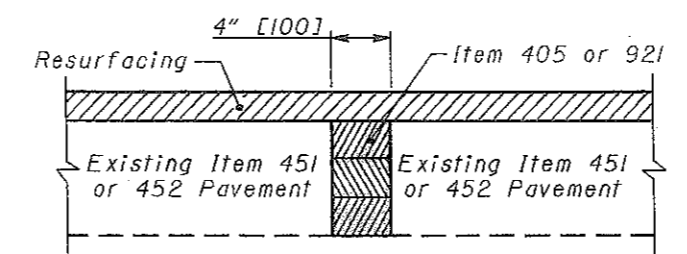
TYPE D



TYPE B WITH RESURFACING



TYPE C WITH RESURFACING



TYPE D WITH RESURFACING

NOTES

JOINTS: Joints shall be located at existing transverse joints. All joints shall be sawed full depth, however, the cut may be made in two passes. To reduce the possibility of saw binding, joints should be cut, if possible, on overcast days and/or when the temperature is less than 70° F [21° C].

CURBED PAVEMENTS: The pressure relief joint shall be cut through to the back of curb. After filling the joint, asphalt concrete shall be formed and tamped in place to conform to the adjacent curb.

PAVEMENTS WITH CONCRETE SHOULDERS: The pressure relief joint shall be cut through to the outer edge of the shoulder.

ANY OF THE PRESSURE RELIEF JOINT TYPES: shown may be filled with two or three lifts of loosely compacted Item 405 or 921 asphalt concrete.

AGGREGATE DRAINS: shall be provided from the low end (or ends) of each pressure relief joint to the embankment slope or ditch inslope. A drain will be required at both ends of the joint if the pavement is crowned with transverse slopes toward both edges. If a feasible outlet is not available for aggregate drains, then metal pipe underdrains, with perforated pipe and aggregate backfill, shall be provided instead of aggregate drains and the pipe extended to a suitable outlet. The material above the filter aggregate of the drain in paved shoulder area may be the same as the shoulder pavement or may be the same as the asphalt material used in the pressure relief joint and included in Item 605 for payment.

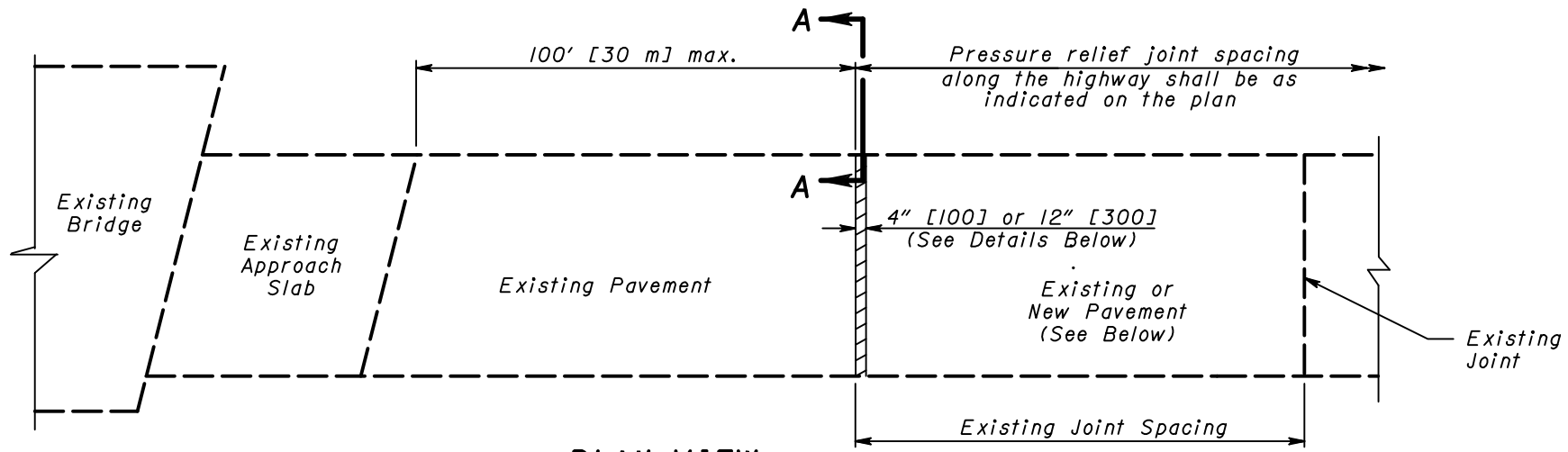
MEASUREMENT: Pressure relief joint measurement for pay purposes shall be along the centerline of the joint, edge to edge of pavement when asphalt shoulders are used, edge to edge of shoulder work when concrete shoulders are used, or back to back of curbs. Payment shall be per Linear Foot [Meters] for **Item Special - Pressure Relief Joint Type**, which shall include all work and materials necessary to complete the joint except for the aggregate drains or pipe underdrains which shall be constructed and paid for as Item 605.

CEMENT: Cement other than the Item 701.05 specified may be used if approved by the Engineer, provided an accelerating admixture meeting the requirements of ASTM C494 Type C or E, and an air entraining admixture meeting the requirements of Item 705.10 is added at the mixer.

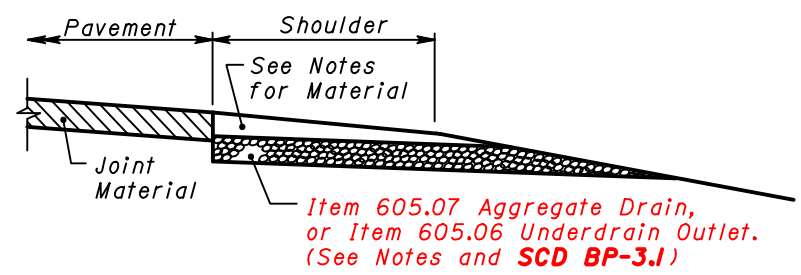
LEGEND

- 1 In pavement that is not to be resurfaced in the near future the Type D joint may be filled with material manufactured for pressure relief joints (in accordance with manufacturer's instructions), such as Meadow Sealight Ceramar or Froth Pak urethane foam or approved equal.
- 2 A bond breaker, consisting of two 2-foot [0.6 m] wide sheets of clear or opaque polyethylene film, Item 705.06, shall be centered on top of the joint between the subbase and the sleeper slab. The film shall have a nominal thickness of 4 mils [0.1].
- 3 Care shall be taken to ensure the subbase or subgrade surface is smooth and constructed as high as or slightly higher than the top of the Sleeper Slab.

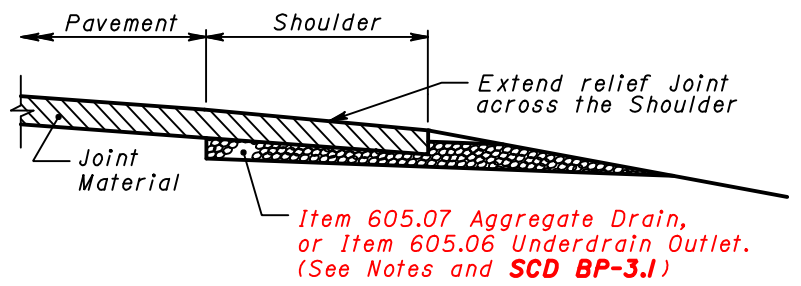
THIS DRAWING REPLACES BP-2.4M DATED 10-28-94.
 STANDARD ROADWAY CONSTRUCTION DRAWING
 PRESSURE RELIEF JOINT
 TYPES B, C, & D
 NUMBER BP-2.4
 ROADWAY ENGINEERING SERVICES
 STDS. ENGR. M. EVANS
 DRAWN D. FOCKE
 REVISIONS
 OHIO DEPARTMENT OF TRANSPORTATION
 ROUTE 7, COLUMBUS, OHIO 43260-2800
 DATE



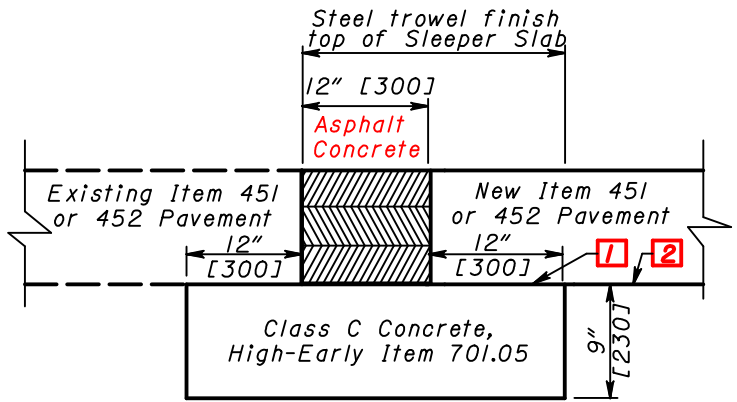
PLAN VIEW



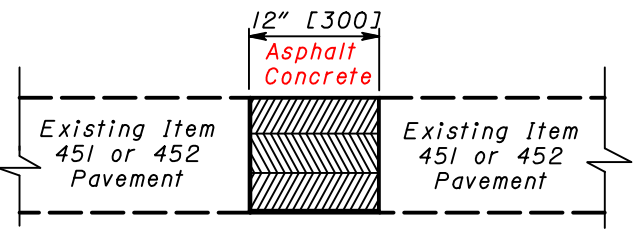
SECTION A-A WITH ASPHALT SHOULDERS



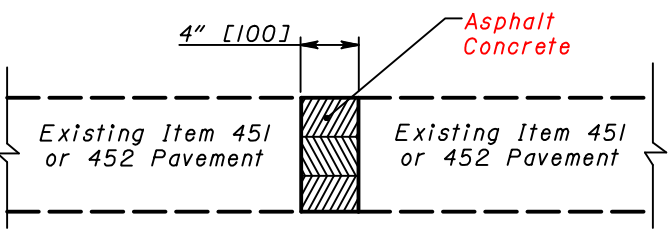
SECTION A-A WITH CONCRETE SHOULDERS



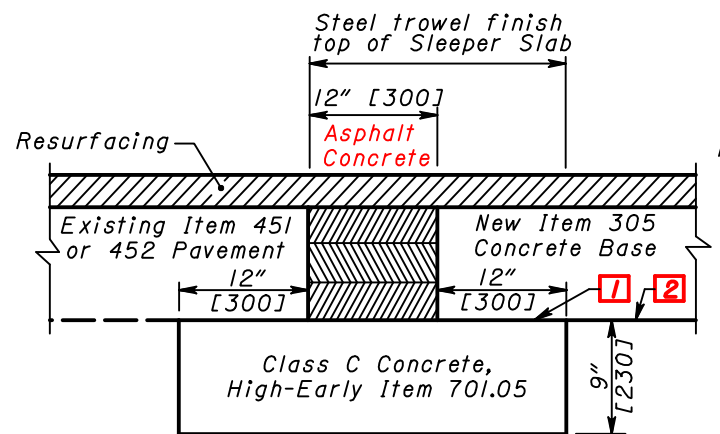
TYPE B



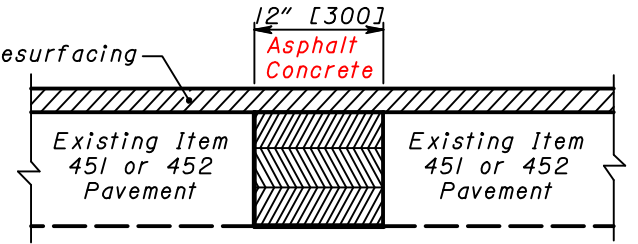
TYPE C



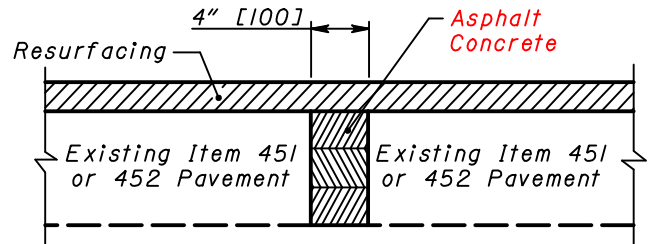
TYPE D



TYPE B WITH RESURFACING



TYPE C WITH RESURFACING



TYPE D WITH RESURFACING

NOTES

JOINTS: Joints shall be located at existing transverse joints. All joints shall be sawed full depth, however, the cut may be made in two passes. To reduce the possibility of saw binding, joints should be cut, if possible, on overcast days and/or when the temperature is less than 70° F [21° C].

CURBED PAVEMENTS: The pressure relief joint shall be cut through to the back of curb. After filling the joint, asphalt concrete shall be formed and tamped in place to conform to the adjacent curb.

PAVEMENTS WITH CONCRETE SHOULDERS: The pressure relief joint shall be cut through to the outer edge of the shoulder.

ASPHALT CONCRETE: Any of the pressure relief joints shown may be filled with three or more lifts of well compacted asphalt concrete material approved by the Engineer.

AGGREGATE DRAINS: shall be provided from the low end (or ends) of each pressure relief joint to the embankment slope or ditch inslope. A drain will be required at both ends of the joint if the pavement is crowned with transverse slopes toward both edges. If a feasible outlet is not available for aggregate drains, then metal pipe underdrains, with perforated pipe and aggregate backfill, shall be provided instead of aggregate drains and the pipe extended to a suitable outlet. The material above the filter aggregate of the drain in paved shoulder area may be the same as the shoulder pavement or may be the same as the asphalt material used in the pressure relief joint and included in Item 605 for payment.

MEASUREMENT: Pressure relief joint measurement for pay purposes shall be along the centerline of the joint, edge to edge of pavement when asphalt shoulders are used, edge to edge of shoulder work when concrete shoulders are used, or back to back of curbs. Payment shall be per Linear Foot [Meters] for **Item Special - Pressure Relief Joint Type**, which shall include all work and materials necessary to complete the joint except for the aggregate drains or pipe underdrains which shall be constructed and paid for as Item 605.

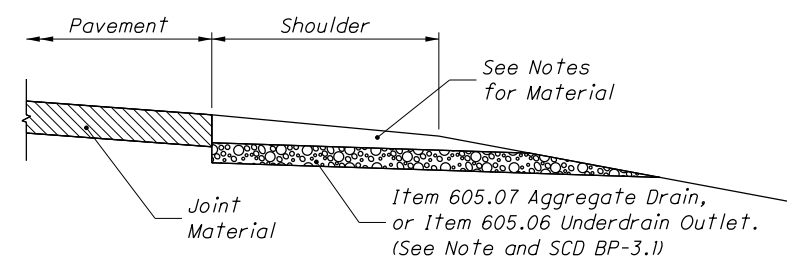
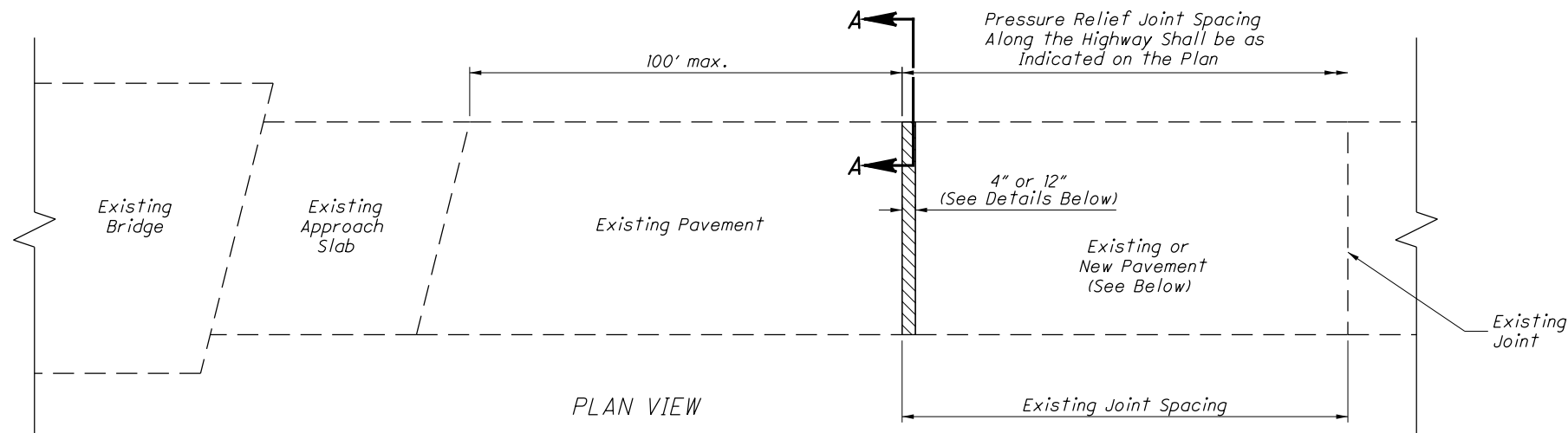
CEMENT: Cement other than the Item 701.05 specified may be used if approved by the Engineer, provided an accelerating admixture meeting the requirements of ASTM C494 Type C or E, and an air entraining admixture meeting the requirements of Item 705.10 is added at the mixer.

LEGEND

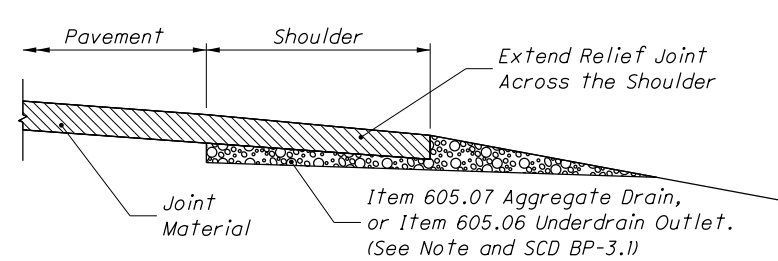
- 1 A bond breaker, consisting of two 2-foot [0.6 m] wide sheets of clear or opaque polyethylene film, Item 705.06, shall be centered on top of the joint between the subbase and the sleeper slab. The film shall have a nominal thickness of 4 mils [0.1].
- 2 Care shall be taken to ensure the subbase or subgrade surface is smooth and constructed as high as or slightly higher than the top of the Sleeper Slab.

THIS DRAWING REPLACES BP-2.4 DATED 7-28-00.

DATE	7-16-04
ROADWAY DESIGN ENGINEER	D. Focke
STDS. ENGR.	D. Focke
ROADWAY ENGINEERING SERVICES	D. Focke
OHIO DEPARTMENT OF TRANSPORTATION	D. Focke
STANDARD ROADWAY CONSTRUCTION DRAWING	D. Focke
PRESSURE RELIEF JOINT	D. Focke
TYPES B, C, & D	D. Focke
NUMBER	BP-2.4
1	1



SECTION A-A
WITH ASPHALT SHOULDERS



SECTION A-A
WITH CONCRETE SHOULDERS

NOTES

JOINTS: Joints shall be located at existing transverse joints. All joints shall be sawed full depth, however, the cut may be made in two passes. To reduce the possibility of saw binding, joints should be cut, if possible, on overcast days and/or when the temperature is less than 70° F.

CURBED PAVEMENTS: The pressure relief joint shall be cut through to the back of curb. After filling the joint, asphalt concrete shall be formed and tamped in place to conform to the adjacent curb.

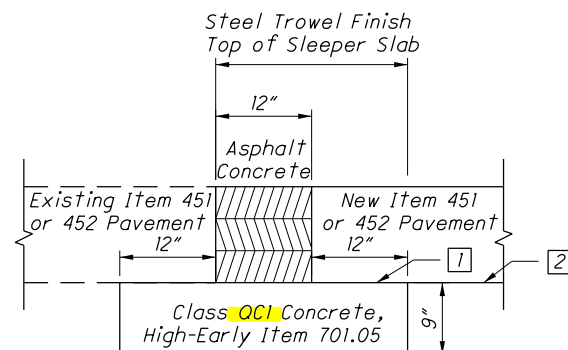
PAVEMENTS WITH CONCRETE SHOULDERS: The pressure relief joint shall be cut through to the outer edge of the shoulder.

ASPHALT CONCRETE: Any of the pressure relief joints shown may be filled with three or more lifts of well compacted asphalt concrete material approved by the Engineer.

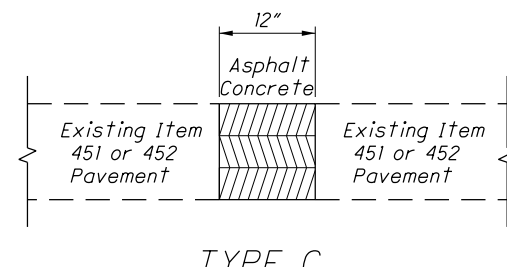
AGGREGATE DRAINS: Shall be provided from the low end (or ends) of each pressure relief joint to the embankment slope or ditch inslope. A drain will be required at both ends of the joint if the pavement is crowned with transverse slopes toward both edges. If a feasible outlet is not available for aggregate drains, then metal pipe underdrains, with perforated pipe and aggregate backfill, shall be provided instead of aggregate drains and the pipe extended to a suitable outlet. The material above the filter aggregate of the drain in paved shoulder area may be the same as the shoulder pavement or may be the same as the asphalt material used in the pressure relief joint and included in Item 605 for payment.

MEASUREMENTS: Pressure relief joint measurement for pay purposes shall be along the centerline of the joint, edge to edge of pavement when asphalt shoulders are used, edge to edge of concrete shoulder work when concrete shoulders are used, or back to back of curbs. Payment shall be per Linear Foot for **Item Special - Pressure Relief Joint Type** _____ which shall include all work and materials necessary to complete the joint except for the aggregate drains to complete the joint except for the aggregate drains or pipe underdrains which shall be constructed and paid for as Item 605.

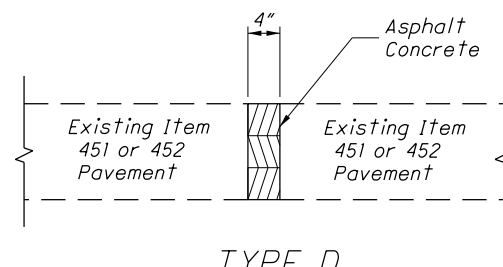
CEMENT: Cement other than the Item 701.05 specified may be used if approved by the Engineer, provided an accelerating admixture meeting the requirements of ASTM C494 Type C or E, and an air entraining admixture meeting the requirements of Item 705.10 is added at the mixer.



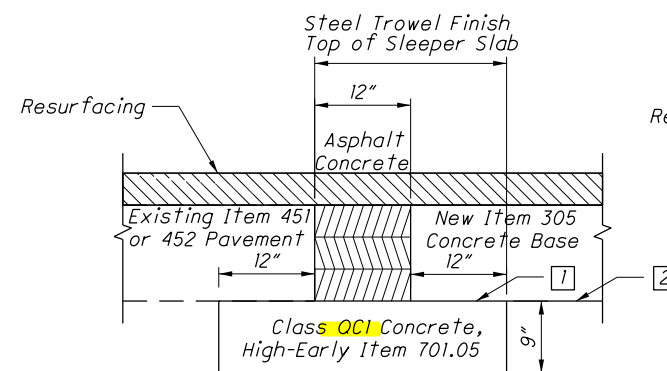
TYPE B



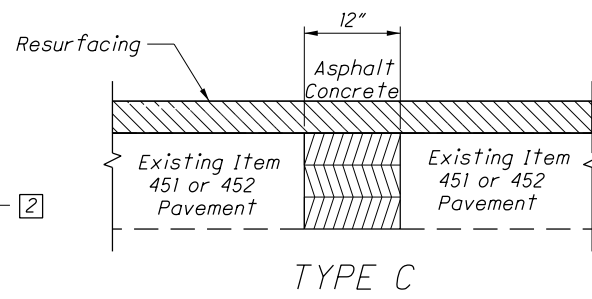
TYPE C



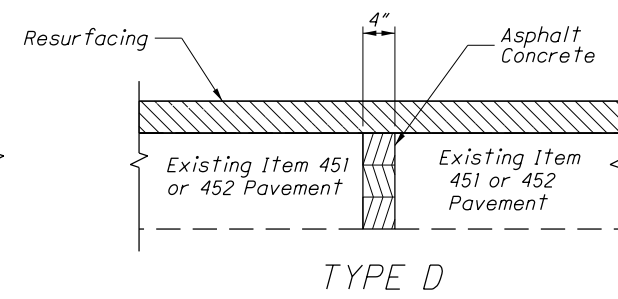
TYPE D



TYPE B
WITH RESURFACING



TYPE C
WITH RESURFACING



TYPE D
WITH RESURFACING

LEGEND

- 1 A bond breaker, consisting of two 2' wide sheets of clear or opaque polyethylene film, Item 705.06, shall be centered on top of the joint between the subbase and the sleeper slab. The film shall have a nominal thickness of 4 mils.
- 2 Care shall be taken to ensure the subbase or subgrade surface is smooth and constructed as high as or slightly higher than the top of the Sleeper Slab.