

**Section 652**

1 Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Open-Graded Asphalt Friction Course, Type FC-1 Modified	Ton

2 **SECTION 652**  
3 **PERMEABLE ASPHALT DRAINAGE COURSE,**  
4 **TYPES P-78M AND P-57**

5 **652-1 DESCRIPTION**

6 Perform the work covered by this section including, but not limited to, the construction of  
7 a plant mixed permeable asphalt drainage course (PADC) properly laid upon a prepared  
8 surface in accordance with these Specifications and in conformity with the lines, grades,  
9 thickness and typical sections shown on the plans; producing, weighing, transporting, placing  
10 and rolling the plant mix as specified in Section 610; furnishing the asphalt binder, anti-strip  
11 additive and all other materials for the plant mix; furnishing and applying tack coat as  
12 specified in Section 605; furnishing scales; providing QC as specified in Section 609 as  
13 modified for PADC; making any repairs or corrections to the friction course that may become  
14 necessary; and maintaining the friction course until final acceptance of the project.

15 **652-2 MATERIALS**

16 Refer to Division 10.

<b>Item</b>	<b>Section</b>
Anti-strip Additives	1020-8
Asphalt Binder	1020-2
Coarse Aggregate	1012-1(B)
Fine Aggregate	1012-1(C)

17 The coarse aggregate shall meet Article 1012-1 except that that portion of the coarse  
18 aggregate retained on the No. 4 sieve shall contain at least 60% by weight of crushed pieces  
19 having two or more mechanically induced fractured faces.

20 **652-3 COMPOSITION OF MIXTURE**

21 **(A) General**

22 Formulate the PADC from a mixture of crushed aggregate, asphalt binder, anti-strip  
23 additive and other additives as required to produce a mix meeting Table 652-1.

24 At least 10 days before start of asphalt mix production, submit the mix design and  
25 proposed JMF targets for each required mix type and combination of aggregates to the  
26 Engineer for review and approval. The JMF will be established in accordance with  
27 Article 610-3. Establish the asphalt binder content at the midpoint of the range specified  
28 in Table 652-1 or as approved.

29 **(B) Mix Design**

30 Design PADC mixtures conforming to the gradation requirements and other mix design  
31 criteria in Table 652-1 for the mix type specified.

32 Use the asphalt binder grade shown in Table 652-1 for the mix type specified or as  
33 approved.

34 Use an anti-strip additive in all PADC mixes. It may be hydrated lime or a chemical  
35 additive or both. Add chemical anti-strip additive at a rate of 0.5% by weight of asphalt  
36 binder. Add hydrated lime at a rate of 1.0% by weight of dry aggregate. Use an approved  
37 source and grade.

- 1 The mixing temperature at the asphalt plant will be established on the JMF. The JMF  
 2 mix temperature shall be within the ranges shown in Table 652-1 unless otherwise  
 3 approved.

<b>TABLE 652-1 PERMEABLE ASPHALT DRAINAGE COURSE GRADATION AND MIX DESIGN CRITERIA</b>		
<b>Sieve Size (mm)</b>	<b>Total Percent Passing</b>	
	<b>Type P-78M</b>	<b>Type P-57</b>
37.5	-	100
25.0	-	95 - 100
19.0	100	-
12.5	95 - 100	25 - 60
9.50	75 - 100	-
4.75	20 - 45	10 - 20
2.36	3 - 15	5 - 10
0.075	1.0 - 3.0	1.0 - 3.0
Asphalt Binder Content, %	2.5 - 3.5	2.0 - 3.0
Mixing Temperature at Plant	240 - 270°F	260 - 290°F

4 **652-4 CONSTRUCTION METHODS**

5 Produce, transport to the site and place the asphalt plant mix in accordance with Section 610,  
 6 except as otherwise provided herein.

7 Incorporate the asphalt binder into the asphalt plant mix in accordance with Section 620. Add  
 8 the anti-strip additive to the asphalt binder in accordance with Article 620-3.

9 A prime coat or tack coat will not be required.

10 When the PADC is placed in trench sections, the rolling equipment and rolling sequences  
 11 required by Article 610-9 will not apply.

12 Following placement of the PADC mixture to the appropriate line, grade and thickness, begin  
 13 rolling when the mat has cooled sufficiently to support the weight of an 8 to 12 ton steel-  
 14 wheel tandem roller. Mat temperature at the time of initial rolling shall be approximately  
 15 175°F to 225°F. The maximum number of roller passes shall be three. Consolidate the  
 16 drainage layer sufficiently with rolling so as to support the weight of equipment that will  
 17 place the next layer of pavement. Do not compact the drainage layer to the extent that it is not  
 18 free draining or that the aggregate is crushed. Density acceptance testing is not required for  
 19 this layer.

20 No construction traffic will be allowed to travel on any PADC layer. Only equipment  
 21 necessary to place the next layer of pavement will be allowed on the drainage layer.

22 Do not place PADC that will not be covered with the next layer of pavement during the same  
 23 calendar year or within 15 days of placement if the PADC is placed in January or February.

**Section 654**

1 **652-5 QUALITY MANAGEMENT SYSTEM FOR ASPHALT PAVEMENTS**

2 Produce the PADC in accordance with the Section 609, with the following exceptions.

3 Sample and test the completed mixture from each mix design per plant per year at the  
4 following minimum frequency during mix production:

<u>Accumulative Production Increment</u>	<u>Number of Samples per Increment</u>
500 tons	1

5 Record the following data on the standardized control charts and in accordance with the  
6 requirements of Section 7.4 of the *Asphalt QMS Manual*:

- 7 (a) Aggregate Gradation Test Results:
- 8 1. 12.5 mm (Type P-57 Only)
- 9 2. 9.5 mm (Excluding Type P-57)
- 10 3. 4.75 mm
- 11 4. 2.36 mm
- 12 5. 0.075 mm Sieves
- 13 (b) Binder Content, %, P<sub>b</sub>

14 **652-6 MEASUREMENT AND PAYMENT**

15 *Permeable Asphalt Drainage Course, Type \_\_\_\_* will be paid as the actual number of tons of  
16 drainage course incorporated into the completed and accepted work. The drainage course will  
17 be measured by being weighed in trucks on certified platform scales or other certified  
18 weighing devices.

19 *Asphalt Binder for Plant Mix* will be paid in accordance with Article 620-4.

20 Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Permeable Asphalt Drainage Course, Type P-78M	Ton
Permeable Asphalt Drainage Course, Type P-57	Ton

21 **SECTION 654**  
22 **ASPHALT PLANT MIX, PAVEMENT REPAIR**

23 **654-1 DESCRIPTION**

24 Perform the work covered by this section including, but not limited to, repairing of existing  
25 pavement with asphalt plant mix in order to provide a safe, passable and convenient condition  
26 for traffic, or to replace pavement removed in order to remove or to place pipe lines.

27 Perform the work by cutting the existing pavement to a neat vertical joint and uniform line;  
28 removing and disposing of pavement, base and subgrade material as approved or directed;  
29 coating the area to be repaired with a tack coat; furnishing, placing and compacting asphalt  
30 plant mix; and replacing of the removed material with asphalt plant mix.

31 Make the repairs in accordance with the plans, or as approved or directed.

32 **654-2 MATERIALS**

33 Where a pavement repair detail is not shown in the plans, use an approved asphalt plant mix.

34 Where a pavement repair detail is shown in the plans, the type of plant mix shall be in  
35 accordance with the pavement repair detail except where the Specifications permit the  
36 substitution of another type of plant mix or where approved.