

1 Concrete Pavement, Through Lanes, (with dowels), ___" Portland Cement Concrete
 2 Pavement, Ramps, (with dowels) or ___" Portland Cement Concrete Pavement,
 3 Miscellaneous, (without dowels) which price and payment will be full compensation for
 4 all work including placement, removal, restoration of subgrade and base and replacement.

5 **(D) Multiple Adjustments in Price**

6 Pavement found deficient in both thickness and strength will be evaluated by the
 7 Engineer to determine if it may be permitted to remain in place. Pavement permitted to
 8 remain in place will be paid at a reduced price determined by successively multiplying
 9 the contract price by the appropriate factor indicated for each deficiency.

10 **(E) Compensation**

11 Payment at the contract unit prices for ___" Portland Cement Concrete Pavement,
 12 Through Lanes, (with dowels) and ___" Portland Cement Concrete Pavement Ramps,
 13 (with dowels) and ___" Portland Cement Concrete Pavement, Miscellaneous, (without
 14 dowels) will be full compensation for all work covered by this section.

15 **(F) Pay Items**

16 Payment will be made under:

Pay Item	Pay Unit
___" Portland Cement Concrete Pavement, Through Lanes (with dowels)	Square Yard
___" Portland Cement Concrete Pavement, Ramps (with dowels)	Square Yard
___" Portland Cement Concrete Pavement, Miscellaneous (without dowels)	Square Yard

17 **SECTION 720**
 18 **CONCRETE SHOULDERS**

19 **720-1 DESCRIPTION**

20 Perform the work covered by this section including, but not limited to, the construction of
 21 Portland cement concrete shoulders in accordance with this section and with the lines, grades
 22 and dimensions shown on the plans; designing the mix; furnishing and placing the concrete
 23 shoulders; furnishing maturity testing equipment; furnishing all admixtures and additives;
 24 constructing joints; furnishing joint materials; curing the shoulder and furnishing curing
 25 materials; coring and patching core holes; taking actions to prevent or repair cracking; and
 26 removing and replacing unsatisfactory shoulder.

27 **720-2 MATERIALS**

28 Refer to Division 10.

Item	Section
Curing Agents	1026
Dowels and Tie Bars	1070-6
Joint Filler	1028-1
Low Modulus Silicone Sealant	1028-3
Portland Cement Concrete	1000
Water	1024-4

29 **720-3 COMPOSITION OF CONCRETE**

30 Design the concrete mix in accordance with Section 1000.

Section 720

1 720-4 ACCEPTANCE OF CONCRETE

2 The Engineer will test concrete shoulders for acceptance with respect to compressive strength
3 and thickness on a lot by lot basis. A "lot" is defined in Article 710-4.

4 720-5 EQUIPMENT

5 Use equipment in the production and placement of the concrete shoulders in accordance with
6 Section 700 and Section 1000.

7 720-6 CONSTRUCTION METHODS

8 Place the concrete shoulders only in the presence of an authorized representative of the
9 Engineer. Construct concrete shoulders in accordance with Section 700.

10 Place the full width of the shoulder in a single operation.

11 720-7 FINISHING

12 Finish the shoulder surface with approved equipment. Hand finishing will be permitted when
13 the use of mechanical finishing equipment is impractical.

14 Perform the final finishing of the shoulder surface by burlap dragging, brooming or other
15 acceptable methods that will produce a similar surface texture acceptable to the Engineer.

16 720-8 JOINTS

17 Construct and seal all joints in accordance with Articles 700-11 and 700-12 except as
18 provided in this article. Saw all joints in the concrete shoulder and seal with joint sealer as
19 shown in the plans.

20 Dowels will not be required at the transverse joints in the concrete shoulder. Use tie bars
21 between the concrete pavement and the concrete shoulder.

22 Match the transverse joints in the concrete shoulder with the transverse joints in the adjacent
23 concrete pavement.

24 720-9 THICKNESS TOLERANCES

25 The Engineer will determine the thickness of the shoulder by measurement of cores in
26 accordance with AASHTO T 148. A lot for thickness acceptance testing is defined in
27 Article 710-4.

28 Take one 4 inch core from each lot at a random location as directed. Core each location in the
29 presence of the Engineer. The Engineer will take immediate possession of the cores. Take
30 cores with a diameter of 4 inches and deliver them to the Engineer for measurement. When
31 the required thickness for the shoulder varies, each core will be measured and compared to the
32 required thickness for the shoulder at the location of the core. The deviation of the measured
33 core thickness from the required thickness will be recorded as a plus or minus value for each
34 core. Thickness tolerances in Article 710-9 apply for concrete shoulders.

35 720-10 MEASUREMENT AND PAYMENT

36 (A) General

37 *Concrete Shoulders Adjacent to ___" Pavement* will be measured and paid as the actual
38 number of square yards of shoulders completed and accepted. In measuring this quantity,
39 the width of the shoulders will be as called for on the plans or as directed by the
40 Engineer. The length will be the actual length constructed, measured along the surface of
41 the shoulders at the centerline of each shoulder.

42 (B) Shoulder Deficient in Thickness

43 Pay factors are determined in accordance with Subarticle 710-10(B). When the shoulder
44 is deficient in thickness by more than 1 inch, the Engineer will determine if the shoulder

1 can be left in place or be removed and replaced. Where the Engineer determines the
 2 shoulder can be left in place, the shoulder will be accepted at a reduced unit price not to
 3 exceed 50% as provided in Article 105-3.

4 **(C) Concrete Shoulder Varying In Strength**

5 Concrete shoulders shall meet the strength requirements of Subarticle 710-10(C).

6 The quantities of concrete shoulder that fail to meet 4,500 psi, measured as provided in
 7 Article 710-10, will be paid for at an adjusted unit price per square yard completed in
 8 place and accepted. The adjusted contract unit price will be determined by multiplying
 9 the contract unit price by the pay factor level in Subarticle 710-10(C).

10 Where concrete shoulder deficient in strength is removed and replaced, the replacement
 11 pavement, if acceptable, will be paid at the contract unit price for *Concrete Shoulders*
 12 *Adjacent to ___" Pavement*, which price and payment will be full compensation for all
 13 work of placement, removal and replacement.

14 **(D) Multiple Adjustments in Price**

15 Concrete shoulder found deficient in both thickness and strength will be evaluated by the
 16 Engineer to determine if it may be permitted to remain in place. Concrete shoulder
 17 permitted to remain in place will be paid at a reduced price determined by successively
 18 multiplying the contract price by the appropriate factor indicated for each deficiency.

19 **(E) Pay Items**

20 Payment will be made under:

Pay Item	Pay Unit
Concrete Shoulders Adjacent to ___" Pavement	Square Yard

21 **SECTION 723**
 22 **CONCRETE REPAIR**

23 **723-1 DESCRIPTION**

24 Perform work covered by this section, including, patching concrete pavement spalls and
 25 repair of jointed concrete pavement slabs using very high early strength concrete.

26 Patch partial and full depth spalls in existing Portland cement concrete pavement by sawing
 27 and removing the broken, damaged or disintegrated concrete pavement from the spalled areas
 28 of the pavement surface and patch the areas with an approved patching material. Alternate
 29 methods and materials for patching concrete spalls may be submitted by the Contractor for
 30 approval by the Engineer.

31 Remove and satisfactory dispose of existing damaged jointed concrete pavement slabs,
 32 furnish and place new jointed concrete pavement slabs as shown in the plans or directed by
 33 the Engineer.

34 **723-2 MATERIALS**

35 Refer to Divisions 6, 7 and 10.

Item	Section
Portland Cement Concrete	1000
Curing Agents	1026
Water	1024-4
Select Material, Class IV	1016
Dowels and Tie Bars	1070-6
Geotextile for Soil Stabilization	270