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**Full Depth Removal of Existing Surfacing from Bridge Deck**

After completing the survey of the existing bridge deck surface, as specified in Section 5-04.3 as supplemented in these Special Provisions, and receiving the final grade paving profile and maximum planing depths from the Engineer, the Contractor shall remove the existing surfacing from the bridge deck(s) of bridge(s) specified in the Plans to receive complete removal of existing surfacing.

Except as noted below for surfacing within 12 inches of bridge expansion joints, the Contractor shall remove the existing surfacing from the bridge deck by any method (such as road grader, loader bucket, flat edged backhoe bucket, hydromilling, hand tools, etc.) approved by the Engineer that does not damage or remove the existing bridge deck concrete. The Contractor shall submit the proposed methods and equipment to be used to remove the existing surfacing from the bridge deck to the Engineer for approval in accordance with Section 1-05.3

The top layer of surfacing within 12 inches of the edge of an existing bridge expansion joint header or steel expansion joint assembly without a header, and surfacing inaccessible to the rotary milling machines, shall be removed by hand or by low impact hand tools as approved by the Engineer. Use of rotary milling machines to remove the top layer of surfacing in these areas will not be allowed. All damage to existing expansion joint headers and expansion joint components due to the Contractor's operations shall be repaired in accordance with Section 1-07.13.

The Contractor may use hydromilling equipment to remove existing bridge deck surfacing, provided that the equipment is calibrated to remove the surfacing materials without removing more than 1/8 inch of the cement paste or leaving a striated surface on the bridge deck surface. The Contractor shall conduct a successful demonstration of the hydromill calibration for the Engineer, and shall have received the Engineer's approval, before beginning production removal of existing surfacing from the bridge deck. The Contractor shall monitor the operation of the hydromilling equipment to prevent the unnecessary removal of sound concrete in excess of the surface amount specified.

The Contractor may use rotary milling equipment to remove all or a portion of the existing surfacing from the bridge deck, subject to the restrictions in this Special Provision. Rotary milling equipment may be used to remove up to the maximum planing depth specified by the Engineer, subject to the following requirements:

1. The rotary milling machine shall conform to Section 1-07.7 with a maximum operating weight of 35 tons.
2. The rotary milling machine shall have independent grade control to a tolerance of  $\pm 0.02$  feet of final grade, and transverse slope control conforming to the tolerance specified in this Section.
3. The cutting tooth spacing on the rotary milling head shall be less than or equal to 1/4 inch.
4. The rotary milling machine shall have cutting teeth that leave a uniform plane surface at all times. All teeth on the mill head shall be even and

1 maintained during milling to a maximum differential tolerance of 3/8 inch  
2 between the shortest and longest tooth, as measured by a straight edge  
3 placed the full width of the rotary milling head.  
4

5 5. All rotary milling machine cutting tips shall remain sharp during milling  
6 operations. A tip is considered dull if it is worn close to the lower base of  
7 the cutting tip material or if less than 30 percent of the total length of the  
8 cutting tip material remains.  
9

10 6. The depth of surfacing removal at each bridge, as measured to the bottom  
11 of the lowest milling groove generated by the rotary milling machine, shall  
12 not exceed the maximum planing depth specified for that bridge deck by  
13 the Engineer.  
14

15 Prior to beginning bridge deck surfacing planing operations for that day, and  
16 whenever requested by the Engineer, the Contractor shall confirm to the  
17 satisfaction of the Engineer that the rotary head cutting teeth are within the  
18 specified tolerance for maximum differential tolerance and maximum planing depth.  
19

20 If the rotary milling equipment does not conform to requirements 2 through 5 above,  
21 it may still be used to remove an upper layer of the existing surfacing, but only to a  
22 depth of 0.04 feet less than the maximum planing depth specified by the Engineer,  
23 and the surfacing left behind shall be removed by other methods and equipment  
24 approved by the Engineer that do not damage or remove the existing bridge deck  
25 concrete.  
26

27 If rotary milling operations contact existing bridge deck steel reinforcing bars at any  
28 time, the Contractor shall immediately cease planing operations and notify the  
29 Engineer. The Contractor shall reduce the planing depth for that bridge deck by  
30 0.02 feet or as otherwise specified by the Engineer, and shall not resume rotary  
31 milling operations until completing the appropriate adjustments to the rotary milling  
32 machine and receiving the Engineer's approval to proceed.  
33

34 The existing concrete bridge deck may have ruts in the wheel lines. After planing,  
35 the Contractor shall remove all loose and unsound surfacing not firmly bonded to  
36 the bridge deck – including surfacing remaining in the wheel line ruts, as specified  
37 by the Engineer, using methods and equipment that does not damage the existing  
38 concrete bridge deck, as approved by the Engineer. Existing surfacing firmly  
39 bonded to the bridge deck after planing operations may remain in place as  
40 approved by the Engineer.  
41

42 All bridge deck concrete and bridge deck steel reinforcing bar damage due to the  
43 Contractor's surfacing removal operations shall be repaired by the Contractor in  
44 accordance with the **Repair of Damage to Bridge Decks due to Surfacing**  
45 **Removal Operations** subsection of these Special Provisions.