

STANDARD SPECIFICATIONS

STATE OF CALIFORNIA
BUSINESS, TRANSPORTATION AND HOUSING AGENCY
DEPARTMENT OF TRANSPORTATION

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DEPARTMENT OF TRANSPORTATION



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SECTION 42: GROOVE AND GRIND PAVEMENT

42-1 GROOVING

42-1.01 DESCRIPTION

· This work shall consist of grooving the surface of asphalt concrete or portland cement concrete pavement and bridge decks as shown on the plans and as specified in these specifications and the special provisions.

42-1.02 CONSTRUCTION

· Grooved areas shall begin and end at lines normal to the pavement center line and shall be centered within the lane width. If new concrete pavement is grooved, the grooving in any lane shall cover the full lane width.

· Grooving blades shall be $2.41 \text{ mm} \pm 0.13\text{-mm}$ wide and shall be spaced 19 mm on centers. The grooves shall be cut not less than 3 mm nor more than 7 mm deep. The grooves on bridge decks shall be cut not less than 3 mm nor more than 5 mm deep. Grooves over inductive loop detectors shall be cut not less than 2 mm nor more than 3 mm deep.

· At the beginning of each work shift, all grooving machines shall be equipped with a full complement of grooving blades that are capable of cutting grooves of the specified width, depth and spacing.

· If during the course of work a single grooving blade on any individual grooving machine becomes incapable of cutting a groove, work will be permitted to continue for the remainder of the work shift, and the Contractor will not be required to otherwise cut the groove omitted because of the failed blade. Should 2 or more grooving blades on any individual grooving machine become incapable of cutting grooves the Contractor shall either:

- (a) Discontinue work with the affected grooving machine within 15 m of the location where more than one blade became incapable, in which event the Contractor will not be required to otherwise cut the grooves omitted because of the failed blades; or
- (b) Continue work with the affected grooving machine for the remainder of the work shift and by other means cut all grooves omitted, including grooves omitted because a single blade was incapable, by the affected grooving machine within that work shift. The omitted grooves shall be cut before any of the grooving work performed during the time the grooves were omitted will be accepted.

· The actual grooved area of any selected 0.6-m by 30 m longitudinal area of pavement specified to be grooved shall be not less than 95 percent of the selected area. Grooves which are omitted as permitted for blades which become incapable will be measured as being actually grooved. No area will be measured until omitted grooves, which are required to be cut before the area is accepted, have been cut. Except as provided for omitted grooves due to an incapable blade, any area within the selected area not grooved shall be due only to irregularities in the pavement surface and for no other reason.

· Residue from grooving operations shall be picked up by means of a vacuum attachment to the grooving machine and shall not be allowed to flow across the

pavement nor be left on the surface of the pavement. Residue from grooving portland cement concrete pavement shall be disposed of at the location listed and in the manner specified in the "Materials Information" available to Contractors. Residue from grooving asphalt concrete shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13.

- At the option of the Contractor, the residue from grooving portland cement concrete pavement may be disposed of at a site chosen by the Contractor if the Contractor obtains approval from the California Regional Water Quality Control Board having jurisdiction over the site. A copy of the approval shall be delivered to the Engineer before disposing of residue at the site.

- The noise level created by the combined grooving operation shall not exceed 86 dBA at a distance of 15 m at right angles to the direction of travel.

42-1.03 MEASUREMENT

- Pavement grooving on existing pavement will be measured by the square meter. The quantity of pavement grooving to be paid for will be determined by multiplying the width of the grooved area by the horizontal length grooved.

42-1.04 PAYMENT

- The contract price paid per square meter for groove existing concrete pavement shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in grooving the existing concrete pavement, including removing and disposing of residue, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

42-2 GRINDING

42-2.01 DESCRIPTION

- This work shall consist of grinding asphalt concrete or portland cement concrete pavement and roadway surfaces of structures as shown on the plans and as specified in these specifications and the special provisions.

42-2.02 CONSTRUCTION

- Grinding shall be performed with abrasive grinding equipment utilizing diamond cutting blades.

- Except on structures, the entire area of pavement in locations designated shall be ground.

- Existing portland cement concrete pavement not constructed as part of the project shall be ground as follows:

Grinding shall be performed so that the pavement surface on both sides of all transverse joints and cracks has essentially the same depth of texture and does not vary from a true plane enough to permit a 1.9 mm thick shim 75 mm wide to pass under a one-meter straightedge adjacent to either side of the joint or crack when the straightedge is laid on the pavement parallel to centerline with its midpoint at the joint or crack. After grinding has been completed, the pavement shall conform to the straightedge and profile requirements specified in Section 40-1.10, "Final Finishing," except that pavement on tangent alignment and on horizontal curves of any radius shall have a profile index of 19 mm or less per 0.1-km.

Abnormally depressed areas due to subsidence or other localized causes will be excluded from testing with the profilograph and 3.6-m±0.06-m straightedge specified in Section 40-1.10. The accumulated total of the excluded areas shall not exceed 5 percent of the total area to be ground. Profilograph testing shall end 8 m prior to excluded areas and shall resume 8 m following the excluded areas.

- Existing asphalt concrete pavement not constructed as part of the project shall be ground so that the finished surface shall not vary from a true plane enough to permit a 3-mm thick shim 75 mm wide to pass under a straightedge 3.6 m±0.06-m long when the straightedge is laid on the finished surface parallel with the centerline. The transverse slope of the finished surface shall be uniform to a degree such that a 6 mm thick shim 75 mm wide will not pass under a straightedge 3.6 m±0.06-m long when the straightedge is laid on the finished surface in a direction transverse to the centerline and extending from edge to edge of a 3.6-m traffic lane.
- Ground areas on structures, approach slabs and the adjacent 15 m of approach pavement shall conform to the provisions for smoothness and concrete cover over reinforcing steel in Section 51-1.17, "Finishing Bridge Decks."
- Ground surfaces shall not be smooth or polished and, except as otherwise specified in Section 51-1.17, shall have a coefficient of friction of not less than 0.30 as determined by California Test 342.
- Residue from grinding operations shall be picked up by means of a vacuum attachment to the grinding machine and shall not be allowed to flow across the pavement nor be left on the surface of the pavement. Residue from grinding portland cement concrete pavement shall be disposed of at the location listed and in the manner specified in the "Materials Information" available to Contractors. Residue from grinding asphalt concrete shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13.
- At the option of the Contractor, the residue from grinding portland cement concrete pavement may be disposed of at a site chosen by the Contractor if the Contractor obtains approval from the California Regional Water Quality Control Board having jurisdiction over the site. A copy of the approval shall be delivered to the Engineer before disposing of residue at the site.
- The noise level created by the combined grinding operation shall not exceed 86 dBA at a distance of 15 m at right angles to the direction of travel.

42-2.03 PAVEMENT REPLACEMENT

- In lieu of grinding existing portland cement concrete pavement, the Contractor may remove any section of the existing pavement and replace with new portland cement concrete pavement of the same nominal thickness as the removed pavement. The pavement shall be removed and replaced for the full width between longitudinal joints or edges of pavement and the full length between transverse joints. Removing and replacing portions of slabs will not be permitted.
- Replacement concrete paving shall conform to the provisions in Section 40, "Portland Cement Concrete Pavement." Replacement pavement may be placed by methods and equipment conforming to the provisions for placing concrete in widths less than a traffic lane in Section 40-1.07, "Spreading, Compacting and Shaping."

SECTION 42

GROOVE AND GRIND PAVEMENT

Finishing may be performed by hand float method, as specified in Section 40-1.09A, "Stationary Side Form Finishing."

- If grinding of replacement pavement is necessary to conform to the provisions of this section, no additional compensation for that grinding will be allowed.
- When pigmented compound is used for the required curing on replacement concrete, the compound may be stirred by manual means during application. Application may be made by hand-held spraying equipment and nozzles may be unshielded.
- The Contractor's attention is directed to Section 7-1.11, "Preservation of Property." Concrete removal and replacement operations shall be performed in such manner that adjacent concrete pavement and subgrade are not disturbed. In the event material underlying removed concrete pavement is disturbed, it shall be recompacted at the Contractor's expense to a relative compaction of not less than 95 percent.
- Concrete pavement removed and replaced in lieu of grinding will be measured and paid for by the square meter as grind existing concrete pavement.
- If the grinding on a section of concrete pavement has begun and the Contractor thereafter elects to remove and replace the section, in lieu of grinding, no payment will be made for grinding performed on that section prior to replacement.

42-2.04 MEASUREMENT

- Pavement grinding on existing pavements will be measured by the square meter. The quantity of pavement grinding to be measured for payment will be determined by multiplying the width of the area ground by the length ground.

42-2.05 PAYMENT

- The contract price paid per square meter for grind existing concrete pavement shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in grinding the existing pavement and removing and disposing of residue, including furnishing water for washing the pavement, as shown on the plans, as specified in these specifications and the special provisions and as directed by the Engineer.

SECTIONS 43 THROUGH 48: (BLANK)