

1 **STAFF DRAFT WATERCOURSE CROSSING INTEGRATION-ROAD RULES, 2013**

2
3 **923.310, 943.310, 963.310 Watercourse Crossings [All Districts]**

4 Watercourse crossing drainage structures on logging roads shall be planned,
5 constructed, reconstructed, and maintained or removed, in the context of a systematic
6 logging road layout pattern and consistent with their proposed use. ~~according to the~~
7 ~~following standards.~~ Exceptions may be provided through application of Fish and Game
8 Code Sections 1600 et seq. and shall be included in the THP plan.

9 **(a)** The planning for and use of logging road watercourse crossings shall include the
10 evaluation and documentation of significant existing and potential erosion sites
11 consistent with 14 CCR § 923.1(e) [943.1(e), 963.1(e)].

12 **(b)** The number of crossings shall be kept to a feasible minimum. Existing logging road
13 watercourse crossing locations shall be utilized where feasible and appropriate.

14 **(gc)** All new permanent culverts on Class I watercourses, where fish are always or
15 seasonally present or where fish habitat is restorable, shall be planned, designed and
16 constructed to allow upstream and downstream passage of fish or listed aquatic species
17 during any life stage and for the natural movement of bedload to form a continuous bed
18 through the culvert, and shall require an analysis and specifications demonstrating
19 conformance with the intent of this section and subsection, and the conditions of
20 required DFG 1600 Agreements.

21 **(ed)** Drainage structures on watercourses that support fish shall allow for unrestricted
22 passage of all life stages of fish that may be present, and shall be fully described in the
23 plan in sufficient clarity and detail to allow evaluation by the review team and the public,
24 provide direction to the LTO for implementation, and provide enforceable standards for
25 the inspector.

1 (e) In watersheds with listed anadromous salmonids, for Class I watercourses, where
2 fish are always or seasonally present or where fish habitat is restorable, any plan
3 involving timber operations within the WLPZ shall contain the following information:

4 (1) A description of all existing permanent logging road watercourse crossings.

5 (2) Clear and enforceable specifications describing how these crossings are to
6 be modified, used, and treated to minimize risks, giving special attention to allowing fish
7 to pass both upstream and downstream during all life stages and in conformance with
8 the standards of subsection (h) above.

9 (3) Clear and enforceable specifications for construction and operation of any
10 new crossing(s) of a Class I watercourse to prevent direct harm, habitat degradation,
11 water velocity increase, hindrance of fish passage at all life stages, or other potential
12 impairment of beneficial uses of water.

13 (f) In watersheds with listed anadromous salmonids, in addition to the requirements of
14 14 CCR § 923.10(k) [943.10(k), 963.10(k)], the method of analysis and the design for
15 crossing protection shall be included in the plan.

16 (ag) The location of all new permanent ~~constructed and reconstructed, and temporary~~
17 logging road watercourse crossings, including those crossings to be abandoned or
18 deactivated, ~~drainage structures and temporary crossings located within the WLPZ shall~~
19 be shown on ~~a the THP~~ map. ~~This requirement may be met by depicting the~~
20 intersection of a logging road and a watercourse. If the structure is a culvert intended for
21 permanent use, the minimum diameter of the culvert and the method(s) used to
22 determine the culvert diameter shall be specified in the plan. Extra culverts beyond
23 those shown ~~in on the THP a~~ map may be installed as necessary.

24 (1) The location of all logging road watercourse crossings to be constructed or
25 reconstructed shall be flagged or otherwise identified on the ground prior to the pre-

1 harvest inspection, if necessary, or prior to logging road watercourse crossing
2 construction or reconstruction. Exceptions may be explained and justified in the plan
3 and agreed to by the Director if flagging is unnecessary as a substantial aid to
4 examining possible significant adverse effects of the crossing location on the factors
5 listed under 14 CCR § 923(b) [943(b), 963(b)].

6 **(eh)** All permanent watercourse crossings that are constructed or reconstructed shall
7 accommodate the estimated 100-year flood flow, including debris and sediment loads.

8 **(i)** All culverts used for new and replacement logging road watercourse crossings shall
9 be installed at or as close as practical and feasible to the natural watercourse grade.
10 Culverts shall be installed in alignment with the watercourse channel to the extent
11 feasible, and of the appropriate length to prevent fill erosion.

12 **(1)** Logging road watercourse crossings shall not discharge water onto erodible
13 fill or other erodible material without the installation of energy dissipaters and other
14 necessary protective structures.

15 **(j)** Fills for constructed and reconstructed logging road watercourse crossings shall be
16 thoroughly compacted in approximately one-foot lifts during installation. The face of
17 crossing fills shall be no greater than 65 percent (1.5:1, horizontal to vertical).

18 Excavated material and cut banks resulting from construction or reconstruction which
19 has access to a watercourse shall be sloped back from the channel to prevent
20 slumping, to minimize soil erosion, and to prevent significant sediment discharge.

21 Logging road watercourse crossings shall not discharge water onto erodible fill or other
22 erodible material without the installation of energy dissipaters and other necessary
23 protective structures.

24 **(fk)** Watercourse crossings and associated fills and approaches shall be constructed ~~or~~
25 and maintained to prevent diversion of stream overflow down the road, and to minimize

1 fill erosion should the drainage structure become obstructed. Methods to mitigate or
2 address diversion of stream overflow at logging road watercourse crossings shall be
3 stated in the plan. ~~The RPF may propose a~~An exception to the standard rule may be
4 approved by the Director where the RPF has explained and justified in the plan that the
5 protection provided by the proposed practice is at least equal to the protection provided
6 by the standard rule. The location of proposed exceptions shall be and shown on the
7 THP plan map, and justified how the protection provided by the proposed practice is at
8 least equal to the protection provided by the standard rule.

9 (l) Any necessary protective structures associated with logging road watercourse
10 crossings such as wing walls, rock armored headwalls, and downspouts shall be
11 adequately sized to transmit runoff, minimize erosion of crossing fills, and prevent
12 significant sediment discharge. Rock used to stabilize the outlets of ford crossings shall
13 be adequately sized to resist mobilization, with the range of required rock dimensions
14 described in the plan.

15 (m) The following drainage standards shall apply to logging road watercourse crossings:

16 (1) Adequate surface drainage at logging road watercourse crossings shall be
17 provided through the use of logging road surface shaping in combination with the
18 installation of drainage facilities, ditch drains, or other necessary protective structures to
19 hydrologically disconnect the road from the crossing to the extent feasible.

20 (2) Consistent with 14 CCR § 923.5(a)-(i) [943.5(a)-(i), 963.5(a)-(i)], drainage
21 facilities and ditch drains shall be installed adjacent to logging road watercourse
22 crossings, as needed, to hydrologically disconnect to the extent feasible the logging
23 road approach from the crossing, to minimize soil erosion and sediment transport and to
24 prevent significant sediment discharge during and upon completion of timber
25 operations.

1 **(3) Drainage facilities installed adjacent to logging road watercourse crossings**
2 shall be located to avoid discharging concentrated runoff onto fills, erodible soils,
3 unstable areas, and connected headwall swales.

4 **(n) Where a significant volume of sediment is stored upstream from a logging road**
5 **watercourse crossing that is proposed to be reconstructed or removed, the stored**
6 **sediment shall be removed or stabilized, to the extent feasible, as described in the plan**
7 **and in conformance with the conditions of required DFG 1600 agreements, where**
8 **applicable.**

9 **(o) Where crossing fills over culverts are large, or where logging road watercourse**
10 **crossing drainage structures and erosion control features historically have a high failure**
11 **rate, such drainage structures and erosion control features shall be oversized, designed**
12 **for low maintenance, reinforced, or removed before the completion of timber operations,**
13 **or as specified in the plan.**

14 **(p) Logging road watercourse crossings shall not be constructed or reconstructed under**
15 **saturated soil conditions or when such activities could result in significant sediment**
16 **discharge.**

17 **(q) Temporary logging road watercourse crossings shall be removed and stabilized prior**
18 **to the winter period or as specified in the plan.**

19 **(1) If operations are conducted during the winter period, temporary logging road**
20 **watercourse crossings shall be sized to accommodate the estimated 100-year flood flow**
21 **level unless properly functioning or removed before the flow exceeds capacity at the**
22 **individual crossing.**

23 **(r) In watersheds with listed anadromous salmonids and in planning watersheds**
24 **immediately upstream of, and contiguous to, any watershed with listed anadromous**
25 **salmonids, during the extended wet weather period no timber operations shall take**

1 place unless the approved plan incorporates a complete winter period operating plan
2 pursuant to 14 CCR § 914.7(b) [934.7(b), 954.7(b)] that specifically addresses, where
3 applicable, proposed logging road watercourse construction or reconstruction. Where
4 logging road watercourse crossing construction or reconstruction is proposed, the RPF
5 shall describe in the plan a logical order of treatment.

6 **(s)** The following stabilization standards shall apply to logging road watercourse
7 crossings:

8 **(1)** Bare soil on fills or sidecast associated with logging road watercourse
9 crossings that are created or exposed by timber operations shall be stabilized to the
10 extent necessary to minimize soil erosion and sediment transport and to prevent
11 significant sediment discharge. Erosion control measures for the traveled surface of
12 roads and landing surfaces are specified in 14 CCR §§ 923.5 [943.5, 963.5] and 923.7
13 [943.7, 963.7]. Sites to be stabilized include, but are not limited to, sidecast or fill
14 greater than 20 feet in slope distance from the outside edge of the road surface at the
15 logging road watercourse crossing.

16 **(2)** Soil stabilization measures shall be described in the plan and may include,
17 but are not limited to, removal, armoring with rip-rap, replanting, mulching, seeding,
18 installing commercial erosion control devices to manufacturer's specifications, or
19 chemical stabilizers.

20 **(3)** Soil stabilization treatments shall be in place upon completion of operations
21 for the year of use or prior to the extended wet weather period, whichever comes first.

22 An exception is that bare areas created during the extended wet weather period shall be
23 treated prior to the start of rain that generates overland flow, or within 10 days,
24 whichever is sooner, or as agreed to by the Director.

1 (4) In watersheds with listed anadromous salmonids and in planning watersheds
2 immediately upstream of, and contiguous to, any watershed with listed anadromous
3 salmonids, within the WLPZ and within any ELZ or EEZ designated for watercourse or
4 lake protection, treatments to stabilize soils, minimize soil erosion, and prevent
5 significant sediment discharge, shall be described in the plan as follows:

6 (A) In addition to the requirements of 14 CCR § 923.10(s)(1)-(3)
7 [943.10(s)(1)-(3), 963.10(s)(1)-(3)] , soil stabilization is required for the following:

8 (i) Areas exceeding 100 continuous square feet where timber
9 operations have exposed bare soil.

10 (ii) Disturbed logging road watercourse crossing cut banks and fills,
11 and

12 (iii) Any other area of disturbed soil that threatens to cause
13 significant sediment discharge.

14 (B) Where straw mulch is used, the minimum straw coverage shall be 90
15 percent, and any treated area that has been reused or has less than 90 percent
16 surface cover shall be treated again by the end of timber operations.

17 (C) Where slash mulch is applied, slash coverage in contact with the
18 ground surface shall be a minimum of 75 percent.

19 (D) For areas disturbed outside the extended wet weather period,
20 treatment shall be completed prior to the start of any rain that causes overland
21 flow across or along the disturbed surface that could result in significant sediment
22 discharge.

23 (E) For areas disturbed during the extended wet weather period, treatment
24 shall be completed prior to any day for which a chance of rain of 30 percent or
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1 greater is forecast by the National Weather Service or within 10 days of
2 disturbance, whichever is earlier.

3 ~~(dt) When watercourse crossings, other drainage structures, and associated fills are~~
4 ~~removed, the following standards shall apply:~~ All logging road watercourse crossings
5 that are proposed by the plan submitter to be removed, including temporary crossings
6 and those along abandoned or deactivated roads, shall be removed as described in the
7 plan and shall apply the following standards:

8 (1) Fills shall be excavated to form a channel that is as close as feasible to the
9 natural watercourse grade and orientation, and that is wider than the natural channel as
10 observed upstream and downstream of the logging road watercourse crossing to be
11 removed.

12 (2) The excavated material and any resulting cut bank shall be no greater than
13 65 percent (1.5:1, horizontal to vertical) from the outside edge of the constructed
14 channel sloped back from the channel and stabilized to prevent slumping, and to
15 minimize soil erosion and sediment transport, and to prevent significant sediment
16 discharge. Where needed, this material Exposed soil located between the watercourse
17 crossing and the nearest adjacent drainage facility or hydrologic divide, whichever is
18 closer, including cut banks and excavated material, shall be stabilized by seeding,
19 mulching, rock armoring, replanting, installing commercial erosion control devices to
20 manufacturer's specifications or other suitable treatment to prevent soil erosion and
21 significant sediment discharge.

22 (3) Where it is not feasible to remove a logging road watercourse crossing or its
23 associated fill to the above standards, the plan shall identify how soil erosion and
24 significant sediment discharge will be prevented.

1 (4) All logging road watercourse crossings proposed for removal shall be
2 removed upon completion of use, prior to the winter period or as specified in the
3 applicable DFG 1600 agreement, whichever is earlier, or as otherwise specified in the
4 plan.

5 (5) Where the removal of an individual logging road watercourse crossing would
6 eliminate access to other temporary crossings, the orderly removal of all such
7 temporary crossings shall be as specified in the plan.

8 (u) Logging road watercourse crossings shall be monitored and maintained during
9 timber operations and throughout the prescribed maintenance period as needed, to
10 comply with 14 CCR § 1050. The prescribed maintenance period is specified in 14
11 CCR § 923.7(i)-(j) [943.7(i)-(j), 963.7(i)-(j)]. Monitoring inspections shall be conducted,
12 when access is feasible during the prescribed maintenance period, a sufficient number
13 of times during the extended wet weather period, particularly after large winter storm
14 events and at least once annually, to evaluate watercourse crossing function.

15 (1) Inspections shall include checking watercourse crossings for evidence of
16 downcutting, plugging, overtopping, loss of function, and sediment delivery to Class I, II,
17 or III watercourses and lakes. If evidence of sediment delivery or potential sediment
18 delivery is present, and the implementation of feasible corrective measures could
19 reduce the potential for significant sediment discharge, such additional measures shall
20 be implemented when feasible.

21 (2) Inspections conducted pursuant to California Regional Water Quality Control
22 Board requirements may be used to satisfy the inspection requirements of this section.

23 (v) Logging road watercourse crossings shall be maintained as designed, constructed,
24 and reconstructed during timber operations and throughout the prescribed maintenance
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1 period. Crossings used in connection with stocking activities shall be maintained
2 throughout such use, even if this extends beyond the prescribed maintenance period.

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