the protection of the beneficial uses of water or control erosion to a
standard at least equal to that which would result from the
application of the standard rule.

Amend § 923.5 [943.5, 963.5]. Erosion Control for Logging Roads and
Landings—Landing Construction.
The following erosion control standards shall apply to logging roads
and landings:

(a) All logging road and landing surfaces shall be adequately drained
through the use of logging road and landing surface geometry
configuration/shaping in combination with the installation of drainage
structures or facilities and shall be hydrologically disconnected from
watercourses and lakes to the extent feasible. Guidance on methods for
hydrologic disconnection may be found in the Board’s Technical Rule
Addendum Number 5.

(b) Drainage facilities and structures shall be installed along all
logging roads and all landings that are used for timber operations in
sufficient number to minimize soil erosion and sediment transport and
to prevent significant sediment discharge.

(c) Ditch drains, associated necessary protective structures, and
other features associated with the ditch drain shall:

(1) Be adequately sized, spaced, and of sufficient number to
transmit runoff.

(2) Minimize erosion of logging road and landing surfaces.

(3) Avoid discharge onto unprotected fill.

(4) Discharge to erosion resistant material.
(5) Minimize potential adverse impacts to slope stability.

(d) Waterbreaks and rolling dips installed across logging roads and landings shall be of sufficient size and number and be located to avoid collecting and discharging concentrated runoff onto fills, erodible soils, unstable areas, and connected headwall swales.

(e) Where logging roads or landings do not have permanent and adequate drainage, and where waterbreaks are to be used to control surface runoff, the waterbreaks shall be cut diagonally a minimum of six inches into the firm roadbed and shall have a continuous firm embankment of at least six inches in height immediately adjacent to the lower edge of the waterbreak cut. On logging roads that have firmly compacted surfaces, waterbreaks may be installed by hand methods and need not provide the additional six-inch embankment provided the waterbreak ditch is constructed so that it is at least six inches deep and six inches wide on the bottom and provided there is ample evidence based on slope, material, amount of rainfall, and period of use that the waterbreaks so constructed will be effective in diverting water flow from the logging road surface without the embankment.

(f) Distances between waterbreaks shall not exceed the following standards and consider erosion hazard rating and road gradient:

<table>
<thead>
<tr>
<th>MAXIMUM DISTANCE BETWEEN WATERBREAKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Hazard</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>10 or less</td>
</tr>
</tbody>
</table>

**Rating**

| Feet | Feet | Feet |

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(g) Where outsloping and rolling dips are used to control surface runoff, the dip in the logging road grade shall be sufficient to capture runoff from the logging road surface. The steepness of cross-slope gradient in conjunction with the logging road or landing gradient and the estimated soil erosion hazard rating shall be used to determine the rolling dip spacing in order to minimize soil erosion and sediment transport and to prevent significant sediment discharge.

(h) Drainage facilities and ditch drains shall discharge into vegetation, woody debris, or rock wherever possible. Where erosion-resistant material is not present, slash, rock, or other energy dissipating material shall be installed below the drainage facility or drainage structure outlet.

(i) Where logging road and landing surfaces, road approaches, inside ditches and drainage structures cannot be hydrologically disconnected, and where there is existing or the potential for significant sediment discharge, necessary and feasible treatments to prevent the discharge will be described in the plan.

(j) All logging roads and landings used for timber operations shall have adequate drainage upon completion of use for the year or by October 15, whichever is earlier. An exception is that drainage facilities and drainage structures do not need to be constructed on logging roads and landings in use during the extended wet weather...
period provided that all such drainage facilities and drainage structures are installed prior to the start of rain that generates overland flow off of the logging road or landing surface.

(k) Where logging road or landing construction or reconstruction takes place during the extended wet weather period, drainage facilities and drainage structures shall be installed concurrent with construction or reconstruction operations.

(l) Bare soil on logging road or landing cuts, fills, transported spoils, or sidecast that is created or exposed by timber operations shall be stabilized to the extent necessary to minimize soil erosion and sediment transport and to prevent significant sediment discharge. Sites to be stabilized include, but are not limited to:

(1) Sidecast or fill exceeding 20 feet in slope distance from the outside edge of a logging road or a landing that has access to a watercourse or lake.

(2) Cut and fills associated with approaches to logging road watercourse crossings of Class I or II waters or Class III waters where an ELZ, EEZ, or a WLPZ is required.

(3) Bare areas exceeding 800 continuous square feet within a WLPZ.

(m) Soil stabilization measures shall be described in the plan pursuant to 14 CCR 923.5(1)[943.5(l), 963.5(l)], subsection (k) and may include, but are not limited to, removal, armoring with rip-rap, replanting, mulching, seeding, installing commercial erosion control devices to manufacturer’s specifications, or chemical stabilizers.
(n) Where the natural ability of ground cover within a WLPZ is inadequate to protect the beneficial uses of water by minimizing soil erosion or by filtering sediments, the plan shall specify protection measures to retain and improve the natural ability of the ground cover to filter sediment and minimize soil erosion.

(o) Soil stabilization treatments shall be in place upon completion of operations for the year of use or prior to the extended wet weather operating period, whichever comes first. An exception is that bare areas created during the extended wet weather operating period shall be treated prior to the start of rain that generates overland flow, or within 10 days, whichever is sooner, or as agreed to by the Director.

(p) Overhanging or unstable concentrations of slash, woody debris or soil along the downslope edge or face of landings shall be removed or stabilized when it is located on slopes greater than 65 percent or, within 100 feet of the boundary of a WLPZ on slopes greater than 50 percent that drain toward the zoned watercourse or lake, or when it may result in significant sediment discharge. Removed materials shall not be placed at disposal sites that could result in a significant sediment discharge.

(q) In watersheds with listed anadromous salmonids and in planning watersheds immediately upstream of, and contiguous to, any watershed with listed anadromous salmonids, the following shall apply:

1. Constructed and reconstructed logging roads shall be outsloped where feasible and drained with waterbreaks or rolling dips where the road grade is inclined at seven (7) percent or less) in conformance with other applicable Forest Practice Rules. Outsloping
may not be feasible in all situations due to safety concerns, timing of use, or expected traffic.

(2) In addition to the provisions listed under 14 CCR § 923.2(d)(2) [943.2(d)(2), 963.2(d)(2)], all permanent and seasonal logging roads with a grade of 15 percent or greater that extend 500 continuous feet or more shall have specific erosion control measures stated in the plan.

(3) Within the WLPZ, and within any ELZ or EEZ designated for watercourse or lake protection, treatments to stabilize soils, minimize soil erosion, and prevent significant sediment discharge shall be described in the plan as follows:

(A) In addition to the requirements of subsections (k)–(o), soil stabilization is required for the following areas:

(i) Areas exceeding 100 continuous square feet where timber operations have exposed bare soil, and

(ii) Disturbed logging road and landing cut banks and fills, and

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

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

(C) Where slash mulch is packed into the ground surface through the use of a tractor or equivalent piece of heavy equipment...
the minimum slash coverage in contact with the ground surface shall be 75 percent.

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

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

(F) Where the natural ability of ground cover is inadequate to protect the beneficial uses of water by minimizing soil erosion or by filtering sediments within any ELZ or EEZ designated for watercourse or lake protection, the plan shall specify protection measures to retain and improve the natural ability of the ground cover to filter sediment and minimize soil erosion.

Landings shall be constructed according to the following standards:

(a) On slopes greater than 65%, no fill shall be placed and sidecast shall be minimized to the degree feasible. The Director may approve an exception if, site specific measures to minimize slope instability, soil erosion, and discharge of concentrated surface runoff are described and justified in the THP.

(b) On slopes greater than 50%, fills greater than 4 ft. in vertical height at the outside shoulder of the landing shall be: 1) constructed on a bench that is excavated at the proposed toe of the fill and is
wide enough to compact the first lift, and 2) compacted in approximately 1 ft. lift from the toe to the finished grade. The RPF or supervised designee shall flag the location of this bench or the RPF shall provide a description of the bench location (narrative or drawing) in the THP for fills meeting the above criteria, where the length of landing section is greater than 100 feet. The RPF may propose an exception in the THP and the Director may approve the exception where it is justified that the landing will be stabilized.

(c) Waste organic material, such as uprooted stumps cull logs, accumulations of limbs and branches, or unmerchantable trees, shall not be buried in landing fills. Wood debris or cull logs and chunks may be placed and stabilized at the toe of landing fills to restrain excavated soil from moving downslope.

(d) Constructed landings shall be the minimum in width, size, and number consistent with the yarding and loading system to be used. Landings shall be no larger than one-half acre (.202 ha) unless explained and justified in the THP.

(e) No landing construction shall occur under saturated soil conditions that may produce sediment in quantities sufficient to cause a visible increase in turbidity of downstream waters in receiving Class I, II, III or IV waters or that violate Water Quality Requirements.

(f) The following specifications shall be met upon completion of timber operations for the year or prior to October 15, whichever occurs first:
(1) Overhanging or unstable concentrations of slash, woody debris and soil along the downslope edge or face of the landings shall be removed or stabilized when they are located on slopes over 65% or on slopes over 50% within 100 ft. of a WLPZ.

(2) Any obstructed ditches and culverts shall be cleaned.

(3) Landings shall be sloped or ditched to prevent water from accumulating on the landings. Discharge points shall be located and designed to reduce erosion.

(4) Sidecast or fill material extending more than 20 feet in slope distance from the outside edge of the landing and which has access to a watercourse or lake shall be seeded, planted, mulched, removed or treated as specified in the THP to adequately reduce soil erosion.

(5) Sidecast or fill material extending across a watercourse shall be removed in accordance with standards for watercourse crossing removal set forth in 14 CCR 923.3 (d).

(g) On slopes greater than 35%, the organic layer of the soil shall substantially removed prior to fill placement.

(h) When landings are constructed after October 15 they shall be adequately drained concurrent with construction operations and shall meet the requirements of (f)(1) through (f)(4) of this subsection upon completion of operations at that landing.

(i) The RPF may propose and the Director may approve waiver of requirements in (f)(1) through (f)(4) of this subsection if the Director finds they are not necessary to minimize erosion or prevent damage to downstream beneficial uses. The Director may also approve an
exception to the October 15th date for treatment of slash and debris, including the practice of burning.

Amend § 923.6 [943.6, 963.6]. **Use of Logging Roads and Landings**

Conduct of Operations on Roads and Landings.

The following use standards shall apply to logging roads and landings:

(a) Logging roads and landings shall be used in a manner that is consistent with their design and construction specifications.

(b) Logging roads and landings shall not be used during any time of the year when operations may result in significant sediment discharge to watercourse or lakes, except in emergencies to protect the road, to reduce erosion, to protect water quality, or in response to public safety needs.

(c) **During the extended wet weather period, log** hauling or other heavy equipment uses shall be limited to logging roads and landings which are hydrologically disconnected from watercourses to the extent feasible and exhibit a stable operating surface in conformance with (b) above. Routine use of logging roads and landings may occur on limited segments of roads or landings that do not exhibit a stable operating surface when the road segment or landing is completely, and at all times, hydrologically disconnected from a watercourse—shall not take place when and equipment cannot operate under its own power.

(d) **When burning permits are required pursuant to PRC § 4423, logging roads and landings that are in use shall be kept in passable condition for fire trucks.**
(e) All roadside berms that impede logging road drainage, create logging road surface flow, or lead to hydrologic connection shall be removed or breached before the beginning of the winter period, with the exception of berms needed for erosion control.

(f) Temporary roads shall be blocked or otherwise closed to standard production four-wheel drive highway vehicles prior to the winter period.

(g) Logging roads and landings used for log hauling or other heavy equipment uses during the winter period shall occur on a stable operating surface and, where necessary, be surfaced with rock to a depth and quantity sufficient to maintain such a surface. Use is prohibited on roads that are not hydrologically disconnected and exhibit saturated soil conditions. Exceptions may be proposed by the RPF, when locations are disclosed and justified in the THP, consistent with 14 CCR 923.6 (c), and approved by the Director.

(h) In watersheds with listed anadromous salmonids and in planning watersheds immediately upstream of, and contiguous to, any watershed with listed anadromous salmonids, the following shall apply:

(1) Existing logging roads or landings shall not be used within the CMZ of a Class I watercourse except as listed in 14 CCR § 916.9 [936.9, 956.9] subsection (e)(1)(A)-(F) or pursuant to 14 CCR § 916.9(v) [936.9(v), 956.9(v)].

(2) When feasible, minimize use of existing logging roads and landings located within Inner Zones A and B of flood prone areas. Exceptions include the use of roads and landings to accomplish actions
to improve salmonid habitat conditions stated in 14 CCR § 916.9


(3) Concurrent with use for log hauling or other heavy equipment uses, all road approaches to logging road watercourse crossings shall be treated for erosion control as needed to minimize soil erosion and sediment transport and to prevent significant sediment discharge to watercourses or lakes.

(4) Concurrent with use for log hauling or other heavy equipment uses, all traveled surfaces of logging roads in a WLPZ, and ELZ or EEZ designated for watercourse or lake protection, shall be treated for erosion control as needed to minimize soil erosion and sediment transport and to prevent significant sediment discharge to watercourses or lakes.

(5) No timber operations shall take place during the extended wet weather period unless the approved plan incorporates a complete winter period operating plan pursuant to 14 CCR § 914.7(a) [934.7(a), 954.7(a)] that specifically addresses, where applicable, proposed logging road or landing use.

Routine use and maintenance of roads and landings shall not take place when, due to general wet conditions, equipment cannot operate under its own power. Operations may take place when roads and landings are generally firm and easily passable or during hard frozen conditions. Isolated wet spots on these roads or landings shall be rocked or otherwise treated to permit passage. However, operations and maintenance shall not occur when sediment discharged from landings or roads will reach watercourses or lakes in amounts deleterious to the
quality and beneficial uses of water. This section shall not be construed to prohibit activities undertaken to protect the road or to reduce erosion.

Amend § 923.7, 943.7, 963.7 Maintenance and Monitoring for Logging Roads and Landings Licensed Timber Operator Responsibility for Roads and Landings

The following maintenance and monitoring standards shall apply to logging roads and landings:

(a) Logging road and landing surfaces shall be monitored and maintained during timber operations and throughout the prescribed maintenance period to ensure hydrologic disconnection from watercourses and lakes to the extent feasible, minimize soil erosion and sediment transport, and to prevent significant sediment discharge.

(b) Logging roads that are used in connection with stocking activities shall be maintained throughout such use, even if this extends beyond the prescribed maintenance period.

(c) Maintenance treatments to the running surfaces of logging roads and landing surfaces shall be described in the plan, if applicable, and may include, but not be limited to, rocking, watering, paving, chemically treating, or installing commercial erosion control devices to manufacturer’s specifications.

(1) In watersheds with listed anadromous salmonids and in planning watersheds immediately upstream of, and contiguous to, any watershed with listed anadromous salmonids grading of logging roads or landings to obtain a drier running surface more than one time before
reincorporation of any resulting berms back into the road surface is prohibited.

(d) Drainage facilities and drainage structures, including associated necessary protective structures, shall be maintained to allow free flow of water and minimize soil erosion. Or they facilities and structures shall be repaired, replaced, or installed when maintenance is as needed to protect the quality and beneficial uses of water.

(e) Waterbreaks shall be maintained as specified in 14 CCR § 914.6 [934.6, 954.6] subsection (h).

(f) Soil stabilization treatments on logging road or landing cuts, fills, and sidecast shall be maintained as needed to reduce the potential for failures, to minimize soil erosion and sediment transport, and to prevent significant sediment discharge.

(g) Actions shall be taken as needed to reduce the potential for failures of cuts, fills, or sidecast that could result in significant sediment discharge.

(h) Heavy equipment shall not be used in a WLPZ for maintenance during wet weather, except in emergencies to protect the road, to reduce erosion, to protect water quality, or in response to public safety needs.

(ih) Where evidence of substantial soil erosion and/or significant sediment discharge is present along a logging road or landing used for timber operations, additional drainage facilities and structures shall be installed as needed to minimize soil erosion and sediment transport and to prevent significant sediment discharge.
The prescribed maintenance period for erosion controls on permanent and seasonal logging roads and associated landings and drainage structures, including private appurtenant, which are not abandoned, and/or deactivated logging roads and landings in accordance with 14 CCR §§ 923.8 [943.8, 963.8] and 923.17 [943.17, 963.17], shall be at least one year. The Director may prescribe a maintenance period extending up to three years in accordance with 14 CCR § 1050.

(1) In watersheds with listed anadromous salmonids and in planning watersheds immediately upstream of, and contiguous to, any watershed with listed anadromous salmonids, the erosion control prescribed maintenance period on permanent and seasonal logging roads and associated landings, including private appurtenant, that are not abandoned, or deactivated logging roads and landings in accordance with 14 CCR § 923.8 [943.8, 963.8] shall be three years.

(kj) All Logging roads, including abandoned, deactivated, and private appurtenant roads, landings, and associated drainage structures used for timber operations shall be monitored as needed to comply with 14 CCR § 1050. Monitoring inspections shall be conducted, when access is feasible during the prescribed maintenance period, at least once annually and a sufficient number of times during the extended wet weather period, particularly after large winter storm events, to ensure that drainage facilities and structures are properly functioning as designed.

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

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

(lk) In watersheds with listed anadromous salmonids, water drafting for timber operations shall:

(1) Comply with Fish and Game Code Section 1600, et seq. Timber operations conducted under a Fish and Game Code Section 1600 Master Agreement for Timber Operations that includes water drafting may provide proof of such coverage for compliance with 14 CCR 923.7(1).

(2) Describe the water drafting site conditions and proposed water drafting activity in the plan, including:

(A) A general description of the conditions and proposed water drafting;

(B) The watercourse classification;

(C) The drafting parameters including the months the site is proposed for use; estimated total volume needed per day; estimated maximum instantaneous drafting rate and filling time; and disclosure of other water drafting activities in the same watershed;

(D) The estimated drainage area (acres) above the point of diversion;

(E) The estimated unimpeded streamflow, pumping rate, and
drafting duration,

(F) a discussion of the effects on aquatic habitat downstream from the drafting site(s) of single pumping operations, or multiple pumping operations at the same location, and at other locations in the same watershed;

(G) A discussion of proposed alternatives and measures to prevent adverse effects to fish and wildlife resources, such as reducing hose diameter; using gravity-fed tanks instead of truck pumping; reducing the instantaneous or daily intake at one location; describing allowances for recharge time; using other dust palliatives; and drafting water at alternative sites;

(H) The methods that will be used to measure source streamflow prior to the water drafting operation and the conditions that will trigger streamflow to be measured during the operation.

(3) All water drafting for timber operations are subject to each requirement below unless the Department of Fish and Game modifies the requirement in the Lake or Streambed Alteration agreement that authorized the drafting operation, or unless otherwise specified below:

(A) All intakes shall be screened to prevent impingement of juvenile fish against the screen. The following requirements apply to screens and water drafting on Class I waters:

(i) Openings in perforated plate or woven wire mesh screens shall not exceed 3/32 inches (2.38 millimeters). Slot openings in wedge wire screens shall not exceed 1/16 inches (1.75 millimeters).
(ii) The screen surface shall have at least 2.5 square feet of openings submerged in water.

(iii) The drafting operator shall regularly inspect, clean, and maintain screens to ensure proper operation whenever water is drafted.

(iv) The approach velocity (water moving through the screen) shall not exceed 0.33 feet/second.

(v) The diversion rate shall not exceed 350 gallons per minute.

(B) Approaches and associated drainage features to drafting locations within a WLPZ or channel zone shall be surfaced with rock or other suitable material to minimize generation of sediment.

(C) Barriers to sediment transport, such as straw wattles, logs, straw bales or sediment fences, shall be installed outside the normal high water mark to prevent sediment delivery to the watercourse and limit truck encroachment.

(D) Water drafting trucks parked on streambeds, floodplains, or within a WLPZ shall use drip pans or other devices such as adsorbent or absorbent blankets, sheet barriers or other materials as needed to prevent soil and water contamination from motor oil or hydraulic fluid leaks.

(E) Bypass flows for Class I watercourses shall be provided in volume sufficient to avoid dewatering the watercourse and maintain aquatic life downstream, and shall conform to the following standard:

(i) Bypass flows in the source stream during drafting shall be at least 2 cubic feet per second.
(ii) Diversion rate shall not exceed 10 percent of the surface flow.

(iii) Pool volume reduction shall not exceed 10 percent.

(F) The drafting operator shall keep a log that records for each time water is drafted, the date, total pumping time, pump rate, starting time, ending time, and volume diverted. Logs shall be filed with the Department of Forestry and Fire Protection at the end of seasonal operations and maintained with the plan record. This requirement may be modified in the approved plan that covers the water drafting, but only with concurrence from the Department of Fish and Game.

(G) Before commencing any water drafting operation, the RPF and the drafting operator shall conduct a pre-operations field review to discuss the water drafting measures in the plan and/or Lake or Streambed Alteration Agreement.

The licensed timber operator who is responsible for the implementation or execution of the plan shall not be responsible for the construction and maintenance of roads and landings, unless the licensed timber operator is employed for that purpose.

Amend § 923.8[943.8, 963.8]. Planned Abandonment and Deactivation of Logging Roads, Watercourse Crossings, and Landings.

All logging roads and landings that are proposed to be removed from the permanent road network, including historic roads and landings, shall be abandoned. All temporary logging roads and landings that are