

## Appendix T

# Master Agreement for Timber Operations





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***T. MASTER AGREEMENT FOR TIMBER OPERATIONS***

***T-1***



## **T. MASTER AGREEMENT FOR TIMBER OPERATIONS**

Following is a draft of the Master Agreement for Timber Operations submitted by CDFG for the Public Draft of our HCP/NCCP on 6 June 2011.

**MASTER STREAMBED ALTERATION AGREEMENT  
FOR TIMBER OPERATIONS  
WITH REGARD TO  
THE MENDOCINO REDWOOD COMPANY  
HABITAT CONSERVATION PLAN / NATURAL COMMUNITIES CONSERVATION PLAN**

**Notification Number: R1-09-0367**

**By And Between**

**THE CALIFORNIA DEPARTMENT OF FISH AND GAME**

**and**

**THE MENDOCINO REDWOOD COMPANY**

**DRAFT 1**

**July 1, 2010**

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**Notification No. R1- R1-09-0367**

**LONG-TERM LAKE OR STREAMBED ALTERATION AGREEMENT  
BETWEEN THE CALIFORNIA DEPARTMENT OF FISH AND GAME AND  
MENDOCINO REDWOOD COMPANY, LLC**

This Streambed Alteration Agreement (“Agreement”) is entered into between the California Department of Fish and Game (“Department”) and Mendocino Redwood Company (“MRC”).

**WHEREAS**, MRC manages lands in the State of California that are used primarily for timber production; and

**WHEREAS**, it is essential that MRC maintain and improve the road systems on the timber production lands it manages by constructing, installing, improving, maintaining, and/or removing watercourse crossings, controlling erosion, and stabilizing banks, among other activities associated with watercourse crossings, waterholes, temporary dams, diversion structures and bank stabilization structures authorized under this Agreement (“road construction and maintenance activities”); and

**WHEREAS**, Fish and Game Code § 1602 makes it unlawful for any person to substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, without first notifying the Department of that activity and, if that activity may substantially adversely affect an existing fish or wildlife resource, enter into a streambed alteration agreement with the Department; and

**WHEREAS**, the Department has determined that Fish and Game Code § 1602 applies to the construction and maintenance of transportation facilities and aquatic habitat improvement actions this Agreement covers (collectively, “activities”); and

**WHEREAS**, roads and landings are a covered activity identified in Section 1.14 of the Habitat Conservation Plan (“HCP”) and Natural Communities Conservation Plan (“NCCP”) among MRC, the Department, the United States Fish and Wildlife Service, and the National Marine Fisheries Service; the terms of which recognize the application of conditions in a Streambed Alteration Agreement as part of the conservation program for some covered aquatic species, as well as require MRC to take specified actions to improve aquatic habitat (“aquatic habitat improvement activities”); and

**WHEREAS**, it is mutually beneficial to the Department and MRC to establish procedures that will allow MRC to conduct the activities this Agreement covers in accordance with conditions necessary to protect fish and wildlife resources that may be substantially adversely affected by the activities;

**NOW, THEREFORE**, the Department and MRC agree as follows:

**I. PURPOSE**

The purpose of this Agreement is to allow MRC, acting through its employees, agents, and contractors and their subcontractors to conduct the activities identified in Section IV below (“Covered Activities”) without the need to enter into any additional streambed alteration agreements from the Department while this Agreement is in effect, while at the same time protecting existing fish and wildlife resources the Covered Activities could substantially adversely affect.

**II. LAND AREA AND FACILITIES COVERED**

This Agreement authorizes Covered Activities on existing and new transportation facilities and on watercourses on or over land areas owned by MRC and managed under the HCP/NCCP within Mendocino County, including lands acquired in the “adjustment area” and as described and mapped in the HCP/NCCP (Section 1.12.2 and Fig. 1-1, respectively).

**III. DEFINITIONS**

For purposes of this Agreement only, the following definitions apply:

“<” means less than.

“>” means greater than.

“Active channel” means the zone of active, annual streambed scour and deposition. The active channel generally is that portion of a watercourse’s bed and bank that is delimited by ordinary high-water marks and permanent vegetation, and is characterized by alluvial materials, including particles larger than sand. In a floodplain morphology, an active channel is usually smaller than the bankfull channel.

“Activity” means any action that by itself would be subject to subdivision (a) of FGC § 1602.

“Adjustment area” means lands not owned by MRC at the initiation of the HCP/NCCP, but which are similar in character to MRC’s lands and are included in the analysis in the HCP/NCCP to anticipate MRC’s potential acquisition, timber harvest rights or other interest in those lands after the HCP/NCCP is approved. A map is included in the HCP/NCCP (Fig. 1-1).

“Administrative access” means travel on roads only for purposes other than timber management, such as inspecting roads and crossings, performing PTHP preparation and agency review work (Pre-harvest Inspections), patrolling covered lands, conducting tours, and carrying out fish/wildlife/forest data collection (studies, surveys, inventory). Mode of transport is limited to ATVs and standard production 4WD vehicles.

“AMZ” means the Aquatic Management Zone, and is the area along Class I, Class II, and Class III watercourses managed primarily for protecting and improving riparian and aquatic functions and processes.

“Angular rock” means rock that is characterized by straight, abrupt, and jagged edges and has not been rounded or smoothed by river or other mechanical abrasion.

“Avoid” or “avoidance” means a form of mitigation that prevents impact altogether by not taking certain action or parts of an action so that there is no impact to the resource being protected.

“Bank” means that part of a channel, which in cross section has a steeper or more vertical slope than the adjacent channel bed and floodplain.

“Bankfull channel” means that portion of a floodplain that conveys flows at bankfull stage.

“Bankfull stage” means the water depth where the stream fills the entire channel cross section without significant inundation of the adjacent floodplain. Flow at bankfull stage generally has a recurrence interval of 1.5 to 2.0 years.

“Bed” means that that part of the channel, which in cross section has more level or horizontal form relative to the bank. The thalweg is located in the bed.

“Biweekly” means every two weeks.

“CEQA Guidelines” means the regulations that implement CEQA in § 15000 *et seq.* in title 14 of the California Code of Regulations.

“CEQA” means the California Environmental Quality Act (Public Resources Code § 21000 *et seq.*).

“CESA” means the California Endangered Species Act (Fish & Game Code, § 2050 *et seq.*)

“cfs” means cubic feet per second, a measure of stream flow.

“Channel” means a natural waterway or modified natural waterway that periodically or continuously contains moving water, has a definite bed, and has banks that confine water at low to moderate streamflows.

“Channel” does not mean a road-side ditch.

“Check dam” means an obstruction constructed across a channel to decrease the velocity of flow and thus promote settling of suspended sediments from the water.

“Class I” means waters where fish are always or seasonally present onsite, and includes habitat to sustain fish migration, spawning and rearing.

“Class II” means waters where fish are always or seasonally present offsite within 1,000 feet downstream and/or those that provide aquatic habitat for non-fish aquatic species. These are further subdivided into large Class IIs (II<sub>L</sub>) where the drainage area exceeds 100 acres or wherever the Class II is inhabited by tailed frogs; and small Class IIs (II<sub>S</sub>) where drainage area is less than 100 acres and the Class II is not inhabited by tailed frogs.

“Class III” means waters where aquatic life is absent, but watercourses showing evidence of being capable of sediment transport to Class I and II waters under normal high water flow conditions after completion of timber operations.

“Cofferdam” means a temporary water-tight enclosure built in the water and pumped dry to expose the bottom so that work can be undertaken in a dewatered condition.

“Construction” means specifically the creation of a new ground transportation feature where none was present beforehand, or an upgrade of an existing transportation feature that supports an increased level-of-service, expands the type of equipment intended, or modifies the hydrological design, such that the upgrade results in potentially new or different adverse environmental effect compared to the existing transportation feature. Generally, construction means the activities that are undertaken to construct a new facility or reconstruct, repair, or decommission an existing facility.

“Covered Activities” means the activities specifically addressed in the HCP/NCCP and for which MRC received a take permit pursuant to Fish and Game Code § 2835 and an incidental take permit pursuant to Section 10 of ESA. The HCP/NCCP will authorize take incidental to the implementation of HCP/NCCP Covered Activities only. The Covered Activities” of this agreement (Section IV) are a subset and detailing of those in the HCP/NCCP.

“Covered species” means CESA- or ESA-listed and non-listed species for which conservation and management measures are explicitly provided by the HCP/NCCP and take is authorized by the wildlife agencies.

“Crossing” means a facility designed and constructed to enable ground-based mechanized equipment to pass from one side of a watercourse to another. A crossing may be comprised of manufactured items (e.g., culverts, beams), fill material, and approaches including road surfaces and roadside ditches.

“Cumulative precipitation threshold” means the time each autumn when a total of 4 inches of rain have fallen during the water-year (July 1 of one year through June 30 of the subsequent year), as measured at the South Fork Caspar Creek gage.

“Decommission” means leaving a road impassable to motorized vehicles; removing watercourse crossings, providing conditions on roads and landings intended to yield permanent and maintenance-free drainage, dispersed flow, and minimal erosion and slope instability; and promoting native conifer regeneration. Decommissioned roads are removed from the permanent road system.

“Design flow” means the peak discharge, expressed in terms of a stated recurrence frequency, for which a crossing is designed to pass effectively without compromising the crossing and its related roads. Under this Agreement, all new watercourse crossings and, at the time of their reconstruction or replacement, existing crossings will be designed and constructed to pass at least the 100-year flood (i.e., has a 1 in 100 probability in any year) inclusive of sediment and wood loads.

“Diversion dam” means a temporary structure built to direct flow around a work-site through side channels or temporary pipes.

“Drainage facilities” means features constructed to control water other than that in watercourses, including, but not limited to roadside ditches, waterbreaks, outcroppings, and rolling dips.

“Dry” means devoid of free-flowing or standing water above the channel’s surface, or free water (water not adhered to substrate particles) is not readily apparent in the immediate subsurface.

“Earthen spoil material” means organic and inorganic materials derived from the ground and highly subject to erosion. The working definition is soil and rock accumulations comprised of > 20% by volume fine materials (< 3 millimeters diameter).

“Emergency” means a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services. “Emergency” includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage.

“Encroachment” is synonymous with “project.”

“Erosion controls” means actions to reduce surface erosion, gullying, and ditch erosion such as, but not

limited to, mulching, slash packing, seeding.

“ESA” means the federal Endangered Species Act (16 U.S.C. § 1531 *et seq.*)

“Existing roads” and “existing crossings” mean features present in place and design prior to a specified operation. To be considered “existing,” either the road prism (at, and across a permanent crossing) or the approaches to the active channel (at a seasonal crossing) would not require reconstruction.

“Facility” means watercourse crossings, near-stream roads (roads close enough that graded road surface or sidecast earthen material will deliver to the bankfull channel); water drafting sites; and all associated road approaches, drainage facilities, bank stabilization structures, temporary dams, and diversion dams.

“Footprint” means the area of a facility delimited by changes in the ground’s surface from that of the no-project condition, the change being required for the functioning of the project. Support areas (e.g., spoil or borrow areas) are part of the footprint.

“gpm” means gallons per minute, a measure of the rate of water flow and pumping.

“Heavy equipment” means any ground-based, motorized equipment other than ATVs and standard production 4-wheel drive vehicles.

“Hinge point” means the transition between crossing road fill material and the naturally occurring ground surface.

“HW/D” means the headwater to diameter ratio, a value that compares the depth of water at the inlet to the dimensions of the culvert.  $HW/D < 1$  describes a culvert with a headwater depth below the top of the culvert inlet,  $HW/D = 1$  is the condition in which the headwater at the inlet is equal to the culvert diameter, and  $HW/D > 1$  is when the headwater depth exceeds the culvert diameter.

“Humboldt crossing” means a stream crossing constructed with logs set parallel to the stream channel and covered with fill.

“Hydrologically connected” means a surface of a road, landing, or disturbed area from which precipitation will runoff directly into a watercourse. Hydrologically connected areas are inherently delimited by topography and can be truncated with drainage facilities that divert runoff to the forest floor.

“Informing notice” means a subnotification under this agreement that MRC must submit before it may undertake certain activities to advise the Department of the schedule for approved, impending activities. An informing notice does not require an analysis, approval, or response from the Department. Informing notices provide the Department with knowledge about the timeframe of an approved activity and enables the Department to conduct an inspection.

“In-stream” means within the surface water of a channel.

“Inventory block” means a geographic unit of scale that contains multiple planning watersheds and typically represents a region (Albion, Navarro, Rockport, etc.) of MRC land (Map 1 of the HCP/NCCP Atlas [Appendix B]). MRC uses inventory blocks in characterizing landscape conditions .

“Live car” means any container that can hold living fish and allows substantial surface water flow to pass through (e.g., a box-frame with seine siding, buckets with numerous small holes).

“LWD” means large woody debris, a term describing logs and large branches in watercourses. For purposes of this agreement, size requirements are as described for “key pieces.”

“Key piece” means  $LWD \geq$  the sizes described in Appendix G of the HCP/NCCP (Table G-19).

“Maintenance” means collectively both occasional and routine maintenance.

“mm” means millimeter.

“Natural channel bottom” means a watercourse where the bed’s elevation has not been aggraded or degraded due to anthropogenic features such as roads, culverts, landings, or short-term but natural features such as log jams.

“New facility” means a feature not existent in function prior to the feature under consideration, or if there is a substantial change in alignment or increase in earthen materials within the floodplain as a result of a facility being replaced. For temporary crossings, this includes any watercourse crossing at a location that has not been used as a temporary crossing for more than 20 years.

“Normal high water” means the flow with a flood frequency of 1.8- to 2-year return interval. On streams with floodplains, it is a flow that corresponds to the discharge at which streams overtop their banks, also known as the bankfull flow.

“Operator” means MRC and its employees, agents, contractors, and their subcontractors, and any party authorized by MRC to complete one or more of the Covered Activities on behalf of MRC.

“Occasional maintenance” means the infrequent (usually less frequent than once every two years) collection and disposal of silt, sand, sediment, debris, trash, rubbish, flood-deposited woody materials, living vegetation, and any other obstructions that reduce a watercourse crossing’s or drainage facility’s capacity to convey design flows and/or endanger a facility. It also means the minor repair of damaged features that return the feature back to its original design (e.g., repair or replacement of energy dissipaters).

“Permanent crossing” means a bridge, culvert, ford, or vented ford that was constructed to accommodate the design flow and will remain in place when timber operations have been completed.

“Permanent road” means a road which is planned and constructed to be a permanent all-season transportation facility. These roads, which are generally main haul roads out of a tract, have surfaces suitable for trucks to haul forest products throughout the entire winter period and are inspected and maintained during the winter period. Crossings on permanent roads are capable -- or will be upon the first repair, replacement, or reconstruction -- of accommodating the design flow.

“Pool” means a channel feature that is relatively deep, the bottom is noticeably concave along the channel’s longitudinal section, and the water surface area is flat at low flow. Pools are created by scour at high flow, but have slow current at low flow.

“Pre-consult” means a Department evaluation of a proposed activity in advance of the subnotification timelines. A voluntary action, MRC may pre-consult via providing draft subnotification material to the Department, enabling the Department to conduct a field review if necessary. A pre-consultation can reduce the likelihood of a Department non-concurrence to a subnotification based on needed information. A pre-consultation is documented by a written response from the Department.

“Project” means one activity that is conducted at one location, or two or more activities that are interrelated and could affect similar fish and wildlife resources at one location. “Project” in this agreement is not as defined in PRC § 21065 or CCR Title 14 § 15378. The Department retains final authority on identification of a project, or if several activities are logically connected. Logical connection means activities undertaken together due to proximity and need.

“PTH” means a Programmatic Timber Harvesting Plan.

“Reconstruction” means improvements to substantially failed existing watercourse crossings and facilities that returns them to the original design for hydrology as well as traffic type and capacity. Reconstruction does not include routine maintenance, or occasional maintenance, but might include repair that requires substantial work to achieve the original prism of the road. Reconstruction requires heavy equipment such as backhoes, bulldozers, and/or excavators.

“Redd” means a location in the channel’s gravel substrate where a spawning female salmonid deposits her eggs.

“Removal” means the dismantling of temporary crossings and serial-seasonal crossings that are not permanent.

“Repair” means modifications to a failing road prism or crossing to retain its operational and functional design.

“Replacement” means the function of an existing facility is recreated substantially in place (original alignment) to support the pre-existing road designation (primary, secondary, seasonal road system), but with a different crossing type (e.g., culvert to a bridge).

“Restorable Class I” means an inherently fish-bearing watercourse that currently provides aquatic habitat only for non-fish aquatic species due to the presence of temporary physical or physiological barriers, but with

appropriate management may again bear fish. In cases of classification disputes, the Department shall be the final arbiter.

“Re-establishment” of Class II or III channels means to restore natural flow paths (channels) disrupted during past land uses.

“Residual pool” means the water conditions (depth, volume, size) at the time at which flow stops draining over the downstream riffle crest. It is a measure of a pool’s characteristics that is independent of variations in discharge.

“River-run rock” means rock derived from a river bed characterized by mostly rounded edges that are derived from abrasion as the rocks tumble along as bedload.

“Rolling Dip” means a drainage facility that is constructed to remain effective while allowing passage of motor vehicles.

“Routine maintenance” means frequently recurring activities (usually  $\leq$  annually) that are needed to sustain, but not enhance the hydrologic and transportation design function of the existing transportation facility. Examples include grading, erecting and leveling waterbars, rocking road surfaces, and clearing cross drains. Routine maintenance is typically limited to hand tools and graders.

“RPF” means Registered Professional Forester, a person who holds a valid license as a professional forester pursuant to the provisions of California Code of Regulations, Title 14, Chapter 10.

“Seasonal crossing” means a crossing planned and constructed as part of the transportation system that is not used during the winter period for commercial hauling. During the winter period, access for administrative activities such as fire control, forest management, and occasional harvesting of minor forest products is limited to dry periods of the winter. Seasonal crossings may be either permanent crossings, or a crossing installed and removed serially, usually on an annual basis.

“Seasonal road” means a road which is planned and constructed as a permanent transportation facility on which: A) commercial hauling is discontinued during the winter period except when the risk of sediment delivery is low (for example, hauling may occur during the winter period on seasonal ridge roads with no watercourse crossings); B) MRC may access the road during dry periods of the winter for fire control, forest management, occasional harvesting of minor forest products, and other necessary activities; and C) permanent or serial-seasonal crossings remain at the watercourse.

“Serial, seasonal crossing” is a crossing on the road system that is installed and removed within the same year, usually on an annual basis to support administrative use and operations beyond those of a single PTHP [Compare to Temporary crossing]. This type of crossing is typically used where a permanent structure is unfeasible, such as a bridge within the floodplain.

“Slash” means tree tops, branches, bark, or other woody residue left on the ground after logging or other forestry operations.

“Slope” is the deviation of the ground surface from the horizontal. In this agreement, the unit of measure is percent (%) and is calculated as rise (vertical distance) divided by run (horizontal distance, in same units as rise) multiplied by 100.

“Special status species” means a species listed as threatened or endangered under the ESA or CESA, listed as sensitive by the Board of Forestry in the California Forest Practice Rules (California Code of Regulations, Title 14, § 895.1), and/or may meet the criteria the CEQA Guidelines § 15380.

“Stilling basin” means a depression in a flow path that is excavated to collect sediment that settles as the flow drops.

“Stream” means a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface of subsurface flow that supports or has supported riparian vegetation. For purposes of this agreement, stream and watercourse are synonymous.

“Subnotification” means a notice under this agreement that MRC must submit to the Department for review and approval before MRC may begin certain activities covered by this Agreement. Pursuant to Fish and

Game Code § 1602, MRC submitted the notification that encompasses these subnotifications in 2009.

“Substantially changed” conditions” means one or more of the following: 1) the work described in this Agreement is substantially changed; 2) conditions affecting fish and wildlife resources substantially change and those resources are or will be adversely affected by the work that is or will be conducted under this Agreement; and 3) the measures necessary to protect fish and wildlife resources do not reflect advances in design and techniques that would significantly increase protection of fish and wildlife resources.

“Supports” for bridges means those components that hold up and anchor the bridge, such as abutments, footings, and piers.

“Surface water” means water at or above the substrate of the waterbody. When applied to conditions at a work-site, surface water shall be determined at proximal locations that are both affected (i.e., in downstream scour pools) and not affected by any existing structure (i.e., above sediment accumulations).

“Take” means to hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill, or to attempt to engage in these activities (Fish & Game Code, § 86). Under ESA, “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect a threatened or endangered species, or attempt to do so.

“Temporary crossing” means a stream crossing 1) used intensely only during timber operations in a local area, then use is infrequent (less frequent than once every 5 years) and sporadic; 2) seasonally installed and removed to near-natural channel cross-section subject to the timeframes specified in the seasonal work periods (Attachment A); and 3) designed to pass all flows while the crossing is in place. Temporary crossings intended for use during the winter period will be sized and armored to pass the design flow.

“Temporary road” means a road that is to be used only during a timber operation. These roads have: 1) a surface adequate for seasonal hauling; 2) watercourse crossings which will be removed prior to the winter period or designed to be self-maintaining; and 3) infrequent, sporadic use which periodically can become more intense.

“Timber management access” means travel on roads for the purposes of administrative access and for moving heavy equipment, transporting rock and gravel, and hauling forest products.

“Unimpeded flow” means the volume of water passing a cross section of a watercourse per unit of time (e.g., cfs) unmodified by the diversion or storage for which its value is relevant. For cumulative impacts analysis, unimpeded flow means no diversions at any relevant storage, drafting, or diversion site.

“Upgrade” means to increase the size of a facility or constituent parts compared to the existing facility such that its capacity to convey water or traffic is increased.

“Vented ford” means a permanent ford designed to pass summer low flows through an embedded culvert but to pass higher flows by overtopping.

“Washed or clean” rock means a rock mixture that contains 10% or less (by volume) fines and sand (defined as particles < 3.3 mm in diameter).

“Watercourse” means a well-defined channel with distinguishable bed and bank and showing evidence of having contained flowing water indicated by scour or deposit of rock, sand, gravel, or soil, including but not limited to, streams as defined in PRC 4528(f). Watercourse also includes manmade watercourses. For purposes of this agreement, stream and watercourse are synonymous.

“Watercourse crossing” means a feature constructed to enable vehicles and equipment to negotiate a stream. These includes bridges, culverts, fords, and vented fords capable of passing the design flow, and temporary and seasonal crossings capable of passing all flow during the period of use.

“Watercourse or Lake Transition Line” for a watercourse with a floodplain means the location of incipient flooding (the location where water begins to spill over banks and on to the floodplain). For a watercourse



without a floodplain, it means a line defined by one or more the following features: 1) a change of vegetation from bare surfaces or annual water tolerant species to perennial water tolerant or upland species at least 25 years in age at breast height, 2) physical indicators of scour such as undercut banks, moss lines on rocks, the top of exposed roots along the channels, and 3) a change in the size distribution of surface sediments from gravel to fine sand. For a lake, that line closest to the lake where perennial upland or facultative upland woody vegetation is permanently established.

“Wetted channel” means that portion of a channel immersed with surface water. Its lateral limits change as the stage changes.

“Wildlife Agencies” means United States Fish and Wildlife Service; National Marine Fisheries Service; and the Department of Fish and Game.

“Working days” means days other than Saturday, Sunday, or holidays observed by the Department of Fish and Game.

“Winter period” means from November 15 to April 1.

“yds<sup>3</sup>” means cubic yards.

#### IV. COVERED ACTIVITIES

- A. Additional Streambed Alteration Agreements. MRC may conduct the activities identified in this Section IV in support of the HCP/NCCP’s covered activities without the need to obtain any additional streambed alteration agreements except as specified in this Agreement, provided the Operator notifies the Department as required in Section VI and conducts the activities in accordance with the measures specified in Section VII (in reference to Attachment A).
- B. Activities Identified. The activities this Agreement covers are as follows:
  1. Permanent Crossings
    - a. Construction of new, and upgrades of permanent crossings on Class I and Class II<sub>L</sub> sites covered in a PTHP.
    - b. Construction of new, and upgrades of permanent crossings on Class II<sub>S</sub> and Class III watercourses.
    - c. Upgrades, reconstruction, repair, maintenance, removal, and decommissioning of existing permanent and seasonal watercourse crossings on Class I, restorable Class I, Class II, and Class III watercourses.
  2. Temporary Crossings
    - a. Construction of new, and upgrades of temporary crossings on Class I and Class III sites covered in a PTHP.
    - b. Construction of new, and upgrades of temporary crossings on Class II<sub>S</sub> and Class III watercourses.
    - c. Upgrades, reconstruction, repair, maintenance, removal, and decommissioning of existing temporary watercourse crossings on Class I and restorable Class I, and Class II, and Class III watercourses.
  3. Stream-side Roads
    - a. Construction of new, and upgrades of stream-side roads on Class I and Class III sites covered in a PTHP.
    - b. Construction of new, and upgrades of temporary crossings on Class II<sub>S</sub> and Class III watercourses
    - c. Upgrades, reconstruction, repair, maintenance, and decommissioning of existing streamside roads away from crossings that could adversely affect fish and wildlife resources.

4. Flow re-establishment. Re-establishment of Class II and Class III channels to their original flow channel that was disrupted when historic ground-disturbing activities diverted the flow away from its original channel.
5. Habitat Restoration. Conduct of aquatic habitat restoration practices such as placement of LWD or boulders in channels and on or along banks, and revegetation of banks.
6. Drafting
  - a. Construction or development of new drafting sites covered in a PTHP.
  - b. Diversion and use of water for road construction, reconstruction, maintenance, dust control, and pesticide mixing provided that MRC is legally entitled to divert and use water for such use. This applies to
    - 1.) diverting water at existing and new facilities,
    - 2.) drafting of water by pump or gravity feed directly into water trucks or indirectly through storage tanks.
    - 3.) maintaining drafting sites, including stabilizing banks, removing encroaching vegetation, and extracting sediment to maintain capacity, and
    - 4.) conducting monitoring activities.

#### V. ACTIVITIES NOT COVERED

- A. Excluded activities. Activities other than those identified in Section IV, including but not limited to 1) gravel mining [the extraction and removal from the source encroachment to another site, or for commercial purposes], and 2) construction of new, and upgrades of permanent or temporary crossings on Class I and Class II<sub>L</sub> sites not covered in a PTHP.
- B. Unauthorized Take. Any activity that could take (as defined herein) any species listed under CESA or ESA, except as permitted in the HCP/NCCP, shall not be covered. MRC shall comply with take prohibition requirements of CESA and ESA when activities may take listed species if the HCP/NCCP does not cover 1) that species, or 2) the activity.
- C. Feasibility and Review. Where MRC determines that conformance with applicable measures identified in Section VII is not feasible, MRC may propose alternative measures through a separate notification made pursuant to Fish and Game Code § 1602 or 1611.
- D. Emergencies. Work undertaken to respond to an emergency shall be in accordance with Fish and Game Code § 1610, subdivision (b). To the maximum extent practical, mitigation measures described in this Agreement shall be employed during or immediately after completing the work (e.g., erosion control, waste and materials removal).

#### VI. NOTIFICATION FOR AUTHORIZATION TO PROCEED (“SUBNOTIFICATION”)

Prior to commencing any of the specific Authorized Activities identified in Section IV, MRC shall notify DFG in writing of its intent to commence the activity (“subnotification”) for authorization to proceed.

- A. Exceptions to subnotification submittal
  1. An informing notice shall be submitted to the Department by email no less than two working days prior to undertaking the following activities.
    - a. Reactivation and deactivation of previously approved annual activities (i.e., annual start and termination of water drafting, installation and removal of serial seasonal temporary crossings on the permanent or seasonal road system) consistent with the descriptions and conditions previously approved.
    - b. As per Section E.1 of Attachment A, MRC shall inform DFG prior to Oct 15 of activities being proposed between October 15 and the time when the cumulative precipitation threshold is met.
    - c. For an activity not completed during the year the Department receives the subnotification but which is still in the subnotification’s valid period, MRC shall submit an informing notice prior to initiating activities during the year of construction.

- d. For routine maintenance at sites that are currently permitted under this or another valid Agreement:
    - 1.) that exceed the thresholds in Attachment A, Section II.A.5 do not need to submit a subnotification but must submit an informing notice.
    - 2.) that do not exceed the thresholds in Attachment A, Section II.A.5 need not submit either a subnotification or an informing notice
    - 3.) Although subnotification is not needed routine maintenance of encroachments permitted under this MATO; maintenance of these sites shall adhere to conditions in this MATO.
  3. Each informing notice shall include:
    - a. This LTSAA number (R1-09-0367) and any prior-approved subnotification identification number.
    - b. Contact information
    - c. Watercourse name
    - d. Location information (e.g., road name, road number, or map point for each facility, if any).
    - e. Projected commencement and completion dates, including all erosion control.
    - f. For work period extensions, weather forecast information through and 2 days beyond the proposed extension.
- B. Scope of Subnotifications**
1. Each subnotification shall be limited in scope to work that can reasonably be completed within one year, in accordance with conditions of this MATO, unless site-specific project conditions specify otherwise. If work at projects or sites within a subnotification is not undertaken within the subnotification time frames specified in this section B, MRC shall submit a new subnotification and fee for those sites if work is still proposed.
  2. Except for the subnotifications addressed below (B.3. through B.6.), subnotifications are valid for three (3) years.
  3. A subnotification associated with a PTHP will remain valid for 5 years, or the life of the PTHP, whichever occurs first.
  4. Subnotifications for new drafting sites or increased drafting quantity shall be submitted separately, and not included with other types of activities in the same subnotifications. Subnotifications for drafting activities submitted under this MATO are valid for the life of the MATO.
  5. Subnotifications for serial, seasonal crossing \under this MATO are valid for the life of the MATO, as long as alignment, materials, capacity, and use patterns remain the same..
  6. Subnotification requirements for maintenance activities apply only to sites that are not currently permitted under this or another valid Agreement. Maintenance subnotifications are valid for the life of the structure, or the MATO, as applicable.
- C. Subnotification Process**
1. For projects associated with THPs, MRC shall provide to DFG a subnotification after CAL FIRE provides a THP (or amendment) Notice of Conformance. For projects not associated with THPs, MRC may submit a subnotification at any time.
  2. DFG shall have 15 working days after receiving the subnotification<sup>1</sup> to review the subnotification and to do the following, as applicable: 1) determine if the Covered Activity is subject to this MATO; 2) determine completeness of the subnotification; 3) concur with the subnotification; 4) contact MRC to discuss the subnotification; 5) request more information in the subnotification; 6) propose site-specific conditions to protect fish and wildlife resources; and/or 7) conduct a site visit unless conditions prohibit visiting the site within that time period. If a site visit is requested but it can not be accomplished within the 15 day review timeline, MRC and DFG shall extend the time period to a

<sup>1</sup> The subnotification receipt date is the date the local DFG Office (Northern Region, Attn: Coastal Habitat Conservation, 619 Second St., Eureka, California 95501) receives the subnotification, including fees.

mutually-agreeable date and provide two working days after the site visit for the Department to complete its review.

3. If the Department does not notify MRC within the 15 working days after receipt of the subnotification, MRC may commence operations on the following workday provided MRC proceeds with the subnotification as submitted and complies with the protective measures described in Section VII.
4. Within 5 working days after receipt of a subnotification including associated fees, DFG will provide to the MRC Contact Person, confirmation of both of the subnotification receipt date and 16th Working Day following receipt of subnotification. To assure the subnotification was received, MRC should enquire about its status if the confirmation is not returned.
5. Provided timeframes have not been mutually extended, or DFG does not advise MRC in writing that it does not concur with the project as proposed, MRC may commence proposed activities on the 16th working day following subnotification receipt date.
6. If DFG advises MRC it does not concur with the project as proposed, DFG and MRC shall confer to develop site-specific conditions to address the issue within 30 calendar days. If, following discussions, DFG and MRC cannot come to mutual agreement regarding proposed site-specific conditions, the Parties shall resolve the disagreement in accordance with FGC §1603(b).
7. Any of the timeframes described above may be extended by mutual agreement of both Parties.

#### D. Content of Subnotifications

Subnotifications shall include:

1. Project Name, and the associated Timber Harvesting Plan (THP) number, if applicable.
2. A description of the Covered Activities, including the type (e.g., construction, reconstruction, repair, decommission, bank stabilization, watercourse reestablishment, aquatic habitat improvement, or water drafting) and the facility (e.g., ford, culvert, bridge, road);
3. The 2010 FPR stream classification associated with the Covered Activity, including whether the stream is a restorable Class I watercourse. Describe the mode of evaluation used for stream classification (e.g., office map evaluation, field evaluation including date field-checked, etc.).
4. Location information including township, range, and section numbers; road numbers; the name of streams the Covered Activity will affect; the planning watershed name and code, and a map to the work site with sufficient detail to enable a person who is not familiar with the area to easily locate the site.
5. The name, address, and telephone number of the Contact Person, and one secondary contact.
6. Detailed work plans that describe the project, including items such as:
  - a. Construction drawings, diagrams or sketches, cross sections and dimensions, results of road site assessments, unstable conditions at encroachments (e.g., debris torrents, landslides, unstable fill, and copies of the geology maps that cover the encroachments);
  - b. Volumes of materials removed from or added to the channel for the facility
  - c. Estimates of the area and vegetation cover types disturbed (project footprint and workareas);
  - d. When replacing a facility that has accumulated excess sediment as a result of high culvert inlet placement or deficient capacity, estimates of the volume and channel length of stored sediment upstream of the facility that will need to be excavated or stabilized
  - e. Describe downstream excavation, stabilization, and/or grade control needs;
  - f. Expected commencement / completion dates for construction, installation, or drafting.
  - g. Type of equipment that will be used;

- h. For permanent structures, as appropriate:
    - 1.) calculations or other data used to determine 100-year flood flows and sizing of culverts or fords;
    - 2.) calculations and engineering plans or other data used to determine bridge height and flow capacity;
    - 3.) documentation of engineering review and approval for bridge design and placement of proposed permanent bridges (DFG may require separate notification for permanent bridge proposals if detailed engineering specifications are involved); and
    - 4.) disclosure of all Class I watercourse fording sites, where vehicles including all-terrain vehicles (ATVs) and/or heavy equipment cross the wetted stream channel when any life stage of fish is or may be present, which includes a description of expected frequency of use, vehicle type, and site specific measures proposed to protect fish and wildlife resources.
  - i. Erosion control practices that will be applied as per Section I.G.3. of Attachment A.
  - j. Intended use of poured concrete.
  - k. Information specifically identified in Attachment A,
  - l. Where Attachment A allows alternatives, the alternative to be applied.
  - m. To help assess and minimize the cumulative impact to aquatic resources in a watershed from water drafting activities, the following information shall be included in the subnotification:
    - 1.) watercourse or lake classification; and
    - 2.) drafting location use parameters, including
      - a.) Yearly timing;
      - b.) Estimated daily, weekly, and total volumes needed during season of use;
      - c.) Available known past flow data during anticipated season of use;
      - d.) Type of drafting (e.g., direct stream pumping or gravity flow);
      - e.) Equipment proposed (e.g., trucks, small portable pumps, storage tanks, water bladders, drafting hose diameter, etc.); and
      - f.) Associated water drafting activities at the site to support other THPs.
  - n. A certification by the RPF that fish, wildlife, or plant surveys have been completed, or will be completed before the start of activities within the affected areas; any positive findings of sensitive species found at or near the project sites with a completed Natural Diversity Data Base ("NDDDB") form for each encounter with the Department-designated "Special Animal," "Special Plant," or listed species; and any proposed mitigation measures;
  - o. Any other information needed to fully convey to DFG the proposed project and existing conditions, including other unusual circumstances that may merit non-standard work or measures or site-specific conditions.
- 7. a certification that recent pre-project photographs with date stamps of each proposed activity site are available to the Department upon request;
  - 8. if the Department pre-consulted, a copy of the Department's written findings, if any;
  - 9. for existing sites, repair and maintenance history, including dates of repair or replacement, and the materials and techniques used, as available.

10. for non-PTHP encroachments, a certification by the RPF that no ground subject to disturbance during the proposed activity contains cultural resources.
11. a fee in an amount in accordance with Section XI of this MATO, or identification that the fees are included within a monthly payment as per section XI. B.
12. disclosure about whether the Covered Activity is under a clean-up and abatement Order (CAO) or requires a Wastewater Discharge Requirement (WDR) permit from the North Coast Regional Water Quality Control Board. If yes, state CAO or WDR Order Number.

E. Revisions and Amendments of Subnotifications

1. A subnotification may be revised during the review process prior to receiving authorization to proceed. Amendment fees do not apply to revisions during the subnotification review period; however new encroachments that may be added into subnotifications during the review process require project subnotification fees.
2. Following authorization to proceed, when MRC may freely commence the activity in accordance with the terms of this MATO, changes to proposed projects described in a subnotification are usually considered minor amendments of subnotifications to the MATO. Amendment fees in Section XI.F. apply; and the amendment request must be accompanied by the amendment fee. Review time frames for amendments to subnotifications are the same as for subnotifications in Section 4.0.
3. New or additional sites may not be amended to a subnotification following receipt of authorization to proceed pursuant to Sections 4.0 or 4.1 above. New or additional sites needing MATO coverage shall require a new subnotification.
4. Review time frames for DFG-requested amendments to the MATO shall be determined by mutual agreement of both Parties.

VII. MEASURES

- A. Attachment A. The Operator shall conduct all Covered Activities in accordance with the applicable measures specified in Attachment A, and shall otherwise use best efforts to protect fish, wildlife, and botanical resources when conducting a Covered Activity. Attachment A, attached hereto, is part of this Agreement.
- B. Additional Measures. If the Department determines that a field review of the activity site(s) is required, and based on that review it determines that additional measures not identified in Attachment A are required to avoid significant impacts, MRC shall incorporate those measures into the applicable activity or activities.
- C. Adjustments to Measures
  1. MRC may adjust, on its own choice, a measure in Attachment A, infrequently and on a site-specific basis, if:
    - a. The adjustment provides equal or better protection to the aquatic habitat and biological resources than the measure for which the adjustment is proposed, and
    - b. A Department representative has reviewed the proposal, in the field as necessary, and concurred in writing that the adjustment at that site provides equal or better protection than the measure for which the adjustment is proposed.
  2. MRC shall advise the Department of any adjustments to measures contained in this Agreement that result from an inter-agency review of the activity and its impacts. These adjustments may only be used under this Agreement with the Department's concurrence.
  3. If, in the opinion of the Department, an adjustment becomes commonly requested and accepted, the Department will advise MRC to amend this Agreement.

VIII. REPORTS

- A. Annual Report

1. As one of the annual reports issued as required by the HCP/NCCP, MRC shall submit to the Department an annual report that tabulates activities undertaken pursuant to this Agreement during the prior calendar year.
  2. The annual report shall:
    - a. separate its account of activities by MRC Inventory Block and by Planning Watersheds as defined by CALWATER (Version 2.2 or the most current, available at [http://www.ice.ucdavis.edu/active\\_thp/](http://www.ice.ucdavis.edu/active_thp/));
    - b. classify the projects by type;
    - c. report the dates of the notices (intent to start, completion) to the Department as well as the actual start and completion dates;
    - d. identify and describe any “as-built” conditions that differ from information included in the notices;
    - e. note substantive problems encountered, how they were handled, and suggest how this agreement might be modified to prevent such problems during future activities;
    - f. list any adjustments to conservation measures (Section VII. C.);
    - g. include both before and after photos of each Class I crossing constructed, replaced or upgraded. The as-completed photos should include at least the same photo points identified in the subnotification section (IV.I.2.). As-built photos for other crossings and worksites shall be provided to the Department upon request;
    - h. map, by MRC Timber Tract, the location and types of projects included in the report;
    - i. tabulate by species the number and condition of animals handled as part of fish salvage operations (Attachment A, Section I.D.1.B.);
    - j. identify measures taken to mitigate impacts to special status species (Section VI.E.2.n.);
    - k. quantify LWD placement projects by Planning Watershed, activity under which the LWD was placed (e.g., PTHP, road construction, maintenance, LWD enhancement project), and type (e.g., unanchored trees, anchored trees).
- B. Four-Year Status Report
1. MRC shall provide a status report to the Department every four years. The status report shall be submitted to the Department no later than 90 days prior to the end of each four-year period. The Department shall review the four-year status report in accordance with Fish and Game Code § 1605, subdivision (g)(3).
  2. The four-year status report shall include, at a minimum:
    - a. a copy of the original agreement;
    - b. the status of activities covered by the agreement;
    - c. an evaluation of the success or failure of the measures in the agreement to protect the fish and wildlife resources;
    - d. a discussion of any factors that could increase the predicted adverse impacts on fish and wildlife resources, and a description of resources that may be adversely affected;
    - e. suggestions for amendments (Section XIII) to modify or improve the conservation measures contained this agreement that will 1) better meet MRC’s management needs while providing an equal or better level of protection to fish and wildlife resources, or 2) reduce observed impacts to fish and wildlife resources;
    - f. identification of facilities with recurring problems, and proposals for addressing them; and
    - g. suggestions for amendments (Section XIII) to remedy process problems and inefficiencies with this Agreement, and proposals for addressing them.

IX. INSPECTION, IMPLEMENTATION, AND EFFECTIVENESS MONITORING

- A. Onsite Inspection. MRC shall allow agents of the Department to observe construction, operation, or completed facility for any activity covered by this Agreement. The Department may inspect the work-site at any time, but will seek to provide at least two work-days advance notice. Inspection will enable the Department to evaluate compliance with the agreement and effectiveness of the measures.
- B. Access. MRC shall assure access to the Department by whatever means necessary to enable inspection. MRC may provide an escort.

X. DOCUMENT DESTINATION

All subnotifications, fees, and reports shall be delivered by U.S. mail, overnight delivery service, hand-delivery, or email. All informing notices shall be delivered via email, the date of which evidences the prior notice requisite. Each shall reference this Agreement (No. R1-09-0367), and as applicable, a subnotification identifier. Subnotifications shall include both a hard-copy and electronic format (e.g., CD, email with attachments). Any information required for such subnotifications which cannot easily be transmitted by email must be identified and delivered to the Department by other means.

Mail or hand delivery:

Department of Fish and Game  
Northern Region  
Attn: Coastal Timberland Planning Program  
619 Second Street  
Eureka, CA 95501

Email delivery:

Email will be submitted to [Eureka1600@dfg.ca.gov](mailto:Eureka1600@dfg.ca.gov), and/or other addresses as the Department may advise.

XI. FEES

- A. Fees Required. DFG may refuse to process a subnotification or a request for an extension or amendment until DFG receives the proper fee or fees.
- B. Payment Schedule. MRC may choose to submit fees with each subnotification or on a monthly basis for more than one subnotification. Because receipt of fees is a standard of subnotification completion, if monthly submittal of fees is in arrears, subnotification receipt date may be after delivery of the subnotification's informational materials.
- C. Base Fee. In accordance with §699.5 of Title 14 of the CCR, MRC paid a base fee of \$7,500.00 in December 2009 with the submittal of the Notification for a Master Agreement for timber operations..
- D. Annual Fee. MRC shall remit an annual fee of \$1120.50, due payable with the first subnotification submitted to DFG each calendar year pursuant to this MATO.
- E. Project Subnotification Fee. MRC shall remit a project fee of \$200.00 for work at each Class I watercourse encroachment proposed in subnotifications submitted pursuant to this MATO. MRC shall remit a project fee of \$65.00 for work at each Class II or Class III watercourse encroachment proposed in subnotifications submitted pursuant to this MATO.
  - 1. Subnotification fees are not needed for routine maintenance of encroachments that are permitted under this MATO. Maintenance project subnotification fees only apply to work sites that are not currently permitted under this or another valid Agreement.
  - 2.. Repeating the same activity at the same site in multiple years (i.e., water drafting, installing and removing serial-seasonal crossing) requires a subnotification fee upon the initial installation, but only an informing notice without any fee in subsequent years. Where changes in design or location are needed, fees for repetitive activities shall be charged as a project fee.
  - 3. Postponement of an activity past the period allotted in Section VI.B. requires a new notice and fee.



4. MRC shall remit an annual “urgent” project fee of \$1200.00, for up to 6 “urgent” project requests, not including major amendments, in any calendar year. “Urgent” project requests are those where MRC requests DFG review time period is “immediately” and within 1-2 work days or less. “Urgent” requests are for activities that 1) were not, and could not have been, foreseen in a manner that would enable the standard review period, and 2) do not qualify as an emergency as defined in this MATO.
  - a. The \$1200.00 annual fee for “urgent” project requests is due the beginning of each calendar year, and prior to any such request.
  - b. Unused “urgent” project fees will not be refunded or carried over into future years.
- F. Amendment Fee. The fee for MRC to amend this MATO or any of its subnotifications shall be that at the time of the request as specified in Title 14 of the CCR §699.5. As of February 18, 2011, the fee is \$168.00 for minor amendments and \$560.25 for major amendments. Amendments proposed by DFG are not subject to an Amendment fee.
- G. Extension Fee. The fee to extend this MATO shall be that specified in Title 14 of the CCR §699.5 at the time of the request. An extension of this MATO is not considered an amendment.
- H. Fee Adjustments. The Annual Fee and Project Subnotification Fees, including “urgent” project fees, will be adjusted each year proportionately with amendments to the Master Agreement Fee Schedule in Title 14 of the CCR §699.5.

## XII. MISCELLANEOUS

- A. Knowledge of Agreement. MRC shall ensure that MRC employees, agents, representatives, contractors, or subcontractors are knowledgeable of the terms and conditions of this Agreement that apply to the activity before they undertake that activity. MRC shall develop appropriate training materials and provide training as necessary to assure the proper application of this agreement. MRC shall confer with the Department in developing training materials.
- B. Agreement on Work-Site. A copy of this Agreement, the associated subnotification, and any Department-approved supplemental or site-specific measures shall be readily available at work-sites during any active work period and shall be presented to any Department employee, or employee of another public agency upon request.
- C. Annual Meeting. MRC and the Department agree to meet annually between January and March, inclusive, to discuss this Agreement unless mutually postponed. Topics for discussion may include implementation problems, new information regarding special status species, specific measures in this Agreement, proposed amendments, or any other topic that affects implementation of this Agreement.
- D. New Information. If new information becomes available that indicates additional special-status species occur or have a high potential of occurring on MRC covered lands and could be affected by a Covered Activity, additional measures shall be developed and amended into the Agreement to protect those species.
- E. Photographs. The photographs described in Section VI.E.2.h. do not need to be submitted with a subnotification. However, they shall be made available to the Department upon request during the review, inspection, or monitoring period. Photographs shall include at a minimum the following four vantages: 1) upstream of the project area, looking downstream through it; 2) downstream of the project area, looking upstream through it; and 3) perpendicular to the stream looking across the project area from each bank, along the road alignment for crossings. In addition, important fish or wildlife habitat features (e.g., LWD accumulations and wildlife trees) in the project area shall be photographed.
- F. Restorability Determinations. For purposes of this Agreement, a watercourse that currently functions as a Class II may be deemed restorable to a fish-bearing condition (Restorable Class I) after consultation with the Department either through the PTHP process or a consultation initiated by MRC. For activities that are not part of a PTHP process, MRC may request a field review and determination from the Department.

## XIII. AMENDMENTS

- A. Process. This Agreement may be amended at any time. Any proposal to amend this Agreement shall be in writing and submitted to the other party for its review and concurrence. The amendment will become effective, provided that:
1. for changes that may affect covered species under their jurisdiction, the U.S. Fish and Wildlife Service or National Marine Fisheries Service concur with the changes.
  2. the Department and MRC mutually agree on the amendment;
  3. the amendment is duly executed by the Department and MRC;
  4. the amendment is made part of the Agreement;
  5. MRC pays the amendment fee, if the amendment was proposed by MRC; and
  6. the Department has complied with CEQA, if such compliance is necessary.
- B. Purposes.
1. Among other reasons, either party may propose to amend this agreement to:
    - a. refine or clarify any portion of this Agreement,
    - b. correct errors and inconsistencies, and
    - c. improve notification and review processes.
  2. Among other reasons, MRC may propose to amend this Agreement to:
    - a. propose measures substantially different than those described in Attachment A that MRC believes are equally or more protective than measures proposed herein; or
    - b. add a new activity to be covered by this Agreement.
  3. Among other reasons, the Department may propose to amend this Agreement to better protect fish, wildlife, and botanical resources from impacts resulting from the conduct of activities covered by this agreement based upon new research, information, monitoring results, or field observations of approved activities.

#### XIV. LIABILITY

MRC shall be solely responsible for complying with this Agreement and shall be solely responsible for such compliance by its employees, agents, contractors and their subcontractors, and any party authorized by MRC to complete one or more of the Covered Activities on behalf of MRC.

#### XV. DISPUTE RESOLUTION

In the event a dispute arises between MRC and the Department regarding the implementation or interpretation of this Agreement, MRC and Department representatives shall meet to attempt to find a mutually agreeable resolution of the dispute. If MRC representatives and Department representatives cannot resolve the dispute, either MRC or the Department may elevate the dispute to a meeting at the level of the signatories of this. The meeting shall occur within forty-five (45) days of a request by either MRC or the Department, unless an extension is mutually agreeable.

A dispute between MRC and the Department related to new or changed measures needed to protect the fish and wildlife resources that the Department determines during review of the four-year status report shall be resolved as specified in regulation [Fish and Game Code § 1605(g)(3)].

#### XVI. SUSPENSION

- A. Circumstances. The Department may suspend the entire Agreement or any activity authorized by this Agreement and being conducted under a subnotification if the Department determines that circumstances warrant suspension. The circumstances that might warrant suspension include, but are not limited to, the following:
1. Failure by the Operator to comply with any of the terms and conditions of this Agreement;
  2. Information provided by MRC to develop this Agreement or the information contained in any subnotification is incomplete or inaccurate;

3. New information shows the activities authorized by this Agreement and conducted in accordance with a subnotification may substantially adversely affect fish and wildlife resources;
  4. The Department and MRC do not amend this agreement with measures different from those included in this Agreement that are necessary to reduce potentially substantial adverse effects on fish and wildlife resources;
  5. Conditions have substantially changed;
  6. Activities being performed under the auspices of this Agreement are not authorized by it; and/or;
  7. Failure of MRC to pay fees in a timely manner.
- B. **Scope.** At the discretion of the Department, any action to suspend may be limited in scope to address the specific problem resulting in the suspension. Hence, the Department may limit the suspension to specified activities or specified areas covered in this agreement. The entire Agreement may also be suspended. The Department shall notify MRC of any suspension in writing. Any suspension shall take effect immediately upon receipt of such notice by MRC, or in accordance with the instructions contained in the notice unless the work is necessary to address an emergency. Such notice will identify the reason or reasons for the suspension, the actions necessary to correct the problem, and the scope of the suspension.
- C. **Obligation to Mitigate.** Notwithstanding suspension of any privileges under this Agreement, MRC shall remain obligated to mitigate for the adverse effects that occurred from the actions that resulted in suspension by properly performing such actions to correct the deficiencies as set forth in the Department notification to MRC of proposed suspension and the applicable conservation and management measures identified in Attachment A hereto.
- D. **Reinstatement.** The Department may lift any suspension when it has determined that MRC has adequately addressed the problem resulting in the suspension and that reinstatement will not cause harm to fish and wildlife resources. If after 60 days of written notification of suspension, the Department may continue the suspension indefinitely or move to terminate the Agreement (Section XVIII),

## XVII. ENFORCEMENT

- A. **Access.** MRC shall allow the Department to enter all work-sites at any time to ensure compliance with the terms and conditions of this Agreement.
- B. **Enforcement Action.** Nothing in this Agreement precludes the Department from pursuing an enforcement action against MRC instead of, or in addition to, suspending the Agreement.
- C. **Enforcement Authority.** Nothing in this Agreement limits or otherwise affects the Department's enforcement authority or that of its enforcement personnel.
- D. **Failure to Comply.** Failure to comply with the provisions of this Agreement and with other pertinent sections in the Fish and Game Code may result in civil liability and/or criminal prosecution of MRC.

## XVIII. TERMINATION

This Agreement may be terminated at any time by the Department or MRC by written notice sent by certified mail. The Department may only terminate this agreement if MRC has violated the terms and conditions of this Agreement, has failed to remedy such violation in accordance with a written demand from the Department, and the Department reasonably concludes that suspending the Agreement is an inadequate response to such violation. Termination shall become effective 30 days after receipt of the termination notice by the other party. In the event this Agreement is terminated, MRC shall be responsible for notifying the Department and, if necessary, obtaining a streambed alteration agreement in accordance with Fish and Game Code § 1602 or 1611 before commencing any activity that would otherwise be covered by this Agreement. In the event that this Agreement is terminated, any existing approved subnotification shall remain valid for the calendar year approved.

## XIX. TERM

The term of this Agreement shall be 80 years from the date of execution by the Department, or termination of the HCP/NCCP, whichever occurs first. MRC may not perform any work authorized by this Agreement beyond the term unless MRC notifies the Department and obtains an extension or a new agreement. For work covered in a subnotification approved prior to the Agreement’s expiration, the Operator shall be responsible for all conditions in this Agreement intended to protect fish and wildlife resource that might require the Operator to take some action beyond the term of the Agreement.

XX. EXTENSIONS

MRC may request one five-year extension of this Agreement in accordance with Fish and Game Code § 1605. The Department will consider the extension request in accordance with § 1605. The Department will comply with CEQA, as necessary, before approving an extension.

XXI. TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned without the prior written consent of the Department.

XXII. COMPLIANCE WITH OTHER LAWS

MRC shall be responsible for complying with all local, state, and federal laws or regulations that may apply to the activities covered by this Agreement.

XXIII. SIGNATURE AND EFFECTIVE DATE

This Agreement becomes effective on the date of the Department’s signature and the Department’s receipt of the initial fee. The Department shall not sign the Agreement until MRC has signed it and the Department has complied with CEQA.

**MENDOCINO REDWOOD COMPANY, LLC**

\_\_\_\_\_

Jim Holmes  
Vice President and Chief Forester

Date: \_\_\_\_\_

**CALIFORNIA DEPARTMENT OF FISH AND GAME**

\_\_\_\_\_

Neil Manji  
Regional Manager  
Northern Region

Date: \_\_\_\_\_

**ATTACHMENT A**  
**MASTER STREAMBED ALTERATION AGREEMENT**  
**Notification Number: R1-09-0367**

**ATTACHMENT A**  
**MEASURES FOR COVERED ACTIVITIES**

- I. **ALL COVERED ACTIVITIES.** The following measures apply to all Covered Activities. In cases where MRC must deviate substantially from these measures due to site-specific circumstances, MRC shall first consult with the Department, at whose discretion the proposed activity will be included in a separate agreement under Fish and Game Code § 1602 or 1611.
- A. **Project Design.** Project design shall employ site-specific information to avoid impacts to fish and wildlife resources whenever feasible, and mitigate them as close as feasible to the point of impact.
- B. **Habitat Elements.** If disturbing or removing boulders, stumps, or logs large enough to be key pieces cannot be avoided during project lay-out and construction, or if these materials otherwise become available during crossing maintenance, landing, or road decommissioning, MRC shall place them in the channel on-site or immediately down stream, on the floodplain downstream of the crossing, or shall stock-pile them for use in an aquatic habitat enhancement project consistent with the Department’s California Salmonid Stream Habitat Restoration Manual <sup>2</sup> (or subsequent revisions) and the MRC HCP/NCCP (Section 8.2.3.6)<sup>3</sup>.
- C. **Professional Services and Expertise.** The references cited in this Attachment describe methods and techniques employed with success by other practitioners. These represent a starting point for project design and implementation. They are not a surrogate for, nor should they be used in lieu of, a project design that has been developed and implemented according to the unique physical and biological demands of the site-specific landscape. Nor are they a surrogate for acquiring the services of appropriate professional expertise, including but not limited to appropriate Department staff, licensed engineers, or registered geologists where the Business and Professions Code calls for such expertise.
- D. **Special Status Species**
1. **Aquatic species impact minimization.** Construction, reconstruction, repair, maintenance, or decommissioning in the wetted channel when listed fishes are present shall only be undertaken in such a way that limits exposure of on-site fishes to direct “take,” and to mitigate adverse impacts to habitat.
- a. During periods when redds may be present and inhabited, the wetted channel shall be inspected by an aquatic biologist. MRC shall avoid redds when using heavy equipment. If redds are present at the project site or downstream and may be active, MRC shall postpone work in the wetted channel until a later date or conditions specified by the Department.
- b. Unless the Department <sup>4</sup> approves otherwise, heavy equipment crossing and operation in the wetted channel shall be preceded by MRC efforts to isolate the project area and salvage covered fish and covered amphibians. Salvage operations shall be accomplished by:
- 1.) Blocking fish and amphibian movement into the project site using natural (dewatered riffles) or installed barriers (e.g., blocknets) as near as practicable to the work site.

<sup>2</sup> Flosi, G., S. Downie, J. Hopelain, M. Bird, R. Coey, and B. Collins. 1998. California Salmonid Stream Habitat Restoration Manual, Third Edition. California Department of Fish and Game, Sacramento, CA. Var. Paging. Available at <http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>.

<sup>3</sup> Unless specified as to the HCP/NCCP or the Agreement, any reference in this Attachment to “Section” refers to this Attachment.

<sup>4</sup> MRC may be relieved of salvage efforts if the Department finds that potential covered species on site are 1) recovered, thus making such efforts excessive; 2) extirpated, thus making such efforts meaningless; or 3) more severely impacted by the prescribed salvage operations than by the instream activity.

- 2.) Removing fish and amphibians by making at least 2 sweeps with block seines, and then at least one with an electrofisher. Additional passes shall be made if a depletion of at least 75% is not realized.
- 3.) If holding time is expected to be > 2 hours, salvaged fish and amphibians shall be placed into the nearest large pool in the wetted channel from which they can re-colonize the site when the barriers are removed. Cover in these pools shall be enhanced by placing branches into them to increase visual complexity and hiding cover and to reduce competition.
- 4.) If the holding time is expected to be ≤ 2 hours, salvaged fish and amphibians shall be placed into (a) live car(s) held in the nearest well-shaded pool of adequate depth in the wetted channel, from which they shall be returned to the work site upon completion. Live cars shall also have cover added.
- 5.) Fish and covered amphibians salvaged during these operations shall be tabulated by species and condition (healthy, injured, dead), and reported to the Department in annual reports as specified in the Agreement (Section VIII.A.). Processing animals shall be done to the extent practicable with minimal handling.

c. In-water work with heavy equipment shall be minimized, regardless of listed species presence. Absence of listed fish species may be assumed when the watercourse at the work site is dry at the surface; is above a Department-confirmed barrier to anadromy, and fish on-site are non-listed taxa; or if the watercourse is presently a Class II that is considered to be a restorable Class I. MRC may assert absence when MRC biologists, acting under the appropriate state and federal permits, find through diligent effort<sup>5</sup> that listed species are absent and, if necessary to assure continued absence during work periods, undertake measures (e.g., placement of blocknets) to assure none are present during the in-water work.

## 2. Terrestrial species impact minimization.

a. As part of project planning, MRC shall scope biological resources at risk from the Covered Activity and perform the analysis necessary to assure that significant impacts are unlikely. The analysis shall follow the guidance provided to RPFs by CALFIRE<sup>6</sup>. MRC shall make these analyses available to the Department, upon request.

- 1.) If habitat is present for a special status species other than HCP/NCCP Covered Species, MRC shall conduct an analysis to determine if the activity may result in a significant impact, and if so shall develop and apply mitigation measures intended to keep impacts at a level of less-than-significant. Analysis shall consider both impacts of habitat modification (i.e., change in the physical and biological environment after project completion) and disturbance (i.e., noise and commotion during construction). Analysis shall include the project site and associated borrow or spoil areas.
- 2.) MRC shall advise the Department of positive encounters with special status species by submitting the most current form of a California Natural Diversity Data Base (CNDDDB) report in the subnotification (Section VI. E. of the Agreement). . The Department will assure that a copy of the CNDDDB record is submitted to the appropriate CNDDDB staff.
- 3.) For species covered by the HCCP/NCCP, conservation measures applied shall be in accordance with the HCP/NCCP. For other species, the subnotification shall detail MRC-proposed mitigation measures for encountered special status species
- 4.) This Agreement shall not cover the proposed activity if, in the opinion of the Department or the wildlife agencies<sup>7</sup>:

<sup>5</sup> Diligent effort shall be by visual observation in simple and easily observable waters; snorkel surveys in larger waters; and electro-fishing in more complex waters.

<sup>6</sup> See pages 12-15, <http://www.fire.ca.gov/ResourceManagement/PDF/THPINST0100.pdf>

<sup>7</sup> The Department will communicate with the jurisdictionally appropriate federal wildlife agency regarding take avoidance requirements that are not covered species of the HCP/NCCP.

- a.) avoidance measures are not achievable for species that are not HCP/NCCP covered species but are listed under the ESA and/or CESA;
- b.) the level of take or impact for covered species, or the type of conservation measures proposed for those species, are not as provided in the HCP/NCCP; and / or
- c.) after mitigation, significant impacts remain for special status species.

- b. MRC shall not remove vegetation containing bird nests during construction, reconstruction, repair, maintenance, or decommissioning of facilities.
- c. If MRC encounters special status species during the conduct of Covered Activity, work shall be suspended, the RPF notified, and conservation measures shall be developed in agreement with the Department prior to re-initiating the activity.

E. Seasonal Work Periods

1. Unless otherwise specified, work in the active channel shall be limited to the following work periods:
  - a. Class I watercourses – June 15 until the cumulative precipitation threshold is met.
  - b. Class II<sub>L</sub> watercourses – June 1 if the channel contains surface water, or May 15 if the channel is dry until the cumulative precipitation threshold is met.
  - c. Class II<sub>S</sub> watercourses – June 1 if the channel contains surface water or May 1 if the channel is dry until the cumulative precipitation threshold is met.
  - d. Class III watercourses – June 1 if the channel contains surface water, or April 15 if the channel is dry until the cumulative precipitation threshold is met.
2. Notwithstanding the work periods identified in I.E.1., MRC shall provide an informing notice to the Department about operations (location, expected duration) that continue beyond October 15.
3. Seasonal work periods may be extended to allow completion of work in the active channel during extended, dry, rainless periods when there is a low probability of substantive precipitation and when biological resources are least susceptible to impacts. MRC shall NOT request extensions that into periods with probable rain, nor for encroachments that include activities in the active channel of Class I or Class II<sub>L</sub> watercourses once adult salmonids begin spawning migration in plan area watercourses.
  - a. MRC's request for site-specific work period extensions shall include:
    - 1.) a description why the extension will not increase impacts to biological resources;
    - 2.) a projection of the work period, inclusive of application of associated erosion control; and
    - 3.) precipitation forecasts as described under soil erosion control (Section I.G.6.) that demonstrate no precipitation is expected during a period at least 48 hours after the projected work period, inclusive of erosion control application.
    - 4.) status of salmonid spawning migration in the plan area.
  - b. Evidence (e.g., the email) of the informing notice for an extension shall be verifiable at the worksite during all subject activities..
  - c. During work period extensions, erosion control must be applied as specified by Section I.G.5.
4. If the National Weather Service forecasts<sup>7</sup> > 30% chance 0.5 inches of rain during a non-winter period storm event, MRC shall curtail work activity in a way to minimize sediment and delivery to the watercourse, including the application of surface erosion control.
5. Work periods for any Covered Activity shall comply with timing restrictions in the HCP/NCCP when those activities fall within the associated buffers for Northern spotted owls, marbled murrelets, and Point Arena mountain beaver.

F. Hazardous Materials

1. Equipment shall be maintained, stored, staged, and refueled outside the AMZs where spilled or leaked materials will not have access to watercourses.
2. Other hazardous materials shall be a) stored outside the AMZs where spilled or leaked materials will not have access to watercourses and b) used within label directions and limitations.
3. Absorbents and containers large enough to clean potential spills and contain the waste shall be kept and employed at worksites where petroleum products or other toxic materials may be spilled.
4. MRC shall report to the Department as soon as practicable any spill of petroleum or other toxic materials that is delivered or has the potential to deliver to a watercourse.
5. MRC shall take immediate action to fully contain any spill by measures in #3 and/or as guided by label directions.
6. Hazardous materials and contaminated soils shall be disposed at a facility designed and authorized to accept hazardous wastes.

G. Soil Erosion Control

1. Within an AMZ, and further if hydrologically connected to a watercourse, bare mineral soil greater than 100 square feet (exclusive of rock road surfaces, fill-slope armoring, cut-faces > 65% slope, and alluvium within active channel of the streambed) exposed due to the activity shall be treated to minimize soil erosion.
2. MRC shall assure that any area upslope of the work site and exposed by the activity does not cause or contribute to surface, rill, or gully erosion at work sites. This shall be accomplished by:
  - a. incorporating a drainage channel with surface armoring (rocks or other treatments described in notices); and/or
  - b. dispersing water from upslope sources before it has access to the work area via water bars and out-sloping.
3. Surface erosion control treatment, other than that for road surfaces and drainage facilities described in Section I.0., shall be any one or a combination of the following, provided that the method chosen results in conditions (i.e., depth, texture, and ground contact) that provide erosion protection equivalent to mulch applications:
  - a. Mulch. MRC shall apply straw or locally available mulch. Under conditions of equal cost and availability between standard and weed-free straw, MRC will use weed-free straw. If MRC cannot obtain weed-free straw, MRC shall conduct exotic control during the following spring. Mulch shall be in contact with and cover at least 90% of the surface area to a depth of greater than two inches.
  - b. Slash. Slash shall be tractor-compacted where feasible, otherwise hand-placed. MRC shall cover at least 80% of the surface area with slash below 6 inches in depth.
  - c. Seeded. Seed shall be native species or sterile varieties of short-lived or annual non-native species that are known not to persist or spread in the ecosystem, such as barley (*Hordeum vulgare*), buckwheat (*Fagopyron esculentum*), rye (*Secale cereale*), wheat (*Triticum aestivum*), and Regreen®. Annual (or "Italian") ryegrass (*Lolium multiflorum*) or other non-native invasive species may **not** be sown for erosion control purposes. Seeding rate shall be stated in subnotifications and shall be as prescribed by the supplier with a goal of achieving > 80% coverage as surviving plants the following May 1. The Department must concur if MRC proposes seeding alone (i.e., not in combination with another measure).
  - d. Rocking. MRC may apply rock sized and at a coverage that meet or exceed the intent specified in Section I.G.3. The subnotification shall specify intended coverage and rock specifications.
  - e. Other methods. MRC may apply other methods (e.g., erosion control blankets, erosion matting) that meet or exceed the intent specified in Section I.G.3. if MRC provides to the Department the manufacturer's directions for use, and follows these directions. Geotextiles, fiber rolls, and other erosion control treatments shall not contain plastic mesh netting.
  - f. Treatment not required. Notwithstanding the methods described above, if there are soils exposed for which there is very little risk of surface erosion reaching a watercourse, MRC may forego treatments **if** the Department concurs in advance of the practice. Where possible, the overburden from the site shall be set aside during construction and



then redistributed over the site to enable the pre-existing local flora to reestablish via seedbank release or sprouting of plant parts.

4. Where surface treatments to control erosion will not prevent entrained sediment from entering a watercourse, MRC shall supplement them with sediment barriers (e.g., silt fences, hay bales, fiber mats, wattles, sediment basins, check dams) along concentrated runoff flow paths, on an as-needed basis to enable sediments to settle prior to delivery. The sediment barriers will be maintained in operating condition. If a sediment barrier fails to retain sediment, corrective measures will be immediately employed. Sediment captured behind barriers will be disposed in a location or manner where it cannot discharge into a watercourse.

5. Treatment shall be completed prior to the onset of precipitation capable of generating on-site run-off, and prior to October 15 of the year of activity, unless acting under a seasonal work period extension as provided in Section I.E.

6. For any Covered Activity outside the seasonal work period (see Section I.E), erosion control materials shall be stored on-site and be effectively applied:

- a. immediately upon completion of work;
- b. before breaks in work at the site that will exceed 1 day; or
- c. 48 hours before any 24 hour period during which the National Weather Service forecasts<sup>8</sup> for the project vicinity either:
  - 1.) greater than 30% chance of rain; or
  - 2.) rain exceeding 0.25 inch.

7. Subnotifications shall identify the locations and measures for surface erosion control. After the SUBNOTIFICATION is submitted, MRC may change its intended surface erosion control measures to one or a combination of the others. If changing to “treatment not required,” or an alternate not described above, MRC shall acquire the written concurrence of a Department representative.

#### H. Work Areas, Equipment, and Materials Storage

To the extent practicable, construction equipment and materials (e.g., road rock and project spoil) shall not leave the existing or proposed road way. All equipment and materials storage areas and work areas off the road prism shall be the minimum necessary.

#### I. Disturbance or Removal of Vegetation

The disturbance or removal of vegetation shall not exceed the minimum necessary to complete the operations. Ground disturbance shall not extend 50 feet beyond the final project’s footprint without advising the Department of such needs in the subnotification.

#### J. Watercourse Channel and Gradient Restoration

If the watercourse has been altered during construction, reconstruction, repair, maintenance, removal, or decommissioning of the facility, its cross-sectional shape and longitudinal gradient shall be returned as nearly as possible to its natural configuration or that which existed prior to the disturbance. The natural channel grade shall be determined by flagging the natural channel bottom upstream and downstream of the affected area and approximating a straight line between the flags. At any point, removal of materials can stop a) above the “straight line” when equipment hits the natural channel as revealed by channel cobbles or parent material that clearly is not fill material, or b) when on-site derived alluvium has been treated as described below (I.M.3).

#### K. Active Channel Heavy Equipment Use

1. Heavy equipment shall not be operated in the wetted channel except as may be necessary to construct and remove diversion or cofferdams intended to divert stream flow and isolate the work site, or as otherwise specifically provided for in this Agreement. Once a work area has been isolated from the channel, fish salvage has been completed, and water evacuated, operations in water that subsequently infiltrates to work area shall not be prevented by this condition as long as MRC maintains the work area fish-free and prevents delivery of sediment and turbidity downstream.
2. Equipment operated in the active channel and AMZs shall be frequently inspected, and repaired as necessary to be in good operating condition.

<sup>8</sup> See <http://www.wrh.noaa.gov/forecast/wxtables/index.php?wfo=eka>

3. Equipment used to construct, reconstruct, repair, maintain, remove, or decommission a facility shall be cleaned prior to entering the active channel.
  4. Equipment in the active channel or the AMZ that is stationary shall have drip pans placed beneath leak points to capture spills.
- L. Temporary Dams / Dewatering
1. Unless infeasible, work in Class II and Class III watercourses shall be postponed until times when the channel is dry. Damming and dewatering only the side of the channel where work is occurring while allowing the flow to pass along the other side uninhibited shall be used to the maximum extent feasible.
  2. If turbidity from construction may be transported downstream into Class I or Class II aquatic habitat, the flow shall be diverted around the work area by a temporary pipe, diversion channel, or pumping. Temporary dams to direct the flow into the diversion pipe or channel shall be impervious enough to isolate the work area from downstream habitat.
  3. As necessary to retain the turbidity generated onsite and to preclude its mixing with downstream waters, sediment stilling basins or check dams (i.e., gravel-filled sand bags, hay bales, or other type of barriers lined as necessary to collect sediments) shall be installed at the first suitable locations downstream of the work area. Multiple check dams will be installed as necessary to control turbidity.
  4. Any temporary dam required during construction shall only be built from clean materials such as screened and washed gravel or other materials that will minimize: 1) turbidity; 2) fining of stream beds; and 3) aggradation of pools.
  5. When any dam or artificial obstruction is being constructed and employed, sufficient water shall at all times be allowed to pass downstream to sustain aquatic life below the work area.
  6. The area dewatered by any dam or artificial obstruction shall be the minimum necessary to successfully dewater the work area and complete the intended work.
  7. Duration of dewatering shall be the minimum necessary to complete the work. MRC shall advise the Department in subnotifications if dewatering for construction is expected to be in excess of two continuous days. The Department may review the proposed construction methods and require an alternative to the extended dewatering.
  8. Cross-stream dams shall be breached slowly to prevent stranding potential as the upstream dam-created pool drains, and prevent elevating turbidity and water temperature as water flows across the previously dry channel.
  9. Material imported for temporary dams shall be removed as described in Section I.M., and alluvium collected on-site for temporary dams shall be treated as described in Section I.M.3.
  10. Sediment check dams and stilling basins shall be cleaned of trapped sediment as necessary to maintain proper function, and upon completion of operations. Recovered sediment shall be disposed where it can not be delivered to a watercourse. Sediment check dams shall be treated as described in Section I.M.5., or completely removed from the channel upon completion of operations.
- M. Waste, Debris, and Material Removal
1. Debris, soil, silt, bark, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life, resulting from the project shall be prevented from contaminating the soil and/or entering the waters of the state, including unintended leakage. Any of these materials placed within or where they may enter a stream or lake by MRC or any party working in its behalf or with its permission shall be removed immediately.
  2. MRC or the operator shall not dump any personal litter or trash. All such debris and waste shall be collected daily and properly disposed.
  3. River-run gravel that is gathered and used on-site and in the active channel for temporary purposes (e.g., temporary crossings, diversion dams) need not be removed. Rather, it may be spread across the area of origin, or the temporary feature may be breached. For cross-channel dams, the breach shall be greater than or equal to the low water channel width and as close to the low water channel as possible. Side-channel dams shall only be breached at their downstream limits. The remainder of the material shall be modified as necessary to avoid deflecting high flows

into banks, but may otherwise remain in place and allowed to be processed by the impending winter runoff.

4. Equipment, supplies, and materials that are not designed to withstand high seasonal flows shall be moved to areas outside the AMZ before such flows occur.

5. Earthen spoil material shall be disposed in a way that it does not have access to a watercourse either directly or through hydrological connection. It may be stored, drifted over the surfaces of roads or landings near the project area where surface gradient is < 5% and side slope < 30% or it may be hauled to designated spoil areas or quarries. Earthen spoil piles shall be stabilized by tractor contouring to drain water and tractor compacting to stabilize the spoils into the hillside, road prism, or disposal site. Where materials are disposed by drifting them back onto road surfaces, they shall be stabilized with surfacing, erosion control materials, packing with heavy equipment, and/or water.

N. Concrete and Cement

1. Pre-cast concrete shall be fully cured before placing it in a location that may contact surface waters.

2. When poured concrete is used, the work site shall be isolated from flowing or standing water via diversion dams. Flow shall be excluded from poured concrete for  $\geq 30$  days after it is poured. During that time, the poured concrete shall be kept moist, and runoff from wetting shall not be allowed to contact or enter the wetted channel.

a. Commercial sealants may be applied to the poured concrete surface to shorten the time over which water must be effectively diverted around the site. MRC's representative must advise the Department in the subnotification of intent to use a sealant. The subnotification must include a copy of the manufacturer's guidance regarding the drying/curing time necessary to avoid water quality and fish and wildlife impacts, and a commitment by MRC to meet or exceed those requirements.

b. While poured concrete is curing, the diversion shall be inspected at least daily to assure that it continues to bypass maximum flow (e.g., siphon is not lost, the temporary barrier is not at risk of being overtopped [including consideration of weather forecasts], nor its integrity compromised). Note: Because of the toxicity of uncured concrete in aquatic systems, the temporary barrier and bypass system must be maximally effective.

c. While poured concrete is curing, MRC shall keep a record of daily surface water pH immediately upstream of the diversion and downstream of the diversion outlet. If pH downstream is more than 1.0 unit different than water immediately upstream of the work area, MRC shall take immediate action to further reduce through-flow or underflow of the flow diversion and shall contact the Department within 24 hours. The log shall be made available to the Department upon request.

O. All Road Approaches to Watercourses

1. Road approaches to bridges and drafting sites, and their drainage facilities shall be designed, surfaced, and maintained to minimize sediment discharge to watercourses, and repaired where there currently exists sources of sediment delivery to watercourses (such as road surface rilling, ditch down-cutting, and ditch relief culverts failing). Reductions in the effectiveness of erosion control measures due to any use shall be repaired immediately.

2. Permanent roads. Permanent roads within the inner and middle bands of Class I and Large Class II AMZs or within the AMZ of a Small Class II or Class III watercourses shall be surfaced with high-quality, durable, compacted rock; pavement; or functionally equivalent surface.

3. Seasonal and Temporary Roads. MRC shall stabilize before October 15 the surfaces of seasonal and temporary roads used in any year based on future intended use, as follows:

a. No anticipated winter use. Treat temporary roads from the active channel to the closest drainage facility or natural ground surface that hydrologically disconnects the road surface from the watercourse, but not less than 50 feet with rock, slash and seed, straw, mulch, or a combination of these measures.

b. Anticipated winter use.

1.) Winter hauling of logs, rocks, or heavy equipment. Roads shall be surfaced within 200 feet of watercourses, and within the AMZ. Surfacing shall be at

least 6 inches of high-quality, durable, compacted rock; pavement; or functionally equivalent surfaces.

2.) Winter administrative use by vehicles larger than an ATV. Roads shall be treated from the active channel to the closest drainage facility or natural ground surface that hydrologically disconnects the road surface from the watercourse, but not less than 50 feet with rock.

3.) Winter administrative use only by ATV. Roads shall be waterbarred in the AMZ at no greater than 50 ft intervals for grades over 5%, and at no greater than 75 ft intervals for grades below 5%; have additional filters (straw or slash) placed at outlets of waterbars or installed sumps; be shaped to minimize water concentration; and have a width of road surface wide enough to pass an ATV left along the prism's high point to facilitate access. If, in the determination of MRC or the Department, ATV-only winter access generates excessive sediment delivery, this condition will be replaced by the prior winter administrative access condition (b.).

4. Approaches to drafting locations within a WLPZ shall be surfaced with rock or materials with equivalent erosion control capability. Upon site-specific and time-limited approval of the Department, local river-run gravel may be used if it can be adequately compacted to remain in place during the period of use and prevent erosion into the watercourse.

5. At the time of construction, or when active downcutting is observed, ditches on roads that approach a crossing or drafting site shall be rock-lined from the discharge point in the active channel or flood prone area to a) on level ground (e.g., floodplains), beyond the change in slope at crest of the bank, or b) on steeper ground, to the nearest effective waterbar or rolling dip that directs runoff away from the ditch. Rock surfacing shall be adequate to prevent the ditch from downcutting and shall be comprised of rock sufficiently large to remain in place under all projected runoff conditions.

6. Approaches to road crossings and drafting sites shall be aligned, designed, and maintained to a) minimize the length of road surfaces and associated drainage ditches that flow into the active channel, and b) taking advantage of local topography and drainage facilities that directs runoff to discharge where it will not flow into the bankfull channel or onto the bridge deck.

## II. CROSSINGS

### A. All Permanent Crossings

1. New permanent bridges, culverts, and fords on all watercourses that are to remain in place for at least one winter period shall be designed to pass at least a 100-year flood flow, inclusive of wood and sediment loads. This design flow size shall be determined by the 1) rational method for watersheds less than 100 acres, or (2) the USGS Magnitude and Frequency Method for watersheds > 100 acres, as described in Cafferata et al (2004) <sup>9</sup>. If proposed sizing is less than the 100-year event estimated from the applicable methods (Rational, Magnitude and Frequency, and flow transference methods), MRC shall explain and justify in the subnotification.

2. Permanent culverts and bridges shall be kept in a fully functional 10 state year round. MRC is responsible for such maintenance as long as the culvert or bridge remains in the stream and MRC is the current landowner. Crossings with compromised function shall be repaired or reconstructed as soon as possible.

3. Crossings that demand frequent obstruction or sediment removal to remain fully functional shall be prioritized for upgrading no later than the next PTHP that uses it.

4. Sediment removed from the crossing inlet during regular maintenance to regain lost design flow conveyance function shall be disposed as described in Section M5.

5. For the purpose of permanent bridge and culvert maintenance, MRC may remove accumulations of sediment; trunks, branches, and limbs of live, rooted trees and shrubs; and woody debris that

<sup>9</sup> Cafferata, P., T. Spittler, M. Wopat, G. Bundros, and S. Flanagan. 2004. Designing watercourse crossings for passage of 100-year flood flows, wood, and sediment. Calif. Forestry Report 1. 34 pp.

<sup>10</sup> "Fully functional" means that the crossing's ability to convey flood flow -- inclusive of water, sediment, and wood -- is not diminished below the crossing's initial design parameters.

reduce active channel capacity and/or endanger a crossing (i.e., they encroach into the bank-full cross-sectional area). A subnotification is required when any of the following actions are expected:

- a. Live branches, stems, and/or trunks  $\geq 6$ " diameter will be severed or removed;
- b. Work will extend upstream and/or downstream from the crossing's footprint the lesser of 50 feet or 5 times the active channel's width (as measured in the first upstream channel unaffected by the crossing's backwater influence).
- c. Equipment larger than hand tools will be positioned off the road prism.

6. MRC may repair, maintain, or replace bank stabilization features such as rip-rap at culvert and bridge crossings. MRC shall confine these activities to an area not to exceed 30 feet beyond the failed or failing feature. The bank stabilization features shall be of the same or better quality than that being replaced. Bank protection features shall be fully described in notices and should be designed using recognized standards of engineering practice (such as the Federal Highway Administration's Hydraulic Engineering Circular No. 11 (FHWA HEC 11) 11, US Army Corps of Engineers Engineering Manual 1110-2-1601 12, or the California Bank and Shore Rock Slope Protection Design Manual, CALTRANS in cooperation with the FHWA, 2000 13). If a structural stabilization method is proposed that differs from that initially constructed, MRC shall gain Department approval before beginning. Stabilization methods authorized by this Agreement include re-sloping the banks, installing rocks, toe trenches, and bio-engineered features.

7. During reconstruction, replacement, repair or decommissioning of existing crossings, MRC shall take precautions to minimize significant sediment from fill and the crossing surface being delivered into the watercourse (e.g., capture on tarps or a straw layer to facilitate removal of sediment).

B. All Permanent Watercourse Culverts (excludes vented fords)

The following measures for all permanent culverts, are derived primarily from Cafferata et al (2004)<sup>6</sup> and Weaver and Hagans (1994)<sup>14</sup>.

1. MRC shall advise DFG in a subnotification if culvert sizing as determined by the methods in Section II.A.1 result in a diameter < that which results from the "3 times bank-full stage" method<sup>6</sup>.
2. MRC shall size culverts using a HW:D ratio at design flows less than or equal to:
  - a. 0.67 for unmodified, standard crossings; or
  - b. 0.75 for culverts with inlets that are beveled, mitered to conform to the fillslope, or with flared metal end sections; and
  - c. a value disclosed in the subnotification to the Department where field conditions indicate that greater HW:D ratios will perform adequately. MRC is encouraged to pre-consult with the wildlife agencies regarding a proposed reduction in culvert size. Rationale might include measurements of bankfull cross-sectional areas < 0.33 of the proposed culvert cross-sectional area<sup>15</sup>.
3. HW:D ratios shall incorporate the design allowances for the culvert being installed below stream grade as per other sections of this Agreement.
4. Where there is greater than 5 feet of fill above the culvert as measured on the discharge end of the culvert, the
  - a. culvert sizing shall be increased by 6 inches above that calculated for the design flow for every 5 feet of fill above the culvert, or

<sup>11</sup> Metric version available at <http://www.fhwa.dot.gov/bridge/hecl1SI.pdf>

<sup>12</sup> Available at <http://www.usace.army.mil/inet/usace-docs/eng-manuals/em1110-2-1601/entire.pdf>

<sup>13</sup> Available at [http://www.dot.ca.gov/hq/oppd/hydrology/ca\\_riprap\\_thru\\_b.pdf](http://www.dot.ca.gov/hq/oppd/hydrology/ca_riprap_thru_b.pdf)

<sup>14</sup> Weaver, W.E., and D.K. Hagans. 1994. Handbook for forest and ranch roads: A guide for planning, designing, constructing, reconstructing, maintaining and closing Wildland roads. Mendocino Co. Res. Conserv. Dist, Cal Depart. Forest. Fire Prot., and USDA Soil Conserv. Serv.

<sup>15</sup> When using channel dimensions to size a crossing replacement, the channel shall be evaluated at similar gradient near the crossing but away from crossing-caused aggradation or degradation.

- b. the culvert shall be sized for both 150 year flood and shall be > active channel width.
5. Notwithstanding the preceding culvert sizing instructions, the minimum diameter of a permanent culvert that experiences flood flows shall be 24 inches. Culverts that may not experience flood flows <sup>16</sup> need not follow this minimum size criterion.
  6. Construction of culverts that require activity in the active channel of Class II or Class III watercourses shall be after April 1 if the crossing is dry, or after May 15 if it is not dry.
  7. When replacing a culvert that is sized to pass the calculated 100-year flood but still exhibits plugging problems, the culvert's effective cross-sectional area shall be > 3 times the bankfull area.
  8. Wherever possible, install culverts at the same gradient as the natural stream channel. Where not feasible, protect road fill and control depth of outlet scour with downspouts (Section II. E. 6.) and/or rock armoring.
  9. Install culverts so that they are aligned along the axis of the natural channel to avoid angular deviation.
  10. If necessary to construct a channel above the inlet, its width shall be as close to the inlet diameter as feasible.
  11. On confined channels where bankfull indicators are absent, culverts shall be at least as wide as the stream's active channel width, as measured outside of the influence of the crossing.
  12. Permanent culverts that may experience flood flows shall be designed to be "fail-safe" as per Weaver and Hagans (1994). Wherever feasible, culvert crossings shall have a "critical dip" above the axis of the culvert or at the hinge point of the road. Where infeasible, a subnotification shall describe proposed alternative critical dip alignments or measures (e.g., over-sizing culverts). The critical dip shall be designed with a cross-sectional area at least as large as that of the culvert and be in place during the winter period.
  13. Culvert outlets shall extend  $\geq 1$  culvert diameter beyond the fill, and in no case less than 2 feet.
  14. In order to minimize ponding potential upstream of the inlet, the inlets shall extend beyond the fill as little as necessary to a) prevent road materials sidecast by grading from being delivered to the watercourses and b) enable inlet armoring.
  15. Fill faces shall be compacted by tractor-walking. If site-specific conditions prevent tractor walking, fill faces shall be compacted with vibra-compacter, knuckle-compacted with excavator, or equivalent methods.
  16. Fill faces shall be slashed or mulched, and shall not exceed 80% slope ratio, unless they are armored with rock, riprap, or concrete blocks.
  17. Fill faces at inlets and outlets that will be exposed to the design flow shall be protected from stream flow erosion via armoring that consists of graded rock riprap or other non-erodible material and design (e.g., concrete head wall). Where used, riprap shall be constructed to remain in place during 100-year flows, and extend at least as high as the top of the culvert. On inlets, riprap shall extend sufficient distance upstream as "wing walls" to prevent bank erosion. Culvert outfalls shall be riprapped in a U-shaped channel, with clean material of sufficient size to remain in place during 100-year peak flow events. Riprap in the active channel downstream of the culvert shall be set below grade so as to allow the natural accumulation and transport of bedload at stream grade.
  18. With the exception of drop inlets, the inlets of all new culverts shall be set to not create backwater effects or to store sediment.
  19. Backfills shall be free of rocks > 6", limbs, other woody material (greater than 6 "diameter), or debris that could dent the pipe, cause uneven fill settling, or allow water to seep around the pipe. The crossing backfill base and sidewall material shall be compacted before the pipe is placed in its bed. A minimum amount of fill material shall be used for the bed to reduce seepage into and along the fill. Backfill material shall be compacted at regular intervals (0.5 to 1.0 foot lifts) until at least 2/3 of the diameter of the culvert has been covered.
  20. To counter the effects of sag after the culvert is buried, culverts shall be installed with a "camber" or slight hump in the bed centered under the middle of the pipe where feasible. The amount of camber should be between 1.5 to 3 inches per 10 feet of culvert length.

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<sup>16</sup> Discharge emanating from a spring or a seep is stable relative to that of watercourses draining basins.

21. Where a crossing is to be replaced and there is evidence of voids or potentially unstable fill, the trapezoidal wedge of existing fill material in the crossing shall be excavated down vertically to the approximate natural watercourse channel and outwards horizontally to the approximate crossing hinge points to remove potential unstable materials and eliminate voids in the old fill prism

22. MRC shall inspect all newly constructed or reconstructed culverts at least five times over the first five years after work completion as directed in Table E-3 of the HCP/NCCP. Inspection of new or reconstructed crossings, inclusive of downspouts and energy dissipaters, will be to assure their functioning as designed and if not to identify and schedule needed repairs.

23. Culverts with perforations or separations shall be repaired or replaced according to the prioritizing scheme described in the HCP/NCCP (Section 8.3.3.2.1). If the repair consists of an insert into a culvert or invert paving<sup>17</sup>, the repaired culvert shall a) have an invert roughness comparable to that which existed prior to the repair, b) not inhibit fish passage, and c) not reduce the flood-passing capacity to less than the design flow.

24. MRC is encouraged to pre-consult on a proposal for a permanent crossing that includes multiple culverts. Any multiple-culvert crossing shall have offset pipes such that one pipe conveys all of the low flow.

C. All Permanent Bridges

1. For any new permanent crossings or replacement of an existing permanent crossing for which design flow calculations require a culvert larger than 48 inches, MRC shall install a bridge unless MRC explains and justifies the alternatives and the Department concurs with the alternative.

2. Where possible during installation, bridges shall be suspended across the watercourse using cables and heavy equipment or cables and corner blocks to avoid a) altering bed and bank and b) crossing the wetted channel with heavy equipment.

3. The freeboard (i.e., the distance between the water level and the lowest part of a bridge structure) shall be above design flow stage, unless the wildlife agencies approve an alternative caused by other design considerations (e.g., large amounts of fill for the abutments).

4. Provide effective erosion protection for bridge abutments, piers, and watercourse banks influenced by the hydraulic conditions of the bridge, at least up to the level of the design flow stage or the edge of the terrace or the topographic bench upon which the bridge rests. Abutment fills shall be minimized. Built-up approaches shall be dipped to allow floods to flow over and around them.

5. In removing and decommissioning bridges, the operator shall excavate all loose dirt from the bridge deck and ends prior to yarding the bridge across and above the active channel.

6. Existing abutment material beneath the bridge ends (logs and or rocks) shall be left in place where they are sound and provide stream bank stability

7. Prior to installing or reinstalling any bridge, all loose dirt, petroleum residue, and debris shall be removed to an area outside of the flood prone area.

D. Permanent Class I Watercourse Culverts or Bridges (Including Restorable Class I Watercourses)

1. Bridges shall be installed at all new and replacement crossings at Class I watercourses and restorable fish-bearing streams unless infeasible. Where bridges are not feasible on Class I watercourses crossing replacements, MRC shall provide in the subnotification the rationale for bridge infeasibility and resulting crossing design alternatives. MRC is encouraged to pre-consult where crossings other than bridges are proposed on a Class I crossing.

2. MRC shall construct clear span bridges with abutment fills outside the bankfull channel. Log stringer bridges may be installed, but all surfacing material shall be screened, washed, durable clean rock if the surfacing material is not otherwise planked, plated or paved. Side-boards shall be erected to retain the surfacing materials on the running surface.

3. Structural arch culverts shall have footings outside the active channel.

4. All in-water work with heavy equipment shall be minimized, regardless of listed fish presence.

<sup>17</sup> Invert paving is the act of coating or lining deteriorated culvert barrels to protect them from further corrosion or abrasion. Invert paving has used concrete or liquid and solid mixes of chemical compounds to create a surface capable of quickly hardening and withstanding abrasion.

5. Heavy equipment crossing for construction purposes in surface waters with listed fishes present shall be constrained to a single round trip crossing. If more than the single round-trip is required, MRC shall either isolate the area with temporary dams (Section I.L.) and diverting flow around it or construct a temporary bridge or culvert to support the bridge or culvert installation work. Any fill material within the active channel shall be composed of either washed, clean rock or locally derived river-run rock.
6. In surface waters with listed fishes present, construction, reconstruction, repair, decommissioning, or maintenance activities that mandate more in-stream activity than a single round-trip crossing shall only be undertaken between June 15 and October 15 unless operating under an extension (Section I.E).
7. If bridges are infeasible, culverts shall be in order of desirability:
- a. bottomless multi-plate arched culverts;
  - b. "squashed" pipe arched culverts buried to at least 1 foot in the channel; or
  - c. round culverts.
    - 1.) Where channel slope is less than 3% and the culvert is less than 100 feet, the bottom of a round culvert shall be buried into the streambed not less than 20 % of the culvert height at the outlet and not more than 40 percent of the culvert height at the inlet.
    - 2.) Where channel slope is less than 6 % or the culvert is equal to or greater than 100 feet, the inlet and outlet of the round culvert shall be buried into the streambed not less than 30 percent and not more than 50 percent of the culvert height.
8. When replacing culverts that, due to insufficient size or inlet placement above the natural channel have stored sediment, MRC shall:
- a. Remove all stored sediment to the extent feasible along the channels alignment upstream of the crossing using heavy equipment operating from the road's running surface, or the limits of the road-fill material as it is removed.
  - b. If all stored sediment upstream of the crossing is not accessible from the road surface or prism as it is lowered with heavy equipment, subnotifications shall identify one or a combination of the following measures to be applied, along with MRC's rationale for its selection. MRC is encouraged to pre-consult with the Department.
    - 1.) Heavy equipment operated not from the road surface or prism, but within boundaries for its use that are described in the SUBNOTIFICATION.
    - 2.) Grade control features such as boulders and log 'v' weirs to meter sediment release. Design specifications shall follow the California Salmonid Stream Habitat Restoration Manual and / or other relevant sources.
    - 3.) Stabilize the banks through the stored sediment with riprap sized to remain place during design flows.
    - 4.) Replacement of the culvert in-place, keeping the remaining sediment in place.
    - 5.) conditions derived through a multi-disciplinary review enabled through incorporating the proposed replacement in a PTHP.
9. Culverts shall be designed, constructed, and maintained such that they do not: a) constitute a barrier to upstream or downstream movement of fish <sup>18</sup>, b) significantly disrupt on-going bedload transport dynamics, or c) significantly reduce the active channel's existing or optimum cross-sectional area. Natural, open-bottom crossings or embedded culverts that are sized to pass the design flow and approximate the pre-project active channel width will often ensure that the culvert will not impede movement.
10. For durability and strength reasons, culverts made of plastic shall not be installed on Class I or restorable Class I watercourses without prior DFG approval.

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<sup>18</sup> See the California Stream habitat Restoration Manual for fish passage guidance (<http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp>).



11. Trash racks shall not be constructed at Class I crossings. Existing trash racks shall be removed from Class I crossings upon replacements.

12. Routine maintenance

a. Routine maintenance that does not include work in the active channel is not seasonally restricted. Routine and occasional maintenance that includes work in the active channel and is not necessary for assuring design flow conveyance capacity or the structural integrity of a crossing is restricted according to Section I.E.

1.) Obstruction removal. MRC may remove debris, trash, rubbish, flood-deposited woody and herbaceous vegetation, fallen trees, branches, sediment, and other obstructions that reduce a crossings flow conveyance capacity and / or endanger a permanent crossing at any time. MRC shall inform DFG if obstruction removal extends further than 50 feet or 5 times the active channel width (as measured in the first upstream channel unaffected by any backwater influence from the crossing), whichever is less, upstream and downstream from the facility’s footprint.

2.) Non-emergency obstruction removal that requires heavy equipment in the flowing water or off the road’s prism requires notice.

b. MRC shall inspect existing Class I and restorable Class I culverts and bridges to identify maintenance needs such as risk of failure; presence of migration barriers caused by corrosion, rust, mechanical damage, or abrasion; and effectiveness and condition of energy dissipaters.

1.) All Class I or restorable Class I watercourses culverts and bridges on permanent roads shall be inspected and maintained annually.

2.) MRC will inspect all Class I and Restorable Class I culverts and bridges on roads at least 5 times over at least 5 years after work completion (Table 1):

**Table 1. Inspection schedule for new, reconstructed, and replaced crossings.**

Year	Inspections
1	<p><i>3 inspections</i></p> <p><i>1<sup>st</sup> inspection after the first significant and/or cumulative rainfall of 10 in. in the water year.</i></p> <p><i>2<sup>nd</sup> inspection after the first storm with a 2-year or greater return interval or after April 1.</i></p> <p><i>3<sup>rd</sup> inspection after May 31.</i></p>
2	<p><i>1 inspection after at least 25 in. of rainfall in the water year.</i></p> <p><i>Problem sites from previous years that have had rehab work done during the summer will follow the same schedule as Year 1</i></p>
3	<p><i>No inspections, unless large storm event occurs (&gt;20 year return)</i></p>
4	<p><i>No inspections, unless large storm event occurs (&gt;20 year return)</i></p>
5	<p><i>1 inspection after the last significant rain</i></p>

**TABLE NOTE**  
 If a site fails or requires additional heavy equipment work during the inspection period, the 5-year timeline will be reset.

3.) MRC shall inspect all roads with permanent culverts or bridges with the road inventory update at 10-year interval.

c. Hiding cover (logs, rocks, and overhanging branches) that must be removed for maintenance purposes shall be removed using hand tools to the extent feasible. Logs that may be “key pieces” as described in Table G-9 of the HCP/NCCP’s Appendix G or as determined by an MRC or Department biologist or RPF, shall be placed on the floodplain or downstream of the crossing, or made available to a aquatic habitat enhancement

project carried out consistent with the Department's California Salmonid Stream Habitat Restoration Manual <sup>2</sup> and the MRC HCP/NCCP.

d. Sediment removal shall not exceed that needed to achieve the natural channel grade as approximated by sighting or running a straight line between flags set at the natural channel bottom upstream (beyond backwater effects) and downstream of the facility.

### 13. Repair and Occasional Maintenance of Bank Stabilization at Bridges and Culverts

In-stream work when listed fishes may be present shall be preceded by fish salvage operations (Section II.D.4). Repaired or replaced bank stabilization structures (e.g., rip rap) shall not diminish habitat structure and function and flow conveyance relative to the structure being replaced.

## E. Permanent Class II and III Culverts and Bridges

1. MRC is encouraged to pre-consult on all new Class II<sub>L</sub> crossings. In addition, MRC is encouraged to pre-consult on new Class II<sub>S</sub> and Class III watercourse crossings that pose significant risks to downstream Class I watercourses.

2. In-stream work when covered aquatic species may be present shall be preceded by salvage operations including blocking the work area with seines, multiple pass removal of captives until inter-pass decline is >75%, and captives are placed into the nearest, preferably upstream suitable habitat.

3. Culverts that, due to insufficient size or improper placement of its inlet above the natural channel have stored > 10 yds<sup>3</sup> sediment shall be replaced with a culvert only under the following options. MRC is encouraged to pre-consult in these situations. The subnotification shall identify and justify which option below is selected.

a. The new inlet is placed at the original stream channel elevation and the stored sediment is removed from the deposit by the heavy equipment operating from the road's running surface or in its prism as the road is lowered.

b. The new inlet is placed at the original stream channel elevation and heavy equipment operates off the road prism as necessary to remove stored sediment.

c. The position of the original culvert inlet remains unchanged so that stored sediment is not released.

d. The new inlet is placed at a lower level, and the stored sediment is removed as in 3. a. and remaining sediment is allowed to pass through during subsequent high flows.

4. Culverts that, due to insufficient size or improper placement of its inlet above the natural channel have stored sediment shall be replaced with a bridge only under the following options.

a. Remove stored sediment upstream of the crossing using heavy equipment operating from the road's running surface, or the limits of the road-fill material as it is removed.

b. If all stored sediment upstream of the crossing is not accessible from the road surface with heavy equipment, MRC is encouraged to pre-consult with the Department. The subnotification submitted for the project shall identify and justify the method to control excessive release of sediments that may include:

1.) heavy equipment operated not on the road surface or prism, but within prescribed boundaries for its use; and/or

2.) Install grade controls such as boulders and log 'v' weirs to meter sediment release. Design specifications will follow the California Salmonid Stream Habitat Restoration Manual <sup>2</sup>.

5. Culverts not placed at natural stream gradient shall prevent erosion at the outfall by building downspouts and/or energy dissipaters. If half-round downspouts are installed, they shall be at least one size larger than the culvert; be sized to accommodate the entire design flow from the associated culvert, be in line with the culvert, be securely attached more than two ribs into the culvert, and shall not be cut or otherwise modified to create a hinge. All downspouts (full-round or half-round) shall be anchored to the fill slope using dead-man posts or cable-anchor assemblies adequate to operate through the life of the crossing; placed in contact with soil or the fill slope to the degree feasible, and constructed with large rocks at the outfall to dissipate energy and prevent erosion.

6. Sites where MRC intends to install or replace trash racks shall be identified in subnotifications to the Department, and the site and design shall be subject to review by the Department prior to (re)construction.
  7. To minimize the potential for Class II culverts creating barriers to amphibian and macroinvertebrate movement and where the natural channel slope is:
    - a. 3 percent or less, closed-bottom culverts shall be embedded below the natural channel grade as feasible to facilitate substrate deposition on the culvert floor. The gradient of the culvert shall be sufficiently flat to accumulate sediment of not less than 10 percent of the culvert's diameter at the outlet. The effects of the cross-sectional area reduction shall be accounted for when selecting the culvert size for the design flows.
    - b. greater than 3 percent, the culvert shall be placed at the base of the fill and the grade of the original watercourse channel. If culverts cannot be properly embedded within the watercourse or along the base of the fill, MRC shall install an alternative crossing such as bridges, floorless culverts, or arched culverts that provide for natural bottoms. Where any of these are infeasible, including excessive costs, MRC will install a standard culvert through the fill with erosion protection as described in Section 6. If unable to select a method that results in a natural bottom, MRC shall identify the alternative chosen and reason for not using a natural bottom alternative in the subnotification to the Department.
  8. Routine Maintenance / Obstruction Removal
    - a. MRC may remove debris, trash, rubbish, flood-deposited woody and herbaceous vegetation, fallen trees, branches, sediment, and any obstructions that reduce active channel capacity immediately upstream, at, or downstream of a crossing at any time.
    - b. Routine maintenance not necessary for assuring design flow conveyance capacity or the structural integrity of a crossing is restricted to the work periods described in Section I.E.
    - c. Maintenance and obstruction removal shall be performed with hand tools whenever possible; however, heavy equipment such as excavators or backhoes may be employed if hand tools are not practicable. Heavy equipment shall operate to the maximum extent practical from the running surface.
    - d. Outside the standard work period, heavy equipment is authorized within the bankfull channel only when the channel is dry, except that the bucket of any excavator or backhoe may be employed within the wetted channel. Obstruction removal shall be spatially limited upstream and downstream of the facility's footprint to the lesser of: 50 feet, or 5 times the active channel width as measured in the first upstream channel unaffected by the crossing's backwater influence.
    - e. Final channel grade after maintenance shall be the same as the design channel grade. Where the facility's design grade is that of the natural channel, final grade shall be determined by flagging the natural channel bottom upstream and downstream of the facility and sighting or running a straight line between the flags.
    - f. Culvert / bridge-bank stabilization structures (e.g., rip rap) shall be repaired or maintained such that aquatic habitat structure and function is not diminished relative to the existing structure.
    - g. Trash racks shall be cleaned or maintained on an annual basis and more frequently as necessary to prevent scour, bank erosion, stream diversion, or overtopping of the crossing.
- F. Temporary and Seasonal Crossings on Class I Watercourses and Restorable Class I Watercourses
1. MRC is encouraged to pre-consult with the Department on new temporary and seasonal Class I crossings.
  2. Temporary and seasonal crossings shall be installed after June 1 if all work can be accomplished without heavy equipment or crossing features (e.g., fill or culverts) in the wetted channel, or if the channel is dry.
  3. All temporary and seasonal crossings shall be removed by October 15, or before the cumulative precipitation threshold is met.
  4. Temporary and seasonal culverts shall be sized to convey all flows expected during the period of deployment.

5. Temporary and seasonal crossings shall be bridges or ½ round culverts, natural-bottomed culverts, or culverts placed such that their inverts are below stream channel grade and thus be “natural bottomed.”
  6. Within active channels, fill materials for temporary and seasonal crossings shall be cleaned, screened gravel where it contacts surface water. On top of the cleaned gravel, local river-run gravel, logs (Humboldt), or a combination can be employed. Gravel may be skimmed from nearby exposed (dry) gravel bars. Skimming shall not create depressions which might trap aquatic organisms should the water rise and fall. Skimming shall result in a taper (2% or steeper) rising from the water level of the low flow channel.
  7. Temporary bridges may be flatcars, log stringers, plate, or other designs. Fills for abutments below high water mark shall be log and/or rock. Log stringer bridges shall be surfaced with clean rock surface on top of filter fabric or straw to prevent surface material from entering the active channel during use.
  8. Operation of heavy equipment for installing or removing temporary and seasonal crossings (bridges and culverts) in surface water shall follow equipment minimizations (Section II.D) and fish salvage (Section II.D.4) criteria.
  9. Temporary bridges, culverts, fill, and surfacing materials at temporary and seasonal crossings shall be removed (Section I.M.5.), temporary fill material shall be treated (Section I.M.), and stream channels and banks (except road approaches outside the active channel) returned to approximate pre-project condition (Section I.J.).
  10. Upon removal of a temporary or seasonal crossing, erodible surfaces of the disturbed bank at elevations below the bank-full level when discernable, or the active channel if bank-full is not discernable shall be rocked to prevent erosion. The rock cover shall:
    - a. consist of particles that are from the gravel bar at the crossing if the disturbed area will not be exposed to erosive flows; or
    - b. average greater than the  $\geq 75$  percentile diameter of adjacent undisturbed active channel surface.
  11. Approaches shall be treated to prevent surface erosion from delivering sediment to the watercourse as above (Sections I.O. and I.G.).
  12. Multiple half-round or other bottomless culverts may be installed at temporary or seasonal crossings only in locations where they do not create a barrier to upstream or downstream movements of aquatic organisms. No round culverts or “squashed” pipe arch culverts shall be installed for temporary or seasonal Class I watercourse crossings. Where used, multiple half-round culverts shall be offset so that low flows are conveyed by only one pipe.
  13. Upon their removal in the fall, temporary or seasonal crossings shall be isolated from potential subsequent vehicle traffic by strategic placement and installation of effective barriers. Existing gates between the crossing and a public road, if effective, will satisfy this requirement. Approaches treatments as per Section I.O.1. shall remain functional.
- G. Temporary or Seasonal Crossings on Class II and Class III Watercourses
1. MRC is encouraged to pre-consult with the Department on new temporary or seasonal crossings in close proximity to Class I waters or with large amounts of fill.
  2. Temporary or seasonal crossings that require activity in the active channel shall be reinstalled after April 1 if the crossing is dry, or after May 15 if it is not dry. They shall be removed before the cumulative precipitation threshold is met.
  3. Temporary or seasonal crossings installed prior to June 1 shall have pipes sized to convey the runoff a 50 year storm, those installed after June 1 shall be sized to pass the runoff of a 25 year storm.
  4. Temporary or seasonal crossings include bridges (e.g., flatcars, log stringers, plate, or other designs), fords, culverts with local river-run fill, culverts with imported fill, and crossings with log fill, and combinations of all three types of crossings. Fill for abutments below high water mark shall be log and/or rock. Log stringer bridges shall be surfaced with a layer of rock upon filter fabric or straw to prevent surface material from entering the active channel during use.
  5. Culverts with rock or log-fill shall be installed when it may be difficult to remove all fill material from locations that will deliver to the watercourse (e.g., deep, incised, steep, or rough channel bottoms, or when flows would transport other fill downstream). Culverts shall be of

sufficient size to accommodate the largest flow during the period of intended use. Rock fill shall be clean or washed and be free of soil material. Log fill crossing shall be constructed to enable removal with minimal disturbance to bed and banks. Log fills shall be covered with filter fabric and straw mats or rock, with a local topfill for road surfacing. Prior to removal, the top fill shall be excavated using mechanized equipment and/or hand tools, as necessary, and placed where it will not enter the channel. The logs shall be removed while minimizing further disturbance to the banks. An alternative process that meets the same goals may be employed if approved in advance by the Department.

6. Portions of road approaches that slope toward and may deliver sediment to the active channel shall be treated to prevent surface erosion from delivering sediment to the watercourse as described above (Sections I.O., and I.G.).

7. Upon their removal in the fall, temporary or seasonal crossings shall be isolated from potential subsequent vehicle traffic by strategic placement and installation of effective barriers. Existing gates between the crossing and a public road, if effective, will satisfy this requirement and still enable administrative access. The erosion control function of approach treatments (Section I.O.1.) shall remain intact after crossing removal.

8. Aquatic habitat features (e.g., LWD, boulders) removed during installation of temporary crossings shall be restored or replaced in equal quantities on- or near-site after removing the crossing.

#### H. Fords on All Watercourses

Fords are the preferred crossing type where frequency of vehicle and equipment crossing is rare, the site is remote and thus not amenable to timely inspection and maintenance, aquatic habitat value is absent on-site (Class III) or minimal (dry watercourses), or the channel is expected to be subject to mass wasting hazards.

1. MRC is encouraged to pre-consult with the Department on all new Class I and Class II<sub>L</sub> fords.

##### 2. Class I fords

a. Construction, reconstruction, repair, and timber management use of fords is limited to times when listed salmonid species are absent on site. If general use of a ford exceeds 2 crossings per day, or if use results in sediment plumes or persistent turbidity, a temporary bridge or culvert shall be installed. If general use is less, or if used for administrative purposes, MRC shall maintain the vehicle path free of large rocks and logs that may attract salmonids.

b. Construction, reconstruction, repair, and use of fords intended for timber management access with heavy equipment (employed because alternative, existing crossings are unable to bear or pass the load) is limited to times when listed salmonid species are absent on site (Section I.D.4.) or after fish salvage operations (Section I.D.1.b.).

c. Regardless of absence of listed salmonids, timber management access over Class I fords shall be constrained to the period between June 15 and October 15, unless the channel is dry or the period of use is extended (Section I.E.2.).

d. Class I fords shall not interfere with movement of salmonids.

3. Timber management access over Class II fords is limited to conditions where the watercourses are dry during hauling periods. If not dry, then use is either limited to ATVs and pick-ups, or the running surface shall be made dry by installing a vented ford or rocking over temporary pipe.

4. The fill of fords shall be composed of competent rock, generally greater than 3 inches in size with less than 20% fines for crossings where: a) drainage area is greater than 75 acres (measured at the crossing); b) large amounts of fill (> 100 yds<sup>3</sup>) are required; or c) other onsite factors that require a higher level of concern (such as high likelihood of mass wasting or a highly unstable channel above the crossing).

5. Without the Department's review and concurrence, fords shall not be constructed, reconstructed, or replaced at steep-gradient (> 50%) watercourses that 1) require relatively large amounts of fill (> 500 yds<sup>3</sup>).

6. MRC shall place a culvert, rock drain, or other water conveyance facility in Class II or Class III fords to convey sub-surface flow through the fill of the rocked ford if there is evidence of significant subsurface flow (exposed soil pipes above, at, or below the crossing), or evidence of year-round water flow via upstream seeps or springs.

7. MRC shall construct fords by sub-excavating the roadbed to form an exaggerated dip and spillway through the crossing. The dip shall employ the maximum feasible grades to allow the desired access (ATV, pick-ups, log trucks), thereby minimizing the fill needed for the crossing. The dip in the final road alignment will provide a cross-sectional area greater than would be required for a culvert at the same location (Table 2):

**Table 2. Minimum outlet sizing for passing design flows at permanent fords.**

100-year pipe diameter (inches)	Equivalent area (square feet)	Design average depth (feet)	Design width (feet)
18	2	0.33	10
24	4	0.33	20
36	8	0.50	25
48	13	0.50	30
54	16	0.60	35
60	20	0.75	40
72	29	0.75	45
80	35	1.00	50
92	47	1.00	55

8. Where approaches outside the channel fall away from the channel, backup rolling dips will be constructed to assure that the road does not capture stream flow diverted by debris torrents.
9. MRC shall construct a key and place large rocks sized to remain in place during design flows at the downslope toe of the fill.
10. MRC shall dish-out the outside face of the fill material to concentrate flows in the spillway and direct them into the channel, and armor the face with rock large enough to withstand a 100-year flood. Size the rock to be non-transportable by using rocks that exceed the non-transportable substrates in similar gradients up- and down-stream of the crossing. Generally, the rock should be 6–24 inches with an average diameter of at least 12 inches. Voids between the larger surface rocks shall be filled with smaller rock.
11. The running surface of fords shall be placed over a layer of rock that can withstand erosion by expected flow velocities (i.e., the 100-year recurrence storm), placed in a U-shaped channel to create a drivable crossing that contains surface flow and minimizes sieving through the crossing. The channel and approaches to the ford shall be surfaced with durable, angular rock at least 4 inches in size to a depth of at least 6 in (15 cm). Approaches in both directions from the channel shall be surfaced for a distance of at least 5 times the channel width across the road surface. Crossings on well-traveled roads shall be rock-surfaced the greater of 25 feet or the 5-times channel width. Compact the rock into the channel at the crossing.
12. MRC shall armor the road surface, road edge, and fill face wide enough to prevent flows from circumventing the channel and armored face, and from back-cutting through the road. The width should include the full extent of the outside edge of the road that may receive flow if the channel adjusts after operations. Rock armoring may extend 2-6 in. above the outside edge of the road surface, but the design should include a low point to control channel movements at the spillway thalweg.
13. Where available, viable redwood stumps may interspersed within the armoring of the fill face and keyway.
14. When repairing or reconstructing an existing ford, excavate only the amount of fill necessary unless subsurface piping is evident.
15. If use of the ford results in substantial sedimentation or turbidity downstream, a permanent or temporary bridge or culvert shall be installed.

16. Permanent concrete fords shall not be constructed under this Agreement.
17. Native soil shall not be pushed into the high flow channel of a stream.
18. Ford materials that reduce the channel's cross-sectional area or are not designed to withstand high flows shall be removed to areas above the normal high water mark before such flows occur.
19. Upon completion of the PTHP, temporary fords shall be isolated from potential subsequent traffic by strategic placement and installation of effective barriers.
20. In addition to other requirements above, vents in fords:
  - a. shall be sized to minimize the fill volume in the crossing while allowing for conveyance of at least a 10-year storm through the embedded culvert;
  - b. may be multiple culverts, each no less than 12 in. in diameter, rather than a single culvert in order to minimize fill in the crossing;
  - c. shall discharge onto rip-rap or other stable materials, with energy dissipaters installed as needed to prevent erosion from the outlet of the pipe or pipes;
  - d. shall not be considered when sizing the ford's surface flood conveyance design (i.e., the vents are assumed to carry negligible flood flows).
  - e. shall not dam water behind them.
21. Maintenance of vented fords shall follow the schedule set forth above (Section II. D.14.).

### III. NON-CROSSING ROAD ENCROACHMENTS

This section applies to the construction, reconstruction, repair, and maintenance of stream-side roads away from crossings that involve bed, bank, channels, or aquatic habitat, or threaten sediment input to the bankfull channel.

- A. **Work Season.** In surface waters with listed fishes present, MRC shall only conduct construction, reconstruction, repair, decommissioning, or maintenance activities 1) between June 15 and October 15 unless operating under an extension (Section I.E.), 2) with the work area isolated (Section I.L.), and 3) after fish salvage operations (Section I.D.1.b.).
- B. **Bank Stabilization**
  1. MRC is encouraged to pre-consult on new bank stabilization measures or expansion of existing bank stabilization measures (e.g., riprap).
  2. Maintenance of riprap shall be restricted to replacement in kind, using hand tools or heavy equipment operating from the road surface unless the work area is dry or meets conditions in III. A. Gabions shall not be replaced in-kind, but with bioengineered bank stabilization, riprap, and/or viable redwood stumps.
- C. **Construction, Reconstruction, or Repair of AMZ Roads**

Where roads parallel a watercourse and are in sediment delivering position (e.g., proximity, unbroken slope, or poor intervening filtering capacity):

  1. The RPF shall evaluate the tradeoffs between rebuilding the road on-site as opposed to other access options (e.g., different alignments or routes), and shall explain and justify the decision in the notice.
  2. Road construction, reconstruction, or repair activities shall not sidecast material into the Watercourse or Lake Transition Line. As necessary to avoid erosion or sediment delivery, materials shall be disposed of as described above (Section I.M.5.).
  3. All bare mineral soil exposed by construction, reconstruction, or repair that is in a position to be delivered to the active channel shall be treated to minimize erosion as described above (Section I.G.).
  4. Running surfaces of AMZ roads that can deliver sediment either directly or through inadequate filter strips shall be rocked or paved to prevent sediment delivery
- D. **Maintenance of AMZ Roads**

Where existing roads parallel a watercourse and are in sediment delivering position (e.g., proximity, unbroken slope, poor intervening filtering capacity):

1. Continued repair of sloughed road beds does not require a notice, but the volume of fill required to repair the road and the site location shall be disclosed in annual reports if any road material was delivered to the active channel.
2. Road maintenance shall not sidecast material into the Watercourse and Lake Transition Line. As necessary to avoid sediment delivery, materials shall be disposed as described above (Sections I.M.5., and I.G.).
3. All bare mineral soil exposed during road maintenance that is in a position to be delivered to the active channel shall be treated to minimize erosion (Section I.G.).
4. Running surfaces of AMZ roads shall be rocked or paved as necessary to prevent sediment delivery (Section I.O.).

#### IV. ROAD, CROSSING, AND LANDING DECOMMISSIONING

This section applies to the decommissioning of roads at watercourse crossings; at locations where the road parallels and is in proximity to the watercourse, but not necessarily associated with a crossing; and for landings bisected by (channeled) or adjacent to watercourses.

##### A. All Road and Landing Decommissioning

1. Noticing is required when there is a risk of impacts to bed, bank, active channel, or aquatic habitat, including risks of elevated sediment delivery to the bankfull channel. If there is not such a risk in the RPF's opinion, noticing shall not be required, but the work shall be described in the annual report.
2. The banks of the channel shall be laid back to an angle equivalent to that of adjacent banks not affected by roads, or 50 %; whichever is flatter. Laying back the banks into native ground (non-fill) material, where it can be discerned, shall not be required.
3. Large logs and stumps large enough to be key pieces unearthed from fill removal shall be treated as described in Section I.B. Smaller logs and stumps and inorganic materials shall be placed where it will not enter the watercourse.
4. MRC shall create a barricade effective against access to the watercourse by all motor vehicles.
5. Roads and landings shall be treated to assure effective, maintenance-free water drainage; e.g., outsloping with dips, installing crossroad drains.
6. Within the AMZ where erosion has likely access to watercourses, erosion control measures as described in Section I.G. shall be applied. Outside of the AMZ, where there is direct connection of disturbed soils with a receiving watercourse, erosion control measures shall be applied at least as far as the first natural break or drainage facility.
7. Based on the vegetation immediately surrounding the project area, MRC shall also plant on disturbed areas where erosion has access to the watercourse a mix of native hardwood and conifer trees appropriate for the site at the same density applied for reforestation purposes (conifer sites) or naturally present (hardwood sites). Sections of old road bed not requiring decommissioning treatments or excessively shaded roadways need not be replanted.

##### B. Crossing and Channeled Landing Decommissioning

1. Decommissioning of crossings and channeled landings that require in-water heavy equipment operations on Class I watercourses when listed fishes are present shall employ fish salvage operations (Section II.D.4.).
2. To enable the Department to adjust measures to site-specific conditions, MRC is encouraged to pre-consult with the Department on projects that propose to:
  - a. remove crossings or landings on Class I waters that are greater than 60 feet in length as measured along the channel; and
  - b. remove old fill or Humboldt Crossings on any class watercourse where fill or dirt caps are greater than 200 yds<sup>3</sup>.
3. During removal of old fill or Humboldt Crossings, MRC shall minimize delivery of fill and road cap soils from the crossing to the active channel by prevention (excavation away from the watercourse before soils enter the channel) and rehabilitation (removal of delivered sediment to the original watercourse surface) (Section II.A.8.).



4. If surface water is present at the work site, to limit sediment and turbidity delivery to downstream habitat,
  - a. the work area shall be isolated with diversion or cofferdams (Section I.L.), and
  - b. check dam(s) shall be constructed, as necessary, to capture released sediments downstream of the worksite (Section I.L.)
5. Large logs resulting from the crossing decommissioning (e.g., log stringers, log abutments Humboldt fills) shall be treated as described in Section I.B.
6. Longitudinal profile of the channel shall be reestablished as per Section I.J., except that sediment and woody materials accumulated by large logs, other than the log stringers and log abutments, in the active channel may remain in place along with the logs.
7. Bare mineral soil in a position to be delivered to the active channel shall be treated to minimize erosion as described in Section I.G. immediately upon completing removal of the facility.

#### V. RE-ESTABLISHMENT OF CLASS II AND III WATERCOURSES

This section applies to re-establishing the flow paths of Class II and III watercourse channels obstructed and diverted by past logging (i.e., tractor and skid trail crossings) with evidence of substantial potential or current active erosion of soil placed in the channel.

- A. Findings and Pre-Consultation
  1. During PTHP preparation, MRC shall evaluate for repair potential existing skid trails and tractor roads within the proposed harvest area that a) are diverting a watercourse, b) have a potential to divert a watercourse, or c) are not properly draining.
  2. MRC is encouraged to pre-consult with the Department at sites where:
    - a. greater than 10 yds<sup>3</sup> will be excavated to reconnect the original watercourse; or
    - b. there are upstream or downstream diversions into or out of the channel that may cause a channel to exceed its natural hydrologic regime.
  3. MRC shall make a determination that the potential repair will correct a current or impending problem, and that the proposed correction in total will result in a net benefit to watercourse conditions. The determination will be detailed in any required subnotification to the Department.
- B. Measures
  1. Flow path re-establishment shall be undertaken when the channel is dry, or water is effectively diverted around the site as described in Section I.L., and only the periods described in Section I.E.
  2. The banks of the channel shall be laid back to an angle less than that of adjacent, non-road bed affected banks, or 50%, whichever is flatter. However, laying back the banks into native ground (non-fill) material where it can be discerned shall not be required.
  3. Logs or stumps that may become available shall be treated as per Section I.B.
  4. Bare mineral soil exposed in conjunction with reestablishing flow channels shall be treated to minimize erosion immediately upon completing the construction at of the facility following measures in Section I.G. Treatment shall extend to the first natural break in slope or drainage facility that directs overland flow away from the watercourse.

#### VI. AQUATIC HABITAT IMPROVEMENT PROJECTS.

- A. Department Guidelines. MRC shall follow the guidelines of the Department's California Salmonid Stream Habitat Restoration Manual <sup>2</sup> or MRC's HCP/NCCP (Section 8.2.3.6) for aquatic habitat improvement projects such as LWD or stream-side vegetation enhancement. For aquatic habitat improvement projects other than felling individual trees or placing individual stumps into a watercourse as provided by the HCP/NCCP, MRC shall describe in the subnotification proposed actions and the measures derived from the Department's manual that will be followed. If MRC proposes to differ from the guidance in the Department's manual, MRC shall include in the SUBNOTIFICATION the rationale, and how the intended functions of the measures will otherwise be achieved.
- B. Heavy Equipment Operations. Heavy equipment shall preferentially be limited to road surfaces and crossings. Where necessary to be off-road, the area and intensity of ground disturbance shall be the least possible.

- C. LWD Demand. LWD placement projects other than the placement of individual trees felled for cable corridors or safety will not be undertaken in locations with low LWD demand, as defined in the HCP/NCCP (Appendix G *Watershed Analysis: Background and Methods*).
- D. Erosion Control. In addition to following the erosion control practices described in Section I.G., if the work site and immediate vicinity was vegetated with riparian shrubs and trees prior to the activity, or the area is barren for reasons other than the present work but otherwise capable of revegetation, then the work site will be revegetated by installing seedlings, cuttings, or wattles that will result in a density, distribution, and species mix of vegetation similar to that existing prior to disturbance.
- E. Work Periods
1. As described in the HCP/NCCP (Section 8.2.3.6), individual trees may be felled into watercourses and left unanchored for the purpose of enhancing LWD loads coincident with an adjacent PTHP at any time.
  2. Without written approval from the Department, the work period for aquatic habitat enhancement projects that require in-stream heavy equipment operations shall be as described in Section I.E.
  3. Planting of seedlings and installation of cuttings and wattles shall take place when soil moisture conditions are suitable, generally between December 1 and April 1. If sites are inaccessible during that time due to road closures, plantings shall be installed as late in the fall as feasible.

## VII. WATER DRAFTING

- A. General Water Drafting Procedures
1. For proposed new drafting sites, or for proposals to increase drafting rate at an existing site, to help assess the cumulative impact of water drafting in any given watershed, the following information shall be included in an associated PTHP:
    - a. a description and map of proposed drafting sites, and existing water drafting locations in the Planning Watershed;
    - b. the watercourse or lake classification;
    - c. water body condition at the intake (e.g., in wetted channel pool, excavated sump in gravel bar);
    - d. the diversion parameters of the site, and as available other drafting locations in the Planning Watershed (i.e., maximum instantaneous, daily, weekly, and yearly diversion rate and volumes; dates of diversion, estimated filling time, and associated water drafting from other PTHPs).
    - e. A water availability analysis, the design of which is acceptable to DFG<sup>19</sup>.
  2. Limitations and restrictions are by drafting site, not by PTHP.
  3. Water diverted into trucks shall only be dispensed for the purposes of dust abatement; road maintenance, repair, reconstruction, construction, decommissioning, removal; and pesticide mixing.
  4. Water may be drafted year-round, but after a seasonal hiatus > 2 months or a change in Licensed Timber Operator (LTO), MRC shall conduct a pre-operational meeting with the LTO responsible for field operations. The meeting shall take place at a representative sample of drafting sites (e.g. Class I watercourse, Class II watercourse, Class I and Class II ponds, and gravity fed storage tanks) and any other drafting sites with unique, site specific conditions. The LTO shall fully inform all water truck operators of their responsibilities stipulated within this plan.
  5. Water shall not be drafted by more than one truck simultaneously at the same site.

<sup>19</sup> An analysis of the impacts to aquatic habitat and species resulting from the proposed diversion both individually and cumulatively with drafting at other sites in the watershed. One example is: Anonymous. 2010. Policy for Maintaining Instream Flows in Northern California Coastal Streams. Water Res. Control Board (Div. Water Rights) and Calif. Environ. Prot. Agency. 33 p + 12 Apps. Available at: [http://www.swrcb.ca.gov/waterrights/water\\_issues/programs/instream\\_flows/docs/ab2121\\_0210/adopted050410instreamflowpolicy.pdf](http://www.swrcb.ca.gov/waterrights/water_issues/programs/instream_flows/docs/ab2121_0210/adopted050410instreamflowpolicy.pdf)

6. Except for sumps above the water level on the active channel, streambed or bank material shall not be excavated for intakes prior to June 1. Excavated areas shall be refilled prior to the day the cumulative precipitation threshold is met.
7. All water drafting vehicles shall be checked each day used, and shall be repaired as necessary to prevent leaks of deleterious materials from entering the Watercourse and Lake Protection Zone (WLPZ) or watercourse.
8. Where overflow run-off from water trucks or storage tanks may enter the watercourse; effective erosion control such as water bars, gravel berms, or hay bales shall be installed and serviced as necessary to remain effective.
9. Road approaches to all drafting sites shall be effectively treated to eliminate the generation and transport of sediment to watercourses. Treatment locations shall include, but not be limited to road surfaces, fill faces, cut banks, and inboard ditches.
10. MRC shall measure stream flow to assure compliance with Tables 3 and 4 prior to the initial drafting during each season and as frequently as necessary, but no less frequently than specified in the tables.
11. Pumps used for drafting shall be capable of being adjusted to comply with specified withdrawal rates.
12. Drafting for gravity fed storage tanks shall:
  - a. Regulate flow with a valve, or other means, as necessary to comply with diversion restrictions (Tables 3 and 4).
  - b. Drain overflow, if present, from tanks with pipes properly sized and designed to effectively return all excess water to the source stream.
  - c. Not spill excess water onto the drafting pad or road surface.
  - d. Armor or otherwise prevent erosion of the outfall location of water storage tank return pipes.
  - e. Screen or close all points of ingress to the tank to effectively prevent wildlife entry or entrapment.
13. Pesticide mix trucks shall not directly draft water from any watercourse or pond. Pesticides shall not be mixed where runoff may enter a watercourse directly or indirectly through a hydrologically connected drainage facility.
14. As soon as is practical, upon discovery and verification of any waterborne pests or pathogens by either MRC or the Department in any planning watershed that encompasses MRC lands, or is hydrologically adjacent to MRC lands, MRC and the Department shall meet and confer as to additional measures that might be needed to amend into this agreement to prevent undue water-truck mediated dispersal. Upon such discovery, measures such as the following shall be developed and applied:
  - a. Limitations on location of application. To prevent the transmission of water-borne pathogens, water must be applied within the same watershed (defined herein as either the 'planning watershed' or the 'positive flow' watersheds). Moving waters upstream into the immediately adjacent contiguous planning watershed is permitted; however, water shall not be applied upstream more than 1 planning watershed.
  - b. Water truck operators drafting water from within or downstream of an infestation area or adjacent watersheds of a known infestation area for water-borne pathogens shall disinfect truck water tanks before leaving the area. Disinfection procedures for Sudden Oak Death are:
    - 1) Fill the tank with a mixture of water and Clorox (or equivalent) to a capacity that agitation caused by driving will wet all exposed surfaces, then driving for a minimum of 5 minutes. The disinfectant shall be at a concentration of 1 gallon of Clorox with 1000 gallons of water (50 ppm available chlorine).
    - 2) Completely discharge the water tank's contents within the watershed of the watercourse where its final load was drafted. For the protection of fish, amphibians, and other aquatic organisms, the operator shall dispose of rinse water by spreading (not just dumped in one location) on a bare mineral surface area (i.e. a rock or native-surface road surface) no closer than 100 feet from

any lake or watercourse at a rate and over enough area to ensure rapid absorption and evaporation on the target surface.

15. Screens shall be kept in good repair and shall be employed wherever water is drafted. Intakes shall be inspected periodically and kept clean and free of accumulated algae, leaves, or other debris which could block portions of the screen surface and increase approach velocities at any point on the screen.

16. Intakes shall be at least 6 inches above the bottom of the channel and away from submerged vegetation, where practicable. Where not practicable, intakes shall maximize these clearances.

17. Channels may be modified (e.g., pools excavated, riffle crest raised) for the purpose of enhancing drafting capacity, limited to the following:

a. Class I Drafting Sites

1) New sites shall be selected to take advantage of channel conditions that will not require modification during site development or for site maintenance, as possible.

2) Subnotifications for new sites shall describe the amount of excavation that may necessary to accommodate drafting and / or structures (e.g., boulder or log placement) proposed to yield conditions that are self-maintaining through scour resulting from annual flow.

3) MRC shall self-monitor and report excavations at existing sites. Where frequency of excavation exceeds once every six years, or the volume exceeds 1 yd<sup>3</sup>, MRC shall submit a subnotification proposing to install structures to promote pool scour.

4) Flow controls (e.g., riffle crests) shall not be raised or otherwise modified for the purpose of enhancing drafting capacity.

5) Materials spoiled from any drafting site excavation shall be disposed as directed in this Attachment (Section I. M. 3.).

b. Class II and III sites.

1) For channels where the active channel is less than 5 ft wide, up to 1 ft<sup>3</sup> of alluvium may be excavated from, or filled onto the channel to accommodate placement and watering of the diversion intake. For each additional 5 ft in active channel width, an additional 1 ft<sup>3</sup> of alluvium may be excavated from, or filled onto the channel.

2) Fill shall not include soil.

3) Unconsolidated fill (e.g., not placed in sandbags) derived from excavation of the intake site shall be spread over the channel to approximate the pre-diversion conditions. Imported fill (e.g., sand bags) shall be removed from bankfull channel. Treatment of fill shall be the earlier of :

a) within 2 weeks after the completion of drafting, or

b) prior to the start of the winter period.

18. At the end of drafting operations for the season, intakes shall be incapacitated (e.g., plugged or removed from the flood prone area) to terminate water drafting during the winter period.

19. Unless otherwise approved by the Department, MRC shall measure the unimpeded flow, diversion rate (both absolute and proportion of unimpeded flow) and times, and water body metrics to assure the drafting conditions are fulfilled. Methods and equipment of measurement shall be approved by DFG.

a. Wherever possible, unimpeded flow shall be estimated using a flow meter capable of measuring flows down to a minimum of 0.1 feet per second, and is accurate to + 2 % of the streamflow reading.

b. Elsewhere, MRC shall document conditions, equipment, and procedures used to estimate unimpeded flow.

- c. The unimpeded flow shall be measured at the nearest suitable location upstream of the diversion; if unable to do so, MRC shall explain why and describe the conditions where flow was measured.
  - d. A stream flow measurement shall be the average of at least two estimates.
  - e. Absolute diversion rate shall be estimated as either the maximum difference between unimpeded and impeded flow, or the time required to fill a known volume in a tank.
  - f. DFG encourages MRC to install low flow gauging stations at stable channel sections near water drafting sites to facilitate use and monitoring of the sites. When installing permanent gauging stations, MRC shall obtain DFG concurrence with the site selection and plan.
  - g. Water temperature shall be measured midway in the water column, near the center of the channel, and near where flow measures are taken. A pocket thermometer is acceptable for temperature measurements.
20. At least 5 working days prior to the start of yearly operations at any drafting site, MRC shall measure streamflow. Information from this measurement (i.e., date and time, drafting site location, Agreement No., and measured streamflow) shall be provided to DFG by email prior to beginning drafting. These emails qualify as informing notices.
21. DFG may increase or decrease site-specifically, the monitoring frequency, metrics, or reporting requirements for diversions if monitoring or other information shows a change is warranted.
22. MRC shall not grant permission to other parties to divert or use water drafted under this permit for purposes other than MRC's covered activities without first advising the Department of the dates and identification of their permitted diverter. MRC shall remain responsible for adhering to the agreement, and to assure the conditions of this agreement inclusive of monitoring and reporting are followed individually and collectively by all parties using the site.
23. If the Department determines water drafting from any Class I or Class II site is resulting, or may result in significant adverse impacts to sensitive aquatic resources, drafting operations shall cease until a site-specific plan to feasibly reduce the impacts is implemented.
24. Follow the stream class appropriate ELZ and EEZ guidance of the HCP/NCCP (Section 8.2.3).
- B. Procedures for Class I Watercourses
- In addition to the General Water Drafting Procedures, the following shall apply to water drafting from Class I watercourses.
1. Water drafting from Class I watercourses shall adhere to all requirements in Table 3.

**Table 2. Requirements for Class I watercourse drafting.**

Unimpeded flow in cfs (gpm)	Requirement			Range of estimated rate (gpm)	Estimated time to draft 3,500 gallons (minutes)
	Removal Rate (% of unimpeded flow)	Compliance Flow Measurement <sup>a, b</sup>	Drafting Logs		
>7.8 (3505)	<10%	As necessary	No	350	10
> 6 to 7.8 (2691 – 3505)	<10%	<b>Biweekly</b>	No	270 - 350	13
>2.2 to 6 (987 – 2691)	<10%	<b>Biweekly</b>	<b>Yes</b>	100 – 270	35
>1.0 – 2.2 (449 - 987)	< 5%	<b>Weekly</b>	<b>Yes</b>	35 – 50	53
≤ 1.0 (449)	<b>DRAFTING PROHIBITED</b>	Not required	Not applicable	Not applicable	Not applicable

<sup>a</sup> Flow must be measured within one week prior to a drafting site's initial use each season.

<sup>b</sup> The time lapse between measurements shall not be any longer than the stated value.

a. MRC shall measure water temperature and stream flow, and shall provide the results to the DFG by email:

- 1.) When unimpeded flow is between 2.2 and 7.8 cfs and MRC is drafting, MRC shall measure unimpeded flow and water temperature at least once every two weeks and shall report these to the Department by the last day the month of measure.
- 2.) When unimpeded flow is between 1.0 and 2.2 cfs and MRC is drafting, MRC shall measure unimpeded flow and temperature at least once per week, and shall report these to the Department by the 15th and the last day of each month during which water was drafted.

b. Water truck operators shall be in possession of a drafting log book that contains the following information and kept current during operations as specified (Table 3):

- 1.) Operator's name
- 2.) Drafting site location
- 3.) Date
- 4.) Diversion start and end time (24 hour clock)
- 5.) Diversion directly from stream or from a tank
- 6.) Diversion by pump or by gravity flow
- 7.) Truck capacity in gallons, and estimated gallons of water drafted
- 8.) Drafting rate
- 9.) System inspection notes (screen, tank, line conditions and cleaning).

c. MRC shall deliver water truck operator log books to the Department by the end of each calendar year, or sooner upon request.

2. In addition to Section VII.A.13., drafting intakes on Class I watercourses shall be screened such that the:

- a. approach velocity is no more than 0.33 feet per second;
- b. screen has at least 12 square feet of wetted, unobstructed screen per each cfs of diversion (i.e. 12 square feet of screen for a rate of 449 gpm or one cfs). For this condition, points of contact of a clean screen on larger channel substrate particles (i.e., unable to pass > 1 inch mesh sieve) is not considered obstructed.
- c. screen material be wire mesh, perforated plate, or pipe with at least 27 percent open area. Round openings in the screen shall not exceed 3/32 inch (2.38 millimeters) in diameter, and slotted openings shall not exceed 1/16 inch (1.75 mm) horizontally. The 1/16 inch horizontal mesh provides a diagonal opening of 3/32 inch.

3. In addition to Section VII.A.14., to the extent feasible, intakes shall be placed at least 1/3 the distance between the pool’s deepest point and its downstream riffle crest.

C. Procedures for Class II Watercourses

In addition to the General Water Drafting Procedures, the following apply to water drafting from within Class II waters.

1. Drafting for gravity-fed storage containers shall conform to the following:
  - a. Intakes shall be designed (e.g., valves) to prevent diversion > 25% of surface flow;
  - b. If water returning to the source stream from water storage tanks is more than 3° F warmer than water in the stream at the point of return, water storage tanks shall be modified to preclude excess water from leaving the tank while it is full;
  - c. If water in the source stream at the point of diversion is >72 °F, drafting shall be prohibited from the site until water temperature falls below this limit.
2. Water drafting from flowing Class II watercourses shall adhere to all requirements in Table 4.
  - a. All water drafting from Class II watercourses shall cease when streamflow drops to 0.01 cfs (4.5 gpm).
  - b. If the rate of change in flow between two subsequent biweekly measurements indicates that flow will drop below 0.1 cfs (45 gpm) before the next scheduled biweekly measurement, the frequency of measure shall be increased to weekly.
  - c. When flow ceases, see #3 below.

**Table 3. Requirements for Class II Watercourse drafting.**

Unimpeded flow in cfs (gpm)	Requirement		Approximate Time to draft 3,500 gallons (minutes)	Range of estimated drafting rate (gpm)
	Maximum Drafting Quantity (% of unimpeded flow)	Compliance flow measurements		
> 2.0 (898)	25	Biweekly <sup>a</sup>	18	220
> 1.0 – 2.0 (449 -898)	25	Biweekly <sup>a</sup>	35	110-220
> 0.5 – 1.0 (224 – 449)	25	Biweekly <sup>a</sup>	70	55-110
> 0.25 – 0.5 (112 - 224)	25	Biweekly <sup>a</sup>	140	28-55
> 0.1 – 0.25 (45 – 112)	25	Biweekly <sup>a</sup>	350	11-28
> 0.05 – 0.1 (22 – 45)	25	Weekly	700	5-11
> 0.025 – 0.05 (11 - 22)	25	Weekly	1420	2.5-5
>0.01-0.025 (>4.5-11)	25	Weekly	3550	1-2.5
≤ 0.01 (4.5)	<b>WATER DRAFTING PROHIBITED</b>	Not required	Not applicable	Not applicable

<sup>a</sup> Frequency will be weekly if the rate of change between two biweekly measurements indicates the flow will be less than 0.1 cfs prior to the next scheduled biweekly measrue. See condition VII. C. 2. b.

3. Where flow in the watercourse is intermittent or discontinuous (i.e., there is no apparent flow to measure at or near the drafting site),

- a. direct drafting shall not reduce pool depth by more than 10% of the maximum depth of the pre-drafting pool, as measured immediately prior to and after drafting.
  - b. intakes for gravity feed systems shall be physically fixed in place such that they cannot reduce the residual pool depth by more than 15%.
  - c. At least once per week if the site is in use, MRC shall assure the conditions (3.a.) are met during withdrawal, or the intake (3.b.) is functioning as designed. If use is less frequent than once per week, MRC shall monitor withdrawal rate or intake structure at each drafting event.
4. For sites actively used for drafting via gravity flow into a tank or other storage facility, MRC shall evaluate and document in a log book at the frequency stated in Table 4 the condition of the diversion intake and the following parameters:
- a. unimpeded streamflow and temperature immediately upstream of diversion influence;
  - b. diversion flow (either by direct methods where it enters the tank or indirectly by subtracting a flow measurement immediately downstream from that taken above the diversion);
  - c. calculated rate of diversion; and adjust the rate of diversion (e.g., a valve) as needed to meet the requirements of Table 4; and
  - d. temperature of any water overflow from the storage tank.

MRC shall make the log book available to DFG following the drafting period.

5. Bypass flows from blocked culverts shall be from the bottom of the pool, achieved by installing boards above the floor of the culvert or through holes cut near the bottom of the boards.

6. In addition to Sections VII.A.13. and 14., intakes to diversion and bypasses for gravity diversions shall be maintained functional, shall be screened with openings not to exceed 1/8 inch diagonally (slotted or square openings) or 3/32 inch diameter (round openings).

#### D. Procedures for Class I and Class II Ponds

In addition to the General Water Drafting Procedures, the following shall apply to water drafting from Class I and Class II ponds.

1. Screening appropriate for the Class of waters affected shall be applied to intakes as described above.
2. Drafting rate shall not exceed 350 gpm.
3. Drafting from Class I ponds shall not reduce maximum pool width or depth by more than 10%, whichever occurs first.
4. Drafting from Class II ponds hydrologically connected to watercourses (including subsurface flow) shall not reduce residual pool maximum width or depth by more than 50%.
5. Relative to the pond's dimensions at the end of the winter period (April 1), drafting from hydrologically isolated Class II ponds shall not reduce either the maximum pool width or depth, whichever occurs first by more than 50% prior to July 1 or 80% on or after July 1.
6. Benchmarks shall be placed in the pond to identify the draw-down thresholds as specified in D3, D4, and D5 (10%, 50%, and 80%) for the purpose of signifying to the pump truck operator and inspectors to terminate water diversions. Benchmarks shall be maintained as necessary while actively drafting.
7. Pond bottoms and bank excavation/enlargement activities shall occur only after July 1.
8. At each documented red-legged frog breeding site:
  - a. water shall not be drafted when red-legged frog egg masses are present.
  - b. vegetation management shall be limited to
    - 1.) no more than 50% of the pond's perimeter,
    - 2.) after July 1 within any calendar year, and
    - 3.) no more frequently than once every three years.

#### E. Site-specific Drafting Requirements



1. Lower Albion River, above the confluence with Duckpond Gulch (Section 14 T16N R16W MDBM).
  - a. After July 1, water drafting may only occur within three hours (before or after) of high tide.
  - b. A minimum of 15 minutes shall separate each diversion.
2. Ray Gulch Marsh (tributary to the lower Navarro River)
  - a. Total amount of water drafted from the site shall not exceed 100,000 gallons per day.
  - b. A staff gauge shall be placed at the start of the season. MRC shall notify the Department if the pool depth falls by 10% during drafting.

