

PERMITTING AGENCIES

Plan in advance. Obtaining some permits can be a lengthy process and may take up to a year depending on the complexity of your project.

Bay Area Joint Aquatic Resources Permit Application (JARPA)

This is a permit application for development, construction, grading, erosion repair, or restoration activities in or near Bay Area aquatic environments. It allows applicants to fill out one application, and submit copies of the same information to all of the state, federal, and regional agencies involved in the permitting process. The local permits still need to be filled out separately. The JARPA application is available online at www.mcstoppp.org, under "Caring for our Creeks". Click on "Creek permits" and then on "JARPA application". Access the JARPA site directly at:

<http://www.abag.ca.gov/bayarea/sfep/projects/JARPA/JARPA.html>

Does your project require California Environmental Quality Act (CEQA) Review?

The main purpose of CEQA review is to identify and prevent significant potential environmental impacts from proposed projects. CEQA review is usually handled by the local municipality's planning department. The cost of preparing an initial study or a full CEQA document is often passed on to the property owner.

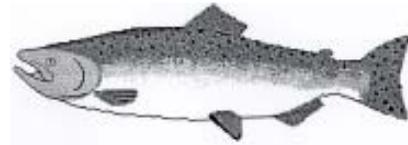
California Department of Fish and Game

P.O. Box 47, Yountville, CA 94599

(707) 944-5500

www.dfg.ca.gov/1600/

Contact DFG for an application, or submit a completed JARPA application. The agreement fee for most homeowner streambank repair projects is \$500 if the overall cost of the project is between \$10,000 and \$25,000. The complete fee schedule for the Lake and Streambed Alteration Agreement with DFG is available online: <http://www.dfg.ca.gov/1600/fees2005.html>



U.S. Army Corps of Engineers
333 Market Street, Suite 812, San Francisco,
CA 94105

(415) 977-8436

www.spn.usace.army.mill/regulatory/

Streambank repair work often comes under Nationwide Permit 13: Bank Stabilization, and there will be no charge for the permit, although the ACOE may need advance notification of the work. If your project does not fall under Nationwide Permit 13 requirements, and depending on the details of the repair, the permit fee may be up to \$100. Call for the appropriate form, or submit a completed JARPA application.

S. F. Bay Regional Water Quality Control Board

1515 Clay Street, Suite 1400, Oakland, CA
94612

(510) 622-2300

<http://www.swrcb.ca.gov/rwqcb2/certs.htm>

The Water Board issues water quality certifications for all Army Corps of Engineers permits. Contact the RWQCB for an application, or submit a completed JARPA application. Consult the Water Board website for a permit fee schedule for bank stabilization projects.

Local Permitting Agency

Visit the MCSTOPPP website, <http://mcstoppp.org>, and contact your local MCSTOPPP stormwater coordinator for more information on local creek permit requirements. For unincorporated Marin, contact the Marin County Public Works Department, (415)499-6549. The Public Works Department issues any necessary grading, building, or creek permits for unincorporated Marin. Call or visit the website below for information regarding applications or fees. www.co.marin.ca.us/depts/pw/main/landdevelopment.cfm

What Causes Erosion?

Develop an effective solution to creekbank erosion by understanding it's causes. Flowing water removes creekbank sediment and may originate from the following three sources or a combination of these sources:

Surface Flow: Often the easiest to address. Water flowing over the top of the ground usually causes steep, vertical bank erosion. Common sources include culverts, driveways, ditches or drainage from roofs.

Ground Water: Water flowing a few inches to a few feet below the ground frequently surfaces on a creekbank before reaching the creek channel. Planting these areas with native plants is a good method for controlling erosion caused by groundwater. Check to make sure you are not indirectly contributing excess subsurface flow through yard or garden irrigation.

Stream Dynamics: Natural changes - such as big storm events or human activities - can cause the creek channel to adjust. Removing vegetation along a creek can reduce creekbank stability. This can lead to creekbank failure, particularly during large storm events.

Modifications to a creek's bed and bank will alter how the water flows and may increase erosion both upstream and downstream. An increase in sediment from erosion in the watershed will cause alternate banks to erode in a classic "S" pattern as growing gravel bars direct creekflow into the opposite bank. A fallen tree or other obstruction can cause site-specific erosion.



Repairing Creekbank Erosion



For more information on creek stewardship, see **Creek Care: A Guide for Marin Residents.**

For a free copy call the
Marin County Stormwater Pollution
Prevention Program at:

(415) 499-6528

www.mcstoppp.org

IS ALL EROSION BAD?

Not necessarily. Creeks need to be able to adjust to storm events in the watershed by changing their shape. Undercut banks and fallen trees provide important habitat for salmonid fish (coho salmon and steelhead) and other creek dwellers. Answering the following questions can help you determine whether to intervene or let nature take its course:

-  Is the erosion threatening a structure, road, utility pole, or other property?
-  Is it threatening riparian habitat or a special tree?
-  Is it extremely active? Does it grow rapidly during most rainstorms?
-  Does it appear to be caused by a person-made change, such as road, culvert, or yard drainage?

AM I WORKING ON A CREEK?

A creek is defined as any drainage with a definite bed and bank. There are three general classifications of creeks:

-  Perennial – flows year-round.
-  Intermittent – surface flow only occurs during a portion of the year (the creek dries up in the summer).
-  Ephemeral – flows only during and shortly after rain events.

Before beginning work on any creek, even a small intermittent or ephemeral creek, the U.S. Army Corps of Engineers, the CA Department of Fish and Game, the S.F. Bay Regional Water Quality Control Board, and your local municipality require regulatory review of the proposed project.

According to the Water Board's Basin Plan, all creeks, drainages, and tributaries have the same beneficial uses as the major stream systems of which they are a part. These small creeks are a fundamental part of Marin's watersheds, and preserving their habitat and function is just as critical as protecting the habitat of the larger streams and the Bay.

STEPS TO TAKE!

Document the site. If you are repairing your erosion site yourself, you will need this information for getting permits. If an engineer or agency is helping you, this information will save them time, and you money.

Photograph the site. Remember to include a reference object to indicate size.

Make a sketch of the site. Include length and height of the eroding area. Show structures and how far away they are. Include vegetation and any biological information you know, i.e. last year steelhead spawned here, etc.

Walk up and down the creek if you can. Indicate on your sketch what is happening near your site. Investigate possible upstream sources of erosion such as a fallen tree, rock riprap, or anything that might redirect the flow of water. Are your neighbors experiencing similar erosion problems?

Should this be a cooperative project?

If some of your neighbors have similar streambank erosion, you might want to consider working together. Benefits include sharing the permit and planning costs, and building repairs that complement and even enhance each other. Cooperative projects, done in conjunction with a local agency or group, also may be eligible for private or government grant programs.



Consider professional help. You should consider professional help when:

Costs are high. Either the repair is major, and/or an effective repair could result in significant damage to a structure, road, or other valuable property.

Working space is limited. This situation often requires technical expertise. **County laws and common sense dictate professional design.** For example, in Marin County, most creek work projects require a permit.

Your attempts to repair the erosion aren't working and you're stumped! Civil engineers, biologists, and other restoration specialists can be helpful in designing repairs. Ask the individual or firm if they have done this type of work before. How do they plan to repair the site? How will they access the site? What type of equipment will be used? How long will the work take? What is the estimated cost of designing and constructing the repair? Can they assist you in obtaining the permits? Ask to visit project sites they have repaired, and discuss the project with the homeowner.

Consider a range of alternatives. Remember fish and wildlife! Be sure not to constrict the channel. *Stream Corridor Restoration: Principles, Processes and Practices* contains hands-on, practical advice, available online at:

http://www.nrcs.usda.gov/technical/stream_restoration/. You can also find information at: www.mcstoppp.org, under "Caring for our Creeks". Click on "Anne Riley's Primer on Stream and River Protection for the Regulator and Program Manager".

Include native plants in your repair. The extensive root systems of some native plants can help with creekbank stability. Even rock riprap, when interplanted with willows or other trees, can enhance habitat. Willow walls, brush mattresses, and other techniques known as bio-technical bank stabilization can stabilize creekbanks completely with living materials. They are described at www.mcstoppp.org under the subject "Creek Bank Restoration & Repair Guidance."



Obtain necessary permits. Most creek repair work requires permits from the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, CA Department of Fish & Game, and your local municipality (your city, or for unincorporated Marin, the County of Marin).

Do the work carefully. Be careful to protect water quality and existing habitat during construction. Proper measures should be taken to avoid muddying the water. Protect existing native plants if possible, or salvage native plants prior to construction and incorporate them in the final re-vegetation stage. Generally, all work must be completed after April 15th and before October 15th of each year.

Monitor and care for your repair.

Water newly planted vegetation throughout the first few post-project summers to allow plants to succeed. Check your repair before the winter rainy season and after each storm. Prevent your project from failing by addressing small problems sooner rather than later.

Take photographs for a few years after project completion from the same point where you shot the "before" photo. It's fun to see the changes, and it may even help others design more effective repairs.



Disclaimer

Every attempt has been made to assure that the information contained in this publication is accurate. The County of Marin, its cities, the Marin County Stormwater Pollution Prevention Program, and the Marin County Department of Public Works assume no responsibility and disclaim any liability for any injury or damage resulting from the use or effect of any product or information specified in this publication.