Rapid Permit Checklist
(San Francisco Regional Water Quality Control Board)

PROJECT:

ADDRESS:

DATE:

I. Watershed and Reach Influences

A. Watershed Influences

Location/Function in Watershed **(Indicate All that Apply with an "X")**
(See Reference A: Longitudinal View Along Stream Corridor)

Headwaters	
Supply Reach	
Transport Reach	
Storage Reach	
Middle Reach	
Lower Reach	

Stream Type

Ephemeral (i.e. flow only occurs in response to precipitation)	
Intermittent (i.e. seasonal flows)	
Perrenial	

Upstream Watershed Land Uses **(Indicate Long-Term or Short-Term)**

Vineyards/Row Crops	
Rangeland/Grazing	
Mining/Quarry	
Forestry/Logging	
Parks/Reserves/Open Space	
Urban	
Dams/Reservoirs	
Other (Specify)	

Natural Influences (Regional) **(Indicate All that Apply with an "X")**

Changes in Land, Waterbody or Sea Level (base level changes)	
Fault Zone/Earth Movement	
Fire-Impacted Areas (within last 5 years)	
Meander or Channel Type Changes	
Landslides/Mud Slides	
Other (Specify)	

Rapid Permit Checklist
(San Francisco Regional Water Quality Control Board)

I. Watershed and Reach Influences (continued)

B. Reach Influences

Natural Influences (Local) **(Indicate All that Apply with an "X")**

Local Fault Line	
Fire Zone	
Meander Changes	
Landslides/Mudslides	
Plant Community Evolution	
Other (Specify)	

Human Influences **(Indicate All that Apply with an "X")**

Stormwater/Site Runoff/Grade Controls	
Wiers/Check Dams	
Culverts	
Bridges	
Channel Straightening	
Vegetation Removal	
Gravel Removal	
Bank, Channel, and/or Floodplain Encroachments	
Invasive Plants	
Bank Protection Works and/or Debris in Channel	
Row Crops, Vineyards, and/or Orchards Adjacent to Reach (Indicate all that occur adjacent to reach)	
Livestock in or near Reach (e.g. free range cattle with riparian corridor/creek access, stables and/or feedlots near or in channel or flood plain area, etc.)	
In Channel Trail or Road Crossings (i.e. Fords)	
Other (Specify)	

Dominant Stream Processes (Currently Acting on Channel) **(Indicate All that Apply with an "X")**

Excessive Erosion	
Incising of Channel Bottom	
Headcutting	
Meander Development	
Channel Widening	
Channel Narrowing	
Equilibrium between sediment supply entering and leaving	
Other (Specify)	

Rapid Permit Checklist
(San Francisco Regional Water Quality Control Board)

I. Watershed and Reach Influences (continued)

C. Status of Channel Evolution

Site Evolution

(indicate the reference diagrams that best describes the status of evolution at your site)

Stream Adjustments to Watershed Conditions
(See Reference B: River Processes and Morphology, R.D. Hey)

Stream Recovery from Channelization (or Headcutting)
(See Reference C: Stream Corridor Restoration Manual)

Channel Incision Adjustments
(See Reference D: Oregon Fish and Wildlife Office)

Stream Adjustments to In-Stream Modifications
(culverts, weirs, bank stabilization projects, vegetation removal, etc.)
(See Reference E: Common Channel Destabilizing Practice, Primer on Stream Protection, San Francisco Regional Water Quality Control Board)

Bureau of Land Management Proper Functioning Condition Rating
(Indicate Proper Functioning, Functional-At-Risk, Nonfunctional, or Unknown)

D. Existing Hydrology, Channel Geometry and Hydraulic Conditions

(See Reference F: Regional Curves, Channel Shapes)
(See Reference G: Regional Curves, Bankfull Discharges)
(See Reference H: Computing Flood Frequency)

Drainage Area to Project Location =		square miles
Mean Annual Precipitation =		inches per year
Channel Forming Discharge =		cubic feet per second
Mean Bankfull Depth for Relevant Stream Types =		feet
Bankfull Channel Width for Relevant Stream Types =		feet
Discharge for the 2-Year Recurrence Interval, Q_2=		cubic feet per second
Discharge for the 5-Year Recurrence Interval, Q_5=		cubic feet per second
Discharge for the 10-Year Recurrence Interval, Q_{10} =		cubic feet per second
Discharge for the 50-Year Recurrence Interval, Q_{50} =		cubic feet per second
Discharge for the 100-Year Recurrence Interval, Q_{100} =		cubic feet per second
Flood Elevation Estimates =		feet
Estimated Area of Watershed Impervious/Percent Basin Developed = (Specify in square miles or percent of watershed)		

Methods Used to Estimate Above Values (Indicate All that Apply)

Field Visual Estimation
Field Estimation using Regional Curves
Reference Reaches
Surveyed Cross-Sections
Stream Gage Data
High Water Marks
Dimensionless Rating Curves
Computed Effective Discharges
Regional Regression Analysis, Stormwater or Watershed Models
HEC-RAS or Other Hydraulic Models
Topographic Maps, Aerial Photography

Rapid Permit Checklist
(San Francisco Regional Water Quality Control Board)

II. Existing Channel Characteristics

A. Landscape Types **(Indicate All that Apply with an "X")**

(See Reference I: Channels, Floodplains and Terraces in Stream Corridor Restoration Manual for description of Unconfined, Confined by hillslopes with high terrace, and Incised with widening floodplain categories)

Combinations (below indicate all the apply with an "X")	
Unconfined	
Confined by hillslopes with high terrace	
Incised with widening floodplain	
Alluvial Fan	
Single Thread Alluvial	
Braided	
Arroyo	
Bedrock	
Meadow	
Tidal	
Other (Specify)	

B. Dominant Streambed Materials **(Indicate All that Apply with an "X")**

Silt/clays	
Sand	
Gravel	
Cobbles	
Boulders	
Bedrock	

C. Floodplain and Channel Conditions

(see Reference J: Meander and Slope Restoration, Primer on Stream Protection, San Francisco Bay Regional Water Quality Control Board)

Valley Slope		Percent
Channel Slope		Percent
Channel Sinuosity		
Historic Channel Type and Sinuosity		
Step Pool Spacing		feet

Note: Channel classification systems (Rosgen, Montgomery-Buffington, etc.) can be used to describe channel types.

Rapid Permit Checklist
(San Francisco Regional Water Quality Control Board)

II. Existing Channel Characteristics (continued)

D. Vegetation Functions **(Indicate All that Apply with an "X")**

Vegetation Communities

Pioneer Species (willow/cottonwood/alder/dogwood/ninebark)

Mixed Woodland (maple, bay, elderberry, buckeye)

Mature-Climax Species (oak, redwood, sycamore)

Channel Shade

Bank Stability, Sediment Transport and Deposition

Live and Dead In-Stream Habitat Structure

Wildlife Habitat

No Functions

Federal and/or State Special Status Species

(List and indicate designation - Federal Threated Species; Federal Endangered Species; State Threatened Species; State Endangered Species; State Rare Species; and California Native Plant Society Lists 1A, 1B, 2, 3, and/or 4 Species)

E. Fish Habitat

Are Native Fish Present? (Indicate Present/Not Present)

Salmonid Stream (Indicate upstream, in reach and/or downstream)

Barriers to Fish or Other Aquatic Species (Indicate with an"X")

Instream Habitat Complexity or Lack of Complexity

Federal and/or State Special Status Species (frogs, snakes, turtles, etc.)

(List and indicate designation - Federal Threated Species; Federal Endangered Species; State Threatened; State Endangered; and State Species of Special Concern)

III. Future Conditions Proposed by Project

A. Project Design Objectives **(may include multiple objectives, such as flood damage reduction, habitat restoration, stream bank restoration, stormwater management, etc.)**

The project will:

Rapid Permit Checklist
(San Francisco Regional Water Quality Control Board)

III. Future Conditions Proposed by Project (continued)

B. Ecological Restoration Objectives **(Indicate All that Apply)**

Instream Habitat	
Stream Corridor Native Riparian Restoration	
Invasive Plant Removal	
Sediment Reduction or Storage	
Enhance Floodplain Functions	
Water Temperature Modification	
Nutrient Uptake	
Other (Specify)	

C. Methods Used to Estimate Future Equilibrium Conditions **(Indicate All that Apply)**

Historic Conditions	
Reference Reaches (visual or surveyed cross-sections)	
Regional Hydraulic Geometry (regional curves on channel shape and drainage area)	
Stream Gage Data on 1.5 Reccurrence Interval Discharge, $Q_{1.5}$	
Flood Frequency Curves from Stream Gage Data	
Dimensionless Rating Curves to Determine Channel Forming Discharges	
Computed Effective Discharges to Determine Channel Forming Discharges	
Regional Regression Analysis, Stormwater or Watershed Models	
HEC-RAS or Other Hydraulic Model	
Other (Specify)	

IV. Describe How the Project Protects or Restores Floodplain

(Indicate All that Apply with an "X")

Existing Channel Cross-Section Protection	
Remove Levees, Berms or Structures Encroaching on Floodplain	
Existing Levees or Berms Set Back	
Restore Floodplain Vegetation	
Native Vegetated Buffer Added to Landslide of Stream Corridor	
Floodplain Area Excavated to Bankfull Elevation	
Pond and Plug or Other Methods of Re-watering Floodplain	
Livestock Exclusion Fencing	
Stormwater Infiltration Systems (infiltration basins, rain gardens, vegetated swales, porous pavement, etc.)	
Stormwater Detection Systems (extended detention basins, treatment wetlands, retention ponds, etc.)	
Other (Specify)	

Rapid Permit Checklist
(San Francisco Regional Water Quality Control Board)

V. Describe How the Project Protects or Restores Native Streamside Vegetation

A. Current Status of Invasive Plants at Project Site
(Indicate Not Present, Sparse, Dominant in Riparian Corridor, or Clogging Channel)

List Species of Invasive Plants Present

B. Non-native and Invasive Plant Control Methods **(Indicate All that Apply with an "X")**

Hand Tools
Mulch/Geotextile Fabric
Controlled Burns
Mowing
Herbicides
Managed Grazing (Goats, Cows, etc.)
Mechanical
Other (Specify)

C. Revegetation Method **(Indicate All that Apply with an "X")**

Seed
Hydroseed
Plugs
Container Stock/Bare Root
Soil Bioengineering Systems (proceed to VII)
Other (Specify)

VI. Describe How the Project Protects and/or Restores the Stream Channel Slope

Existing Slope Retained
Informed by Historic Channel Sinuosity
Proposed Channel Sinuosity
Design Slope = ValleySlope/Sinuosity
Step Pools or Weirs Added to Create Calculated Design Slope
Reference Reaches
Channel Lengthened (indicate increase in linear feet) feet
Spacing of Step Pools
(See Reference K: Chin, Papanicolaou equations or other, such as Step-Pool Hydraulic Geometry [spacing 2-4 x bankfull width]) feet
Meandering Channel Types
(For example, Hydraulic Geometry [channel length = 5-7 x bankfull width]) feet

Rapid Permit Checklist
(San Francisco Regional Water Quality Control Board)

VII. Describe How the Project Restores Stream Banks

A. Fencing and Vegetated Buffers

Livestock Exclusions Fencing	
New Livestock Water Supplies	
Riparian Buffers	
Runoff and Drainage Improvements	
Stormwater Treatment Landscaping (treatment wetlands, vegetated swales, infiltration galleries , etc.)	
Other (Specify)	

B. Soil Bioengineering Systems and Permissible Shear Stress/Permissible Velocities

(See Reference L: Permissible Shear Stress for Soil Bioengineering, U.S. Army Corps of Engineers, Fischenich)

Shear Stress Calculation (Enter Data to Estimate Shear Stress at Site)

Mean Channel Depth (Hydraulic Radius) =		feet
Stream Slope (Friction Slope) =		
Specific Weight of Water =	62.4	pounds per cubic foot
Shear Stress Acting on Channel =	0	pounds per cubic foot

Bioengineering Alternatives (Indicate All that Apply with an "X")

Stakes/Cuttings	
Poles	
Posts	
Live Facines	
Brush Layering	
Brush Matting	
Grass	
Tree Plantings	
Geotextile Fabric	
Others (Specify)	

VIII. Describe How the Project Protects and/or Restores Aquatic Habitat

A. Habitat Enhancement Proposed Native Wildlife (Special Status Species)

Invertebrate Habitat	

Rapid Permit Checklist
(San Francisco Regional Water Quality Control Board)

VIII. Describe How the Project Protects and/or Restores Aquatic Habitat (continued)

A. Habitat Enhancement Proposed Native Wildlife (Special Status Species) (Continued)

Salmonid Habitat	
Other Native Fish Habitat	
Reptile/Amphibian Habitat	
Bird Habitat	
Mammal Habitat	

Rapid Permit Checklist
(San Francisco Regional Water Quality Control Board)

VIII. Describe How the Project Protects and/or Restores Aquatic Habitat (continued)

B. Proposed Exotic Wildlife Controls (Invasive Species)

Invertebrates	
Fish	
Reptiles/Amphibians	
Birds	
Mammals	

Rapid Permit Checklist
(San Francisco Regional Water Quality Control Board)

VIII. Describe How the Project Protects and/or Restores Aquatic Habitat (continued)

C. Proposed Protection and/or Enhancement of Habitat Complexity for Different Life Stages (continued)

Diversity of Vegetative Cover:	
Habitat Connectivity:	
Stream Channel Grain Size Distribution:	
Shelter from Predators and/or High Flows: (undercut banks, roots, woody debris, etc.)	
Instream Bedforms: (number and depth of pools, etc.)	

Prepared by: Date: