

Chapter 2

THE CURRENT EWP PROGRAM

Current Management—Alternatives to the proposed action...shall...include...no action. 40 CFR 1502.14. [In] updating a land management plan, where ongoing programs initiated under existing legislation and regulations will continue even as new plans are developed..."no action" is "no change" from current management direction or level of management intensity. CEQ Memorandum: Questions and Answers About the NEPA Regulations, 46 FR 18026

This chapter summarizes the current EWP Program objectives and constraints, including the types and eligibility of authorized work, coordination with the programs and oversight functions of other agencies, engineering quality assurance, and funding. It describes the current procedures used to implement an EWP project in a state in the aftermath of a natural disaster, the different restoration practices currently used to address watershed impairments, and the use of floodplain easements. The EWP Program described here comprises the set of Program activities that constitute the action baseline. **[Note:** The description of the current EWP Program presented in this chapter is representative of the EWP Program at the time of the publication of the Draft EWP PEIS. Any changes or modifications to the EWP Program since that date are discussed under the Preferred Alternative in Chapter 3 of this Final PEIS.] The environmental impacts of this action baseline are compared with the impacts of the EWP Program Preferred Alternative as well as the Draft Proposed Action and Alternative 3 in Chapter 3.

2.1 EWP PROGRAM OBJECTIVES AND CONSTRAINTS

The Emergency Watershed Protection Program was established by Congress to respond to emergencies resulting from natural disasters. The USDA NRCS administers the EWP Program, providing technical and financial assistance to local sponsors who request aid to relieve imminent hazards to life and property caused by floods, fires, windstorms, and other natural occurrences.

EWP Program work includes removing debris from stream channels, road culverts, and bridges, reshaping and protecting eroded streambanks, repairing levees and flood control structures, and seeding or planting damaged upland areas. All EWP Program work is designed exclusively to reduce threats to life and property while being economically and environmentally defensible and technically sound. EWP Program work is not limited to any one set of prescribed practices. NRCS conducts case-by-case investigations of the needed work, considers various alternatives for alleviating the problem, and recommends a course of action.

Individuals are not eligible for EWP Program assistance (with the exception of floodplain easements) unless represented by a project sponsor (e.g., a State government or a political subdivision of a state, such as a city, county, tribal organization, general improvement district, or a conservation district). Under current provisions, the EWP recovery work can be done through either Federal or local contracts. NRCS

Tribal organization: Any Indian tribe or tribal organization, as defined in section 4 of the Indian Self-Determination and Educational Assistance Act (25 U.S.C. 450b), having authority under Federal, State, or Indian tribal law to carry out and maintain any EWP recovery work installed.

may bear up to 80 percent of the construction cost of the emergency practices (up to 100 percent for exigency); the remaining 20 percent must come from local sponsors and can be in the form of cash, in-kind services, or both. Sponsors are responsible for securing the land rights, obtaining necessary permits to make repairs, furnishing the local cost share, and operating and maintaining the finished work.

The National EWP Manual documents NRCS policy governing the EWP Program; the National EWP Program Handbook covers field procedures. Installed practices must be implemented in accordance with the Field Office Technical Guide and the National Engineering Manual 210-501.24 (c). Currently, NRCS follows EWP Program guidance (309-V National Watershed Manual, Part 509) issued in December 1992, based on legislative authorities in effect at that time.

2.1.1 EWP Coordination with Other Agencies

The EWP Program is one of a number of Federal and State programs dealing with emergency assistance. It has been characterized in public comments as one of the most responsive to local needs in small, rural watersheds. The U.S. Army Corps of Engineers (USACE), Federal Emergency Management Agency (FEMA), U.S. Forest Service (USFS), USDA Farm Service Agency (FSA), Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS) are the principal Federal agencies that NRCS coordinates with on disaster emergency recovery work. The NRCS must also coordinate and consult with federally recognized tribal governments, Tribal Historic Preservation Officers (THPOs), and State government agencies, including State Historic Preservation Officers (SHPOs), regarding appropriate treatment of historic and cultural resources. A number of other Federal, State, and local agencies administer programs that deal with natural emergencies as well; they are described in Appendix A.

2.1.1.1 U.S. Army Corps of Engineers (USACE)

Under Public Law 84-99, as amended, the USACE may provide emergency assistance for flood response and post-flood response activities to save lives and protect improved property (i.e., public facilities or services and residential or commercial developments) during or following a flood or coastal storm. The USACE is not permitted to assist individual homeowners, agricultural lands, or businesses.

USACE assistance must be requested immediately and is limited to major flood or coastal storm disasters resulting in life-threatening or property-damaging situations. NRCS does not participate in flood-fighting efforts, but it coordinates with the USACE in Presidentially declared disaster situations when requested for post-flood damage repair and restoration. NRCS and USACE often coordinate in the repair of damaged levees and provide related rehabilitation assistance.

The USACE provides assistance that includes:

- Furnishing technical advice and assistance

- Clearing drainage channels, bridge openings, or structures blocked by debris
- Clearing blockages of critical water supply intakes and sewer outfalls
- Removing debris to reopen vital transportation routes
- Temporarily restoring critical public services or facilities
- Identifying hazard-mitigation opportunities
- Temporarily raising the height of levees with sandbags
- Strengthening flood control works with armor rock.

The USACE also may rehabilitate publicly sponsored flood control structures and Federally authorized and constructed hurricane and shore protective structures damaged or destroyed by wind, wave, or water action of other than an ordinary nature. Such assistance means repairing or restoring a flood-control structure to pre-disaster condition.

The criteria for USACE flood-control structure rehabilitation assistance include:

- Requests for rehabilitation assistance must be for a publicly sponsored project
- Costs for rehabilitation projects for non-Federal flood control works will be shared at 80 percent Federal and 20 percent from the public sponsor
- The proposed rehabilitation project must have a favorable benefit-cost ratio
- Deficient or deferred project maintenance that remains to be done when the disaster damage occurs will be accomplished by or at the expense of the sponsor, before or concurrent with authorized rehabilitation assistance
- Federally constructed projects are repaired at 100 percent of the Federal cost.

The Clean Water Act of 1996 grants USACE the authority and responsibility for issuing permits for projects that could affect navigable waters of the United States. Under the Clean Water Act, 42 U.S.C. § 1344, Section 404 prohibits the discharge of dredge or fill material into waters of the United States without a permit from the USACE. The most important permitting authority from the standpoint of EWP Program activities is Nationwide 37 permit, which authorizes EWP activities when there is an immediate threat to life or property.

2.1.1.2 Federal Emergency Management Agency (FEMA)

At the discretion of Congress and the Federal Government, states and their political subdivisions are jointly responsible for providing a system of emergency preparedness for the protection of life and property in the United States from hazards. The Federal Government provides oversight, coordination, guidance, and assistance, so that a comprehensive emergency preparedness system exists for all hazards (42 U.S.C. § 5195). These programs are overseen and coordinated by FEMA, which has been managing Federal disaster efforts since its formation in 1979. FEMA's mission is to reduce loss of life and property and protect the nation's critical infrastructure from all hazards through a comprehensive, risk-based, emergency management program of mitigation, preparedness, response, and recovery. The Small Business Administration and USDA's Rural Development Administration also have flood-related disaster-assistance programs.

Before FEMA can become involved, the President must declare an area a major disaster area

under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, 42 U.S.C. §§ 5121 *et seq.*). Under presidential declarations, FEMA coordinates emergency assistance and NRCS responds to this assistance. If FEMA transfers this responsibility to the Federal Regional Council during the recovery period, NRCS responds to the Council.

In Presidentially declared disasters, FEMA looks to NRCS to do the following:

- All agricultural work normally covered by the EWP Program
- Major scour and overwash acreages
- Repair of agricultural levees (usually those less than 6 feet high)
- Protection of rural roads, buildings, and homes
- Conduct of some of the above in smaller urban areas
- Adhere to National Flood Insurance Program requirements in federally mapped floodplains, especially concerning debris removal and disposal.

2.1.1.3 USDA Forest Service (USFS)

NRCS provides overall administrative direction and guidance for the EWP Program and transfers funds to the USFS at the national level for work done by USFS or its cooperators. [Note: As of the date of publication of the Draft EWP PEIS, a Memorandum of Understanding (MOU) was in place between NRCS and USFS indicating that NRCS would fund EWP Program work conducted on USFS lands. That MOU expired in July 2003, and no other agreement between the NRCS and USFS has since been signed. Currently, the USFS does not go through NRCS to fund watershed projects, including EWP Program work. NRCS currently funds only its own EWP Program work, and will continue to do so in the future. However, NRCS still provides overall administrative direction and guidance to the USFS for EWP Program work.]

Under general program criteria and procedures established by NRCS, USFS is responsible for administering EWP Program practices on national forests and national grasslands. USFS also is responsible for emergency practices on all forested lands or rangelands within the national forests, on adjacent rangelands administered under formal agreement with USFS, and on other forested lands. The Burn Area Emergency Rehabilitation (BAER) Program is administered by the USFS to treat critical wildfire-damaged areas and to reduce the risk that rainstorms will trigger major soil loss in runoff and downstream sedimentation in affected watersheds. In carrying out their responsibilities, USFS and NRCS work cooperatively with other Federal, State, and local government agencies (7 CFR 624.4).

2.1.1.4 USDA Farm Service Agency (FSA)

The FSA administers the Emergency Conservation Program (ECP), which shares with agricultural producers the cost of rehabilitating eligible farmlands damaged by designated natural disasters. ECP also may be available to areas without regard to a presidential or secretarial emergency disaster designation. FSA declares drought emergencies under P.L. 95-334 Sec. 624.5.

County FSA committees determine the eligibility of projects for ECP assistance by conducting individual on-site inspections and determining the type and extent of damage. Cost-share assistance of 75 percent (up to 90 percent for limited resource producers) is available. NRCS provides technical assistance for ECP. To be eligible for ECP assistance, the applicant must have suffered a natural disaster that created new conservation problems that, if left untreated, would:

- Impair or endanger the land;
- Materially affect the land's productive capacity;
- Represent unusual damage which, except for wind erosion, is not the type likely to recur frequently in the same area; or
- Be so costly to repair that Federal assistance is or will be required to return the land to productive agricultural use.

ECP funds may be used for debris removal, fence restoration, grading and shaping of farmland, restoring structures, and water conservation practices, including providing water to livestock in periods of severe drought. Other emergency conservation practices may be authorized by county FSA committees with the approval of the State committee and the agency's deputy administrator for farm programs. Conservation problems that existed before the natural disaster are not eligible.

The FSA State Executive Director implements ECP except in severe drought when the deputy administrator for farm programs may authorize assistance. During severe drought, ECP provides emergency water assistance—both for livestock and for existing irrigation systems for orchards and vineyards.

2.1.1.5 U.S. Environmental Protection Agency (EPA)

The EPA enforces requirements of the Clean Water Act, (42 U.S.C. § 1252 *et seq.*). The Clean Water Act is the common name for the Federal Water Pollution Control Act, as amended over the years, particularly in 1972 and 1977. The Act's goal is to restore and maintain the chemical, physical, and biological integrity of the nation's waters, and establish a broad framework of planning, research, financial assistance, and permit systems to achieve that goal. The following are four of the most relevant sections of the act for this study:

Section 303, 42 U.S.C. § 1313 delegates the process of setting water quality standards to the states, provides for the development of basin plans for establishing these standards, defines critical water quality conditions, and provides waste load constraints.

Section 319, 42 U.S.C. § 1329 establishes nonpoint source pollution control programs. States are required to identify waters that cannot maintain applicable water quality standards without nonpoint source pollution control and to develop programs to control those nonpoint sources.

Section 401, 42 U.S.C. § 1342 requires states to certify that any discharge to waters of the United States requiring a Federal permit will comply with all water quality standards and effluent limitations.

Section 402, 42 U.S.C. § 1342 establishes the National Pollutant Discharge Elimination System (NPDES) permit system for point-source discharges into waters of the United States. EPA oversees the program, but it is administered in most cases by the individual states. Point sources relate to defined sources of discharge, such as pipes, but a 1987 amendment to the act also covers storm water runoff from industrial sites, municipal storm water runoff, and runoff from certain types of construction sites.

2.1.1.6 U.S. Fish and Wildlife Service (USFWS)

The USFWS is the principal Federal agency responsible for conserving, protecting, and enhancing fish, wildlife, and plants and their habitats. While the agency has no direct involvement with disaster relief, NRCS does consult with USFWS prior to beginning EWP work to ensure that no threatened and endangered (T&E) species will be adversely affected by the repairs, as required by the Endangered Species Act. Additionally, USFWS provides assistance in identifying environmentally sensitive areas, such as wetlands or fish habitat, to minimize impacts of the repairs.

2.1.1.7 National Marine Fisheries Service (NMFS)

The NMFS is part of the National Oceanic and Atmospheric Administration (NOAA). NMFS administers NOAA's programs which support the domestic and international conservation and management of living marine resources. NMFS is also responsible for administering the Endangered Species Act for listed marine species and is consulted by NRCS in cases where marine species or habitats may be affected.

2.1.1.8 State and Tribal Historic Preservation Officers (SHPOs and THPOs)

In accordance with Section 800.2 of the Advisory Council on Historic Preservation's (ACHP) *Procedures for the Protection of Historic Properties* (36 CFR Part 800), the NRCS shall consult with State Historic Preservation Officers (SHPOs), Tribal Historic Preservation Officers (THPOs), federally recognized American Indian Tribes and Native Hawaiian organizations, and other identified consulting parties (including representatives of local government, applicants for Federal assistance, and others identified during the scoping process) regarding professionally informed findings and determinations made during the 106 process. These findings and determinations include the presence or absence of cultural resources and the potential of a proposed undertaking on identified or yet-to-be identified cultural resources. NRCS shall enter into consultation with professional opinions already formulated in accordance with 800.2 (a)(1)-(3) and the National Historic Preservation Act (NHPA) 112((a)(1)(A)--professional standards) and Subpart B of the ACHP Procedures. Thus it is the responsibility of NRCS to identify "undertakings" and determine the "potential to cause effect" prior to initiating appropriate consultation.

2.1.2 EWP Program Engineering

Trained and experienced personnel are the foundation of technical quality in NRCS conservation engineering work. NRCS assigns job approval authority at the highest appropriate level to ensure the competence of each individual who provides engineering technical assistance under NRCS supervision. The NRCS State Conservation Engineer, a registered professional engineer, is the authority for all engineering work conducted in each state and delegates this authority to others who have the necessary training, experience, and demonstrated competence. The upper limits of job approval authority are measured by complexity, size, or hazard for each practice that an individual may design or plan. Many conservation practices, including those installed under the EWP Program, are approved by someone with appropriate job approval authority.

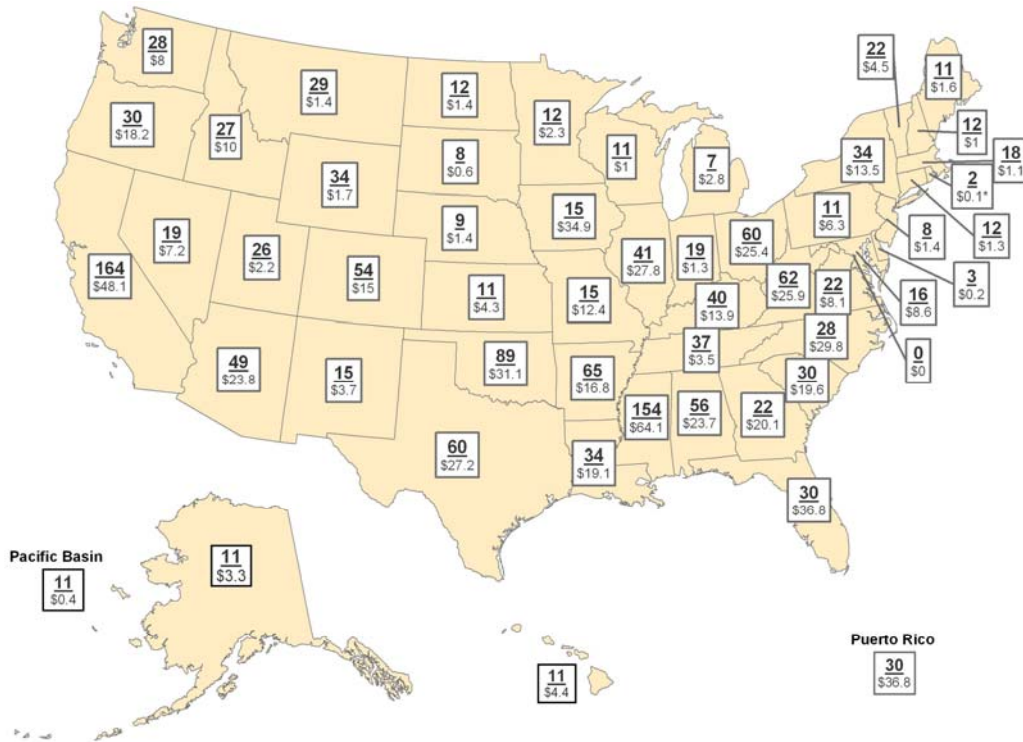
State or national NRCS practice standards, or State standards developed or adapted for EWP Program work, offer criteria specific to the design of EWP Program practices. While NRCS directives and standard professional references provide guidance for designing engineering practices, NRCS directives include the National Engineering Handbook and National Engineering Field Handbook (EFH). Chapter 16 of the EFH, “Streambank and Shoreline Protection”, is a good reference for EWP Program work. The recently issued interagency document, “Stream Corridor Restoration, Principles, Processes and Practices,” provides background useful in integrating knowledge of the principles of natural stream dynamics, ecological principles, and engineering skill to develop EWP Program alternatives that are environmentally, socially, and economically defensible and technically sound.

Some states have prepared State EWP Program handbooks containing standards, construction specifications, drawings, and other applicable materials. These help train new personnel and expedite the preparation of the site-specific construction documents necessary for contracting EWP Program work.

2.1.3 Program Funding

The early EWP Program implemented under the Flood Control Act of 1950 had a base funding of \$300,000 per year for emergency practices. Disasters were not predictable; therefore, this was simply an estimate of potential needs. In a year without extensive disaster damage, the funds were available for regular flood prevention work, while in other years, extensive or large-scale disasters resulted in the need for supplemental appropriations. By 1969, all EWP Program work was funded through supplemental appropriations. In that year, \$4 million was appropriated for forest fires in California, Nevada, Oregon, and Washington. In 1973, \$36.5 million was appropriated to deal with the aftermath of Hurricane Agnes and flooding in the Mississippi River Valley, the Black Hills of South Dakota, and adjacent areas.

Total financial assistance allocated by state for EWP Program activities from 1988 to 2003 are shown in Fig. 2.1-1 (in millions of dollars). [Note: The dollar amounts presented in Fig. 2.2-1 do not include technical assistance]. At present, the EWP Program budget remains zero-based and allocations are made on a year-to-year basis according to need through requests for supplemental appropriations.



*Rhode Island's financial assistance totaled \$38,006

Source: NRCS, 2004

Fig. 2.1-1. Total Financial Assistance for EWP Program Work (bottom number, in millions) and Number of Disaster Events (top number) by State (1988-2003)

The EWP Program regulations on administration, eligible emergencies, recipients, assistance, eligible practices, limitations on use of emergency funds, environment, application, and investigation and request for funds, are in 7 CFR 624.

2.2 EWP PROJECT ADMINISTRATION, COORDINATION, AND EXECUTION

2.2.1 EWP Project Implementation Criteria

A watershed emergency exists when a single natural occurrence or a short-term combination of occurrences suddenly impairs a watershed (see text box), creating an imminent threat to life or property. Natural occurrences include, but are not limited to, floods, fires, windstorms, earthquakes, volcanic actions, and drought. State Conservationists declare such watershed emergencies. Presidentially declared disasters may or may not coincide with the State Conservationist-declared disaster emergencies, depending on the nature and location of the disaster, the types of damage left in the aftermath, and the communities affected. Watershed impairments resulting from long-term combinations or series of natural or other occurrences are not considered sudden watershed impairments (7 CFR 624.5).

2.2.1.1 Eligibility Requirements

Emergency watershed protection assistance is available if the State Conservationist determines that:

- The EWP Program work would reduce threats to life and property.
- The imminent threat to life or property significantly exceeds that which existed before the impairment.
- The work would be economically and environmentally defensible, and sound from an engineering standpoint.
- The work would represent the least-cost alternative.
- The work would yield benefits to more than one person, except in exigency situations.
- Public and private landowners would be eligible for assistance, and they are represented by a sponsor (except in the case of floodplain easements, for which sponsors are not required).
- The sponsor is a public agency of State, county, or city government, a government special district, or a tribal organization (NRCS, 1999c).

EWP Program work is not limited to any one set of prescribed practices. The NRCS investigates the needed work case by case to determine the appropriate practice(s) for each case.

What constitutes a "sudden impairment" under the program was defined by virtue of a 1978 legal challenge in *Sierra Club v Bergland*, 451 F Supp. 120 (N.D. Miss., 1978). The court held that the decision to proceed with a proposed channel improvement of a section of the Tippah River Watershed, which was to be funded through appropriations under Section 216 of the Flood Control Act of 1950, was inconsistent with applicable law governing expenditure of such funds. The evidence demonstrated that the sedimentation that triggered the need for the improvement was the gradual result of an earlier channelization project and not caused by flooding or other natural force, which would justify expenditure of Section 216 funds as an emergency measure.

2.2.1.2 Eligibility Policy Constraints

Statutory authorities allow funding only for activities required to relieve imminent hazards to life and property caused by natural disasters. EWP Program regulations (7 CFR 624.7) prohibit funds from being used to install practices that are not essential to reduce hazards, nor can they be used to solve problems that existed before the disaster. EWP Program funds cannot be used to improve the level of protection above that which existed before the disaster, unless required by current technical standards or required by Federal, State, or local regulating agencies. In addition, the EWP Program cannot fund Operation and Maintenance (O&M) work, repair, rebuild, or maintain private or public transportation facilities or utilities. EWP Program work also cannot be done if it would affect downstream water rights, nor can repair work be performed on practices installed by another Federal agency. EWP funds can, however, be used to perform work on practices installed by a State or local agency (63 FR 45691).

2.2.1.3 Exigency and Non-Exigency Classification

Procedures for providing emergency assistance differ based upon whether the watershed emergency is an exigency or a non-exigency situation. An exigency exists when the near-term probability of

damage to life or property is high enough to demand immediate Federal action. An exigency continues to exist as long as the probability of damage continues at a high enough level.

A non-exigency situation exists when the near-term probability of damage to life or property is high enough to constitute an emergency, but not sufficiently high to be considered an exigency. A non-exigency situation continues to exist as long as the probability of damage remains high enough to be considered an emergency (7 CFR 624.5).

2.2.1.4 Project Sponsorship and Cost Sharing

With the exception of floodplain easement, each EWP Program project requires a sponsor who applies for assistance. A sponsor can be any legal subdivision of State or local government, including local officials of city, county, or State governments, American Indian tribes, conservation districts, and watershed authorities. The sponsors determine the priorities for emergency assistance while coordinating work with other Federal and local agencies, and provide the legal authority for repair work, obtain necessary permits, contribute funds or in-kind services, and maintain the completed emergency practices (NRCS, 1999a).

NRCS may provide up to 80 percent of the funds needed for construction costs to restore the impaired watershed sites to their condition prior to the disaster. The community or local sponsor of the work pays the remaining 20 percent, which can be provided by cash, in-kind services, or both (NRCS, 1999a). Current practice, established in 1993, is to limit construction funding to 75 percent with sponsors paying 25 percent.

2.2.2 EWP Program Project Documentation and Coordination

The principal NRCS documentation for an EWP Program project is the DSR, which initiates the process of economic, environmental, and technical review, decision-making, and contracting. Copies of correspondence with other agencies and contract packages are normally attached to the DSR (documentation includes sketches, photographs, and videos). Appendix C shows a sample DSR with pertinent correspondence.

2.2.2.1 The Damage Survey Report (DSR)

A DSR is required for each impaired site or grouping of similar sites. As the basis for EWP Program assistance on sponsor-proposed impairment sites, the DSR is the NRCS-specified format for gathering information about the damaged site, evaluating the damage to determine eligibility for assistance, reviewing the environmental and economic defensibility of a proposed solution, and documenting the basis for the decision. Completing the DSR requires an interdisciplinary approach using appropriate expertise to evaluate each site.

The DSR describes:

- Impairments and the threats they pose
- The scope, cost, and nature of the emergency work being proposed

- The potential economic and environmental effects of the impairment
- The initial engineering cost estimate.

The DSR provides:

- Support for obligation of funds by project or cooperative agreement(s)
- Information needed for program management, including fund management and tracking progress
- Documentation for any review of accountability of NRCS staff that helps deliver technical and financial assistance through the EWP program
- Information that can be used in coordination activities with other agencies that are involved in disaster response and recovery
- Information that can be used in planning and evaluating disaster mitigation activities
- Documenting compliance with NEPA
- Documenting compliance with the National Historic Preservation Act (NHPA), including consultation with the SHPO and/or THPO
- Documenting compliance with the Endangered Species Act, including consultation with USFWS.

NRCS requires the DSR to be complete and accurate to ensure that these objectives are met. This ultimately ensures program integrity and consistency, program accountability and defensibility. It provides the documentation necessary in the event of appeals if assistance is denied or limited for those decisions that are appealable in accordance with 7 CFR parts 614 and 11.

The direct and indirect impacts of individual EWP Program practices are routinely documented and attached to the DSR. DSRs are on file at NRCS State offices.

2.2.2.2 Project Review and Approval in Exigency and Non-Exigency Situations

When NRCS receives an application for EWP Program assistance, the State Conservationist immediately investigates the emergency situation to determine if the EWP Program is applicable. In carrying out EWP Program work, State Conservationists take into consideration the two broad types of emergency situations: (1) an imminent situation of unusual urgency (an exigency), and (2) an emergency requiring action but of less urgency than an imminent situation (non-exigency) (7 CFR 624.5).

2.2.2.2.1 Exigency Situations

An exigency exists when prompt remedial action is provided to eliminate an imminent threat to loss of life. The State Conservationist notifies the Financial Assistance Programs Division, describes the emergency, and estimates the funds needed. If funds become available, the State Conservationist authorizes the actions necessary to remedy the emergency. The State Conservationist confirms the situation in a memorandum to the chief that explains the nature of the emergency, the location of the emergency, the kind of remedial work and funds needed, sponsors, and a description of potential damage. In these situations, the memorandum from the State Conservationist with its brief

information constitutes the request for funds. Funds must be obligated within 10 days after the memorandum has been received and all work must be completed within 30 days after the funds are obligated.

2.2.2.2.2 Non-Exigency Situations

If the situation is not exigency, but the impairment justifies emergency assistance, a non-exigency situation exists and the State Conservationist submits a request for funds to the chief within 60 days after the disaster. Funds cannot be committed until the NRCS national office provides notification that the funds are available (7 CFR 624.10). Funds must be obligated and work completed within 220 consecutive calendar days after the date of receipt of funds. In non-exigency situations, the economic rationale of the proposed practices must be submitted in appropriate detail with the request for funds. Generally, the expected value of imminent damages (amount of damages multiplied by the near-term probability of their occurrence) must exceed the cost of the proposed emergency practices. Information in the request for emergency funds to support economic defensibility of the practices must include:

- Number and extent of values at risk because of the watershed impairment
- Estimated damages to the values at risk if the threat is realized
- Events that must occur for the threat to be realized and the estimated probability of their occurrence both individually and collectively
- Estimates of the nature, extent, and cost of emergency practices needed to relieve the threat.

The State Conservationist also submits adequate information to substantiate the environmental defensibility of the proposed emergency practices. Such information must include:

- Thorough descriptions of beneficial and adverse effects on environmental resources, including fish and wildlife habitat, cultural resources, and recreational resources
- Descriptions of the impact on water quality and water conservation as appropriate
- Analysis of the effects on downstream water rights.

A proposed EWP Program action is justifiable if the combined economic and environmental benefits exceed any adverse effects. This determination, made by the interdisciplinary team members, is documented in the comments section of the DSR. The description of the affected property (i.e., public, private, business, and other), value of repair or replacement cost, damage factor, and near-term damage reduction is documented and entered on the Economic Evaluation Worksheet for the alternative practices.

NRCS regulations (7 CFR 624.6b) and policy (National Watershed Manual 1992) require that practices proposed for installation are economically and environmentally defensible.

2.2.2.3 Environmental Review and Inter-Agency Coordination

NRCS coordinates its work with Federal agencies (USACE, USFWS, USFS, EPA, FEMA), State agencies (e.g. State emergency management agencies and State historic preservation

offices), tribal governments, and local communities. At issue are important regulatory and environmental requirements, such as protecting Federal endangered or threatened species and preserving unique cultural and historic resources.

An environmental evaluation is conducted in both exigency and non-exigency situations. In exigency situations, the assessment and any necessary mitigation are often performed after the emergency work either has been initiated or completed. NRCS State Conservationists notify concerned field offices of the USFWS, NMFS, USACE, and EPA of anticipated EWP Program work. Through existing coordination mechanisms of State clearinghouses, State Conservationists notify the State fish and game agency and other appropriate agencies. Archeological, historical, or other needed special expertise is solicited from appropriate agencies and groups, while environmental and other considerations are integrated into emergency work by using an interagency and interdisciplinary planning approach. In particular, NRCS coordinates with the USFWS and the NMFS to ensure that federally listed T&E species are not jeopardized by project activities and to ensure proper coordination under the Anadromous Fish Conservation Act. The NRCS State Office, during the course of scoping and Initiation of the Section 106 Process (36 CFR Part 800.3), shall recommend appropriate consultation with SHPOs, THPOs, federally recognized Tribes (including non-resident tribes with historic interests in the project area), and others regarding the potential effects of the proposed actions on historic and cultural properties and ensure that cultural resources, including National Register of Historic Places (NRHP) listed or eligible resources are taken into account in the planning and implementation of the EWP Program projects. NRCS is legally responsible for ensuring that NRHP-listed and eligible historic properties (including cultural resources of importance to federally recognized American Indian tribes) are taken into account during the planning process and are not inadvertently affected by projects or programs under its control. THPOs and federally recognized tribes must be consulted on a nation-to-nation basis that respect their sovereign nation status in accordance with Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), Executive Order 13007 (Indian Sacred Sites), and the NHPA. State fish and game agencies are also consulted to ensure that State-listed species are included in the planning process.

EWP Program work also is reviewed regarding the requirements of Executive Order 11988, Floodplain Management, 3 CFR 117 (1978), as amended by Executive Order 12148, 3 CFR 412 (1980), and Executive Order 11990, Protection of Wetlands, 3 CFR 121 (1978), as amended by Executive Order 12608, 52 FR 34617. Executive Order 11988 requires that all Federal agencies take action to reduce the risk of flood loss, restore and preserve the natural and beneficial values served by floodplains, and minimize the impacts of floods on human safety, health, and welfare. Executive Order 11990 requires Federal agencies to follow avoidance, mitigation, and preservation procedures with public input before proposing new construction in wetlands.

This PEIS hereby incorporates by reference the latest listing of threatened and endangered species, as published in 50 CFR 17.11 and 17.12.

2.2.3 Related Watershed Programs

Watersheds are becoming recognized as logical environmental management entities by a number of Federal agencies, including other NRCS programs. A number of Federal, State, and local programs relate to watersheds. Most are federally funded and use significant Federal technical assistance. The major Federal agencies involved in watershed-related programs are: NRCS, the USFS, which administers the EWP Program on national forest lands, and other Federal agencies (such as the FSA, EPA, USFWS, the National Park Service, the USACE, the Department of Housing and Urban Development, and the Bureau of Reclamation). A number of other federal programs deal with watersheds. At least 16 other NRCS programs are watershed-based or have watershed components (see Appendix A, Table A.3-1-1). Other USDA programs that are watershed-based or have watershed components are listed in Appendix A, Table A.3-1-2. Other Federal agency programs are in Table A.3-1-3. State watershed programs often result from State delegation of some or all aspects of the federal programs.

2.3 EWP PROGRAM RESTORATION PRACTICES

When a natural disaster occurs and watershed impairments remain, NRCS takes immediate steps to evaluate the impairments and determine an appropriate course of action. Where warranted to eliminate threats to life and property, NRCS provides funding and technical assistance to install EWP practices. The practices should restore the site to pre-disaster conditions, while being economically and environmentally defensible and technically sound. The types of repair and protection practices NRCS uses to restore watersheds include practices that:

- Restore stream channel capacity
- Stabilize and protect streambanks
- Repair or remove damaged dams, dikes, and levees
- Protect structures located in floodplains
- Restore damaged upland areas of watersheds.

Restoring stream channel (hydraulic) capacity in general requires removing and disposing of debris composed of woody material, sediments, or larger mineral material such as cobbles or boulders. Structural practices (armoring), soil bioengineering, stream restoration, vegetative plantings, or a combination of these practices, stabilize and protect streambanks. The NRCS Engineering Field Handbook (EFH) details many of these methods aimed at streambank restoration. Streambanks may be protected indirectly by modifying stream flow away from them. Damaged water control structures that include dams, dikes, and levees either require repair practices or may need to be removed if repair is neither feasible nor cost-effective. Floodplain diversions will divert flow away from valued or sensitive structures such as water treatment plants, while sediment or debris basins trap materials up-gradient before they can reach such structures. Critical area treatment of upland portions of watersheds reduces the potential for extreme soil loss and sedimentation, mudslides, and damage to roads and structures through accelerated runoff from unprotected slopes. Critical area treatments include planting or seeding, installing upland diversions, drains and conveyances, and building sediment and debris basins.

The practices described here are those typically used in the EWP Program and analyzed in this PEIS (NRCS, 1996). This is not intended as an exhaustive list of all possible EWP practices.

2.3.1 Practices that Restore Stream Channel (Hydraulic) Capacity-- Debris Removal and Channel Restoration

When a stream channel is obstructed by debris, its hydraulic capacity—the volume of water it can convey—is severely reduced. Debris accumulations (debris dams) may back the water enough to overflow streambanks, cause flooding upstream of the blockage, and deposit sediment in adjacent floodplains, leading to severe damage and threatening homes, businesses, or farming operations in these floodplains. Debris can undermine, damage, or destroy downstream structures such as bridges (Fig. 2.3-1) or culverts or threaten such damage in subsequent storms if not removed. Bridges can be washed out by the pressure of debris backup. Overflows may erode approaches to bridges and culverts. EWP Program debris-removal practices are used either when the hydraulic capacity of a channel is reduced by debris or when debris has the potential to move during subsequent storms. Removal of woody debris and removal of sediment or cobble are discussed separately here because of differences in how they affect stream channels and how they are removed and disposed.



Fig. 2.3-1 Debris Blockage of a Bridge

Debris removal generally involves the following components:

- Create access when needed to move trucks and heavy equipment to a debris site
- Dewater, if needed, to allow operations in-stream
- Use heavy equipment to remove debris from a streambank or in-stream position
 - Restore stream dimension, pattern and profile
 - Establish a low-flow channel, when needed
 - Grade, shape, and re-vegetate affected streambanks by seeding or planting
 - Dispose of debris on or off site



Fig. 2.3-2 Debris Removal Using Heavy Equipment (backhoe), Bethel Road Site, Hall County, GA

Creating access may require removing riparian vegetation, excavating and bank filling, grading, and stabilization. *Dewatering* diverts water within a stream, resulting in dry conditions. These dry

conditions are needed for the completion of EWP Program practices. Using *heavy equipment* either from the bank (Fig. 2.3-2) or in-stream generally is the only feasible way to deal with the weight and volume of material that needs to be removed.

In *establishing a low-flow channel*, heavy equipment is used to excavate an impaired streambed to restore the stream's channel on its outside bends. The low-flow channel maintains the base flow (normal stream flow during average periods of rainfall) of the stream and aids in transporting fine sediment and restoring aquatic habitats.

Grading and shaping affected streambanks may be necessary during the finishing phase of a job to create slopes with a gradient suitable for sustaining vegetative growth. Reestablishing vegetation is accomplished by hand or mechanical seeding or planting and includes plant or seed stock, mulching, and fertilizing.

Debris use or disposal involves a number of choices, and the advantages and disadvantages of each option are affected by feasibility and cost. The method selected depends on the circumstances at the disposal site and an evaluation of how disposal may affect the environment. Debris can be used for a number of purposes either on-site or off-site. Where allowed, it can be burned or buried. Burning or burying the material off-site requires heavy equipment to transport the debris to an adequate site. Hazardous materials in the debris require special consideration in its disposal and would follow all applicable State and local regulations regarding handling and disposal. Cobbles or boulders may be used to stabilize banks, although retention of cobbles on site may contribute to the debris load in future flood events. Where practical, cobbles and debris is removed from the floodplain. Cobble and gravel can restore fish habitat or modify water flow. Rootwads (tree trunks with root structure intact) and tree trunks can also be used to stabilize stream banks. The components of debris-removal depend on the location and characteristics of the debris impairment. Some components of these practices, such as creating low-flow channels and revegetating disturbed areas, are the same as or similar to the components involved in stream restoration.

Relationships between a natural disaster, the watershed impairments it may cause, the EWP practices that may be employed to repair them, and the components of those practices are illustrated in Fig 2.3-3. Development of this flow logic was one of the first steps the NRCS interdisciplinary team used in the environmental impacts analysis method outlined in Chapter 5. Appendix B presents comprehensive environmental impact flow diagrams identifying cause-effect relationships between practice components and ecosystem components for aquatic, wetland, riparian, floodplain, and upland ecosystem, and community components for human communities.

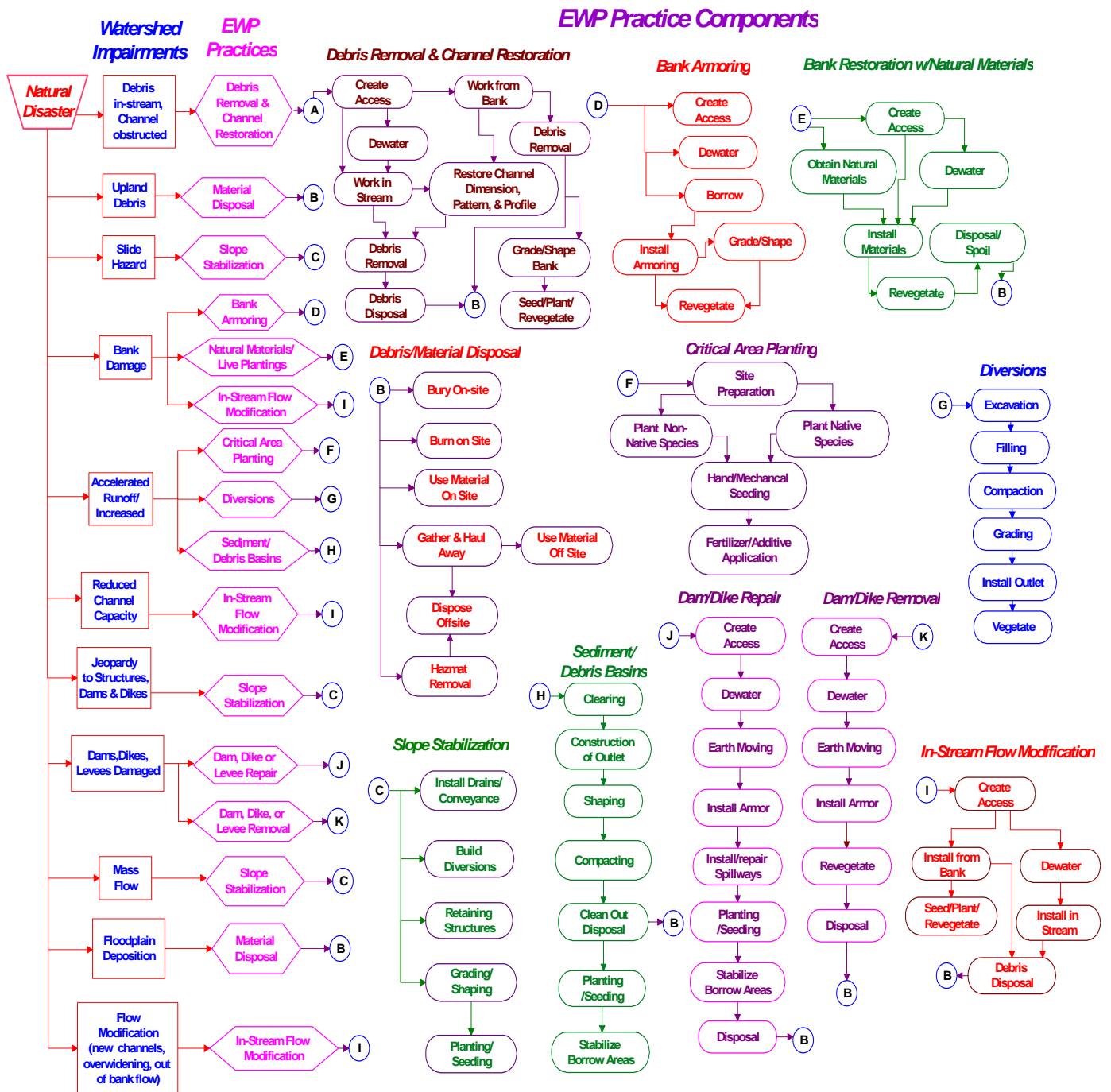


Fig 2.3-3 EWP Project Flow Chart of Watershed Impairments, Practices and Practice Components

2.3.2 Practices that Protect Streambanks

Intense storm flows, caused by the heavy rains associated with hurricanes, tornados, and floods, can intensify bank erosion (Fig. 2.3-4) and remove vital bank vegetation. The vulnerability of streambanks to the damaging forces of disasters can be dramatically affected by the impact of humans in the upper portions of watershed. A greater number of impervious surfaces may increase markedly the volume of runoff, thereby increasing storm peak flows. Greater peak flow increases the stress on streambanks and causes erosion, resulting in a degradation of in-stream habitat and a reduction of water quality because of sedimentation and loss of cover.



Fig. 2.3-4 Property Threatened by a Failed Streambank

Streambanks are stabilized and protected directly by structural practices (bank armoring such as riprap), soil bioengineering, vegetative seeding or plantings, or more often a combination of these practices, or indirectly by installing structures in-stream to deflect stream flow away from the eroding bank.

2.3.2.1 Direct Streambank Protective Practices

Direct protection of streambanks involves installing materials along the damaged bank to protect it from the erosive force of the stream. Those practices include bank armoring and the use of natural woody materials and live plantings. Most often these techniques are used in combination, with armoring where normal stream flow velocities are relatively high—greater than plantings alone could resist—and particularly where high-value structures are immediately adjacent or downstream to the eroding streambank, and the probability of failure must be minimized.

2.3.2.1.1 Bank Armoring

Traditional protective practices, known as bank armoring techniques, use stone and other armored structures to provide protection. Typical armoring practices include gabions and riprap.

Gabions are large-volume wire-mesh baskets (Fig. 2.3-5) filled with stone or cobble and placed along streambanks and streambeds of smaller streams for stabilization and grade control. Gabions are flexible and can be shaped to conform to topographical features such as



Fig. 2.3-5. Gabions Installed at Rocky Run, VA



Fig. 2.3-6 Riprap Installed at Rocky Run, VA

sharp bends and steep streambanks. They usually are wired together with durable fasteners, making them structurally sound and long-lasting.

Riprap (Fig. 2.3-6) is a layer of stone placed along eroded streambanks to protect and stabilize them. Like gabions, riprap is used where stream velocities are too great to establish vegetative cover successfully. Gabion or riprap installation generally involves creating access and using heavy equipment. Dewatering is sometimes required. Typically, the upper

portion of the armored streambank is not actually armored but instead graded and shaped, then planted or seeded.

2.3.2.1.2 Natural Materials and Live Plantings

Dead woody materials, including dead trees, tree branches, and cut logs and rootwads, are used to protect banks. Soil bioengineering combines live plantings with engineered materials for reinforcement. Vegetative plantings and seeding may be used alone where stream velocities allow, but most often are used in combination with armoring or dead woody materials. The roots of live materials secure the streambank soils, making the banks far less vulnerable to erosion and providing riparian and fish habitat.



Fig. 2.3-7 Rootwads Installed at Rose River, VA

Dead Woody Materials

Rootwads are embedded trunk-first in streambanks (Fig. 2.3-7) to stabilize the banks. They are a more natural, biologically functional alternative to armoring structures. Timber *cribbing* structures (Fig. 2.3-8) are log installations similar to gabions in function.



Fig. 2.3-8 Timber Cribbing Structure, Cherokee County, NC

Soil Bioengineering

Soil bioengineering uses living plants as structural components (NRCS, 1996). Adapted types of shrubs or trees are installed initially in configurations that offer immediate soil protection and reinforcement. A typical installation may include riprap, rock fill, or geo-textiles, or a combination of these materials with plants inserted

through the materials into the soil (Fig. 2.3-9). Soil bioengineering systems create resistance to sliding or mass movement of a streambank as they develop roots or fibrous inclusions. Hydrophytic plants, such as willows that are quick to root and grow, are often used for these projects.

Streambank repair and protection consists of the following practice components:

- Create access when needed to move heavy equipment to a damaged bank site;
- Dewater to allow operations in-stream;
- Borrow materials;
- Operate heavy equipment from on-bank or in-stream to install protective practices; and
- Grade, shape, and, when appropriate, revegetate streambanks.



Fig. 2.3-9 Composite photo, live plantings in rock base (left) and soil bioengineering using geotextiles, Glen Arbor, Santa Cruz Co., CA



Fig. 2.3-10 Bank Vegetation Site, Back Creek, Augusta County, VA (with riprap toe section)

Planting and Seeding

Vegetative stabilization techniques (Fig. 2.3-10) involve choices among seeding methods and materials, nonnative or native plantings, and fertilizers and additives. Vegetative plantings are used where they are capable of protecting the bank from the erosive forces of streamflow. A common streambank stabilization detail incorporates structural protection of the bank toe from the bed elevation to the normal water surface or to the approximate 2-year flow line, with vegetative treatment of the upper bank to the general flood plain elevation or as needed.

Criteria may be developed locally to define limiting velocities where predominantly vegetative treatments can be used successfully. Many variables, including climate, soils, bank height and slope, plant species, cost, material and labor availability, and animal and human bank traffic, influence the success of vegetative treatment.

Vegetative stabilization practice components include:

- Create access;
- Fill or excavate;
- Grade;
- Harvest plant materials; and
- Install plants or seeds, and apply fertilizer and mulch.

2.3.2.2 In-stream Flow Modification

In-stream flow modification uses structures placed in a stream to redirect flow, thereby protecting banks from lateral erosion or to stabilize grade, thereby protecting the streambed from cutting erosion by the downward force of the flow. These techniques are used when out-of-stream practices alone cannot repair a bank stability problem, when they are the most environmentally sound solution, and when there is sufficient area for effectiveness. A *rock weir*, a typical in-stream structure to regulate flow, is a series of boulders placed across a channel (Fig. 2.3-11) and anchored to the streambank or streambed. Rock weirs can also direct flow away from damaged streambanks.

Rock weir installation involves:

- Create access;
- Dewater (if necessary);
- Use heavy equipment; and
- Grade, shape, and seed.



Fig. 2.3-11 Rock Weir, Rose River, VA

2.3.3 Dam, Dike, and Levee Repair or Removal

The EWP Program rule prohibits repairs to NRCS-assisted dams (Fig. 2.3-12), dikes, and levees when they are damaged by a natural disaster. However, the rule also allows the NRCS Chief to grant an exception and in 1996, the Chief granted a blanket exception to this rule. EWP Program repair or removal does not apply to water-control structures maintained or owned by other Federal agencies. A dam, dike, or levee is removed when the threat of failure is high and repair is not economically or technically feasible. In some states, agricultural dikes less than six feet high or nonagricultural dikes less than ten feet high are eligible for repair or removal, depending on individual State agreements with the USACE.



Fig. 2.3-12 Emergency Spillway Damage, Switzer Dam, Dry River, VA

Dam, dike, and levee repair may consist of the following practice components:

- Create access, when needed, to move heavy equipment to the site;
- Dewater if needed to allow operation to proceed under dry conditions;
- Install armor to protect either the dam, dike, levee, or downstream structures;
- Repair spillways by fill and compaction;
- Grade, shape, and re-vegetate repaired areas and borrow sites by seeding or planting.

2.3.4 Practices that Protect Structures in Floodplains

Heavy rains associated with natural disasters such as hurricanes can cause intense storm flows that carry storm water and debris downstream or into down-slope floodplains. Debris torrents can threaten life and property, especially in mountainous regions where steep gradients exist. Debris and floodwaters can reduce the capacity of stream channels, damage infrastructure, and potentially impair water quality by damaging the water supply or wastewater treatment facilities. To diminish these threats, the EWP Program installs sediment and debris basins and floodplain diversions.



Fig. 2.3-13 Eighth Street Burn, Boise Hills, ID

2.3.4.1 Sediment and Debris Basins

Sediment and debris basins retain and store debris from floods when this material could threaten life and property and other control methods are deemed inadequate. Practice components involved in sediment and debris basin installation include:

- Create access, when needed, to move heavy equipment to the site;
- Excavate soil and shape the basin;
- Compact soils to ensure basin stability and water retention capability;
- Construct outlets for the release of storm water; and
- Grade, shape, and revegetate soils by seeding or planting.

2.3.4.2 Floodplain Diversions

Floodplain diversions are constructed when excessive runoff or debris flow threatens valuable structures in a floodplain such as water and wastewater treatment facilities. A floodplain diversion installed at a waste treatment facility that was being flooded by heavy rains in Clarendon, TX (Fig. 2.3-14) will keep the facility from overflowing. The EWP Program practice components involved in installing a diversion are:



Fig 2.3-14 Floodplain Diversion Site, Clarendon, TX

- Create access, when needed, to move heavy equipment to the site;
- Excavate soil;
- Fill, when needed, and compacting soils for stability;

- Construct outlets to release storm water;
- Grade, shape, and re-vegetate affected areas by seeding or planting.

2.3.5 Practices that Protect Watershed Uplands

Natural disasters such as drought (Fig 2.3-15), fire, and flood can strip large areas of vegetation. Vegetation plays a vital role in controlling wind and water erosion, ensuring groundwater recharge, maintaining soil productivity, and providing habitat. Without adequate vegetation, soils may become susceptible to mass-flow events, which can threaten life and property. Areas that have lost vegetation often become a priority concern for communities or residents living near the impaired area. Unprotected, light soils susceptible to erosion by high winds (Fig. 2.3-15) can reduce visibility causing hazardous driving conditions and irritate eyes and respiratory systems.



Fig 2.3-15 Dust Storms Caused Traffic Accidents near this Drought-Stricken Site at Antelope Valley, CA

Heavy rains can cause debris torrents that deposit sediment, woody debris, and other materials in floodplains.

Critical area treatment involves one or more practices to stabilize priority upland areas by increasing the vegetative cover, binding and retaining soils, helping maintain infiltration, reducing surface runoff by slowing water velocity through structures on side slopes and improved infiltration, and improving drainage conditions to protect property. Treatments that stabilize critical areas include critical area planting, installing diversions, check

dams, contour trenches, drains, conveyances, and outlet structures.

2.3.5.1 Critical Area Planting

Critical area planting involves seeding (Fig. 2.3-16) or planting areas that are prone to erosion and destabilization. It is used where vegetative cover has been lost, when erosion or sedimentation will create an imminent threat to life or property, or when conventional seeding methods are inadequate. Critical area planting uses permanent grasses and legumes to stabilize the soil and reduce damage from sediment and runoff to downstream areas. It also controls wind erosion of exposed topsoil. Critical area planting includes site preparation, hand or mechanical seeding, planting native or nonnative plants, and applying fertilizers or other additives. *Preparing a site* for planting (Fig. 2.3-16) involves a number of techniques to



Fig. 2.3-16 Critical Area Tilling and Seeding, Antelope Valley, CA



Fig. 2.3-17 After Critical Area Treatment Revegetated the Site, Antelope Valley, CA

help establish vegetation, including ripping and raking, which turn soil over to make it more conducive to vegetation growth (Fig. 2.3-17). This is especially important where soils are crusted or hard and do not allow seeds to penetrate the surface layer. Ripping, disking, harrowing, or raking to prepare seedbeds for planting can increase sedimentation and runoff on a short-term basis, because any vegetation that may have been present is disturbed. It is most likely, though, that these practices decrease runoff in high-gradient areas if the work is completed in a horizontal pattern across slopes (NRCS, 1999d). The terraced pattern

will slow runoff and increase infiltration.

Seeding or planting with native or non-native stock can be accomplished by aerial seeding, drilling, or hand seeding. In aerial seeding, an airplane or helicopter scatters the seeds. With drilling, a tractor-pulled drill, such as the rangeland drill, furrows a trench and plants the seeds. Chains dragged behind the drill cover the trenches and prevents the loss of seed. Drilling is often conducted to help create terraces that slow runoff and aid in the infiltration of surface water (NRCS, 1999d). Hand planting can stabilize impaired areas in settings that are not conducive to mechanical planting or seeding. *Applying fertilizers, additives, or ground cover* such as lime and mulch helps reestablish newly planted vegetation.

Critical area planting may consist of the following practice components:

- Create access, when needed, to move heavy equipment to a planting site;
- Prepare sites for planting;
- Seed with native, or nonnative grasses;
- Plant native, or nonnative seedlings; and
- Apply fertilizers or other additives.

2.3.5.2 Upland Diversions

Upland diversions (Fig. 2.3-18), which include *contour felling and contour trenching*, protect areas that lack vegetative cover, reducing excessive runoff, and protecting downslope communities or structures from debris-laden surface water flow. In contour felling, cut trees are placed in horizontal rows on side slopes to divert water. Contour trenching is similar, except that excavated trenches replace logs. Contour trenches are ditch-like trenches constructed on slopes with moderate-to-deep *rills*. Trenches



Fig. 2.3-18 Upland Diversions, 8th Street Burn, Boise Hills, ID

generally are dug in parallel from the top to the bottom of the slope. Their main purpose is to store accelerated soil erosion and overland flow.

Installing upland diversions involves the following practice components:

- Create access, when needed, to move heavy equipment to a diversion site;
- Excavate to create or install the diversion;
- Fill to prepare the site to install the diversion;
- Install outlet structures (drains and conveyance);
- Compact soils to ensure stability; and
- Grade, shape, and revegetate affected areas by seeding or planting.

Installing contour trenches consists of:

- Creating access to move heavy equipment, if needed, to a construction site;
- Excavating trench to capture runoff; and
- Grading, shaping, and revegetating affected areas by seeding or planting.

2.3.5.3 Grade Stabilization Structures

Grade stabilization structures are small dams constructed in drainage ways and across or at the base of slopes, to reduce erosion by reducing flow velocity (Fig. 2.3-19). Grade stabilization structures are used in areas that have intermittent flows where it would be impractical to line an area with non-erodible materials. They usually are constructed of riprap, straw bales, logs, or sandbags (Smoot and Smith, 1998).



Fig. 2.3-19 Temporary Grade Stabilization Structure, 8th Street Burn, Boise Hills, ID

Installing grade stabilization structures consists of the following practice components:

- Create access to move heavy equipment, if needed, to a construction site;
- Excavate to place grade stabilization structures in correct configuration for flow reduction;
- Install grade stabilization structures; and
- Grade, shape, and revegetate affected areas by seeding or planting.

2.3.5.4 Drains, Conveyances, and Outlet Structures

Critical area treatment may require installing practices to protect roads and structures from severe runoff. Drains, conveyances, and outlet structures conduct storm water away from roads, buildings, developed lots, and critically damaged areas and usually discharge into the nearest

stream channel. Outlet structures usually are lined with clean stone to reduce the velocity of water leaving the structure, which helps protect the areas of discharge from erosion (Canadian Department of Fisheries and Oceans, 1999).

Installing drains, conveyances, and outlet structures consists of the following practice components:

- Create access to move heavy equipment to site;
- Install drains, conveyances, and outlet structures;
- Install armoring; and
- Grade, shape, and revegetate affected areas by seeding or planting.

2.3.5.5 Slope Stabilization

Slope stabilization involves a combination of structural and natural techniques that are used in upland watersheds after fires, landslides, or other natural disasters to control or minimize the risk of soil movement, rockslides, and erosion.

Installing slope stabilization consists of the following EWP practice components:

- Create access to move heavy equipment, if needed, to a construction site;
- Install drains or conveyances;
- Build diversions;
- Plant or seed; and
- Install retaining structures.

2.4 FLOODPLAIN EASEMENTS

The Federal Agriculture Improvement and Reform Act of 1996 (commonly referred to as the 1996 Farm Bill) provides the authority for NRCS to purchase floodplain easements under the EWP Program. Authorization for floodplain easements provides NRCS with an opportunity to purchase easements on flood-prone lands as an alternative to traditional eligible EWP Program practices. It is not intended to deny any party access to traditional eligible EWP Program practices. Instead, it is intended to provide a more permanent solution to repetitive disaster assistance payments and to achieve greater environmental benefits where the situation warrants and the affected landowner is willing to participate in the easement approach. Current guidance for administering the purchase of floodplain easements under the EWP Program is provided in the National Watersheds Manual (NWSM) 390–V, Circular No. 4, which supplements Part 509 of the NWSM.

Floodplain easements are intended to:

- Reduce the public risk of flood damages, including public risks to downstream or adjacent lands;

- Protect lives and property from floods, drought, and the products of erosion;
- Retard soil erosion through the restoration, protection, or enhancement of the floodplain;
- Allow the unimpeded reach and flow of water in, over, on, or through the easement area, to restore, reconnect, and enhance water conditions on the easement area;
- Eliminate future disaster payments that would otherwise be applicable to the area;
- Restore, protect, manage, maintain, and enhance the functions of wetlands, riparian areas, conservation buffer strips, and other lands;
- Conserve natural values including fish and wildlife habitat, water quality improvement, floodwater retention, groundwater recharge, open space, aesthetics, and environmental education.

Eligible Land: Lands potentially eligible for floodplain easement purchase include agricultural lands damaged by flooding that have been subject to repeated flood damage or are where the flooding can be expected to recur (Fig. 2.4-1). Agricultural lands are predominantly cropland (including orchards and vineyards), grazing land, hay land, or forestland adjoining the channel of a river, stream, watercourse, water body, lake, or ocean. Incidental areas adjacent to, and part of the agricultural land tract that may not meet eligibility criteria independently, may be acquired where necessary to facilitate the acquisition process (i.e., purchase of remaining uneconomic remnants of land, inclusion of lands that are required for the floodplain hydrology reconnection and restoration to occur, or lands necessary for practicable and manageable easement boundaries). The State Conservationist, in consultation with the State technical committee, will develop appropriate guidance for field-level use in determining eligibility and will be responsible for closely monitoring implementation.



Fig 2.4-1 Aerial Photo of Washed-Out Levee and Floodplain Deposition on the Lower Missouri River

Designation of Land Categories within the Floodplain Easement: Three categories of lands may be designated within a given easement area. A single floodplain easement acquisition may consist of one, two, or all three categories.

All easements require that lands, including all designated land categories within easements, and landowners must:

- Meet eligibility requirements
- Be covered by a perpetual easement
- Have the landowner waive the right to be protected from floodwaters and provide the United States with the right to restore and enhance the reach and flow of waters to achieve flood flow, flood storage, erosion control, or conservation objectives (e.g., removing levees, filling ditches, or impounding surface waters)
- Prohibit construction or maintenance of buildings or other structures
- Waive future disaster assistance that may be applicable to easement lands
- Reserve to the landowner the right to control ingress and egress and the rights to hunting, fishing, and undeveloped recreational activity (e.g., either personal use or commercial leasing)
- Provide the landowner with the opportunity to participate in easement restoration and management activities that the United States acquires through the easement.

Category 1 Criteria include:

- All vegetative buffer areas being restored, established, enhanced or otherwise protected adjacent to a river, stream, watercourse, water body, lake or ocean including distinct drainage and flowage areas (required width to be determined by State Conservationist in response to site-specific natural resource needs)
- Habitats of present or potential future importance in the protected, restored, or enhanced condition to State or Federal at-risk species
- Other landscape situations determined by the State Conservationist to warrant Category 1 application (e.g., old-growth cypress stands or unusually severe erosion problem areas)

The easement area in this category is restored and enhanced to the extent practicable to optimize floodplain functions and fish and wildlife habitat values. This easement prohibits uses such as cropping, grazing, or timber harvest.

For the easement land payment, landowners are compensated the least of the following three values: 100 percent of the agricultural or other undeveloped or raw land value of the land (assuming a post-disaster restored condition); the geographic rate cap where one is established; or the landowner offer. EWP Program funds may cover up to 100 percent of the cost of land treatment practices and all administrative, survey, appraisal, title insurance, and other costs associated with establishing the easement.

Category 2 Criteria include:

- Eligible floodplain lands that are, or will in the future, be considered as high risk because they will be subject to frequent flooding

- Lands where the type and importance of the habitat, at present or in the restored or enhanced condition, has been determined or is projected to become important to fish and wildlife species of Federal importance (e.g., anadromous fish or migratory birds).

Landowners may request compatible uses including, but not limited to, managed timber harvest, periodic haying, or grazing. To be approved as a compatible use, the activity must be consistent with long-term protection and enhancement of the flood control, erosion control, and conservation purposes for which the easement was established. NRCS makes the final decision concerning the amount, method, timing, intensity, and duration of any compatible use that may be authorized. Cropping will not be authorized as a compatible use nor is haying or grazing on lands that are being returned to woody vegetation.

Landowners are compensated at a level corresponding to the lowest of 100 percent of: the agricultural or other undeveloped or raw value of the land (assuming a post-disaster restored state), the geographic rate cap where one is established, or the landowner's offer.

EWP Program funds may cover up to 100 percent of cost of land treatment practices and all of the administrative, survey, appraisal, title insurance, and other costs associated with establishing the easement.

Category 3 includes only quality farmland that is subject to periodic flooding. Under this category, the landowner retains the right to control cropping, haying, grazing, or timber harvest while the United States acquires all other rights included in the easement.

Landowners are compensated 50 percent of the easement land payment amount that would be paid for the easement acres if they were being placed under Category 2.

Determining Category Boundaries: The State Conservationist is required to develop an overall floodplain easement acquisition strategy for floodplain lands whose landowners voluntarily express an interest in the easement option. The two primary components of that strategy are to determine the type and extent of practices required to restore and enhance the floodplain hydrology of potential easement lands, and to locate the boundaries of the appropriate easement land categories that are necessary to address the multiple resources of each offered easement area.

The type and extent of hydrology restoration and enhancement (e.g., restoration or enhancement of the reach and flow of water in, over, on, or through the easement area) will need to be identified before the easement offer is made to the landowner. Enough detail must be included to enable NRCS to determine the potential benefits and general costs and to ensure that the landowner understands the scope of the hydrology change that NRCS would likely implement if the easement is established. At this stage of the easement planning process, there is no intent to develop detailed and specific hydrology restoration and enhancement plans.

The State Conservationist determines the spatial arrangement of the three categories of floodplain easement lands that will be offered to the landowner within each easement. One, two, or all three

categories may be applicable to a single floodplain easement. The boundaries are established as to provide the benefits for which the floodplain easement is being acquired and are consistent with site-specific land resource needs, including the need for manageable boundaries. Surveys generally are required to establish effective category boundaries. This determination becomes the NRCS easement offer for that particular tract.

Easement Terms and Conditions: A single floodplain warranty easement deed document applies to all floodplain easement situations. NRCS prepared this document in consultation with its Office of General Council and modification of the document is not authorized.

Application Process: The floodplain easement program follows the same general application, ranking, funding allocation request, easement development, restoration plan development, contract administration, and easement management process used by the Wetlands Reserve Program (WRP). They use forms similar to WRP forms with modifications to reflect accurately the funding source, program name, authority, and resource management goals for the EWP Program.

Easement Administration: EWP Program floodplain easements are administered by the NRCS. NRCS may enter into partnerships with eligible local sponsors or other partners to further the purposes of the program. Title to the easement is held by the United States through the Secretary of Agriculture. NRCS is the acquiring agency but has the flexibility to delegate management, maintenance, monitoring, and enforcement responsibilities to eligible partners. Eligible partners may include Federal and State agencies. In conjunction with the delegation of responsibility, provision is made for NRCS to ensure that the terms of the easement are upheld and in the event that NRCS determines it necessary, the NRCS can terminate the delegation and have all responsibility revert to the NRCS.

Easement Plans and Files: NRCS maintains an easement plan that reflects the current management, restoration, and delegation decisions for each particular easement. The official file is kept in the State office. It includes a copy of the filed easement, the easement plan, and copies of correspondence concerning compatible use requests and agency responses. This file material is in a secure location and serves as a backup if, during the course of easement management and monitoring, one has to refer to a complete record or has to replace materials that are lost or damaged during field work. In addition, the responsible field office has a working file that can be used for reference when landowner or monitoring questions arise. The working file can be taken to the field for on-site reference.

All floodplain easements require a plan that outlines objectives, conservation treatment needs (e.g., removal of fences or buildings, establishing vegetation, realigning or removing levees, filling ditches, breaking tiles, and impounding surface water to restore or establish wetland or flood storage conditions), partnerships, long-term operation and management requirements, and status reports in response to annual monitoring efforts. If restoration, management, maintenance, monitoring, or enforcement responsibilities are delegated, they are noted in the plan and a procedure is established to ensure that the delegated activities are carried out in a manner consistent with agency responsibilities. While the intent is that all actions by NRCS following

purchase of an easement and under the terms of the plans are undertaken in cooperation with the landowner, the plans are living documents and NRCS may modify these documents within the authority provided in the easement.

Economic Justification: All conservation easements and practices must be economically, environmentally, socially, and technically defensible. The costs of restoring lands and structures, costs associated with the repeat of future disasters, and the costs of efforts that would be required to prevent a repeat of such events, are considered in the cost-efficiency analysis of the easement alternative. The easement alternative must be cost-effective in comparison with other traditional EWP practices.

Establishing Priorities: The program can be targeted to individual project sites where the benefits are associated with the individual site, or to clusters of projects in defined problem areas in general, where the combined benefits of the cluster form the basis for an eligibility determination that applies to the entire cluster. Priority consideration may be given to those sites where eligible sponsors and partners are willing to share the cost of acquisition, restoration, management, monitoring or enforcement. Special consideration is given to those situations that provide the greatest reduction in threat to life and property, cost effectiveness in achieving conservation objectives, and environmental benefits from the restoration, protection, and enhancement of conservation values. Efforts are made to extend outreach efforts to all potential participants including, but not limited to, communities with limited resources.

Disaster Assistance Payments: In no case is an owner eligible for future Federal disaster assistance on the easement land purchased with EWP Program funds. Where landowners purchased private insurance benefits under the Crop Insurance Act, they are treated as follows:

- Payment through the Non-Insured Crop Disaster Assistance program for damage to crops for which insurance is not available is disaster assistance, and is not available to owners for which the easement has been purchased under the EWP Program.
- Benefits obtained through crop insurance programs offered under the Federal Crop Insurance Act are not considered disaster assistance and are available to owners of Category 3 land for which the easement has been purchased under the EWP Program.

Easement Payment: NRCS generally appraises the land to determine its agricultural value. For incidental lands not in active agricultural use, the appraised value is the raw land value excluding speculative commercial, industrial, or residential values. The payment offer for the easement lands is based on the agricultural value or other undeveloped or raw land value, a geographic land payment cap, or landowner offer. The least of the three potential values forms the basis of the NRCS offer.

The easement land payment amount for Category 1 and Category 2 lands is the least of the following: (1) agricultural value of the land as if restored for agricultural production or the applicable undeveloped or raw land value; (2) the geographic cap established by the State Conservationist; or (3) the landowner offer. For lands that are not used directly for cropping or other relative intense agricultural activity (e.g., woodlot, riparian stream border, or permanent

pothole wetland), the easement payment is the undeveloped or raw land value excluding any value that might be assigned for speculative residential, commercial, or industrial development. With Category 3 lands, the payment will be not more than 50 percent of the amount that would have been paid for the same area had it been under a Category 1 or Category 2 classification.

The acquisition of buildings or other surface improvements and facilities is not an integral part of the floodplain easement program. If the State Conservationist determines that the presence of such isolated farm buildings, improvements, or facilities may warrant special consideration, the Director, Easement Programs Division may consider the case.

If the State Conservationist, in consultation with Federal, State, or local officials familiar with agricultural land values in the area, determines that the landowner has made an offer clearly below even the most conservative estimate of the value of the potential easement area and cap, or the cap is clearly below the most conservative estimate of such value, no detailed evaluation to determine value is required. The basis for the determination by the State Conservationist that such a situation exists is documented and placed in the project file and the landowner offer or cap value may be considered potentially acceptable.

EWP Program funds may be used to pay up to 100 percent of the cost of installing land treatment practices deemed necessary and desirable to achieve the purposes of the easement. Such practices as fencing to exclude livestock or restoring surface hydrology, removing levees, filling ditches, and restoring natural vegetation are the type expected to be most common. The use of EWP Program funds for installing land treatment practices will be commonplace with Category 1 and Category 2 lands. In the case of Category 3 lands, such funding is largely limited to hydrology restoration and enhancement actions (e.g., removing levees, filling ditches or impounding water for flood storage or restoring or establishing wetland conditions).

There is no authority to provide EWP Program funding for implementation of land treatment practices that are associated with the landowner's agricultural use of the easement area of Category 3 lands.

2.5 RECENT PROGRAM HISTORY

As part of the impacts evaluation, the PEIS uses example restoration and floodplain easement sites in nine states: Arkansas, California, Georgia, Idaho, Iowa, Missouri, North Carolina, Texas, and Virginia. The states were chosen because they provide a range of disaster types and of terrain and climatic conditions that are representative of the range of impairment types and watershed environments the EWP Program typically addresses. Tables 2.5-1 through 2.5-9 list recent EWP Program activities in the nine states. Listed are the natural disasters and resulting watershed impairments, total EWP Program funds expended for repairs and technical assistance, and the practices installed.

Table 2.5-1 Recent EWP Program Activities in Arkansas

Location	Disaster Date	Total Federal \$	Disaster Type	Watershed Impairments	EWP Program Practices
1998 Arkansas EWP Work					
Miller County	5/28/98	52,345	Flood	Abutments De-stabilized	Bank Stabilization
				Erosion Near Abutments	Debris Removal
				Endangered Structures & Roads	
Miller County	5/28/98	82,244	Flood	Abutments Destabilized	Bank Stabilization
				Silt Bars Blocking Channels	Debris Removal
				Roads Threatened	
Mississippi County	4/16/98	3,500	Tornado	Debris Blockage of Major Drain System	Debris Removal
				222 Residences	
				22 Businesses	
				Loss of Utilities	
				Increased Threat of Flooding	
				Emergency Access Blocked by Debris	
Clay County	Not Stated	163,298	Not Stated	Not Stated	Bank Stabilization
Columbia County	Not Stated	56,413	Flood	Abutments De-stabilized	Bank Stabilization
				Scour Near Abutments	
1997 Arkansas EWP Work					
Clark County	3/1/97	79,411	Tornado	Debris Blockages in Streams	Debris Removal
				Storm Water Drains Clogged	
				Day Care Center Endangered on Slope	Bank Stabilization
				Flooding Potential Increased	
Clark County	3/1/97	70,480	Tornado	Trees and Debris Blocking Channels	Debris Removal
				Roads/Bridges/Culverts Endangered	Bank Stabilization
				Drainage Outlet Clogged With Debris	
Cross County	3/1/97	737.50	Tornado/Heavy Rains	Drainage Channels Clogged With Debris	Debris Removal
				Increased Risk of Flood to City	
Jackson County	3/1/97	9,000	Tornado/Rainfall	Drainage Channels Blocked with Debris	Debris Removal
				Destroyed 40 Homes	
				Utilities Disrupted	
Clay County	3/1/97	51,873	Heavy Rains/Flooding	Erosion	Bank Stabilization
				Sloughing	Debris Removal
				3 Homes Threatened	
				Bridge Threatened	

Table 2.5-2 Recent EWP Program Activities in California

Location	Disaster Date	Total Federal \$	Disaster Type	Watershed Impairments	EWP Program Practices
1997 California EWP Work					
Placer County	1/1/97	291,890	Flood	Failing Streambanks	Streambank Stabilization
				Debris Jams Threatened Bridges/Homes	Debris Removal
				Channels Clogged	Rechannelization
				Access Routes Threatened	Diversions
				Sediment Accumulation	
Tehama County	1/1/97	752,682	Flood	Increased Threat to life and Property	Repair/Restoration of Levees
				Bridges/Utilities De-stabilized	Streambank Stabilization
					Debris Removal
Plumas	1/1/97	406,728	Flood	Increased Threat to Life and Property	Repair/Restoration of Levees
				Bridges/Utilities De-stabilized	Streambank Stabilization
					Debris Removal
Butte	1/1/97	2,376,707	Flood	Increased Threat to Life and Property	Repair/Restoration of Levees
				Bridges/Utilities De-stabilized	Streambank Stabilization
					Debris Removal
Trinity	1/1/97	39,238	Flood	Increased Threat to Life and Property	Repair/Restoration of Levees
				Bridges/Utilities De-stabilized	Streambank Stabilization
					Debris Removal
Humboldt	1/1/97	174,000	Flood	Increased Threat to Life and Property	Repair/Restoration of Levees
				Bridges/Utilities De-stabilized	Streambank Stabilization
					Debris Removal
S Luis Obis	1/1/97	31,500	Flood	Increased Threat to Life and Property	Repair/Restoration of Levees
				Bridges/Utilities De-stabilized	Streambank Stabilization
					Debris Removal
Shasta	1/1/97	16,390	Flood	Increased Threat to Life and Property	Repair/Restoration of Levees
				Bridges/Utilities De-stabilized	Streambank Stabilization
					Debris Removal
Napa	1/1/97	485,461	Flood	Increased Threat to Life and Property	Repair/Restoration of Levees
				Bridges/Utilities De-stabilized	Streambank Stabilization
					Debris Removal

Table 2.5-2 (Continued) Recent EWP Program Activities in California

Location	Disaster Date	Total Federal \$	Disaster Type	Watershed Impairments	EWP Program Practices
3 National Forests	1/1/97	195,000	Flood	Sedimentation	Revegetation
				Clogged Channels	Debris Removal
				Eroded Banks	Grade Stabilization
				De-stabilized Banks	Stabilize Banks
Sacramento	1/1/97	3,491,778	Flood	Clogged Waterways	Debris Removal
				Levee Destabilization	Repair/Restoration of Levees
				Streambank De-stabilization	Streambank Stabilization
Sutter	1/1/97	31,935	Flood	Clogged Waterways	Debris Removal
				Levee De-stabilization	Repair/Restoration of Levees
				Streambank Destabilization	Streambank Stabilization
Colusa	1/1/97	187,500	Flood	Clogged Waterways	Debris Removal
				Levee Destabilization	Repair/Restoration of Levees
				Streambank Destabilization	Streambank Stabilization
Santa Cruz	1/1/97	402,655	Flood	Clogged Waterways	Debris Removal
				Levee Destabilization	Repair/Restoration of Levees
				Streambank De-stabilization	Streambank Stabilization
Yuba	1/1/97	13,500	Flood	Clogged Waterways	Debris Removal
				Levee Destabilization	Repair/Restoration of Levees
				Streambank Destabilization	Streambank Stabilization
Kern	1/1/97	64,510	Flood	Clogged Waterways	Debris Removal
				Levee Destabilization	Repair/Restoration of Levees
				Streambank Destabilization	Streambank Stabilization
El Dorado	1/1/97	45,798	Flood	Clogged Waterways	Debris Removal
				Levee Destabilization	Repair/Restoration of Levees
				Streambank Destabilization	Streambank Stabilization
Siskiyou	1/1/97	122,507	Flood	Clogged Waterways	Debris Removal
				Levee Destabilization	Repair/Restoration of Levees
				Streambank Destabilization	Streambank Stabilization

Table 2.5-2 (Continued) Recent EWP Program Activities in California

Location	Disaster Date	Total Federal \$	Disaster Type	Watershed Impairments	EWP Program Practices
1996 California EWP Work					
Lassen	08/96	241,558	Flood	Not Stated	Reservoir Construction
City of Malibu (LA County)	10/96	18,761	Fire	Threats of Mudslides	Clearing
				Threats of Debris Flows	Diversions
				Threats of Drainage Clogging	
				Threats of Channel Clogging	
				Loss of Vegetation	
Baldwin WS (LA County)	10/96	6,706	Fire	Threats of Mudslides	Clearing
				Threats of Debris Flows	Diversions
				Threats of Drainage Clogging	
				Threats of Channel Clogging	
				Loss of Vegetation	
Kalarama St/Aliso (Ventura County)	10/96	19,450	Fire	Threats of Mudslides	Clearing
				Threats of Debris Flows	Diversions
				Threats of Drainage Clogging	
				Threats of Channel Clogging	
				Loss of Vegetation	
1994 EWP California EWP Work					
Sierra County	08/94	241,932	Fire	Flood Threat Increased	Spillway Repair/Installation
				Sediment Damage Increased	Clearing
				Increases in Runoff and Debris	
Ventura, San Bernardino,	01/94	2,486,254	Earthquake	Sediment and Debris Flows	Debris Basin Construction
Santa Barbara			Fires	Threat to Life and Property	Streambank Stabilization
Northridge	01/94				
1993 California EWP Work					
Topanga/Malibu Fires	11/93	7,843,459	Fire	Vegetative Reduction	Revegetation
LA, Ventura, Orange, San Bernardino,				Restoration	
Riverside and San Diego Counties					
1992 California EWP Work					
Arroyo Simi, Ventura County	10/92	173,655	Flood	Streambank Erosion	Streambank Protection
				Buildings/Homes Threatened	

Table 2.5-3 Recent EWP Program Activities in Georgia

Location	Disaster Date	Total Federal \$	Disaster Type	Watershed Impairments	EWP Program Practices
1996 Georgia EWP Work					
Douglas County	08/96	234,000	Flooding	30 Roads Damaged	Bank Stabilization
				3 Miles of Stream Destabilized	Debris Removal
				Debris Jams	
				Sediment Deposition	
				Flooding	
				Damage to Property	
				Damage to Utilities	
				Flows Redirected Out of Banks	
1995 Georgia EWP Work					
Effingham, Long Counties	08/95	1,026,455	Flooding Tropical	Debris/Sediment Accumulation	Bank Stabilization
			Depression Jerry	Roads Washed Out	Debris Removal
			Hurricane Opal	Culverts/Roads Unsafe	
				Hazardous Driving Conditions	
				Threat of Flooding to Life and Property	
1994 Georgia EWP Work					
Thomas, Grady, Dector, Mitchell, Brooks, Colquitt Counties	11/94	1,100,000	Flooding	Debris Accumulation	Debris Removal
				Bridges, Culverts, and Abutments Damaged	Bank Stabilization
				Increased Threat of Flooding	
				Hazardous Driving Conditions	
				Newly Cut Channels	
				Increased Bank Erosion	
				Damaged Properties	
56 Counties Throughout State	07/94	19,800,000	Tropical Storm Alberto	Dams Failed	Not Stated
				Rivers Rose	
				Floods Occurred	
				Roads/Culverts Washed Out	
				Railroad Trestles/Bridges/Utilities Undermined	
				Water Covered 10,000 Square Miles	
				50,000 People Driven From Homes	
				Damage to Infrastructure and Agriculture	
Tobesofkee Creek Watershed	07/94	30,554	Flooding	Earthen Dams and Spillways Scoured	Debris Removal
				Erosion	Bank Stabilization
				Threat to Life and Property Increased	
				Debris Accumulation	

Table 2.5-4 Recent EWP Program Activities in Idaho

Location	Disaster Date	Total Federal \$	Disaster Type	Watershed Impairments	EWP Program Practices
1997 Idaho EWP Work					
Bingham, Bonneville, and Madison Counties	06/97	607,232	Flood	Erosion/Sediment	Streambank Stabilization
				Streams Clogged	Debris Removal
				Increased Flood Threat	Revegetation
				Threat to Life and Property	
Boise National Forest - Valley, Idaho, Washington, and Adams Counties	01/97	359,181	Flood	Access Roads Damaged	Drainage Projects
				Utility Service to District Forest Offices Cut off	Bank Stabilization
				Mass Movement of Uprooted Trees Filled Channels	Debris Removal
				New Channels Formed	
Adams, Boise, Gem, Idaho, Latah, Nez Perce, Payette, Washington and Valley Counties	01/97	564,000	Flood	Recreation Facilities Swept Downstream	
				Culverts/Ditches Plugged	
				Roads/Infrastructure Destabilized	Streambank Stabilization
				Channel Capacity Limited by Debris and Sediment	Debris Removal
				Potential Threats to Life and Property	Dike Repair
				Homes/Businesses Destroyed	Revegetation
				1996 Idaho EWP Work	
Boise 8th Street Burn	8/96	5,662,254	Fire	Loss of Vegetative Cover	Revegetation
				Erosion Potential Increased	Streambank Protection
				Sediment-Laden Waters May Increase	Channel Flow Alteration
				Debris Accumulation Potential	Debris Removal
Nez Perce County	02/96	765,937	Flood	Increased Threat to Life and Property	Grade Stabilization Structures
				Erosion/Sedimentation	Streambank Stabilization
				Streams Clogged	Debris Removal
				Increased Flood Threat	Dike Repair
Clearwater County	02/96	380,340	Flood		Revegetation
				Erosion and Sedimentation Increases	Revegetation
				Streambank Degradation	Streambank Stabilization
				Debris Accumulation	Debris Removal
Latah County	02/96	402,577	Flood	Dike and Levee Degradation	
				Out-of-Bank Damage Downstream	
				Erosion/Sediment	Streambank Stabilization
				Streams Clogged	Debris Removal
				Increased Flood Threat	Dike Repair
				Threat to Life and Property	
					Revegetation

Table 2.5-4 (Continued) Recent EWP Program Activities in Idaho

Location	Disaster Date	Total Federal \$	Disaster Type	Watershed Impairments	EWP Program Practices
1996 Idaho EWP Work					
Lewis County	02/96	96,720	Flood	Streambank Degradation	Bank Stabilization
				Debris Accumulation in Channels	Debris Removal
				Increased Flood Threat	
				Increased Threat to Life and Property	
Benewah County	02/96	84,300	Flood	Channel Capacity/Stability	Channel Reconstruction
				Threat to Life and Property Streams	
Bonner and Boundary	02/96	32,769	Flood	Channel Capacity	Debris Removal
				Increased Flood Threat	Dike Repair
				Increased Erosion/Sedimentation	Streambank Stabilization
				Threat to Life and Property	
Kootenai County	02/96	97,390	Flood	Streambank Erosion	Streambank Stabilization
				Increased Flood Threat	Debris Removal
				Threat to Life and Property	Dike Construction
Shoeshone County	02/96	171,886	Flood	Channel Capacity	Debris Removal
				Increased Flood Threat	Streambank Stabilization
				Increased Erosion/Sedimentation	Dike Repair
				Threat to Life and Property	Revegetation
1995 Idaho EWP Work					
Boise National Forest	08/95	219,270	Flood	Road and Utility Damage	Debris Removal
Boise, Elmore Counties				Channel Capacity/Sediment Dams	Streambank Stabilization
North Fork Boise River				Culverts Plugged	Seeding
				Mass Movement	Riparian Planting
				Streambank Erosion	
1994 Idaho EWP Work					
Boise County	08/94	105,817	Flood	Erosion/Sedimentation	Erosion Control Structures
Star Gulch Fire				Streams Clogged	Grade Stabilization
				Increased Flood Threat	Seeding
					Riparian Planting
1993 Idaho EWP Work					
Elmore County	08/93	830,670	Flood	Increased Erosion/Sedimentation	Seeding
Foothills Fire				Increased Flood Threat	
				Threat to Life and Property	
1992 Idaho EWP Work					
Boise County	09/92	46,4318	Flood	Increased Erosion/Sedimentation	Seeding/Revegation
Dunnigan Creek Fire				Increased Flood Threat	Sediment Retention Structures
				Threat to Life and Property	
Blaine County	08/92	89,898	Fire	Increased Erosion/Sedimentation	Seeding/Revegation
Ro Fire				Increased Flood Threat	Sediment Retention Structures
				Threat to Life and Property	

Table 2.5-5 Recent EWP Program Activities in Iowa

Location	Disaster Date	Total Federal \$	Disaster Type	Watershed Impairments	EWP Program Practices
1993 Iowa EWP Work					
84 Counties	1993	31,900,000	Flood	Sedimentation	Debris Removal (136 Sites)
(Great Flood of 1993)				Erosion	Bank Stabilization (455 Sites)
				Damage to Levees	Levee Repair (54 Sites)
				Damage from Flooding	Other Erosion and Sedimentation Repair (57 Sites)
				Bridges/Culverts Destabilized	
				Roads/Properties/Drainage Ditches Damaged	
				Debris Accumulation	

Table 2.5-6 Recent EWP Program Activities in Missouri

Location	Disaster Date	Total Federal \$	Disaster Type	Watershed Impairments	EWP Practices
1996 Missouri EWP Work					
statewide	1996	295,290	Flood	Infrastructure Threatened	Not stated
				Levees Damaged	
				Ditches Damaged	
				Streams Blocked	
				Streambank Erosion	
1995 Missouri EWP Work					
statewide	1995	18,294,154	Flood	Infrastructure Threatened	Easements
				Levees Damaged	
				Ditches Damaged	
				Streams Blocked	
				Streambank Erosion	
1993 Missouri EWP Work					
statewide	1993	19,000,000	Flood	Streambank erosion	Bank stabilization
				Threats to bridges, culverts	Obstruction removal
				Threats to water and sewer lines	Dams and dikes
				Damage to levees and dams	
				Threat of property damage	
				Threat to public health	
				Debris in channels, culverts	
				Sedimentation	
				Threats to public lands	
statewide	1993	30,240,917	Flood	Infrastructure Threatened	Easements
				Levees Damaged	
				Ditches Damaged	
				Streams Blocked	
				Streambank Erosion	

Table 2.5-7 Recent EWP Program Activities in North Carolina

Location	Disaster Date	Total Federal\$	Disaster Type	Watershed Impairments	EWP Practices
1996 North Carolina EWP Work					
Polk, Yancey, Mitchell	1/13/96	1,176,778	Heavy Rains	Stream Blockage	Bank Stabilization
Avery, Watauga, and Caldwell County				Threat of Property Damage	Obstruction Removal
				Flooded Cropland	Revegetation
				Stream Bank Erosion	
1995 North Carolina EWP Work					
Nantahala NF	10/5/95	11,253	Landslide	Sediment Deposition	Revegetation
				Threat of property damage	Obstruction removal
				Threat of road damage	
				Threat of bridge damage	
				Stream Blockage and bank erosion	
Nantahala NF	4/1/95	13,876	Flood	Threat of road damage	Bank Stabilization
				Stream bank erosion	Obstruction Removal
				Threat of fisheries damage	
Clay County	2/15/95	356,941	Heavy Rains	Stream Blockage	Bank Stabilization
Cherokee County				Threat of property damage	Revegetation
Graham County				Threat of utility damage	Obstruction removal
				Threat of road damage	
				Stream bank erosion	
1990 North Carolina EWP Work					
Graham County	3/15/90	39,104	Flood	Bank Erosion	Bank stabilization
Jackson County				Property Loss	Revegetation
				Sedimentation	
Swain Conty	2/9/90	48,400	Heavy Rains	Bank Erosion	Bank Stabilization
				Property Loss	Obstruction Removal
				Health and Safetey Threat	Revegetation
				Debris in River Channel	
1989 North Carolina EWP Work					
Watauga County	9/22/89	210,000	Hurricane	Stream Blockage	Bank stabilization
Ashe County				Threatened Bridges	Obstruction removal
				Flooded Cropland	
				Threat of property damage	
				Debris in channels, culverts	
				Streambank erosion	
Union County	9/22/89	387,500	Hurricane	Stream Blockage Clearing	Bank stabilization
				Threatened Bridges	Obstruction removal
				Threat of property damage	
				Debris in channels, culverts	
				Streambank erosion	

Table 2.5-8 Recent EWP Program Activities in Texas

Location	Disaster Date	Total Federal \$	Disaster Type	Watershed Impairments	EWP Program practices
1997 Texas EWP Program work					
Bandera County	6/23/97	55,800	Floods	Stream Crossings Endangered	Not Stated
				Access To Subdivision Threatened	
Donley County	4/24/97	58,000	Floods	Sewer Treatment Plant Endangered	Levee Installed at Treatment Plant
				Sewer Water Backing Up into Homes	
1996 Texas EWP Program work					
Red River County	7/29/96	26,700	Floods/Heavy Rains	Debris/Sediment Accumulation in Channel	Debris Removal
				Flooding of Homes in Minority Neighborhood	
1995 Texas EWP Program work					
Collingsworth, Childress, Hall, Wheller, Foard, and Willbauger Counties	6/95	1,306,100	Floods	Sewage Treatment Plant Flooded	Diversion Use
				Water Quality Degraded	
				Roads/Bridges Endangered	Bank Stabilization
Collingsworth, Childress, Hall, Wheller, Foard, and Willbauger Counties	6/95	204,000	Floods	County Roads and Bridges Endangered	Bank Stabilization
				Sewage Treatment Plant Threatened	
1994 Texas EWP Program work					
Polk County	10/94	9,484	Floods	Head Cut	
				Utilities Exposed	Bank Stabilization
				Road Crossings Threatened	Debris Removal
Polk County	10/94	22,722	Floods	Head Cut	
				Utilities Exposed	Bank Stabilization
				Road Crossings Threatened	Debris Removal
Trinity County	10/94	9,065	Floods	Debris Jams	Debris Removal
				Bridges Endangered	
				Roads Endangered	
				Access for 100 Landowners Threatened	
Nacogdoches County	10/94	4,058	Floods	Head Cut	
				Utilities Exposed	Bank Stabilization
				Road Threatened	Debris Removal
				Rural Waterline Threatened	
Tyler County	10/94	124,292	Floods	Embankment Slope Failure	Bank Stabilization
				Outlet Channel Structures Eroded	Clearing
				Utilities Exposed	Debris Removal
				Access Road Threatened	
				Emergency Access Prohibited	

Table 2.5-8 (Continued) Recent EWP Program Activities in Texas

Location	Disaster Date	Total Federal \$	Disaster Type	Watershed Impairments	EWP Program practices
1994 Texas EWP Program work					
San Jacinto	10/94	9,705	Floods	Head Cut	Bank Stabilization
				Utilities Exposed	
				Outlet Structures Destabilized	
				Access Road Threatened	
1991 Texas EWP Program work					
Milam and Williamson Counties	1/20/91	140,000	Floods	Roads Endangered	Bank Stabilization
				Debris and Sediment Accumulation	Debris Removal
1990 Texas EWP Program work					
Comanche County	4/12/90	50,000	Floods	County Roads and Bridges Damaged	Streambank Stabilization
					Bank Stabilization
Austin, San Jacinto, Newton, Navasota, and Montgomery Counties	6/5/90	376,150	Floods	Roads Threatened	Streambank Stabilization
				Bridges Threatened	Bank Stabilization
				Homes/Churches/Cemeteries Threatened	

Table 2.5-9 Recent EWP Program Activities in Virginia

Location	Disaster Date	Total Federal \$	Disaster Type	Watershed Impairments	EWP Program practices
1998 Virginia EWP Work					
Allegheny, Bath, and Rockbridge Counties	01/98	71,968.4	Flood	Stream Blockages	Obstruction Removal
					Streambank Stabilization
					Revegetation
1996 Virginia EWP Work					
Augusta County (George Washington and Jefferson National Forests)	09/96	32,000	Hurricane Fran	Log Debris/River Cobble in Channel	Obstruction Removal
				Forest Development Road threatened	Channel Alteration
15 Counties/ 2 Cities	09/96	7,214,300.1	Hurricane Fran	Threat to Life (1,019 People)	Streambank Stabilization
				Houses, Bridges, Business, Public and Private	Slope Stabilization
				Roads, Utilities, Agricultural Land Threatened	
				Debris in Streams	Obstruction Removal
				Streambanks Destabilized	
				Sediment Accumulation	
				Eroded Slopes/Land	Revegetation
				Flood Control Dams Damaged (13)	Dams/Dikes Repaired
				Stream Restoration Sites Damaged	
Augusta, Grayson Counties	01/96	17,000	Flood	Debris in Channel	Obstruction Removal
(George Washington and Jefferson National Forests)				Roads Threatened	Streambank Stabilization
				Campground Endangered	

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