SUMMARY OF PROPOSED ACTIONS WITHIN THE PROGRAMMATIC ENVIRONMENTAL ASSESSMENT (PEA) FOR WATERSHED RESILIENCY PROJECTS WITHIN THE STATE OF NORTH CAROLINA

This Programmatic Environmental Assessment (PEA) addresses watershed resiliency projects funded by the following FEMA Grant Programs: Building Resilient Infrastructure and Communities (BRIC); Flood Mitigation Assistance (FMA); High Hazard Potential Dam (HHPD) Grant; Hazard Mitigation Grant Program (HMGP); and Public Assistance Grant Program (PA). This PEA does not exempt any covered action from additional review or consultation that may be required under Federal environmental planning and historic preservation (EHP) laws and executive orders (EOs) including the Endangered Species Act (ESA), National Historic Preservation Act (NHPA), EO 11988, and EO 11990.

In accordance with 40 CFR § 1506.3, *Adoption*, other federal agencies, or agencies assuming federal NEPA authority may adopt this PEA, in whole or in part, according to their respective regulations. Such agencies include, but are not limited to, the U.S Army Corp of Engineers (USACE), the Federal Energy Regulatory Commission (FERC), and the Department of Housing and Urban Development (HUD).

A. COMMON SCOPES OF WORK

I. Work may take place where erosion has occurred, where damage caused by storm events has occurred, or in areas where no damage has occurred, but improvements would mitigate future flood damage.
    a. Scale Limits – no more than 5 linear miles of combined bioengineering and armoring per waterbody site; no more than 5 linear miles of bioengineering per waterbody site (without armoring); and no more than 10 acres of ground disturbance. No more than 1,000 linear feet of new timber or vinyl bulkheads per waterbody site.

II. Typical construction activities for stream modification, re-channelization, and erosion control hazard mitigation projects include:
    a. Demolition or modification of an existing facility or structure,
    b. Tree and vegetation cutting, clearing, removal, and restoration/planting,
    c. Excavation and grading in upland, embankment, and substrate areas,
    d. Staging areas and site access routes,
    e. Erosion and sediment control measures,
    f. Dewatering and temporary stream diversion,
    g. Traffic disruptions, lane closures, and possible detours for projects in sites adjacent to roadways, and/or site closure and stabilization.

B. This PEA <u>does not</u> address the following:

I. Work along designated reaches of federal Wild and Scenic Rivers. Designated reaches in North Carolina include:
    a. Chattooga River - From 0.8 miles below Cashiers Lake in North Carolina to the Tugaloo Reservoir. The West Fork from its confluence with the main stem upstream 7.3 miles.

b. Horsepasture River - From Bohaynee Road (N.C. 281) downstream to Lake Jocassee.
c. Lumber River - From State Route 1412/1203 (river mile 0) to the Scotland/Robeson County lines at the end of the Maxton Airport Swamp (river mile 22) and from Back Swamp (river mile 56) to the North/South Carolina border (river mile 115).
d. New River - The South Fork from its confluence with Dog Creek downstream 22 miles to the confluence with the North Fork. The main stem from the confluence of the North and South Forks with Dog Creek downstream approximately 4.5 miles to the Virginia state line.
e. Wilson Creek - From the headwaters below Calloway Peak to the confluence with the Johns River.

II. Actions in coastal areas subject to moderate wave action or coastal high hazard areas (identified as V Zones on Flood Insurance Rate Maps (FIRMs)).
III. Jetties and groins.
IV. Ocean and estuary dredging.
V. New construction of floodwalls, seawalls, and impoundments such as dikes and dams.

C. PROPOSED ACTIONS

I. Repair or Reconstruction of Waterbody Embankments

a. Modifications to restore and mitigate erosion and/or stabilize lotic and lentic waterbody embankments typically include:
    i. Installing sheet pile to replace damaged concrete bulkhead, maintaining pre-disaster geometry and dimensions.
    ii. Installation of stone toe protection to replace washed out riprap or native stone.
    iii. Minor extension of embankment structures to tie into stable ground.
    iv. Installation of drainage systems behind existing or restored retaining walls or revetments.

b. Modifications required to bring a previously permitted facility into compliance with new state or federal permit conditions or accepted codes/standards.

c. Specialized construction activities related to the above listed modifications, including pile driving and cast-in place concrete in water.

The above listed modifications are typically performed in previously disturbed ground, generally in the same footprint as the damaged facility. However, best engineering practices may require increases in the length or depth of excavation for footings. Modification of pre-existing embankments may include expansion of footprints without changing its intended function. Note that embankments could be newly formed or changed due to a storm event.

II. Bioengineering (also known as Nature Based Solutions or Green Infrastructure)

a. Bioengineering involves reliance on a combination of biological, mechanical, and ecological concepts to control erosion and stabilize soil along embankments through use of vegetation alone or a combination of vegetation and construction materials. Bioengineering projects may involve:
    i. Installing fascines, coil logs and mats, root wads, tree revetments, vegetated banks, live stakes, spiling, wattles, live brush mattresses, large woody debris structures (engineered log jams), and similar methods.
    ii. Vegetating upland areas adjacent to bodies of water to minimize stormwater runoff impacts.
    iii. Living shorelines.
    iv. Specialized construction activities for bioengineering projects include:
    v. Excavation landward of embankment.
    vi. Bare root planting, tree planting, hydroseeding.
    vii. Post-construction monitoring and maintenance.

III. In-Stream Structures

a. In-stream structures are an indirect method of erosion control that involve installing structures into a waterbody that deflect channel flows away from banks or reduce flows to non-erosive velocity. These structures are designed to be dynamic, allowing stream beds and banks to continue to change within a contained, established corridor. In-stream structures may be:
    i. Constructed of rock or woody plant material that extend into or fully cross a stream, river, or lake.
    ii. Used alone or in conjunction with other bank stabilization methods.
    iii. May be permanent or temporary.
b. Examples of in-stream structures include:
    i. Stone structures such as rock sills, cross vanes, J-hooks, rock vanes, bendway weirs, stream barbs, and W-weirs.
    ii. Cross vanes and W-weirs span an entire channel and are keyed into both stream banks.
    iii. Rock vanes, J-hooks, and bendway weirs are single-arm structures that extend into channel flow and are keyed into one side of the stream bank.
    iv. Woody structures such log weirs, or combinations of rock and woody structures including root wads, engineered log jams, and other vegetative bioengineering methods.
c. Specialized construction activities associated with this type of work include but are not limited to:
    i. Placement of large rock, woody materials, and similar natural material in stream channels.
    ii. Use of geotextile or anchoring, such as pinning or grouting, in high-velocity conditions.

iii. Excavation and placement of fill below the grade of existing streambed and banks as needed to place footers. Footers may be several feet deeper than what is typically encountered for embankment-only applications in similar conditions.
iv. Post-construction monitoring to ensure structures are performing as planned.

IV. Loose Stone/Riprap

a. Loose stone and riprap projects repair or replace damaged facilities using riprap or stone for toe protection and embankment stabilization without anchoring, grouting, interlocking, or other method of joining units together or to a substrate.
    i. Includes a variety of stone-based practices including longitudinal toe slope, riprap armoring, stone fill trenching, and riprap blankets.
    ii. Native stone, broken concrete, bricks, other masonry rubble or precast units may be used in lieu of processed stone, depending on design considerations, permit conditions, and availability of materials.
b. Specialized construction activities include but are not limited to:
    i. Machine placing riprap.
    ii. Keyed in toe stone.

V. Rigid and Semi-Rigid Armoring

a. Rigid and semi-rigid armoring projects repair, replace, or install embankment armoring using structural methods like stone, concrete, or metal that is stacked, anchored, pinned, fastened, placed, or driven to form a semi-rigid to rigid structure.
b. Includes methods such as articulated concrete blocks, gabions, and gabion mattresses, geocellular confinement systems, pinned or grouted riprap, stacked stone, revetment mats, sheet pile, retaining walls, and bulkheads.
c. Specialized construction activities include but are not limited to:
    i. Installation of drainage systems behind revetments and bulkheads.
    ii. Soil nails.
    iii. Flowable or sprayed concrete.
    iv. Stacked rock masonry.
    v. Sheet pile and micropile installation.
    vi. Installation of concrete forms in and near water.
    vii. Installation of cast-in-place concrete in and near water.

VI. Stream Channel Naturalization

a. Stream channel naturalization projects restore streams and drainage channels into a more naturalized state. Naturalized streams mimic, to the extent possible, the former historical layout of the waterway. May involve daylighting a stream that is covered by a structure or building.

i. Naturalization may include rerouting of streams and would not exceed the historical footprint or move 100 feet beyond the current location of the bank.
ii. Naturalization may include dredging to restore the stream to its previous historical depth but would not exceed that depth.

b. Specialized construction activities would include elements described for loose stone and riprap and bioengineering projects and would include:
   i. Dredging.
   ii. Installation of vane structures.
   iii. Installation of constructed riffles.
   iv. Installation of steps pools.
   v. Erosion control matting.
   vi. Live staking.

PROPOSED STANDARD CONDITIONS:

The PEA will require conditions on each covered project and will include the following conditions, with additional conditions required based on project specifics:

General

1. The subrecipient or representing contractor is responsible for obtaining and complying with all required local, state, and federal permits and approvals.
2. The subrecipient must notify FEMA of any changes to previously provided and approved Scopes of Work (SOW) that result in substantial design changes, additional ground disturbance, additional removal of vegetation, or any other unanticipated changes to the physical environment so that the revised project scope can be evaluated for compliance with NEPA and other applicable environmental laws, including but not limited to, the Endangered Species Act (ESA), National Historic Preservation Act (NHPA), and Executive Orders 11988 and 11990.
3. Revegetation of disturbed green spaces shall use species native to the area.
4. Public engagement should be conducted as early as possible during the project development cycle in order to receive comments and allow opportunity to modify project scope in accordance with comments, if appropriate.
5. Alternative routes, including but not limited to, public transportation should be considered to minimize short-term, construction impacts.

Threatened and Endangered Species (ESA)

6. As needed, develop avoidance and minimization measures in consultation with the Services in accordance with Section 7 of the ESA (50 CFR Part 402).
7. Implement seasonal work restrictions, as necessary.
8. Implement no-work buffers around nests and other sensitive habitat areas as necessary.
9. Conduct pre-construction surveys, as necessary.
10. All practicable measures must be taken to avoid adverse impacts to aquatic species, including, but not limited to, implementing directional boring methods and stringent sedimentation and erosion control measures.

11. All practicable measures must be taken to avoid adverse impacts to threatened and endangered species and designated critical habitats, including conditions identified in FEMA's ESA compliance review.

Migratory Birds

11. Tree and vegetation removal will be avoided during the migratory bird nesting season to the extent practicable. By observing the US Fish and Wildlife Service (USFWS) tree clearing window for endangered bat species, impacts will be minimized to the greatest extent feasible.
12. Adhere to project specific avoidance and minimization measures and USFWS point of contact information will be provided to Subrecipients.

National Historic Preservation Act (NHPA)

13. If human remains or intact archaeological features or deposits (e.g. arrowheads, pottery, glass, metal, etc.) are uncovered, work in the vicinity of the discovery will stop immediately and all reasonable measures to avoid or minimize harm to the finds will be taken. The USACE or contractor will ensure that archaeological discoveries are secured in place, that access to the sensitive area is restricted, and that all reasonable measures are taken to avoid further disturbance of the discoveries. The USACE or contractor will provide immediate notice of such discoveries to the applicant. The USACE or contractor shall contact the North Carolina Office of State Archaeology and FEMA within 24 hours of the discovery. Work in the vicinity of the discovery may not resume until FEMA has completed consultation with SHPO, Tribes, and other consulting parties as necessary. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately, and the proper authorities notified in accordance with North Carolina Statutes, Section 70-29.
14. Prior to conducting repairs, the subrecipient must identify the source and location of fill material and provide this information to FEMA. If the borrow pit is privately owned, or is located on previously undisturbed land, or if the fill is obtained by the horizontal expansion of a pre-existing borrow pit, FEMA consultation with the SHPO and Tribes will be required.
15. Project designs should minimize deep cuts into natural cultural resource-bearing strata during grading and excavation to the maximum extent possible.
16. Existing roads and access points should be used to the maximum extent possible, and the creation of new access roads minimized. If new access roads or staging areas are required, those areas would be surveyed for the presence of cultural resources before construction begins.
17. Low-impact equipment should be used to cross intact landscapes to access shoreline stabilization projects to the extent practicable (e.g., rubber-tiered vehicles and equipment).
18. If appropriate, planting plans should be designed in keeping with the historic context.
19. If appropriate, shoreline stabilization structures would be constructed with materials that are context sensitive.

Water Resources and Water Quality, Wetlands, and Soils:

20. Stockpiles must be protected with silt fencing installed along toe of slope with a minimum offset of five (5) feet from the toe of stockpile.
21. Maintain natural buffers on all streams and creeks adjacent to the project site.
22. Dewatering Permits are required prior to dewatering activities and the subrecipient must comply with all the conditions prescribed by the permit.
23. Project may require Section 401/404 Clean Water Act permit(s) or approval. The subrecipient responsible for coordinating with and obtaining any required Section 404 permits from the United States Army Corps of Engineers, Section 401 permits/approval from the North Carolina Department of Environmental Quality (NCDEQ) or delegated entity, and a National Pollution Discharge Elimination System permit/approval from the Environmental Protection Agency, North Carolina Department of Environmental Quality, or other delegated entity prior to initiating work. The subrecipient is responsible for verifying and adhering to all permit/approval requirements including the implementation, monitoring, and maintenance of all applicable Best Management Practices. Copies of permitting or documentation from the permitting official(s) that a permit/approval is not required are to be forwarded to the state and FEMA for inclusion in the administrative record.
24. Project may require Section 9/10 permit(s) or approval under the Rivers and Harbors Act from the United States Army Corps of Engineers. The subrecipient is responsible for verifying and adhering to all permit/approval requirements including the implementation, monitoring, and maintenance of all applicable Best Management Practices. Copies of permitting or documentation from the permitting official(s) that a permit/approval is not required are to be forwarded to the state and FEMA for inclusion in the administrative record.
25. Local stream buffer programs may be established by cities, towns, counties, or other public entities and all work is to adhere to all requirements and conditions.
26. Subrecipient must obtain any required elevation certificates, floodplain development permits, and/or other required approvals from the local floodplain administrator before work begins.

Air Quality and Climate

27. The subrecipient's contractor shall monitor and take precautions to control dust and other air pollutants including but not limited to using water or chemicals, limiting vehicles allowed on-site, and minimizing the operation speed and running times of vehicles in accordance with the Stormwater Pollution Prevention Plans.
28. When applicable or cost effective, renewable energy resources should be used.

Noise

29. The subrecipient must comply with local and state Traffic Control Plans and Noise Ordinances. If required, permits must be obtained in accordance with applicable ordinances.
30. Construction activities must comply with allowable construction noise hours and be consistent with local noise ordinances.

Hazardous Materials

31. All solid or hazardous wastes generated during construction will be removed and disposed of at a North Carolina Department of Environmental Quality permitted facility or designated collection point.
32. Unusable equipment, debris, and material shall be disposed of in an approved manner and location. In the event significant items (or evidence thereof) are discovered during implementation of the project, the Subrecipient shall handle, manage, and dispose of petroleum products, hazardous materials, and toxic waste in accordance with the requirements and to the satisfaction of the governing Federal, state, and local Agencies.
33. Construction equipment must be managed to avoid oil, fuel, or lubricant leaks during equipment use, and will employ best manage practices as described in the Stormwater Pollution Prevention Plan (SWPPP) to mitigate potential impacts of hazardous materials.
34. If hazardous source materials are encountered during construction activities, the subrecipient's contractor will identify, manage, and dispose of hazardous materials, or other heavily contaminated materials, in accordance with all local, state, and federal regulations. The subrecipient must notify FEMA of the encounter and provide disposal details.
35. Procedures must be in place that address safety, health, and emergency response; environmental protection; contaminated soil excavation; transportation and disposal of hazardous or contaminated material; and contaminated dewatering and drainage.

Invasive Species

36. Graded areas should be revegetated with native grasses and forbs, or native seed mixes.
37. Avoid transporting any vegetative debris, soils, sediment, and other debris resulting from construction work to another county. Stay within the invasive species quarantine zones.

Safety and Security

38. The construction contractor shall be required to develop and implement a Health and Safety Plan to assure worker safety during construction activities.
39. Construction workers shall be required to comply with all applicable OSHA regulations, as well as other applicable regional regulations.
40. The construction site must be secured from public access.