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Subpart F –FLOODPLAIN MANAGEMENT

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Part 1970 – Environmental

Subpart F –FLOODPLAIN MANAGEMENT

§ 1970.251 Purpose

This Instruction provides guidance for all Agency personnel and encourages them to work closely with the State Environmental Coordinator (SEC) and the National Office Environmental Staff (NES), as appropriate, in implementing these procedures for those applicant activities and Agency programs and services that could adversely affect floodplains. The Agency recognizes that floodplains are essential to clean water, recharge of water supplies, reduction of flood risks, and protection of property, human safety, health and welfare, and fish and wildlife habitat.

- (a) The Agency has a separate regulation and Staff Instruction which outlines the Agency's policy on the requirements for obtaining flood insurance and complying with the National Flood Insurance Act of 1968 as amended by the Flood Disaster Protection Act of 1973 and can be found at [7 CFR 1806 Subpart B](#) and RD Instruction 1806 Subpart B.

§ 1970.252 Authority

The Agency will conduct floodplain management to implement the following:

- (a) [Executive Order 11988](#) (1977) – Floodplain Management

[Executive Order 11988](#) was issued in furtherance of the National Flood Insurance Act of 1968, as amended, the Flood Disaster Protection Act of 1973, and the National Environmental Policy Act of 1969 (NEPA).

- (1) [Executive Order 11988](#) requires Federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities" for the following actions:

- (i) Acquiring, managing, and disposing of Federal lands and facilities;
- (ii) Providing Federally-undertaken, financed, or assisted construction and improvements; and

(iii) Conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities.

(2) Rural Development guidance developed an eight-step process to guide Agency decision-making as required under Section 2(a) of [Executive Order 11988](#), see [§ 1970.256](#). The Interagency Task Force on Floodplain Management clarified [Executive Order 11988](#) with respect to development in floodplains, emphasizing the requirement for agencies to select alternative sites outside the floodplain for Agency actions, if practicable, and to develop measures to mitigate unavoidable impacts.

(b) [Executive Order 13690](#) (2015)- Establishing a Federal Flood Risk Management Standard (FFRMS) and a Process for Further Soliciting and Considering Stakeholder Input

[Executive Order 13690](#) was issued to improve the nation's resilience to flooding and to better prepare for the impacts of climate change. In amending and building upon [Executive Order 11988](#), [Executive Order 13690](#) and the associated Federal Flood Risk Management Standard (FFRMS) reinforce the important tenets and concepts articulated in [Executive Order 11988](#). When avoiding the floodplain is not possible, [Executive Order 13690](#) calls for agencies to make efforts to improve the resilience of communities as part of Federal actions. Importantly, [Executive Order 13690](#) established a new standard against which Federal agencies are to evaluate the potential impacts of flooding on Federal investments, the FFRMS. This standard sets a higher vertical elevation and a greater horizontal extent to the floodplain to be considered. The additional vertical and horizontal increments are calculated by one of three methods: climate-informed science approach; freeboard value approach; or, 0.2 percent annual chance flood approach.

(c) [Executive Order 14030](#) (2021) Climate-Related Financial Risk

[Executive Order 14030](#) was issued to advance consistent, clear, intelligible, comparable, and accurate disclosure of climate-related financial risk, including both physical and transition risks; act to mitigate that risk and its drivers, while accounting for and addressing disparate impacts on disadvantaged communities and communities of color and spurring the creation of well-paying jobs; and achieve our target of a net-zero emissions economy by no later than 2050.

§ 1970.253 Policies

It is Agency policy to:

- (a) Provide leadership and take action to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains;
- (b) Avoid the direct or indirect support of floodplain development whenever there is a practicable alternative;
- (c) Reduce the risk of flood loss and minimize the impact of floods on property and human safety, health and welfare; and
- (d) Restore and preserve the beneficial and natural values served by floodplains.

§ 1970.254 Responsible Parties

The Secretary of Agriculture or designee is responsible for compliance with all applicable laws, regulations, and Executive Orders:

(a) Undersecretary for Rural Development (RD)

The Undersecretary has overall responsibility for the implementation of the authorities cited in this subpart.

(b) Administrator

The RD Administrators have responsibility to ensure implementation within their respective agencies.

(c) Approving Official

The Agency official with the authority to execute Federal actions, usually approval of Federal financial assistance. This official is usually a State Director, Program Administrator, or their designated delegate.

(d) National Office Environmental Staff (NES)

NES provides:

- (1) Technical and programmatic advice and training on environmental matters to Agency staff.

- (2) Negotiation, approval, and execution of all memoranda of understanding or agreement, interagency or cooperating agency agreements, or programmatic agreements related to any environmental issue or actions taken under this part.
- (3) Liaison function with other Federal agencies and Congress.
- (4) The same functions as a State Environmental Coordinator (SEC) for all programs administered at the National Office level (such as the Electric and Telecommunication Programs, some Energy Programs, etc.).
- (5) Guidance on resolving environmental disputes.
- (6) National and state program oversight for compliance with this part.
- (7) Reviews of project specific environmental files from states submitted for National Office concurrence or approval.

(e) State Director

Individual State Directors ensure compliance with the requirements and procedures contained in this subpart within their areas of jurisdiction. State Directors will ensure that guidance materials are issued to applicants for implementing the provisions of this subpart.

(f) State Environmental Coordinator (SEC)

The SEC serves as the advisor to the State Director for issues related to floodplains. The SEC will coordinate all requirements of this subpart and will request assistance from the NES when necessary. The SEC will provide training to field and state staff, applicants, and technical service providers on the requirements of this subpart.

(g) Applicant

Any prospective applicant for financial assistance shall comply with all Federal, state, and local regulations with respect to floodplain management as a condition to receive financial assistance from the Agency. The Agency expects the applicant to pay for any costs incurred for floodplain determinations and compliance and permitting associated with all statutes, regulations, and Executive Orders.

§ 1970.255 Definitions

The following definitions apply throughout this Instruction:

(a) Action

Action refers to any proposed Federal action or activity including:

- (1) Acquiring, managing and disposing of Federal lands and facilities;
- (2) Providing Federally undertaken, financed or assisted construction and improvements; and
- (3) Conducting Federal activities and programs affecting land use, including, but not limited to, water and related land resources, planning, regulating and licensing activities.

(b) Actions affecting or affected by floodplains

Actions that have the potential to result in long- or short-term impacts associated with:

- (1) The occupancy or modification of floodplains, and
- (2) The direct or indirect support of floodplain development.

(c) Agency

Agency refers collectively or individually, as appropriate, to RD (Rural Housing Service, Rural Business-Cooperative Service, and Rural Utilities Service).

(d) Base flood

A flood which has a one percent chance of being equaled or exceeded in any given year (also known as a 100-year flood). This term is used in the National Flood Insurance Program (NFIP) to indicate the minimum level of flooding to be used by a community in its floodplain management regulations. Base flood elevation (BFE) refers to the elevation of the base or 100-year flood. Base floodplain refers to the 100-year floodplain (one-percent chance flood floodplain).

(e) Climate Informed Science Approach

Use best available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate science and other factors or changes affecting flood risk to determine the vertical flood elevation and corresponding horizontal floodplain in a manner appropriate to policies, practices, criticality, and consequences.

(f) Coastal high hazard area

Special flood hazard areas along the coasts that have additional hazards due to wind and wave action. These areas are typically identified on FIRMs as Zones V1-30, VE, V, or LiMWA.

(g) Conditional Letter of Map Revision (CLOMR)

The Federal Emergency Management Agency's (FEMA's) comment on a proposed project that would, upon construction, affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective BFE, or the FEMA designated SFHA. The letter does not revise an effective NFIP map it indicates whether the project, if built as proposed, would be recognized by FEMA.

A CLOMR is similar to a Letter of Map Revision (LOMR), but is based on proposed conditions and does not change the Flood Insurance Rate Maps (FIRMs). A CLOMR is the method used by FEMA to let people know that for certain projects, if constructed per the design submitted to and approved by FEMA, revision of the FIRM panel with a LOMR is likely. For example, a CLOMR might be obtained by a developer who is modifying a floodplain through the use of constructed drainage infrastructure. Design drawings are submitted to FEMA showing the existing, pre-developed floodplain conditions and the proposed floodplain conditions after planned development. If FEMA approves the CLOMR, the developer can be reasonably sure that a LOMR for the project will be approved upon completion of the drainage infrastructure that alters the floodplain. See 44 CFR parts [60](#), [65](#), and [72](#) for additional information on CLOMRs.

(h) Critical action

An action for which even a slight chance of flooding is too great. The minimum floodplain of concern for critical actions is the 500-year floodplain, i.e., the critical action floodplain. Critical actions include but are not limited to actions that create, or extend the useful life of, structures or facilities such as:

- (1) Those which produce, use, or store highly volatile, flammable, explosive, toxic, radioactive, or water-reactive materials;
- (2) Schools, hospitals and nursing homes, child care facilities, facilities for individuals with disabilities, housing for the elderly, and other buildings which are likely to contain occupants who may not be sufficiently mobile to avoid death or injury during flood and storm events;
- (3) Emergency operation centers that provide essential services;
- (4) Data storage centers that contain records that may become lost or damaged during flood and storm events; and
- (5) Utility systems vital to public health and safety, including potable water, wastewater, electric generation, communication systems and other principal utility infrastructure elements.

(i) Direct, indirect, or cumulative impacts

All impacts that could result in changes in the natural values and functions of a floodplain must be considered. Therefore, unless the locational impact is so minor that the floodplain's natural values and functions are not affected, there would be an impact to a floodplain whenever either:

- (1) The action or its related activities would be located within a floodplain, or
- (2) The action through its direct, indirect, or cumulative impacts has the potential to result in development within a floodplain.

(j) Enhance

To increase, heighten, or improve the natural and beneficial values associated with a floodplain.

(k) Facility

Any human-made or human-placed item other than a structure e.g., bridges and roads.

(l) Federal Flood Risk Management Standards (FFRMS)

The FFRMS established by [Executive Order 13690](#) to be incorporated into existing processes used to implement [Executive Order 11988](#).

(m) Federally funded project

Actions where Federal funds are used for new construction, substantial improvement, or to address substantial damage to structures and facilities.

(n) FEMA designated Special Flood Hazard Area (SFHA)

The land area covered by the floodwaters of the base flood on NFIP maps. The FEMA designated SFHA is the area where the NFIP's floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The FEMA designated SFHA includes Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, VO, V1-30, VE, and V. This does not identify flood hazard areas estimated by the FFRMS.

(o) 500-year (or 0.2 percent annual chance) floodplain

Area, including the base floodplain, which is subject to inundation from a flood having a 0.2 percent annual chance of being equaled or exceeded in any given year.

(p) Flood or flooding

A general and temporary condition of partial or complete inundation of normally dry land or of two or more properties (at least one of which is the applicant's property) due to: overflow of inland or tidal waters, unusual and rapid accumulation or runoff of surface waters from any source, mudflow, or collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood as defined above.

(q) Flood hazard map

An official map of a community, issued by FEMA, where the boundaries of the flood, mudflow and related erosion areas having special hazards have been designated.

(r) Flood Insurance Rate Map (FIRM)

An official map of a community on which FEMA has delineated both the special hazard areas and the risk premium zones applicable to the community. (A FIRMette is a section of a FIRM that anyone can create online through the FEMA online map service center by selecting the desired area from an image of a FIRM. The FIRMette also includes the map title block, north arrow, and scale bar. There is no charge for making a FIRMette. Because a FIRMette is a full-

scale section of an official FIRM, it can be used in all aspects of FEMA's NFIP, including floodplain management, flood insurance, and enforcement of mandatory flood insurance purchase requirements.)

(s) Flood insurance study

A flood insurance study (FIS) is a report prepared by the FEMA that summarizes an analysis of the flood hazards in a community. The analysis used to prepare a FIS is also used to prepare a FIRM. The FIRM is the basis for floodplain management, mitigation, and insurance activities in the NFIP. The FIS provides information to supplement the FIRM, including food profiles.

A flood profile is a graph of the flood elevations along the centerline of a stream. The flood profiles in the FIS show the profiles for the base flood (100-year or 1-percent chance) event, and also often show the profiles for the 10-, 50-, and 500-year (0.2-percent annual chance) flood events. Other information shown on the flood profiles include the cross sections shown on the flood maps, the location of the streets crossing the streams, the elevation of the streambed, and other hydraulic structures. The flood profiles should be used to determine the precise elevation of the base flood (100-year or 1-percent chance) event or critical action (500-year or 0.2-percent annual chance) flood event in the floodplain, rather than the FIRM.

(t) Floodplain

The lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands. The floodplain shall be established using one of the following approaches:

"(1) Unless an exception is made under paragraph (2) of this section, the floodplain shall be:

"(i) the elevation and flood hazard area that result from using a climate-informed science approach that uses the best-available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate science. This approach will also include an emphasis on whether the action is a critical action as one of the factors to be considered when conducting the analysis;

"(ii) the elevation and flood hazard area that result from using the freeboard value, reached by adding an additional 2 feet to the base flood elevation for non-critical actions and by adding an additional 3 feet to the base flood elevation for critical actions;

"(iii) the area subject to flooding by the 0.2 percent annual chance flood; or

"(iv) the elevation and flood hazard area that result from using any other method identified in an update to the FFRMS.

(2) The head of an agency may except an agency action from paragraph (1) of this section where it is in the interest of national security, where the agency action is an emergency action, where application to a Federal facility or structure is demonstrably inappropriate, or where the agency action is a mission-critical requirement related to a national security interest or an emergency action. When an agency action is excepted from paragraph (1) of this section because it is in the interest of national security, it is an emergency action, or it is a mission-critical requirement related to a national security interest or an emergency action, the agency head shall rely on the area of land subject to the base flood".

(u) Flood-proofing

Any combination of structural and nonstructural additions, changes, or adjustments to structures, which reduce or eliminate risk of flood damage to real estate or improved real property, water and sanitation facilities, or structures with their contents.

(v) Letter of Determination Review (LODR)

An amendment to the current effective status of a property which establishes that a property is not located in a FEMA designated SFHA. A LODR (see [Exhibit C](#)) is only issued by FEMA. The LODR is often used if the lender's review shows the building in a FEMA designed SFHA based on the map location but the borrower disagrees with the determination. The applicant may request that FEMA review the lender's determination. No elevation data is considered. A LODR does not result in amendment to the NFIP map.

(w) Letter of Map Amendment (LOMA)

An amendment to the current effective FEMA map which establishes that a property is not located in a FEMA designated SFHA.

(1) A LOMA (see [Exhibit C](#)) is issued only by FEMA and can be requested by the applicant. A LOMA is used if the flood map shows the property as clearly being in a FEMA designated SFHA but the building on the property is above the BFE. Elevation data is required for a LOMA and is usually provided by a land surveyor or engineer (hired/paid for by applicant). A LOMA removes the FEMA designated SFHA designation from the property and amends the NFIP map.

(2) A LOMA is generally used for single-lot modifications to the floodplain or to remove individual structures from the floodplain, without actually modifying the floodplain delineation on the FIRM. LOMAs are

typically used to remove the flood insurance requirement for a particular structure or for structures on a particular parcel. There are two types of LOMAs, those for properties and those for structures. Property LOMAs remove an entire parcel or a portion of a parcel from the floodplain. These LOMAs require a survey of the property to demonstrate what portions of the property are above the BFE. Structure LOMAs remove only the structure itself from the floodplain and are the easiest types of LOMAs to obtain. These LOMAs only require a survey to demonstrate that the ground immediately adjacent to the structure is above the BFE. If the footprint of the structure is expanded, a structure LOMA does not apply to the additional footprint unless another LOMA is approved.

(x) Letter of Map Revision (LOMR)

An official amendment to the current effective FEMA map. It is issued by FEMA and changes flood zones, delineations, and elevations based on changes that have occurred due to flood control structures such as reservoirs, levees, channels, floodwalls, etc., which are actions initiated or approved by the community. A LOMR (see [Exhibit C](#)) reflects changes to the 100-year floodplain or FEMA designated SFHA shown on the FIRM. In rare situations, LOMRs also modify the 500-year floodplain boundaries. Generally speaking, LOMRs are used for multi-lot projects and large scale changes in FEMA floodplains. Changes may include modifications to BFEs, floodplain widths, and floodways. The LOMRs are issued after a floodplain has been remapped due to a major flood event, after better mapping data becomes available, or after structural flood control improvements have been installed. A LOMR results in revisions of the NFIP map.

(y) Letter of Map Revision Based on Fill (LOMR-F)

An official amendment to the current effective FEMA 1 percent annual chance floodplain. A LOMR-F (see [Exhibit C](#)) is appropriate whenever a site has been previously graded and filled to raise the level of the land above the BFE and thought not to be represented as such on the FEMA FIRM Map. Applicants may request that FEMA issue a LOMR-F. LOMR-Fs require elevation data provided by a land surveyor or engineer (hired/paid for by applicant). A LOMR-F removes the FEMA designated SFHA designation from the property by letter, but no map revision is provided.

(z) Mitigation

All steps necessary to minimize the potentially adverse effects of the proposed action, and to restore and preserve the natural and beneficial floodplain values.

(aa) Mudflow

A river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water. Other earth movements, such as a landslide, slope failure, or a saturated soil mass moving by liquidity down a slope, are not mudflows.

(bb) National Flood Insurance Program (NFIP)

A program managed by FEMA's Federal Insurance Directorate.

Flood insurance is designed to provide an alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods and help flood victims recover faster.

(1) Floodplain management refers to the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to, emergency preparedness plans, flood control works, and floodplain management regulations.

(2) Flood hazard mapping creates broad-based awareness of flood hazards and provides the data needed for floodplain management programs and to actuarially rate new construction for flood insurance.

(cc) Nature Based Approaches

Features (sometimes referred to as "green infrastructure") designed to mimic natural processes and provide specific services such as reducing flood risks and/or improving water quality. Nature-based approaches are created by human design (in concert with and to accommodate natural processes) and generally, but not always, must be maintained in order to reliably provide the intended level of service.

(dd) New Construction

Buildings or facilities for which the "start of construction" commenced on or after the effective date of an initial FIRM or after December 31, 1974, whichever is later, including any subsequent improvements.

(ee) Practicable

Capable of being done within existing constraints. The test of what is practicable depends upon the situation and includes consideration of all pertinent factors, such as environment, cost and technology.

(ff) Preserve

In reference to floodplains, to prevent alterations to natural conditions and to maintain the values and functions which characterize the floodplain in its natural state.

(gg) Regulatory floodway

Area regulated by Federal, state, or local requirements to provide for the discharge of the base flood so the cumulative increase in water surface elevation is no more than a designated amount (not to exceed one foot as set by the National Flood Insurance Program).

(hh) Restore

In reference to floodplains, to reestablish a setting or environment in which the natural functions of the floodplain can again operate.

(ii) Structure

A structure with two or more outside rigid walls and a fully secured roof, that is affixed to a permanent site; including, but not limited to

(1) A manufactured home, also known as a mobile home, a structure built on a permanent chassis, transported to its site in one or more sections, and affixed to a permanent foundation; or

(2) A travel trailer without wheels, built on a chassis and affixed to a permanent foundation, that is regulated under the community's floodplain management and building ordinances or laws; or

(3) Structures in the course of construction. A walled and roofed building (see page 3-37 of the Flood Insurance Manual, <https://www.fema.gov/flood-insurance/work-with-nfip/manuals/current>, for exception) that is principally above ground and affixed to a permanent site. It does not include building materials or supplies intended for use in construction, alteration, or repair unless such materials or supplies are within an enclosed building on the premises. The Flood Insurance Manual further states: Structures "in the course of construction that have yet to be walled and roofed are eligible for coverage except when construction has been halted for more than 90 days and/or if the lowest floor used for rating purposes is below the base flood elevation. Materials or supplies intended for use in such construction, alteration, or repair are not insurable unless they are contained within an enclosed building on the premises or adjacent to the premises."

§ 1970.256 Eight-Step Decision Making Process for Alternatives Consideration

- (4) Structures may include “buildings” that are eligible for flood insurance. [7 CFR part 1806, subpart B](#) should be referenced for additional requirements on flood insurance for “buildings”.

The term “building” does not mean a gas or liquid storage tank or a recreational vehicle, park trailer, or other similar vehicle, except as described above. Underground utility lines and underground pumping stations are not “buildings.” Generally speaking, most buildings, residential or non-residential, are eligible for flood insurance coverage, as long as they are not over water and were built in compliance with local ordinances. Most types of agricultural buildings, such as barns, sheds, grain storage buildings, cisterns and silos, and public buildings, water and sewer treatment plant buildings that are not below the ground can be covered. The Flood Insurance Manual will assist in the determination as to whether a specific building meets various criteria and is eligible for coverage.

(jj) Substantial Improvement

Any repair, reconstruction or other improvement of a structure or facility, which has been damaged in excess of, or the cost of which equals or exceeds, 50% of the market value of the structure or replacement cost of the facility before the repair or improvement is started, or, if the structure or facility has been damaged and is proposed to be restored, before the damage occurred. If a facility is an essential link in a larger system, the percentage of damage will be based on the relative cost of repairing the damaged facility to the replacement cost of the portion of the system which is operationally dependent on the facility. The term “substantial improvement” does not include any alteration of a structure or facility listed on the National Register of Historic Places or a State Inventory of Historic Places. (See [44 CFR 59.1](#).) Please note that the term does not include any project for improvement of a structure to comply with existing State or local health, sanitary or safety code specifications which are solely necessary to assure safe living conditions.

§ 1970.256 Eight-Step Decision Making Process for Alternatives Consideration

The Implementing Guidelines to the Executive Orders provide the guidelines for the eight step decision making process required in section 2(a) of [Executive Order 11988](#). The guidelines and relevant steps address amendments to [Executive Order 11988](#) by [Executive Order 13690](#) and the FFRMS. The specific floodplain area to be considered is described in [§ 1970.257](#). The Agency also uses the eight step decision-making process for actions that involve purchase, repair of existing structures or facilities identified in [§ 1970.258](#) that may impose risks to health and welfare. Refer to [Exhibit A](#) for a flow chart diagram of the Eight-Step Decision Making Process for Alternatives Consideration. While the process is linear, as information is gathered

throughout the decision-making process and as additional information is needed, it may be necessary to revisit or reconsider any of the steps.

(a) Step 1. DETERMINE IF THE PROPOSED ACTION IS IN A FLOODPLAIN

Determine whether the proposed action is located within the floodplain and whether the action has the potential to affect or be affected by a floodplain. If the action will not occur within the floodplain and no impact to the floodplain is anticipated, then no further action is necessary. If the action occurs in the floodplain or if floodplain impact is anticipated, continue to Step 2 of this section.

(b) Step 2. PRELIMINARY PUBLIC NOTICE AND PRIVATE PARTY NOTIFICATION

Notify the public at the earliest possible time of the Agency's intent to carry out an action in the floodplain, and involve the affected and interested public in the decision-making process. The Preliminary Public Notice requirements for particular actions and Private Party Notice requirements are outlined in [§ 1970.261](#) and [Exhibit B](#).

(c) Step 3. SEARCH FOR PRACTICABLE ALTERNATIVES

Identify and evaluate practicable alternatives to locating the proposed action in the floodplain including off-site and on-site alternatives, alternative configurations, other avoidance actions and the "no action" alternative, as appropriate. All proposals with impact to floodplains should at least document the "no action" alternative. If a practicable alternative exists outside the floodplain, the Agency must consider that alternative. Where possible, an agency shall use natural systems, ecosystem processes, and nature-based approaches when developing alternatives for consideration. Alternative site analyses are not required to be completed by the Agency for existing single family housing within the guaranteed single family housing programs, but are required for those direct single family housing programs listed in [§ 1970.258\(b\)](#).

(d) Step 4. IDENTIFY ADVERSE IMPACTS AND BENEFICIAL VALUES/FUNCTIONS

Identify the potential direct, indirect, and cumulative impacts associated with the proposed action. Identify the floodplain's beneficial functions and values such as water quality improvement, water filtration, floodwater storage, fish and wildlife habitat, aesthetics, and biological productivity. Then analyze the impacts to the following factors:

- (1) Natural environment. Topography, water sources, habitat areas, etc.;

(2) Social concerns. Aesthetics, historic and cultural values, land use patterns, etc.;

(3) Economic and engineering aspects. Costs of construction, transportation, access, ingress, egress, etc.; and

(4) Legal considerations. Permits, leases, deed restrictions, setbacks, etc.

(e) Step 5. MITIGATE ADVERSE IMPACTS

Mitigation can take the form of avoidance, minimization of floodplain impacts, or compensation for impacts, and can include all efforts to minimize the adverse impacts to floodplains identified under Step 4 of this section. Avoidance can often be accomplished by reviewing alternative layouts, designs, and configurations. Mitigation also employs on-site evaluation of those factors evaluated in Step 4 of this section, including the presence of other natural or cultural resources, economic constraints, engineering constraints, transportation constraints, traffic constraints, site access, site buffer setbacks, etc. Agency environmental staff or the applicant should ensure documentation in the environmental file of any efforts to avoid, minimize, and mitigate adverse impacts to the floodplain, including restoration, preservation or enhancement of the natural and beneficial values of the floodplain. Additional avoidance, minimization, and mitigation measures are listed in [§ 1970.260](#).

(f) Step 6. RE-EVALUATE ALTERNATIVES

Re-evaluate the proposed action to determine if it is still practicable in light of the remaining exposure to flood hazards, extent to which the action will aggravate hazards and the potential to disrupt floodplain values. Alternatives preliminarily rejected at Step 3 of this section should also be re-evaluated as to whether they are practicable in light of the information gained in Steps 4 and 5 of this section. The Agency may deny financial assistance for a project that occurs in or affects a floodplain if the Agency determines there are practicable alternatives which would accomplish the proposed action's purpose and need without floodplain impact, or if there is not a significant need for the proposal, regardless of whether the applicant has an issued permit for the floodplain impacts.

(g) Step 7. FINAL PUBLIC NOTICE

Prepare and provide the public with a finding and public explanation of the Agency's final decision that the floodplain impact is the only practicable alternative as specified in [§ 1970.261](#) (Public Notification Requirements) and that there is a significant need for the proposed action ([Exhibit B](#)).

(h) Step 8. IMPLEMENT PROPOSED ACTION WITH APPROPRIATE MITIGATION

When floodplain (or other important resource) impacts would occur from an Agency action, but permits/authorizations are not yet issued, the Agency can complete an Environmental Assessment (EA)/Environmental Impact Statement (EIS) and publish a Finding of No Significant Impact (FONSI)/Record of Decision (ROD) evaluating the proposed impacts with an indication within the EA/EIS, the FONSI/ROD, and the letter of conditions, that permit(s) and authorization(s) are pending and that any associated mitigation will be a requirement in the letter of conditions.

(1) However, the EA/EIS, FONSI/ROD, and Letter of Conditions shall indicate that no construction shall commence until after the permit(s) is/are issued. The EA/EIS, FONSI/ROD, and Letter of Conditions should also state that the applicant is required to send a revised project description to the Agency for evaluation should the impacts associated with the proposal vary significantly from those evaluated in the EA/EIS, and the agency will need to supplement to the EA/EIS.

(2) Per RD Instruction 426.2 (1806-B) flood insurance is a requirement ONLY when a structure is located within the FEMA FIRM-designated 100-year floodplain; flood insurance is not currently a requirement for structures located outside of the FEMA FIRM 100-year floodplain.

§ 1970.257 Determining the Floodplain Area of Concern

(a) Introduction

[Executive Order 13690](#), “Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input,” was signed on January 30, 2015, to address current and future flood risk and ensure that projects funded with taxpayer dollars last as long as intended. [Executive Order 13807](#), “Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects,” signed on August 15, 2017, revoked [Executive Order 13690](#). On May 20, 2021, the President signed [Executive Order 14030](#), “Climate Related Financial Risk” and a Process for Soliciting and Considering Stakeholder Input. This Executive Order reinstated [Executive Order 13690](#), which established a new Federal floodplain focused on climate resiliency. This new FFRMS ensures agencies will take actions to enhance the climate resiliency of Federally assisted projects and better prepare the Nation for the impacts of climate change, such as sea level rise and extreme weather events. The Guidelines for Implementing [Executive Order 11988](#), “Floodplain Management,” and [Executive Order 13690](#), of October 8, 2015, were never revoked and thus remain in effect.

Although [Executive Order 11988](#), Floodplain Management (1977), is still in effect and is the determinative process for Federal agencies to avoid or minimize floodplain impacts, [Executive Order 13690](#) made significant changes to it, which require Federal agencies to consider a higher flood risk management standard and develop methodologies to determine the 'risk-adjusted' floodplain. The FFRMS describes new vertical and horizontal extensions of floodplains and is applicable to Federally-funded projects for new construction or substantial improvement to ensure structures located in flood-prone areas are built or rebuilt stronger, safer, and less vulnerable to future flood events; it is a resilience standard to safeguard life, property and Federal investments over time.

(b) Floodplain Determination

When no practicable alternative exists to development in flood-prone areas, RD requires the design of the proposed action to minimize potential adverse impacts to the floodplain itself and to protect the project from flooding to the extent practicable. [Executive Order 13690](#) requires an enhanced flood standard for new or substantially improved Federally funded projects in or near a floodplain and provides several methodologies for determining the FFRMS floodplain. Note that both the horizontal and vertical extent of the FFRMS floodplain must be established. RD has elected to implement them in the following order of preference:

(1) Climate-Informed Science Approach (CISA)

This is the elevation that results from using the best available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate science. This approach is the preferred approach when CISA maps are available and if the CISA approach will not result in a floodplain lower than the current BFE. If no CISA maps are available, or if the CISA approach will result in an elevation lower than the existing BFE, then RD will use the 500-year Floodplain Approach.

(2) 500-yr Floodplain Approach (500-yr)

This is the area subject to flooding by the 0.2% annual chance (or 500-yr) flood event. FEMA has mapped the 500-yr floodplain in many locations. In the absence of CISA maps and with the exception of coastal floodplains, RD will use FEMA 500-yr floodplain maps to determine the FFRMS for noncritical actions, where available. If no FEMA 500-yr maps are available, RD will use the Freeboard Value Approach.

(3) Freeboard Value Approach (FVA)

This is the elevation that results from using the freeboard value reached by adding an additional 2 feet to the BFE (the 100-yr flood elevation) for non-critical actions and by adding an additional 3 feet to the BFE for critical actions.

(c) Implementation Methodologies

Methodologies to implement each of these approaches are found in the Federal Flood Risk Management Standard (FFRMS) Floodplain Determination Job Aid developed by the White House Flood Resilience Interagency Working Group that was formed the White House Climate Policy Office (see [Exhibit C](#)).

(d) Lead Agency.

When more than one Federal agency is involved in funding the project, a “lead agency” may be designated by mutual agreement for purposes of determining which methodology to use to determine the FFRMS.

(1) Consideration for designation of lead agency will include anticipated timing of funding obligation (e.g., the agency whose funds will be used first will be the lead), or the amount of funding anticipated (e.g., the agency who expects to obligate the most funds for the project will be the lead), or other considerations as appropriate;

(2) If a lead agency has been designated for purposes of NEPA or any other environmental statute, such as the National Historic Preservation Act, that agency will also be designated as the lead agency for floodplain evaluation.

(e) Deviation from Preferred Approach

Any deviation from the preferred approach described in paragraphs (b)(1) through (3) of this section must be documented and the justification approved by the official with funding approval authority for the project.

(1) The floodplain determination documentation should include a completed FEMA Standard Flood Hazard Determination Form ([SFHDF-FEMA Form 086-0-32](#)) or current SFHDF, see [Exhibit C](#)) to establish the FEMA FIRM 100-year floodplain and any other supplemental documentation, such as elevation determination. Per [7 CFR 1970.5\(b\)\(3\)](#), applicants are responsible to provide the Agency with adequate information to perform the analyses necessary to determine the floodplain area of concern, which may include the FFRMS floodplain. RD staff may

refer applicants to the FFRMS Floodplain Determination Worksheet (Worksheet) located within the FFRMS Floodplain Determination Job Aid ([Exhibit C](#)). The Worksheet can be used to guide applicants in supplying the necessary information for RD staff to make an assessment of the floodplain area of concern. The Worksheet is optional but may be a useful tool for applicants.

(2) For any action with new construction or substantial improvement, a copy of the FIRM, or a FIRMette, that covers the subject property should be included in the Agency's environmental file for the project. The map must depict the location of all structures. FEMA FIRM Maps are located online at the FEMA Online Flood Map Store ([Exhibit C](#)). Photocopies or portions of the FIRM or FIRMette will be sufficient.

(3) Per [7 CFR 1970.5\(b\)\(3\)](#), if applicable and requested by the Agency, the applicant should submit an Elevation Certificate ([FEMA Form FF-206-FY-22-152](#)) indicating the base flood elevation and elevations of the structure(s), or a LOMA, a LOMR removing the proposed action's location from the FEMA designated SFHA or other appropriate documentation. Removal from the FEMA designated SFHA does not necessarily remove the structures from the FFRMS floodplain.

(4) Any action with new construction or substantial improvement must also indicate the extent of the FFRMS floodplain and which approach was used (e.g., the CISA, 500-yr or FVA).

(5) Per [7 CFR 1970.5\(b\)\(3\)](#), applicants may hire surveyors or engineers to complete topographic and elevation surveys of their property or [FEMA Form FF-206-FY-22-152](#) in order to determine whether they are located within the 100-yr, 500-yr or FFRMS floodplain and to determine the base flood elevation or calculate the floodplain.

(6) [Exhibit C](#) includes links to FEMA Forms. Applicants may also apply through FEMA to obtain a LODR, LOMA, LOMR, or LOMR-F to amend the 100-yr floodplain elevation. Granting of a LODR, LOMA, LOMR or LOMR-F by FEMA removes the requirement for flood insurance. RD programs may require an Applicant to obtain flood insurance to improve resilience for structures outside of the FEMA designated SFHA, but within the FFRMS. A preliminary LODR/LOMA/LOMR/LOMR-F is not sufficient to waive the requirement of flood insurance.

(7) If FEMA FIRM maps or CISA maps are not available, Agency staff should work with the applicant to search for alternative floodplain mapping. Alternatively, Applicants can work with engineers to complete a

flood study. For alternative mappings options, Applicants can contact the following agencies:

- (i) Federal Emergency Management Agency (FEMA) Map Center
 - (ii) Studies conducted by a Regional Office of FEMA or the NFIP Community Floodplain Administrator
 - (iii) U.S. Fish & Wildlife Service (USFWS)
 - (iv) Natural Resources Conservation Service (NRCS) Soil Survey Maps
 - (v) U.S. Geological Survey (USGS) Maps
 - (vi) U.S. Army Corps of Engineers (USACE)
 - (vii) State Dept. of Transportation
 - (viii) State/Local Government
- (f) No Existing Floodplain Maps

The approving official should use best available information as to whether or not to issue Federal financial assistance, based on the best interest of the applicant, the Agency and the Agency's mission. Flood insurance may be required if deemed necessary by the approving official.

(g) Guaranteed Loans

For guaranteed loans, the lender is responsible for the accuracy of the floodplain determination, regardless of whether the determination is made by the lender, the appraiser, a surveyor, or a specialized flood zone determination company. If the lender relies on a third-party to make the determination, the third-party must guarantee the accuracy of the information. The lender cannot rely on the statements of a borrower that the structure is either inside or outside a FEMA designated SFHA or the FFRMS. The appraiser need not complete the section of the Uniform Residential Appraisal Report if the floodplain is determined by another party and a copy of the SFHDF is attached to the appraisal report.

§ 1970.258 Non-Agency-owned Properties

(a) New Construction or Substantial Improvement

[Executive Order 11988](#) applies to all Federally funded proposed actions that may be located within or affecting floodplains. FFRMS applies to all Federally funded new construction or substantial improvement actions.

(b) Existing Structures or Facilities

The goals of [Executive Order 11988](#) can also be applied to actions that are already located in floodplains, that is, where the conversion has already occurred, in order to avoid the risk to safety and welfare of those who may occupy structures in a floodplain. The Eight-Step Decision Making Process in [§ 1970.256](#) is required where there is a potential for increased risk to health and welfare and a potential Environmental Justice issue by encouraging low to very-low-income housing within a floodplain.

The Agency must comply with the Eight-Step Decision Making Process when RHS programs for low to very-low income households involve the purchase of existing residential structures located in a floodplain. The following is a list of those current programs:

- (1) Single Family Housing – Direct Loans
- (2) Direct Farm Labor Housing
- (3) Farm Labor Housing
- (4) Multi-Family Housing Revitalization Programs
- (5) Rural Rental Housing Loans – Direct
- (6) Multi-Family Housing, Existing Structures, Greater than four units

§ 1970.259 Real Estate Owned (REO) Properties

(a) Substantial improvements to REO properties – [Executive Order 11988](#) applies to substantial improvements to REO properties.

(b) Sale or lease of REO properties- [Executive Order 11988](#) applies to the sale or lease of REO property. The Agency official responsible for the conveyance (sale or lease) of existing REO property must determine if the property can be safely used as a residence. The conveyance must specify those uses that are restricted under identified Federal, state, and local floodplain

regulations, as well as other appropriate restrictions on the uses of the property by the lessee or purchaser and any successors, except where prohibited by law.

(c) Applicable restrictions will be incorporated into quitclaim deeds with the consent and approval of the Regional Attorney, Office of the General Counsel. A listing of any restrictions will be included in any notices announcing the proposed sale or lease of the property. At the time of first inquiry, prospective purchasers must be informed of the property's location in a floodplain and the use restrictions that will apply. A written notification to this effect must be provided to the prospective purchaser who must acknowledge the receipt of the notice. The steps and analysis conducted to comply with the requirements of this paragraph must be documented in the environmental review document for the proposed lease or sale. Upon written request by the owner of any property so affected or determination by the appropriate Agency official that the condition for which a deed restriction was imposed no longer exists, the restriction clause may be released.

§ 1970.260 Alternatives Analyses and Mitigation Measures

(a) Off-site and On-site Alternative Sites

Off-site and On-site Alternative Sites. The main focus of the review process must be to locate a practicable alternative site located outside of the floodplain. In cases where no practicable alternatives exist, mitigation measures must be developed to reduce the impact of the action. Examples of mitigation include finding a site at a higher elevation within the floodplain or a site exposed to lower velocity floodflows, elevating the structure, and floodproofing.

(b) Avoid Filling in Floodplains

One of the objectives of [Executive Order 11988](#) is to preserve and protect a floodplain's natural values and functions. When a significant need for the proposal exists and there is no practicable alternative for the action, the Agency shall require, wherever practicable, to elevate structures above the flood elevation rather than filling in land.

(c) Mitigation Measures

Mitigation measures are intended to reduce the risks to human safety, possible damage to structures, and disruption to the natural values and functions of floodplains. More traditional structural measures, such as filling in the floodplain, do not accomplish and conflict with the three purposes for mitigation. Nonstructural flood protection methods must be given priority consideration to preserve, restore, or imitate natural hydrologic conditions and eliminate or reduce the need for structural alteration of water bodies or their associated floodplains.

Such methods may be either physical or managerial. Examples of nonstructural flood protection methods are:

- (1) Control the uses and occupancy of floodplains, e.g., floodplain zoning and subdivision regulation;
- (2) Preserve floodplain values and functions through public ownership, e.g., fee title, easements and development rights;
- (3) Delay or reduce the amount of runoff from paved surfaces and roofed structures discharged into a floodway, e.g., construction of detention basins and use of flow restricting barriers on roofs;
- (4) Maintain natural rates of infiltration in developed or developing areas, e.g., construction of seepage or recharge basins and minimization of paved areas;
- (5) Protect streambanks and shorelines with vegetative and other natural cover, e.g., use of aquatic and water-loving woody plants;
- (6) Restore and preserve floodplain values and functions and protect life and property through regulation, e.g., providing compensatory storage volumes within the floodplain, flood-proofing building codes which require all structures and installations to be elevated above the level of the floodplain elevation; and
- (7) Control soil erosion and sedimentation, e.g., construction of sediment basins, stabilization of exposed soils with sod and minimization of exposed soil.

§ 1970.261 Public Notification Requirements

(a) Preliminary Notice

A preliminary notice of all proposed actions in the floodplain must be published at the earliest possible time. The notice will be published and distributed in the manner specified in [7 CFR § 1970.14](#) and should notify the public of the Agency's intent to carry out an action in a floodplain so that the affected and interested public can engage in the decision-making process. The preliminary public notice period is 14 days from the date of first publication, with an option to extend to 30-days at the Agency's discretion. A sample Preliminary Notice is contained in [Exhibit B](#). Please note these preliminary public notifications are not required for individual single family housing proposals or in cases where the floodplain impact has already occurred and no additional floodplain encroachment will occur.

(b) Private Party Notification

For all actions to be located in floodplains where a private party is the applicant, purchaser, or financier, it shall be the responsibility of the approving official to inform all such parties in writing of the hazards associated with occupancy of such locations within the floodplain. Sample Private Party Notifications addressed to the applicant or lender are contained in [Exhibit B](#).

(c) Final Notice

Where it is not possible to avoid an impact to a floodplain and all practicable mitigation measures have been identified and agreed to by the prospective applicant, a final notice must be published. At the Agency's discretion, there may be an additional 7 day comment period on the final notice. A sample Final Notice is contained in [Exhibit B](#). Please note these final public notifications are not required for individual single family housing proposals or in cases where the floodplain impact has already occurred and no additional floodplain encroachment will occur. The final notice will be published and distributed in the manner specified in [7 CFR § 1970.14](#) and contain the following information in addition to any information required by Regulation:

- (1) A description of the applicant's proposed action and the Agency's involvement, the action location, and the surrounding area;
- (2) A description of the floodplain impacts and the mechanisms that will be used to mitigate them (if applicable);
- (3) A statement of why the applicant's proposed action must be located in a floodplain; Note that a preliminary notice was published and whether or not any comments were received, and if so, how they were resolved.
- (4) A statement indicating the applicant's action must conform to applicable State and local floodplain standards; and
- (5) A statement listing other involved agencies and individuals.

§ 1970.261 – 1970.300 [RESERVED]

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EXHIBIT A : FLOWCHART FOR FLOODPLAIN EVALUATIONS – 8 STEP DECISION MAKING PROCESS

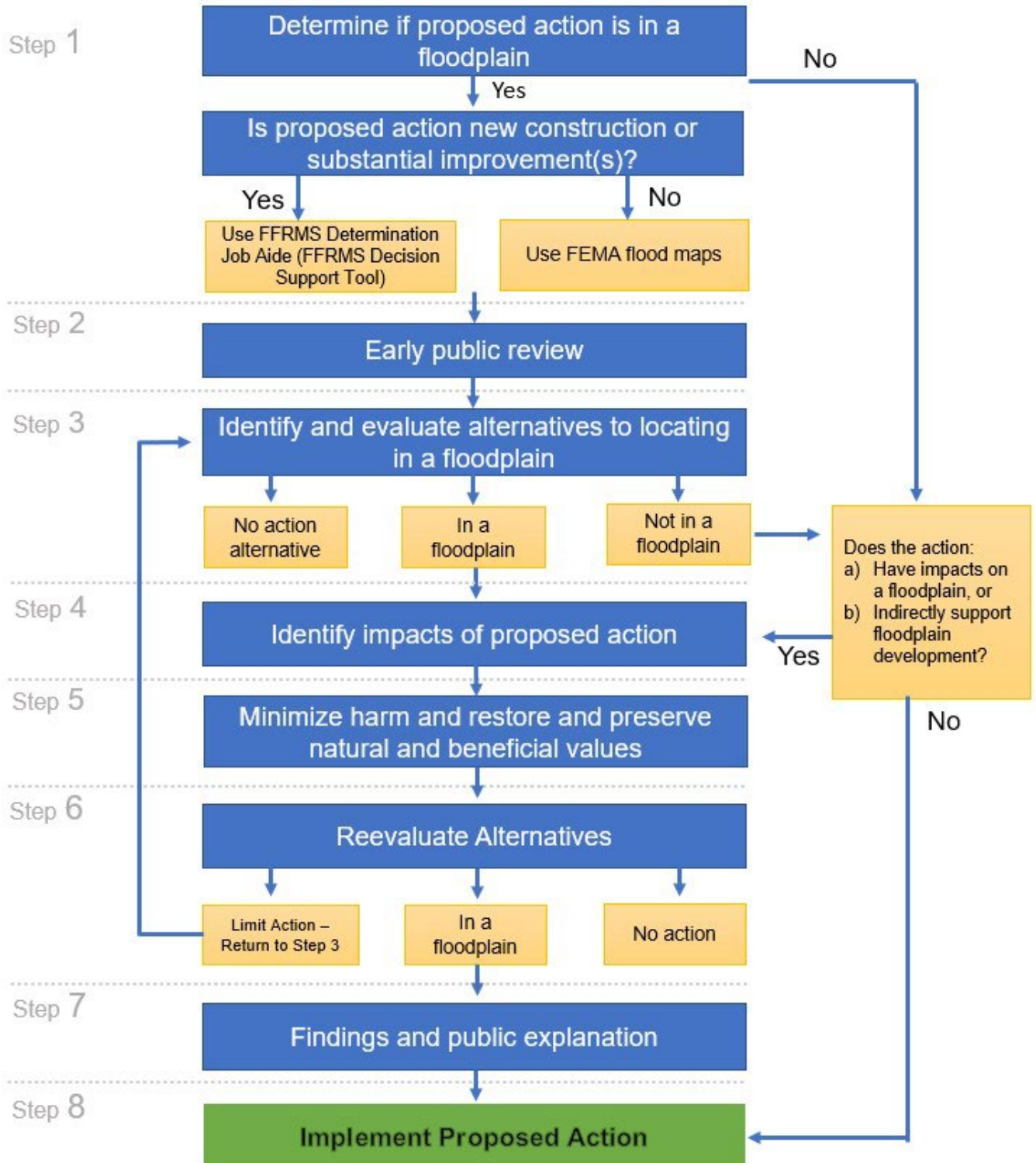


EXHIBIT B : PUBLIC NOTICING AND PRIVATE PARTY NOTICING TEMPLATES

Template Preliminary Public Notice Language for Potential Impacts to Floodplains

[Insert applicant's name] intends to seek financial assistance from USDA, [**Rural Housing Service (RHS), Rural Business Service (RBS), Rural Utilities Service (RUS)**] for [insert type of project here: construction, infrastructure improvements, etc]. The proposed project consists of [**itemize the project's construction activities and locations**]. [**Insert a detailed written description of location**]. If implemented, the proposed project will convert or effect [**Floodplain, Critical Action Floodplain—include definition of floodplain, acreage, and locations**]. In accordance with Executive Order 11988, Floodplain Management, the purpose of this notice is to inform the public of this proposed conversion or effect and request comments concerning the proposal, alternative sites or actions that would avoid these impacts, and methods that could be used to minimize these impacts.

The environmental documentation regarding this proposal is available for review at [**insert Rural Development office location or applicant locations**]. For questions regarding this proposal, contact [**insert name and telephone number of Rural Development official**]. (If applicable) Other Federal agencies involved in this proposal are.

Any person interested in commenting on this proposal should submit comments to the address above by [**insert a date that is 14-30 days from the date the notice is first published**].

Template Private Party Notice to Applicant/Lender for Floodplains

Date

Applicant/Lender Name
Applicant/Lender Address

Re: Private Party Notice to Applicant of a **[RHS, RBS, or RUS]** Loan, Guaranteed Loan or Grant regarding the Hazards of Locating Structures within a Floodplain or Critical Action Floodplain, **[Project name]**.

Dear [Name of Applicant/Lender],

In accordance with [Executive Order 11988](#), Floodplain Management, notice is hereby given by USDA **[RHS, RBS, or RUS]** that the proposal for **[project name]**, for which a financing may be requested, contains elements located within a **floodplain or critical action floodplain** -. In keeping with [Executive Order 11988](#), and the Agency's implementing regulations, it is the responsibility of the Agency to inform you of the hazards associated with locating structures in a floodplain or critical action floodplain. These hazards include but are not limited to:

Hazards associated with development within floodplains include the loss of life or limb or damage to or loss of real property, personal property, or other assets. Locating structures within a floodplain should be avoided to the maximum extent practicable as it can adversely impact important floodplain functions such as wildlife habitat, filtering capacity, flood holding capacity, and other critical functions. Locating a structure within floodplains requires coordination with the municipality which regulates floodplains in your state or local jurisdiction and determines if a permit is required.

If a guaranteed loan, insert: **You are furthered advised that you will be required to provide a written notice of these hazards to the applicant, purchaser, or other provider(s) of financial assistance in connection with this proposed action, prior to loan closing.**

Flood insurance **[is or is not]** required as a condition of your loan closing. Even for structures that are not in a special flood hazard area, you are encouraged to consider the purchase of a flood insurance policy.

Should you have any questions regarding this notice, please do not to hesitate to contact **[staff person]** at **[email address and telephone number]**.

Sincerely,
[Insert Name of USDA, Rural Development Official]
[Title]

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Template Final Public Notice Language for Potential Impacts to Floodplains

[Insert applicant's name] intends to seek financial assistance from USDA, [**Rural Housing Service (RHS), Rural Business Service (RBS), Rural Utilities Service (RUS)**] for [insert type of project here: construction, infrastructure improvements, etc]. The proposed action consists of [**itemize the project's construction elements and locations**]. [**Insert a detailed written description of location**]. [**RHS, RBS, RUS**] has assessed the environmental impacts of this proposal and determined that the location of [**insert construction activity or facility**] will convert or effect a floodplain or critical action floodplain. In accordance with [Executive Order 11988](#), Floodplain Management, the Agency is notifying the interested public of this land conversion. It has been determined that there is no practicable alternative to avoiding this conversion or effect and that there is a significant need for the proposal. The basis of this determination is [**summarize the justification, need and reasons for the conversion or effect, and note if/if not any comments were received and how they were resolved**].
(If applicable) Other Federal agencies involved in this proposal are _____

For information regarding this notice, contact [**Name and contact information for RD point of contact**]. Any person interested in commenting on this decision should submit comments to the address above by [If additional public review period is required insert a date seven days from the date the notice is first published].

EXHIBIT C: EXTERNAL RESOURCES

Association of State Floodplain Managers

<https://www.floods.org/>

Federal Flood Risk Management Standard (FFRMS) Floodplain Determination Job Aid developed by the White House Flood Resilience Interagency Working Group.

<https://www.fema.gov/floodplain-management/intergovernmental/white-house-flood-resilience-interagency-working-group>

FEMA 086-0-32 Form (SFHDF) – Determine whether property is within the 100-year floodplain

https://www.fema.gov/sites/default/files/2020-07/fema_nfip_form_086-0-32.pdf

FEMA 086-0-33 Form (Elevation Certificate) – Determine elevation of structure

https://www.fema.gov/sites/default/files/2020-07/fema_nfip_elevation-certificate-form_feb-2020.pdf

FEMA flood designation changes such as LODR, LOMA, LOMR, LOMR-F

<https://www.fema.gov/change-flood-zone-designation-online-letter-map-change>

FEMA's Flood Map Service Center

<https://msc.fema.gov/portal/home>

National Flood Insurance Program Forms

<https://www.fema.gov/flood-insurance/find-form>

Natural Resources Conservation Service Web Soil Survey –

<http://websoilsurvey.nrcs.usda.gov/app/>

U.S. Army Corps of Engineers

<https://www.iwr.usace.army.mil/Missions/Flood-Risk-Management/Flood-Risk-Management-Program/>

U.S. Fish & Wildlife Service - Regional studies

<https://www.fws.gov>

U.S. Geological Survey Flood Information

<http://water.usgs.gov/floods/resources/>

U.S. Geological Survey Flood Inundations Mapping

http://water.usgs.gov/osw/flood_inundation/