Mississippi Valley Division,
Regional Planning and Environment Division South

Tangipahoa Parish, Louisiana Feasibility Study

Appendix H – Tangipahoa Parish Feasibility Study Nonstructural Implementation Plan

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SECTION 1
Introduction

This Nonstructural (NS) Implementation Plan (Plan) describes the general process for the implementation of NS elevations and floodproofing measures to reduce the risk of flood damages to residential and nonresidential structures caused by flooding from riverine and coastal storm events in the Tangipahoa Parish, Louisiana study area. This plan has been developed per the "Guidance for Nonstructural Project Planning and Implementation", HQUSACE Memorandum dated 22 July 2024, which provides multidisciplinary guidance for nonstructural planning and implementation of Flood Risk Management (FRM) and Coastal Storm Risk Management (CSRM) projects, which includes specific guidance for nonstructural elevations. A future USACE Engineering Regulation (ER) will be issued that will include more details on dry and wet floodproofing, replacement, relocations, and acquisitions.

USACE recognizes that there are unique challenges in the implementation of a relatively large Plan. Because of this, USACE has proactively leveraged national experts in the planning, design, and construction of the NS measures included in the Plan for this study. These national experts include the USACE National Nonstructural Committee, Flood Risk Management Center of Expertise, as well as project delivery teams that are currently working to implement similar projects (e.g., Southwest Coastal Louisiana; St. Tammany Parish, Louisiana; Amite Rivers and Tributaries). The Plan is based on previous and on-going USACE projects and studies that contain a NS component in the tentatively selected and recommended plans. The information in this plan presents a strategy that may be used to implement NS measures in support of the authorized plan and will be refined and updated as more information becomes available.

This plan identifies the project delivery strategy during the feasibility phase for implementation of nonstructural projects. The following sections outline the eligibility process for structures, eligibility of project costs, implementation plan (project delivery) strategy, Real Estate actions, and Operation, maintenance, repair, replacement, and rehabilitation (OMRR&R).

The Non-Federal Sponsor (NFS), State of Louisiana, acting by and through, the Coastal Protection and Restoration Authority Board (CPRAB), and local stakeholders have also provided valuable information pertinent to the study. The USACE places a priority on continuing this coordination during preconstruction engineering and design (PED) and construction, and sharing lessons learned with other USACE teams. This will likely include updating the Hydrology & Hydraulics existing conditions modeling to incorporate newly built projects by the NFS or USACE that would change the flood risk for the project area. The PED phase occurs after Congress authorizes the final recommended plan.

1.1 NONSTRUCTURAL PROJECT DESCRIPTION

The primary goal of the Plan proposed is to reduce flood risk for structures in the study area. To preliminarily qualify for inclusion in the Plan, a structure must have a First Floor Elevation (FFE) at or below the applicable floodplain based on hydrologic conditions predicted to occur in 2033 (the beginning of the 50-year period of analysis). A total of approximately 1,088 structures in the study area meet this requirement. Of the approximate total of 1,088 structures, there are approximately 1,006 residential structures and 82 nonresidential structures. Property owner participation in the Plan is voluntary and the NFS or USACE will not utilize its authority of eminent domain should the owner choose not to participate. Based upon current information, the anticipated duties and obligations of property owners are generally outlined in this Appendix. However, some of this information may be modified as the Plan is finalized. While groups of structures have been evaluated for the most cost-effective NS measure, the USACE reserves the right to determine which measure(s) will be implemented at each eligible structure.

The project area shall be subdivided into distinct geographic areas or reaches for implementation and maps of these areas will be prepared and regularly updated to depict the current stage of structure elevation eligibility names of the property owners, property line boundaries, locations of hazardous, toxic, and radioactive waste (HTRW), zoning districts, boundaries of regulatory floodways, flood zones, and other important information.

It is anticipated that implementation of the Plan will occur over an approximate 10-year period with approximately 500 structures to be elevated and/or floodproofed a year after an 18-month PED phase. The timing and scale of the project is dependent on foundation type, participation rate, funding, and environmental conditions.

In order to be preliminarily eligible for inclusion in the Plan, the following criteria must be met:

1. The structure must have a first-floor elevation at or below the applicable floodplain (which may be a 10%, 4%, 2%, or 1% AEP year floodplain depending on the location of the structure), based on hydrologic conditions predicted to occur in 2033 (the beginning of the 50-year period of analysis) at a specific location.

2. The elevation or floodproofing measures proposed for the structure must be justified based on a comprehensive analysis which included incremental net NED benefits, social vulnerability, environmental justice, community cohesion, flood hazard frequency and magnitude.

3. The structure must have a permanent foundation and be permanently immobilized and affixed or anchored to the ground, as required by applicable law, and must be legally classified as immoveable real property under state law. Notwithstanding the provisions of La. R.S. 9:1149.6, a manufactured, modular, or mobile homeowner and any subsequent owner of an immobilized manufactured, modular, or mobile home, may not de-immobilize the manufactured, modular, or mobile home in the future, by detachment, removal, act of de-immobilization, or any other method. Manufactured,

modular, and mobile homes that do not meet these requirements are not eligible for elevation. This criterion only applies to residential uses of manufactured, modular, and mobile homes.

Additional information regarding the development and refinement of the Plan is contained in Appendix G: Economic and Social Consideration.

Based upon current information, the anticipated duties and obligations of property owners are generally outlined in other sections of this Appendix (including Sections 4, 5, 6, and 8). However, some of this information may be modified as the study progresses and/or as the Plan is finalized. While groups of structures (aggregates and sub-aggregates) have been evaluated for the most cost-effective NS measure, the USACE reserves the right to determine which measure shall ultimately be implemented at each structure location.

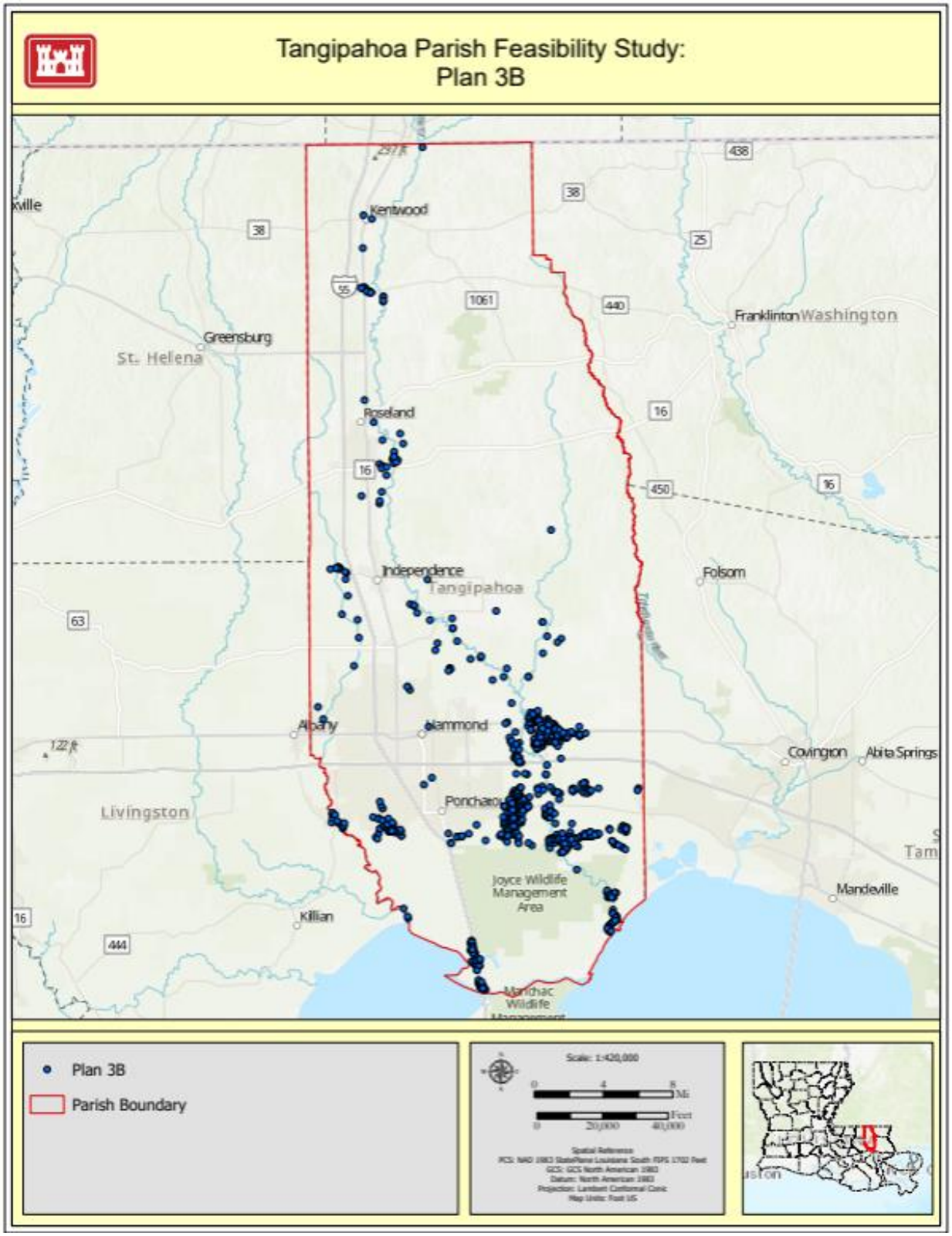

Figure H: 2-1. Map of the Nonstructural Plan

1.2 PROPOSED NONSTRUCTURAL MEASURES

The Plan is currently based on the following measures, which will be refined as additional data becomes available. Additional information regarding other NS measures will be added, as appropriate, and as the Plan is refined.

Public Engagement: USACE and/or the NFS will engage in a public education campaign to inform property owners and any impacted renters of those properties of the NS component the ASA-CW selected alternative including, but not limited to eligibility criteria, the application process, responsibilities of property owners to clear title and remediate contaminated properties, and other key information about the project. USACE and/or the NFS shall prepare and distribute written materials such as project information pamphlets, letters of invitation to participate, and public meeting notices. In addition, USACE and/or the NFS will issue press releases, hold public meetings and workshops, make presentations to homeowner's associations and other civic groups and organizations, and utilize a variety of social media and other public relations methods to inform property owners and tenants of the project.

In order to maximize community understanding, acceptance, and participation in the Plan, it is imperative that NFS government and local agencies are instrumental in the effort to communicate the benefits of the Plan and project. Local community involvement is a requisite for success. Familiarity with local political and community leaders will likely improve residents level of comfort, trust, and understanding of the project goals, objectives, and benefits.

1.2.1 Elevation of Eligible Residential Structures

Elevation of eligible residential structures to the 100-year base flood elevation (BFE) will be based on WSE of the USACE Hydraulics and Hydrology modeled 2033 year event and will be reevaluated using projected 2083 USACE Hydraulics and Hydrology post-draft report.

Foundations must be designed to properly address all loads and their effects on the supported structure, be appropriately connected to the floor structure above, and utility connections must be properly elevated. Elevations will not exceed 13 feet above ground level. If the required elevation is greater than 13 feet above ground level, the structure would still be eligible for elevation up to that height with the residual risk present. It is estimated that the BFE, based on 2033 hydrology, for 99 percent of the prospective structures is below 13 feet above ground level. Actions may include the following:

- Elevation on piers, columns, or piles;
- Elevation on continuous foundation walls;
- Elevating on open foundations (e.g., piles, piers, posts, or columns);
- Elevation of slab;

- Slab separation;
- Elevation on fill;
- Second story conversion/attic build-out.

Some of the advantages and disadvantages associated with elevating a residential structure are displayed in Table H: 2-1.

1.2.2 Dry Floodproofing of Eligible Nonresidential Structures

Dry floodproofing involves techniques applied to keep nonresidential structures dry by sealing the structure to keep floodwaters out. In dry floodproofing, the portion of a structure that is below the FFE (walls and other exterior components) is sealed to make it watertight and substantially impermeable to floodwaters. Such watertight impervious membrane sealant systems can include wall coatings, waterproofing compounds, impermeable sheeting, and supplemental impermeable wall systems, such as cast-in-place concrete.

Doors, windows, sewer and water lines, and vents are closed with permanent or removable shields or valves. The expected duration of flooding is critical when deciding which sealant systems to use because seepage can increase over time, rendering the floodproofing ineffective. Waterproofing compounds, sheeting, or sheathing may fail or deteriorate if exposed to floodwaters for extended periods. Sealant systems are also subject to damage (puncture) in areas that experience water flow of significant velocity, or ice or debris flow.

The USACE National Flood Proofing Committee has investigated the effect of various depths of water on masonry walls. The results of their work show that, as a general rule, no more than 3 feet (0.9 m) of water should be allowed on a nonreinforced concrete block wall that has not previously been designed and constructed to withstand flood loads. Therefore, application of sealants and shields should involve a determination of the structural soundness of a building and its corresponding ability to resist flood and flood-related loads. A Licensed Professional Engineer registered in Louisiana should be involved in any design of dry floodproofing mitigation systems so that they can evaluate the building to determine the appropriate height of dry floodproofing. Research in this subject area is available in: Flood Proofing Tests – Tests of Materials and Systems for Flood Proofing Structures (USACE, 1988).

Some of the advantages and disadvantages associated with dry floodproofing are displayed in Table H: 2-1.

Table H: 2-1. Advantages and Disadvantages of Dry Floodproofing

Advantages	Disadvantages
Reduces the flood risk to the structure and contents if the design flood level is not exceeded	Requires ongoing maintenance

Advantages	Disadvantages
May be less costly than other retrofitting measures	Usually requires human intervention and adequate warning time for installation of protective measures
Does not require the extra land that may be needed for floodwalls or reduced levees	May not provide protection if measures fail or the flood event exceeds the design parameters of the measure
Retains the structure in its present environment and may avoid significant changes in appearance	May result in more damage than flooding if design loads are exceeded, walls collapse, floors buckle, or the building floats
	May adversely affect the appearance of the building if shields are not aesthetically pleasing
	May not reduce damage to the exterior of the building and other property

1.2.3 Wet Floodproofing of Eligible Nonresidential Structures

Wet floodproofing involves techniques designed to permit floodwaters to enter a structure to prevent or provide resistance to damage from flooding. Wet floodproofing of a structure interior is intended to prevent unbalanced hydrostatic pressure on the walls and support systems of the structure by equalizing interior and exterior water levels during a flood.

Some of the advantages and disadvantages associated with wet floodproofing are displayed in Table H: 2-2.

Table H: 2-2. Advantages and Disadvantages of Wet Floodproofing

Advantages	Disadvantages
Reduces the risk of flood damage to a building and its contents, even with minor mitigation	Usually requires a flood warning to prepare the building and contents for flooding
Prevents unbalanced hydrostatic pressure on walls	Requires human intervention to evacuate contents from the flood-prone area
May be eligible for flood insurance coverage of cost of relocating or storing contents, except basement contents, after a flood warning is issued	Usually requires human intervention and adequate warning time for installation of protective measures
Costs less than other measures	Results in a structure that is wet on the inside and possibly contaminated by sewage, chemicals, and other materials borne by floodwaters and may require extensive cleanup
Does not require the extra land that may be needed for floodwalls or reduced levees	May reduce the structures functionality
Retains the structure in its present environment and may avoid significant changes in appearance	Limits the use of the floodable area
	May require ongoing maintenance

SECTION 2
Elevation of a Residential Structure

This section describes the preliminary eligibility process and will detail the refinement of the eligibility process that was completed for the feasibility (preliminary) phase. Additionally, this plan details the refinement of criteria that will occur during PED, and then any final eligibility process that will be conducted during the Construction phase.

2.1 PRELIMINARY ELIGIBILITY

RPEDS body text Multifamily structures such as condominium and apartment buildings are grouped with residential structures. To be considered preliminarily eligible for participation in the Plan the residential structure must meet these criteria:

1. The structure must be in the 10%, 4%, 2% or 1% AEP year floodplain depending on the location of the structure, based on hydrologic conditions predicted to occur in 2033 (the beginning of the 50-year period of analysis) at a specific location.

2. The elevation or floodproofing measures proposed for the structure must be economically justified based on an aggregation or sub aggregation level that are anticipated to be avoided over the 50-year period of analysis (years 2033-2083) unless they have been identified eligible based on Social Vulnerability (SV) criteria and included in the next highest aggregation regardless of economic justification.

3. The structure must have a permanent foundation and be permanently immobilized and affixed or anchored to the ground as required by applicable law and must be legally classified as immoveable real property under state law. Notwithstanding the provisions of La. R.S. 9:1149.6, a manufactured, modular or mobile homeowner and any subsequent owner of an immobilized manufactured, modular. or mobile home, may not de-immobilize the manufactured, modular or mobile home in the future, by detachment, removal, act of de-immobilization, or any other method. Manufactured, modular and mobile homes that do not meet these requirements are not eligible for elevation. This criterion only applies to residential uses of manufactured, modular, and mobile homes.

A residential structure that has a FFE at the specified floodplain for that location, would be elevated to the 1% AEP BFE based on year 2033 hydrology. Costs attributable to elevating to the BFE is part of the project costs. Costs attributable to elevating in excess of the BFE will not be paid for as a project cost and all such costs must be borne solely by the property owner. If the BFE is greater than 13 feet above ground level, the structure would still be eligible for elevation up to the 13 feet height with the residual risk present. Foundations must be designed to properly address all loads and their effects on the supported structure, be appropriately connected to the

floor structure above, and utility connections must be properly elevated.

2.2 SECOND STAGE OF ELIGIBILITY DETERMINATIONS

The following is a general description of the process that will apply to willing owners of preliminarily eligible residential structures.

2.2.1 Execution of a Participation Agreement

Participating owners of eligible structures must complete and submit an application to USACE, but the processing, investigation and verifying tasks for final eligibility may be shared between USACE and the NFS depending on the NFS's capability. Incomplete applications or applications that contain false or misleading information or substantial errors will not be processed.

Owners of preliminarily eligible structures that do not want their structure elevated, may elect to not participate. USACE and the NFS will defer any further action on that structure until such time as the property owner elects to participate or until the period of construction ends. If there is a title transfer (i.e., the home is sold or there is a donation, succession, foreclosure, etc.) and the project remains authorized and funded, the new owner(s) may elect to participate. A property owner may elect not to participate at any time prior to the issuance of right-of-entry for construction for the elevation of the structure. For properties with multiple owners, all of the owners must consent in writing to the elevation of the structure during the application process. Because the Plan requires voluntary participation there will be no exercise of eminent domain by the NFS or USACE.

2.2.2 Temporary right of entry

Residential property owners will be required to grant a temporary right-of-entry to agents of USACE and the NFS to conduct property and structure investigations deemed necessary for USACE to determine final eligibility of the structure for participation in the Project. These investigations may include, building condition assessments, surveys, limited environmental testing and site assessments, inspections to verify current elevation and determine elevation requirements, and to conduct other activities deemed necessary by USACE. Refusal to grant temporary right-of-entry to USACE will constitute an election by the property owner not to participate.

2.2.3 Proof of ownership requirement

Title research and appraisals will be completed by the NFS to confirm fee ownership and the existence of leases, third party interests, and any liens, judgments, or mortgages on the property. The title research will identify the names and addresses of all of the owners of an interest in the property, inclusive of owners of the fee interest, leasehold or third-party interest and holders of any liens, mortgages, or judgments against the property. The property owner must provide satisfactory proof of ownership of the real property and the permanent structure to be elevated. Proof of ownership shall include an authentic Certificate

of Title and a Certificate of Mortgage that identifies the names of all of the owners of the real property and the structure to be elevated, as well as any holders of a lease interest, third party interest holders and any holders of a lien or encumbrance against the property. All property owners, leaseholders, mortgagees, lienholders, and any other person or entity with an interest in the real property on which the structure to be elevated is located, as well as all persons and entities who have an interest in the structure to be elevated, must consent in writing to the elevation of a structure on a USACE form designated for such purpose.

Additionally, the property owner shall provide written verification from the tax assessor that no taxes are due and payable on the property, as well as documentation from any holder of a mortgage, lien, or encumbrance, that the mortgage, lien, or encumbrance is in good standing or has been satisfied and released.

The property must have clear title that is not subject to any outstanding right or interest that will present an impediment to the implementation of the project including but not limited to property/boundary disputed, succession matters, etc. To that end, as one of the conditions of being determined to be eligible to participate in the Plan, the property owner shall be responsible to clear the title of all ownership issues, (in accordance with the conditions and requirements deemed necessary by the USACE), from holders of leases, liens, judgments, encumbrances, or third-party interests at the property owner's sole expense. The failure of the property owner to provide clear title documentation and obtain the required consents of other interest holders, to the satisfaction of USACE, shall result in a USACE determination of ineligibility of the structure to participate in the Plan.

2.2.4 Evaluation criteria for eligibility

A determination that a structure is qualified for elevation will be made by USACE after all inspections, investigations, assessments, title research, and other required activities related to eligibility for elevation is complete and prior to the development of the scope of work.

Additional requirements for residential structure elevation are:

- The structure is not located on federal property or leased land;
- The structure can be elevated to meet the required BFE so that the habitable floors are raised to levels that will protect the structure from flooding and reduce risk from future losses to the extent practicable;
- A condition assessment will identify any issues that are immediately inhibitive which, if possible, the owner will need to address before being declared eligible. The lifting contractor will make the final assessment on the viability of lifting;
- The structure is deemed permanently anchored or affixed to the ground to render it immobile;
- The structure is legally classified as immoveable real property under state law and if applicable, the structure owner provides USACE with an authentic and current act of

immobilization and agrees in writing not to take any future actions such as the removal or detachment of the structure, the execution of an act of de-immobilization, or other actions such that the structure is legally classified as moveable personal property;

- The owner of a manufactured, modular, or mobile home must also be the owner of the real property to which the structure is deemed permanently anchored or affixed;
- The property owner does not owe taxes or other debts to any state or local governmental entity or to the United States of America or to the USACE;
- The property owner has not previously received any disaster assistance for the elevation or floodproofing of the structure;
- The structure must have an approved sanitary disposal system and be in compliance with existing local and state health, building and zoning codes as of the time of the structure elevation. Code compliance is the responsibility of the property owner (both for implementation and cost) as a matter of eligibility of the structure;
- The implementation of NS measures will not impact threatened or endangered species or their habitats;
- Implementing NS measures on the property does not require fill in the waters of the United States and would not result in any impact to wetlands;
- See specific requirements for the elevation of manufactured, modular, and mobile homes located in Section 2.6 of this Appendix.
- USACE policy is to avoid the use of project funds for Hazardous, Toxic, and Radioactive Waste (HTRW) removal and remediation activities. Refer to ER 1165-2-132 and the American Society for Testing and Materials (ASTM) E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM, 1997). Pursuant to Engineer Regulation 1165-2-132, Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects (26 June 1992), an American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessment (ESA) and Asbestos investigation site reconnaissance will need to be conducted. It will be conducted during PED.

Prior to construction and after a right-of-entry for on-site HTRW investigations is provided by the property owner, an ASTM E 1527-13 Phase II ESA will be completed. If the Phase II ESA identifies contamination, the property owner will be notified in writing of the remediation that is required and that the work must be performed by a licensed HTRW remediation professional. If the presence of HTRW, asbestos, or asbestos-containing materials in a damaged or friable form is confirmed on the property, the property owner shall be obligated, at his sole cost and expense, to conduct all necessary response and remedial activities in full compliance with applicable local, state, and federal laws and regulations and provide proof thereof before USACE makes a final determination as to whether the structure meets

the eligibility requirements. In addition, documentation from a third party licensed HTRW remediation professional must be provided by the property owner to the USACE with sufficient evidence to support that the contamination has been successfully and properly remediated.

If USACE determines that the structure is eligible for elevation, the entire foundation of the structure will be lifted and placed on a new foundation (i.e., columns, piers, posted or raised foundation walls) so that the lowest habitable finished floor is at or above the 1% AEP BFE predicted to occur in 2083 to a maximum of 13 feet above ground level. All utility connections and mechanical equipment, such as air conditioners and hot water heaters, will also be raised up 13 feet above ground level.

2.3 ELEVATION COSTS

Eligible Costs: Elevations will require the issuance of state and local government permits prior to the commencement of any onsite construction. No Federal funds will be used to restore, replace, or repair a structure or bring a structure into compliance with applicable building and other codes. No additions to the habitable spaces of a structure (including but not limited to, outbuildings, detached garages, sheds, etc.) will be permitted in the performance of the elevation work. Elements of structure elevation work that are potentially eligible project costs include, but are not limited to: design costs; costs of title searches (in review of title information submitted by the property owner), surveys; costs of obtaining all required permits (i.e., zoning or land use approvals, environmental permits or required certifications, historic preservation approvals, and building permits); and the costs for the following tasks:

- Administrative costs of the Non-Federal Interest to discuss project with owner and obtain signed real estate agreements;
- Raising the roof and extending the walls of a side structure attached to the main structure (i.e., garage);
- Raising mechanical equipment (e.g., air conditioner, furnace, water heater, electrical panel, fuel storage, valves, or meters);
- Connecting, disconnecting, and extending utility connections for electrical power, fuel, incoming potable water, wastewater discharge;
- Meeting access requirements of applicable building and other codes (e.g., stairs with landings, guardrails) and/or the Americans with Disabilities Act;
- Creating vent openings in the foundation and walls to meet requirements for floodwater entry and exit;
- Special access requirements and improvements (e.g., elevators, lifts, ramps, etc.) when a satisfactory written medical opinion is provided by a medical doctor who is active, in good standing and licensed by the State of Louisiana, stating that special

handicapped access is required for a handicapped or mobility challenged property owner and/or the property owner's family member and/or other person currently residing in the structure, and/or by a tenant currently occupying the structure. Multiple access points may also be eligible where necessary to meet state and/or local building and other code requirements;

- Removal of any trees and other vegetation which restrict the elevation work;
- Debris removal (all demolition debris (hazardous and non-hazardous) shall be removed and taken to an approved landfill;
- Site grading and site restoration including grading landscaping to it preconstruction condition, but it cannot adversely affect drainage of adjacent properties;
- Temporary site protection measures during the elevation work such as temporary construction fencing;
- Allowable relocation assistance funds for displaced tenants who are unable to occupy the structure during the elevation process in accordance with the Uniform Relocation Assistance (URA) and Real Property Acquisition Policies for Federal and Federally Assisted Programs of 1970, Public Law 91-646, 84 Stat. 1984 (42 U.S.C. 4601), as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, Title IV of Public Law 100-17, 101 Stat. 246-256. Relocation assistance for tenants who cannot live in the structure during the elevation process, may include, among other thing, advisory services, eligible reasonable out-of-pocket expenses incurred during temporary displacement (e.g., moving and storage of household goods required to be removed during construction, temporary quarters, meals, etc.). See Section 3.5 below for further details;

If additional work is required as a condition of building permit issuance, and if such work is not listed as eligible herein, the property owner will be required to fund and conduct such additional work. In no event shall the structure be elevated if USACE determines that the structure is not physically sound and/or capable of being raised safely.

Ineligible Costs: The costs that exceed that which is necessary to safely elevate a structure are deemed ineligible costs and any such costs are the sole financial responsibility of the property owner.

The following items are ineligible:

- Any work that is not strictly necessary for the safe completion of the structure elevation;
- Any structural and system repair due to existing deficiencies;
- Modifications or improvements to a septic system except for extension of lines from the raised structure to the existing system and back flow valves;

- Cost for elevation above the most NED economically justified elevation, which is currently 2033 1% AEP BFE + 2'. This will be refined using 2083 hydrology post-draft report;
- Modifications to structures that are not attached to the eligible structure;
- Modifications to pools, spas, hot tubs, and related structures or accessories;
- Modifications to decks and patios not connected to or immediately adjacent to the structure except for modifications that are expressly required by building codes (e.g., stairways and landing modifications);
- Removal of movable objects which restrict the elevation work;
- The proper remediation, removal and disposal of environmental contaminants including but not limited to HTRW, lead, asbestos, and asbestos-containing materials in damaged or friable form. All HTRW remediation costs shall be borne solely by the property owner;
- Costs associated with bringing a non-conforming structure into compliance with current building codes, housing codes, and/or other applicable codes;
- Special access improvements are not eligible costs, unless a satisfactory written medical opinion is provided by a medical doctor who is active, in good standing and licensed by the State of Louisiana stating that special handicapped access is required for a handicapped or mobility challenged property owner and/or the property owner's family member and/or other person currently residing in the structure, and/or by a tenant currently occupying the structure.
- Structures not considered the primary residence (i.e., detached garage, shed and/or barns).

However, participation in the Plan does not guarantee reduced rates under the NFIP.

Pursuant to 44 CFR 60.3(d), developments are restricted from obstructing the flow of water and increasing flood heights. State and local building and zoning codes must be taken into consideration in the implementation process. Some codes contain restrictions on "substantial improvements" to existing non-confirming structures that require that the entire structure be brought up to current code requirements, which may increase the costs beyond that of the elevation costs alone. In addition, zoning codes may have height restrictions for

buildings in residential areas that might affect the ability of certain structures to be raised without obtaining a variance or other form of relief from the zoning code. The property owner will be responsible for obtaining any required variances. All elevations shall be considered "development in the floodplain" and will require local permits prior to any onsite construction. Failure to obtain the required local permits may result in a violation of the local floodplain ordinance and/or the NFIP. The elevated structure must comply with the locally adopted

floodplain ordinances. The NFS and the local government with jurisdiction will be responsible for ensuring that the elevated structure is compliant with the NFIP.

2.4 ACCESSIBILITY ACCOMMODATIONS

If a property owner and/or the property owner's family member or other person or tenant, who is a current occupant of the structure at the time of scheduling elevation of the structure, is physically disabled or has mobility impairments, such as in the case of elderly structure owners, special access improvements (e.g., elevators, lifts, ramps, etc.) may be an eligible cost. A satisfactory written medical opinion must be provided by a medical doctor who is active, in good standing, and licensed by the State of Louisiana, and state that special handicapped access is required for a handicapped or mobility challenged property owner and/or the property owner's family member and/or other person currently residing in the structure, and/or by a tenant currently occupying the structure. Multiple access points may also be eligible where necessary to meet state and/or local building and other code requirements. Where ramps are used to provide access, the ramps shall be designed to meet Federal standards for slope and width. Where ramps are not technically feasible, a mechanical chairlift may be installed. Special access features shall be subject to state and local building and other applicable codes.

2.5 RELOCATION ASSISTANCE

Tenants who are deemed to be "displaced" under the URA regulations, may be eligible for certain benefits in accordance with URA and Real Property Acquisition Policies for Federal and Federally Assisted Projects of 1970, Public Law 91-646, 84 Stat. 1894 (42 U.S.C. 4601), as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, Title IV of Public Law 100-17, 101 Stat. 246-256; 49 Code of Federal Regulations 24; and HUD Handbook 1378 (collectively referred to as the URA).

Displacement longer than 90 days will be consistent with the URA. Appropriate advisory services, including reasonable advance written notice of:

- Date and approximate duration of the temporary relocation;
- Address of the suitable decent, safe, and sanitary dwelling to be made available for the temporary period;
- Terms and conditions under which the tenant may lease and occupy a suitable decent, safe, and sanitary dwelling in the building/complex upon completion of the project;
- Provisions of reimbursement, in accordance with the requirements of the URA including 49CFR part 24, paragraph 24.402, for all reasonable out of pocket expenses incurred in connection with the temporary relocation;
- In addition to relocation advisory services, residential displaced tenants may be eligible for other relocation assistance including relocation payments for moving

expenses and replacement housing payments for the increased costs of renting a comparable replacement dwelling;

- All temporary housing costs must be approved in advance in writing by USACE.

2.6 ELEVATION OF MANUFACTURED, MODULAR, AND MOBILE HOMES

There are unresolved areas of legal and policy concern associated with including manufactured, modular, and mobile homes in the structures that may be eligible for elevation. The Project Delivery Team (PDT) has not researched how many of the preliminary eligible structures are manufactured homes, or modular homes, or mobile homes at this time. The PDT is continuing to work with the vertical team, the Offices of Counsel, the USACE National Nonstructural Committee and others, to reach consensus on the propriety of including these types of structures for elevation in the Plan. This collaboration will continue to evaluate how to best protect the federal investment and enforce requirements to ensure that these kinds of homes remain immoveable real property and permanently affixed to the ground in perpetuity.

The State of Louisiana classifies property as either immoveable or moveable. Immoveable property refers to things like land and everything permanently attached to it like a house or buildings. Moveable property are things that physically exist and can be moved from one place to another. Generally, a house and the land upon which it sits would be considered immoveable property. However, if the home is a manufactured, modular or mobile home, it is classified as moveable personal property under state law unless it has been permanently immobilized in accordance with the requirements of state law. See La. R.S. 9:1149.4 (2022) Manufactured, modular and mobile homes that are not permanently affixed to the ground are considered personal property like a vehicle and are subject to the Vehicles License Tax.

Further, if the manufactured, modular or mobile home is located on land that is owned by someone other than the owner of the home, the manufactured, modular or mobile home is considered moveable and is treated like cars and boats.

Immobilizing means the manufactured, modular or mobile home is made a part of the land, both physically and legally. If made immoveable, the home is legally treated like land and other buildings on the land. In order for a manufactured, modular, or mobile home to be legally classified as immoveable real property, the structure owner must comply with the requirements of La. R.S. 9:1149.4 (2022), which include the execution of an act or declaration of demobilization stating that the structure shall remain permanently attached to the lot or tract of land described in the act or declaration, and the act or declaration of immobilization must contain the written consent of all owners of the structure and all holders of a mortgage or security interest. Upon recordation of the act of immobilization in the public records, the structure is subject to all laws concerning immoveable property.

Although an act of immobilization must state that the manufactured, modular, or mobile home shall remain permanently attached to the land, the act of immobilization can be “undone.” Even if a manufactured, modular, or mobile home has been immobilized in accordance with state law, La. R.S. 9:1149.6 (2022) authorizes the owner (and subsequent

owners) to thereafter de-immobilize the manufactured, modular and mobile home. This process effectively transforms the immobilized corporeal immoveable manufactured, modular or mobile home back to the legal status of a corporeal moveable thing and personal as opposed to real property. La. R.S. 9:1149.6 (2022), provides that an owner may de-immobilize a manufactured, modular or mobile home by detachment or removal. To be effective against third persons, the owner must comply with statutory provisions requiring the execution of an act of demobilization, recording of the act in the public records, and the submission of application to the department of public safety, office of motor vehicles, for a new certificate of title. Upon issuance of a new certificate of title, the de-immobilization process is complete, and the manufactured, modular or mobile home shall be deemed moveable and subject to all laws concerning moveable personal property.

2.7 REAL ESTATE REQUIREMENTS FOR THE IMPLEMENTATION OF RESIDENTIAL STRUCTURE ELEVATIONS

A **Right-of-Entry** for Survey will be needed from each landowner in order to determine structure eligibility. The ROE is necessary to conduct such property and structural investigations deemed necessary for USACE to determine final eligibility of the structure for participation in the project. These investigations may include structural inspections, surveys, limited environmental testing and site assessments, inspections to verify current elevation and determine elevation requirements.

A **Participation Agreement (Agreement)** between the NFS and each landowner will be executed to address the plans and specifications unique to the residence, the construction process, voluntary participation, and owner obligations as to title and other project details. The Agreement includes a provision for temporary construction access by the Owner to accomplish the structural elevations. Consequently, a separate Temporary Work Area Easement will not be required to perform the work. The Agreement includes a provision of access to the NFS, their agents and assigns, and contractors to enter in and upon the property to perform construction.

USACE has approved the following standard estate for nonstructural residential elevation measures. This Standard Permanent Restrictive Easement was developed for the construction, operation, and maintenance of the nonstructural treatment.

Perpetual Restrictive Easement for Residential (Elevation/Basement In-Fill)

A perpetual and assignable easement for the establishment, maintenance, operation and use of a restricted area in, on, over and across only that portion of land occupied by a residential structure(s) as described (in Schedule C or Exhibit A), said residential structure(s) to be elevated in connection with the construction, operation, maintenance, repair, replacement, and rehabilitation of the (Project Name and Authorization), consisting of the right to (*prohibit human habitation between the ground level and the first floor of the elevated structure, to prohibit construction or placement of any enclosure or permanent obstruction or impairment of the flow of water between the ground level and the first floor of the elevated structure, and to prohibit other uses of the elevated structure or the land that would impair, contravene, or*

interfere with the integrity of the elevated structure) (to prohibit the enclosure of flood vents to the infilled basement); (*together with the right of ingress and egress, with advanced owner notification, over and across other portions of the property for the purpose of inspecting and monitoring the residential structure and project measures located on said land, and for the purpose of enforcing the rights, land use restrictions, and prohibitions set forth herein*); reserving to the grantor(s), heirs, successors and assigns, all such rights and privileges as may be used without interfering with or abridging the rights, easement, and restrictions hereby acquired, including the right to (*utilize the area between the ground level and the elevated structure for parking and storage*;) to demolish and rebuild the structure with a first floor elevation that is three (3) feet above the community Base Flood Elevation requirement; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired.

It is assumed that all eligible properties have legal access by way of public streets or existing public right of way (ROW). Further, it is assumed that residential and non-residential properties participating in the program will have adequate site area to accommodate the staging of required materials and equipment. For the purposes of this REP, the assumption is that no further real estate rights need to be acquired for access to the properties or staging. Should additional ROW be necessary, standard temporary work area or access easements could be acquired.

SECTION 3

Dry Floodproofing of Eligible Non-Residential Structures

Dry floodproofing consists of sealing all areas below the flood damage risk reduction level of a nonresidential and nonresidential portions of mixed-use structures to make walls, doors, windows, and other openings impermeable to water penetration and watertight to ensure that floodwaters cannot get inside. Based on NFIP testing conducted at the Engineering Research and Development Center, dry floodproofing can generally only be performed on the walls and portions of a conventionally built structure from the ground level to up to 3 feet above ground level. Walls are coated with sealants, waterproofing compounds, or plastic sheeting is placed around the walls and covered. Back-flow valves from water and sewer lines prevention mechanisms such as drain plugs, standpipes, grinder pumps, and back-up valves are installed. Openings, such as doors, windows, sewer lines, and vents, may also be closed temporarily, with sandbags or removable closures, or permanently sealed.

Dry floodproofing measures to be implemented under the Plan include:

- Backflow valves;
- Closures on doors, windows, stairwells and vents--they may be temporary or permanent;
- Rearranging or protecting damageable property--e.g., relocate or raise utility connections, adhesives; sealants and floor drains.

Dry floodproofing of nonresidential structures must be performed in accordance with engineering and design standards and building codes. Applicable design standards and building codes are summarized and compiled within the NFIP Technical Bulletin (TB) 3-93, Nonresidential Floodproofing—Requirements and Certification, and the requirements pertaining to dry flood-proofing of nonresidential structures found in 44 C.F.R. §§ 60.3(b)(5) and (c)(4).

3.1 NONRESIDENTIAL PRELIMINARY ELIGIBILITY

RPEDS body text To be considered preliminarily eligible for participation in the NS Project, a structure must meet these criteria:

1. The structure must be in the 10%, 4%, 2% or 1% AEP year floodplain depending on the location of the structure, based on hydrologic conditions predicted to occur in 2033 (the beginning of the 50-year period of analysis) at a specific location.

2. The structure must have a permanent foundation and be deemed permanently immobilized and affixed or anchored to the ground as required by applicable law and must be legally classified as immoveable real property under state law.

3. The elevation or floodproofing measures proposed for the structure must be economically justified based on the comprehensive benefit-cost analysis at the aggregation group level, which included monetary (NED) and non-monetary (Other Social Effects) benefits

4. Structure is located in an area where there is low velocity flooding (less than 3 ft/sec) and the flooding is not flashy (more than 1 hour of warning).

5. Does not have crawl foundation or basement.

Dry floodproofing achieves flood damage risk reduction, but it is not recognized by the NFIP for any flood insurance premium rate reduction when applied to nonresidential and residential structures and may not be used under the NFIP for new or substantially damaged buildings located in a Special Flood Hazard Area.

3.2 SECOND STAGE OF ELIGIBILITY DETERMINATIONS

The secondary stage of eligibility determinations is the same as presented in Section 2.2 of this NS implementation plan except it is for dry floodproofing and nonresidential structures.

3.3 DRY FLOODPROOFING COSTS

Eligible costs. All dry floodproofing will require the issuance of local permits prior to any onsite construction. No Federal funds will be used to restore, replace, or repair the structure or bring the structures up to current building codes. Elements of structure work that are deemed to be potentially eligible dry floodproofing costs include, but are not limited to: design costs; costs of obtaining all required permits (i.e., zoning or land use approvals, environmental permits or required certifications, historic preservation approvals, building permits, etc.): costs for title searches and the review of title documents; survey and inspection costs; and costs for the following tasks:

- Installation of backflow valves;
- Closures on doors, windows, stairwells and vents-- temporary or permanent;
- Rearranging or protecting damageable real property components--e.g., relocate or raise utility connections;
- Sump pumps and sub-drains;
- Water resistant material; water resistant window coverings, doors and jambs; waterproof adhesives; sealants and compounds, and floor drains;
- Plastic sheeting around the walls;

- Connecting, disconnecting, and extending utility connections for electrical power, fuel, incoming potable water, wastewater discharge;
- Removal of any trees that restrict the dry floodproofing of a structure;
- Temporary site protection measures during site work.

If additional work is required as a condition of building permit issuance, and if such work is not listed previously as eligible, the property owner will be required to complete the required work at the owner's sole expense.

Ineligible costs. The costs that exceed that which is necessary to safely dry floodproof a structure is deemed ineligible costs and any such costs remain the sole responsibility of the property owner. The following costs are ineligible:

- Any structural and system repair due to existing deficiencies;
- Modifications or improvements to a septic system except for extension of lines from the flood proofed structure to the existing system and back flow valves;
- Cost for dry floodproofing more than 3 feet above ground level;
- Modifications to structures that are not attached to the eligible structure;
- Modifications to tubs, pools, spas, hot tubs, and related structures or accessories;
- Relocation of movable objects that restrict the dry floodproofing of a structure;
- The proper remediation, removal and disposal of environmental contaminants including but not limited to HTRW, lead, asbestos, and asbestos-containing materials in damaged or friable form;
- Costs associated with bringing a non-conforming structure into compliance with current building code, housing code, and/or other applicable codes.

3.4 REAL ESTATE REQUIRED FOR DRY FLOODPROOFING

A standard temporary work area easement will be required for the duration of construction of any improvements. A separate perpetual non-standard easement in the form of a "Land Use Restrictions Easement and Perpetual Access for Inspection and Project Monitoring Easement" (perpetual easement) which provides the necessary rights and restrictions to protect the federal investment will also be required. Such a non-standard estate will likely be proposed by CEMVN and submitted for approval by HQUSACE in accordance with the USACE regulations later in the study process. The contemplated perpetual easement will prohibit the grantors, heirs, successors, assigns, and all others from engaging in other uses of the structure or the land that would impair, contravene, or interfere with the integrity of the structure. Further, the perpetual easement would contain a reservation of rights and privileges in favor of the grantor(s),heirs, successors and assigns, of all such rights and

privileges that can be made of the property without interfering with or abridging the rights, and restrictions imposed, but subject to existing easements for public roads and highways, public utilities, railroads, and pipelines. The easement would also include a right of ingress and egress over and across the land by the NFS for inspection and monitoring of the structure and land for the enforcement of the rights and prohibitions contained in the easement. A Real Estate Plan regarding the estates to be acquired will be developed during PED phase of the project.

SECTION 4

Process for Wet Floodproofing of Eligible Non-Residential Structures

Wet floodproofing prevents or provides resistance to damage from flooding while allowing floodwaters to enter the structure or area and equalize pressures on foundation walls or lower-level walls. A key feature associated with wet floodproofing are openings to allow floodwaters in, consisting of engineered flood vents in the structure walls. Per FEMA TB, 7-93:

Flooding of a structure's interior is intended to prevent unbalanced hydrostatic pressure on the walls, surfaces, and supports of the structure by equalizing interior and exterior water levels during a flood. Inundation also reduces the danger of buoyancy from hydrostatic uplift forces. Such measures may require alteration of a structure's design and construction, use of flood-resistant materials, adjustment of building operation and maintenance procedure, relocation and treatment of equipment and contents, and emergency preparedness for actions that require human intervention.

Wet floodproofing of structures must be performed in accordance engineering design standards and building codes. Applicable design standards and building codes are summarized and compiled within FEMA TB 1-93, Openings in Foundation Walls for Buildings Located in Special Flood Hazard Areas, and FEMA 259, Engineering Principles and Practices for Retrofitting Flood Prone Residential Buildings, FEMA 348. Protecting Building Utilities from Flood Damage, and the requirements pertaining to floodproofing of structures found in 44 C.F.R. §§ 60.3(b)(5) and (c)(4).

4.1 PRELIMINARY ELIGIBILITY

To be considered preliminarily eligible, a structure must meet these criteria:

1. The structure must be in the 0.1, 0.04 or 0.02 AEP year floodplain depending on the location of the structure, based on hydrologic conditions predicted to occur in 2026 (the beginning of the 50-year period of analysis) at a specific location.

2. The elevation or floodproofing measures proposed for the structure must be economically justified based on an aggregation or sub aggregation level, as defined herein.

3. The structure must have a permanent foundation and be deemed permanently immobilized and affixed or anchored to the ground as required by applicable law and must be legally classified as immoveable real property under state law.

4. Structure is located in an area where there is low velocity flooding (less than 3 ft/sec) and the flooding is not flashy (more than 1 hour of warning).

Wet floodproofing achieves flood damage risk reduction, but it is not recognized by the NFIP for any flood insurance premium rate reduction when applied to nonresidential and residential structures and may not be used under the NFIP for new or substantially damaged buildings located in a Special Flood Hazard Area.

4.2 SECOND STAGE OF ELIGIBILITY DETERMINATIONS

The secondary stage of eligibility determinations is the same as presented in Section 2.2 of this plan except it is for wet floodproofing and nonresidential structures.

4.3 WET FLOODPROOFING COSTS

Eligible costs. All wet floodproofing will require the issuance of local permits prior to any onsite construction. No Federal funds will be used to restore, replace, or repair the structure or bring the structures up to current building codes. Elements of structure work that are deemed to be potentially eligible wet floodproofing costs include, but are not limited to: design costs; costs of obtaining all required permits (i.e., zoning or land use approvals, environmental permits or required certifications, historic preservation approvals, building permits, etc.): costs for title searches and the review of title documents; survey and inspection costs; and costs for the following tasks:

- Wet floodproofing of the structure;
- Engineered flood vents;
- Flood-resistant construction materials such as rigid foam board wall insulation or cement board and molding within the interior of the building,
- Elevation and wet floodproofing of electric outlets,
- Concrete floor treatment and interior wall and floor sealer/stains;
- Exterior paint coatings;
- Sand/water blasting or other manual removal of rusted coatings and application of epoxy coatings;
- Elevation and wet floodproofing of mechanical and electrical equipment;
- Connecting, disconnecting, and extending utility connections for electrical power, fuel, incoming potable water, wastewater discharge;
- Removal of any trees which restrict access to floodproofing the structure;
- Temporary site protection measures during site work.

Unless otherwise limited by state, Federal, or local laws or ordinances or structural limitations, the wet floodproofing option that provides the greatest level of risk reduction based on the flooding at the 0.01 AEP floodplain based on 2076 hydrology, shall be the

option available to the owner of the structures. If additional work is required as a condition of building permit issuance, and if such work is not listed previously as eligible, the property owner will be required to complete the required work at the owner's sole expense.

Ineligible costs. The costs that exceed that which is necessary to safely wet floodproof a structure is deemed ineligible costs and any such costs remain the sole responsibility of the property owner. The following costs are ineligible:

- Any structural and system repair due to existing deficiencies;
- Modifications or improvements to a septic system except for extension of lines from the flood proofed structure to the existing system and back flow valves;
- Cost for wet floodproofing more than 3 feet above ground level;
- Modifications to structures that are not attached to the eligible structure;
- Modifications to tubs, pools, spas, hot tubs, and related structures or accessories;
- Relocation of movable objects that restrict the wet floodproofing of a structure;
- The proper remediation, removal and disposal of environmental contaminants including but not limited to HTRW, lead, asbestos, and asbestos-containing materials in damaged or friable form;
- Costs associated with bringing a non-conforming structure into compliance with current building code, housing code, and/or other applicable codes.

4.4 REAL ESTATE REQUIRED FOR WET FLOODPROOFING

A standard temporary work area easement will be required for the duration of construction of any improvements. A separate perpetual non-standard easement in the form of a "Land Use Restrictions Easement and Perpetual Access for Inspection and Project Monitoring Easement" (perpetual easement) which provides the necessary rights and restrictions to protect the federal investment will also be required. Such a non-standard estate will likely be proposed by CEMVN and submitted for approval by HQUSACE in accordance with the USACE regulations later in the study process. The contemplated perpetual easement will prohibit the grantors, heirs, successors, assigns, and all others from engaging in other uses of the structure or the land that would impair, contravene, or interfere with the integrity of the structure. Further, the perpetual easement would contain a reservation of rights and privileges in favor of the grantor(s),heirs, successors and assigns, of all such rights and privileges that can be made of the property without interfering with or abridging the rights, and restrictions imposed, but subject to existing easements for public roads and highways, public utilities, railroads and pipelines. The easement would also include a right of ingress and egress over and across the land by the Non-Federal Sponsor for inspection and monitoring of the structure and land for the enforcement of the rights and prohibitions

contained in the easement. A Real Estate Plan regarding the estates to be acquired will be developed during PED phase of the project.

SECTION 5

Flood Risk Reduction Actions to be taken by the Non-Federal Sponsor

The Non-Federal Sponsor will be required to undertake certain flood event risk reduction actions to comply with Section 402 of the Water Resources Development Act of 1986, as amended (33 U.S.C. 701b-12) (Section 402). These actions, include but are not limited to, actions to ensure the NFS government, and municipal and local governments within the parishes develop, comply, monitor, and enforce floodplain management plans, regulations, building codes, land use and zoning regulations, and any other developmental controls that are consistent and compliant with the requirements of Section 402 and the regulations promulgated thereunder. In addition, the NFS shall:

- Inform affected interests of the extent of protection afforded by the authorized plan not less than once each year;
- Participation in and compliance with applicable Federal floodplain management and flood insurance projects.
- Compliance with Section 402 of the WRDA of 1986, as amended (33 U.S.C. 701b-12), including the preparation of a floodplain management plan within one year after the date of execution of the Project Partnership Agreement (PPA); implementation of such plan not later than one year after completion of construction of the project, or functional elements of the project. The final authorized plan shall be designed to reduce the impacts of future flood events in the project area, including but not limited to, addressing those measures to be undertaken by non-Federal interests to preserve the level of flood risk reduction provided by the completed project. The NFS will provide an informational copy of the plan to USACE once the plan is finalized.
- Publication of floodplain information and provision of the information to zoning and other regulatory agencies for use in adopting regulations, or taking other actions, to prevent unwise future development and to ensure compatibility with the completed project.

Additionally, the NFS will be obligated to prevent obstructions or encroachments on the properties that have been flood proofed (including prescribing and enforcing regulations to prevent such obstructions or encroachments). Presently, many communities within Tangipahoa Parish participate in the NFIP (See FEMA Community Status Book, Louisiana, August, 2023 https://www.fema.gov/cis/LA.html).

SECTION 6
Performance of Work

The Plan may be implemented using one or more of the methods described in this Section. The “traditional method” of implementation is generally described in publications of the USACE National Nonstructural Committee and Flood Risk Management Planning Center of Expertise. Under the traditional method, USACE will procure contracts that will allow a contractor to perform floodproofing work on multiple structures through a series of one or more task orders. In such event, the selected contractor will generally be responsible for all work associated with the elevation and/or floodproofing from beginning to end (i.e., from plan approval, to construction, to final inspection and acceptance of the work by USACE). A design build contract will be used as a best practice.

It is anticipated that implementation of the Plan will occur over an approximate 10-year period after an 18-month PED phase. However, this timeframe is highly dependent upon the number of structures receiving NS measures, the amount of funding allocated in any given year, and the participation rate. The 10-year implementation schedule is based on the assumption that five separate USACE managed contractors would each floodproof and/or elevate 100 structures concurrently, thereby totaling approximately 500 structures to be elevated and/or floodproofed within a given year. The first 6 months of the implementation schedule will include a pilot program of approximately 10 structures to streamline processes needed with various stakeholders and contractors. The implementation of other USACE projects in Louisiana containing a NS plan were also considered in making the 500 structures a year assumption. The PDT also assumed that it would take a four-month period of time to complete the elevation or floodproofing on structures with a slab foundation, and a three-month period of time to complete the elevation or floodproofing of structures with a crawl foundation. If there is a cost associated with the residential structure elevation that is coverable by the program, then that cost would be paid by NFS and/or USACE and not by the structure owner. The structure owner would not be expected to pay the coverable cost and wait for reimbursement. The program would allow for direct payment to the contractor by the USACE for certain coverable elevation costs.

Maps of the eligible aggregate and sub-aggregation areas will be prepared by the PDT and regularly updated to depict the current stage of structure elevation eligibility. After the USACE confirms final eligibility, the right of entry granted by the property owner will authorize USACE, the NFS, and their respective contractors to enter upon the properties to implement the floodproofing measures and for inspection and enforcement purposes. The easements and any required releases and/or subordination agreements, shall be recorded by the NFS in the appropriate public records of the parish in which the property is located and shall be binding upon all of the owners, their heirs, assigns and successors in interest, as well as upon all tenants, third party interest holders and holders of any liens, mortgages, judgements, and encumbrances in the property. After the required documents are recorded, the required elevation or floodproofing work will be commenced, completed and inspected.

A certificate of occupancy must be issued by the appropriate qualified building official with jurisdiction to certify that the floodproofing or elevation work was completed properly and in accordance with the final USACE approved plans and specifications. Additionally for elevations, a professional land surveyor must verify that the structure has been elevated to the required elevation. When the elevation or floodproofing work is completed, all structures must be covered by flood insurance in an amount at least equal to the costs of the elevation or floodproofing work, or to the maximum limit of coverage made available with respect to the property, whichever is less. The NFS is responsible for ensuring and maintaining compliance with any enforceable restrictions for the structure and property. The property owner is required to operate and maintain the integrity of their specific NS measures. After final inspection, approval, and acceptance of the work by the District Engineer, a notice of construction completion (NCC) will be issued to the NFS, and the floodproofing or elevation work for the structure will be financially closed out by USACE.

SECTION 7
Strategy for Implementation

This section identifies the strategy for construction related to implementation of the flood risk NS measures included in this Plan. The strategy may be refined during PED if additional information is acquired, such as opportunities for cost efficiencies or issues with local contractor capacity. The strategy includes the criteria outlined below.

7.1 METHODS FOR SCHEDULING AND/OR PRIORITIZING

The scheduling and/or prioritization of residential structure elevations will be subject to the availability of Federal funds. The locations for scheduling and/or prioritizing the work will be determined during PED and conducted in an efficient and cost-effective manner. Some of the methods for scheduling and/or prioritizing NS work that will be considered as part of the prioritization process are as follows:

7.2 CRITICAL SERVICE AREAS OR COMMUNITY LIFELINES

Priority should be given to structures identified through collaboration of stakeholders, NFS and public input, that are in critical service areas and are community lifelines as identified by the recently developed 2019 *Office of Community Development State of Louisiana Master Action Plan for the utilization of Community Development Block Grant mitigation Funds*.

Critical service areas or community lifelines refer to indispensable services that enable continuous operation of critical business and government functions in the wake of a disaster event, and are essential to human health and safety, economic security, and foster community resilience. These include:

- Safety and security
- Communications
- Food, water, shelter
- Transportation
- Health/medical
- Hazardous material
- Energy

7.3 CLUSTERING / GROUPING

If numerous property owners in a contiguous neighborhood or subdivision agree to participate, that particular area could be targeted for priority in structure elevation and floodproofing implementation. A focus on clustered properties can create a ranking hierarchy

of which properties to address first. The size of a cluster will need to be defined, but could consist of zip codes or neighborhoods. This approach will rank efficiency as the main factor in determining which eligible properties should be prioritized.

7.4 CLUSTERING BASED ON SOCIALLY VULNERABLE COMMUNITIES

This methodology would identify populations in areas of social vulnerability using Centers for Disease Control (CDC) and Prevention and Agency for Toxic Substances and Disease Registry (ATSDR) Socially Vulnerable Index (SVI) most recent data. For this effort US percentile ranking may be chosen over Louisiana percentile ranking to ensure that all census tracts with potential SV area are captured. Detailed documentation of the SVI percentile ranking, and data dictionary can be found on the CDC's website.

7.4.1 Clustering Process:

The CDC-ATSDR's SVI help identify and map communities that will most likely need support before, during, and after hazardous events. The index evaluates census data for a range of variables that could make it more difficult to respond and recover from natural or human-made disasters. These variables are organized into overarching themes of vulnerability. The SVI value indicates the relative vulnerability of a geographic area at the census tract level for five themes, including socioeconomic, household characteristics, racial and ethnic minority status, housing type and transportation, and overall average of themes. The PDT evaluated data within the study area to identify areas with high (75th-100th percentiles relative to national value) and medium high levels (50th -74th percentiles relative to national value) of vulnerability for the five themes to identify areas of EJ concern. The use of SVI data allowed the team to better identify potential contributing factors to hazard vulnerability as well as its distribution in the Parish. Refer to Appendix E and Appendix G for more details on the methodology used and tract level summary data in the study area.

This approach would rank environmental and demographic data as the main factor in determining which eligible properties should be prioritized. Homeowners in disadvantaged communities or those living at or below the poverty level would be given priority.

7.5 FLOOD RISK-LEVEL

Willing property owners may not exist in clusters. In such cases, an alternative option is to focus on the willing property owners who have structures that exhibit the highest risk for flood damages. For example, if 500 property owners who reside in the 1% AEP floodplain will be prioritized for construction. Once these properties are elevated, the next highest-risk properties will be targeted. This approach will rank risk exposure as one of the main factors in determining which eligible properties should be prioritized.

7.6 FIRST-COME, FIRST-SERVED

This approach would involve creating a list of eligible structures that will be ranked based on how quickly elevation contractors can be procured and the processing of applications and the finalization of eligibility determinations. This approach would help ensure that resources will be used effectively by focusing on properties that have owner support for the residential structure elevations.

7.7 NONSTRUCTURAL PLAN IMPLEMENTATION TASKS

The below tables present the PDT's projection of implementation tasks. Project costs by implementation task and durations with assumptions will be developed during the feasibility level design phase. Table H: 7-1 displays, in sequential order, implementation tasks which are color-coded by the following categories of work: PED; Real Estate; Construction Management; Construction, and Contingency. The analysis assumes 100 percent participation. Table H: 7-2 presents a more detailed schedule, color-coded to match the first table for ease of reference. Additional details on specific tasks, work break down structure and activity-specific costs will be developed by the PDT early in the PED phase as part of the scoping and Project Management Plan (PMP) development (this will occur in conjunction with execution of the Design Agreement or Project Partnership Agreement.) Tasks and cost estimates are subject to significant change during the period of time between the signing of the Chief's Report and Congressional authorization and appropriation required to begin the project. Projected implementation tasks and costs will be developed in PED.

SECTION 8

Operation, Maintenance, Repair, Replacement, and Rehabilitation

There are no NFS OMRR&R obligations for the completed NS work other than the performance of monitoring and periodic inspections. The required inspection and monitoring of the completed NS work shall be detailed in the Final OMRR&R Manual issued by USACE to the NFS. These OMRR&R obligations shall commence upon the issuance of a Notice of Construction Completion (NCC) by USACE. In accordance with the requirements of the Final OMRR&R Manual, the NFS shall conduct periodic inspections at specified intervals and provide written certifications to USACE that the structures and lands have been inspected and documenting whether or not any violations have been found. NS Inspection/Implementation Checklist will be developed as part of the OMRR&R Manual.

Inspections by the NFS of elevated structures will determine among other things, that no part of the structure located below the level of the lowest habitable finished floor has been converted to living area for human habitation, or otherwise altered in any manner which would impede the movement of waters beneath the structure; that the area below the predicted 2083 100-year BFE is being used solely for the parking of vehicles, limited storage, or access to the structure and not for human habitation; that mechanical, electrical or plumbing devices have not been installed below the BFE; that the property is in compliance with all applicable floodplain ordinances and regulations. There may be exceptions to this based on individual structure but is to be documented and with reference to associated approval. USACE shall have the right, but not the obligation, to perform its own inspections of the elevated and flood proofed structures pursuant to the project. For all structure types (residential and nonresidential) OMRR&R costs are expected to be ‘de minimus’. Costs for these efforts have not yet been calculated but will be included in the final Integrated Feasibility Report and Environmental Assessment.

Once issued the NCC, the property owner shall be responsible for all costs and risk associated with maintaining, repairing, rehabilitating, and replacing the completed floodproofing measures on the property.

SECTION 9
References and Resources

Websites:

https://www.fema.gov/cis/LA.html

SECTION 10

Acronyms, Abbreviations, and Definitions Related to the Nonstructural Plan

Term	Definition
AEP	Annual Exceedance Probability (AEP) means the probability that a given rainfall total accumulated over a given duration will be exceeded in any one year.
Base Flood	The term “base flood” is defined by the National Flood Insurance Project (NFIP) as the “flood having a 1 percent chance of being exceeded in any given year and is also called the 1% annual exceedance probability flood”.
Base Flood Elevation (BFE)	The computed elevation to which floodwater is anticipated to rise during the base flood. The base flood elevation or BFE is shown on community’s Flood Insurance Rate Map (FIRM).
Dry Floodproofing	Dry floodproofing consists of sealing all areas of a structure up to a maximum of approximately 3 feet above ground level to reduce damage caused flooding by making walls, doors, windows and other openings resistant to penetration by water. Walls are coated with sealants, waterproofing compounds, or plastic sheeting. Back-flow from water and sewer lines is prevented by installing mechanisms such as drain plugs, standpipes, grinder pumps, and back- up valves. Openings, such as doors, windows, sewer lines, and vents, may also be closed temporarily with sandbags or removable closures, or closed permanently.
Economically Justified	The elevation or floodproofing measures proposed for the structure must be economically justified based on an aggregation or sub aggregation level that are anticipated to be avoided over the 50-year period of analysis (years 2033-2083) unless they have been identified eligible based on social vulnerability (SV) criteria and included in the next highest aggregation regardless of economic justification.
Elevation (of	The entire foundation of the residential structure

structure)	will be lifted and placed on a new foundation (i.e., columns, piers, posted or raised foundation walls) so that the lowest habitable finished flood is above the design water surface elevation. All utilities and mechanical equipment, such as air conditioners and hot water heaters, will also be raised to this elevation. This measure is applicable to permanent residential structures only.
Eligible structures	Structures that are determined by the United States Army Corps of Engineers (USACE) to be eligible for floodproofing or elevation after the completion of the investigations and analyses as described herein in the secondary eligibility description.
First Floor Elevation (FFE)	First floor elevation or FFE refers to the height of the first lowest floor of the structure above the adjacent grade. The higher the FFE of a structure, the less likely that flood damage to the structures will occur.
Floodproofing	As defined by the Federal Emergency Management Agency (FEMA) in 44 CFR, Chapter 1, Part 59, “floodproofing” means any combination of structural and nonstructural additions, changes, or adjustments to structures that reduce or eliminate flood damages to real estate or improved real property, water and sanitary facilities, structures, and their contents.
Hazardous, Toxic and Radioactive Waste (HTRW)	HTRW means hazardous, toxic, and radioactive waste as more specifically defined in Engineer Regulation (ER) 1165-2-132, “Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects”.
Historic Structure	As defined in 44 CFR Part 59, a historic structure is a structure that is: (1) listed individually in the National Register of Historic Places (maintained by the Department of the Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register; (2) certified or preliminarily determined by the Secretary of the Interior as contributing to

	the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district; (3) individually listed on a state inventory of historic places with historic preservation projects which have been approved by the Secretary of the Interior; and (4) individually listed on a local inventory of historic places in communities with historic preservation projects that have been certified either by (a) an approved state project as determined by the Secretary of the Interior or; (b) directly by the Secretary of the Interior in states without approved projects.
Manufactured Home	"Manufactured home" and "manufactured housing" mean a factory-built, residential dwelling unit constructed to standards and codes, as promulgated by the United States Department of Housing and Urban Development, under the National Manufactured Housing Construction and Safety Standards Act of 1974, 42 U.S.C. 5401 et seq., as amended. Further, the terms "manufactured home" and "manufactured housing" may be used interchangeably and apply to structures bearing the permanently affixed seal of the United States Department of Housing and Urban Development. To be eligible for elevation, a manufactured home must have a permanent foundation, be permanently affixed to the ground, meet the anchoring, construction, installation and other requirements of La. R.S. 51:912, ART XIV-B., and be legally classified as immoveable real property under state law. Notwithstanding the provisions of La. R.S. 9:1149.6, the manufactured homeowner and any subsequent owner of an immobilized manufactured home, may not de-immobilize the manufactured home in the future by detachment, removal, authentic act of de-immobilization, or any other method.
Mobile Home	"Mobile home" means a factory-built, residential dwelling unit built to voluntary standards prior to the

	passage of the National Manufactured Housing Construction and Safety Standards Act of 1974. This term includes and is interchangeable with the term "house trailer" but does not include the term "manufactured home." To be eligible for elevation, a mobile home must have a permanent foundation, be permanently immobilized in accordance with the requirements of La. R.S. 9:1149.4, as amended from time to time, and be legally classified as immoveable real property under state law. Notwithstanding the provisions of La. R.S. 9:1149.6, the mobile homeowner and any subsequent owner of an immobilized mobile home, may not de-immobilize the mobile home in the future by detachment, removal, authentic act of de-immobilization, or any other method.
Modular Home	"Modular home" and "modular housing" mean a factory-built, residential dwelling unit built to the International Residential Code as adopted by the Louisiana State Uniform Construction Code Council pursuant to La. R.S. 51:911.22, as amended from time to time. To be eligible for elevation, a modular home must have a permanent foundation, be permanently affixed to the ground, be legally classified as immoveable real property under state law, and meet the anchoring, construction, installation, and other requirements of La. R.S. 51:912, ART XIV-B. Notwithstanding the provisions of La. R.S. 9:1149.6, the modular homeowner and any subsequent owner of a modular home, may not de-immobilize the modular home in the future by detachment, removal, authentic act of de-immobilization or any other method.
National Flood Insurance Program (NFIP)	The NFIP is a program that makes federally-backed flood insurance available in those states and communities that agree to adopt and enforce flood-plain management ordinances to reduce future flood damage. The program of flood insurance coverage and floodplain management administered under the Act and applicable federal regulations promulgated in Title 44 of the Code of Federal Regulations, Subchapter B.
Non-Federal Interest (NFI)	The NFI plans to act as the sponsor, including any non-Federal interest that has contributed to, or is expected to contribute to, the non-Federal cost share of the

	proposed feasibility study or project modification.
Non-Federal Sponsor (NFS)	The NFS is the cost-sharing partner for the design, construction of the project, as well as for the Operation, Maintenance, Repair, Rehabilitation and Replacement (OMRR&R) of the project.
Nonstructural Measures	Nonstructural floodproofing measures are permanent or contingent measures applied to a structure and/or its contents that prevent or provide resistance to damage from flooding. Nonstructural food proofing measures differ from structural floodproofing measures (i.e., levees, floodwalls, etc.) in that they focus on reducing the consequences of damages from flood events instead of focusing on reducing the probability of damages from flood events.
Nonstructural Plan	Nonstructural measures are permanent or contingent measures applied to a structure and/or its contents that prevent or provide resistance to damages from flooding. Nonstructural Plan measures differ from structural measures in that they focus on reducing consequences of flooding instead of focusing on reducing the probability of flooding. Nonstructural measures reduce flood damages without significantly altering the nature or extent of flooding. The Nonstructural measures for this report include the elevation of eligible residential structures and floodproofing of eligible nonresidential structures.
Nonresidential Structure	A nonresidential structure constitutes those not previously defined as residential.
Preliminary Structure Eligibility Criteria	To be considered preliminarily eligible for participation in the Nonstructural Pla, a structure must meet these criteria: 1. The structure must have a first-floor elevation at or below the applicable floodplain (which may be 10%, 4% or 2% AEP floodplain depending on the location of the structure), based on hydrologic conditions predicted to occur in 2033 (the beginning of the 50-year

	period of analysis) at a specific location. 2. The elevation or floodproofing measures proposed for the structure must be included in a plan. The structure must have a permanent foundation and be deemed permanently immobilized and affixed or anchored to the ground as required by applicable law and must be legally classified as immoveable real property under state law. Notwithstanding the provisions of La. R.S. 9:1149.6, a manufactured, modular or mobile homeowner and any subsequent owner of an immobilized manufactured, modular or mobile home, may not de- immobilize the manufactured, modular or mobile home in the future, by detachment, removal, act of de-immobilization, or any other method. Manufactured, modular and mobile homes that do not meet these requirements are not eligible for elevation. This criterion only applies to residential uses of manufactured, modular, and mobile homes.
Residential Structure	One- or two-family dwellings which are 3-stories or less in height intended for human habitation, for living, sleeping, cooking or eating purposes, or any combination thereof as defined by International Residential Code Chapter 11 Section N1101.6.
Special Flood Hazard Area (SFHA)	An area having special flood, mudflow or flood-related erosion hazards and shown on a Hazard Boundary Map or a Flood Insurance Rate Map (FIRM) Zone A, AO, A1-A30, AE, A99, AH, AR, AR/A, AR/AE, AR/AH, AR/AO, AR/A1-A30, V1-V30, VE or V. The Special Flood Hazard Area (SFHA) is the area where the NFIP's

	floodplain management regulations must be enforced.
Wet Floodproofing	Wet floodproofing prevents or provides resistance to damage from flooding while allowing floodwaters to enter the structure or area and equalize pressures on foundation walls or lower-level walls. A key feature associated with wet floodproofing are openings to allow floodwaters in, consisting of engineered flood vents in the structure walls.
HQUSACE	United States Corps of Engineers Headquarters
FRM	Flood Risk Management
CSRM	Coastal Storm Risk Management
ER	Engineering Regulation
USACE	United States Army Corps of Engineers
OMRR&R	Operation, Maintenance, Repair, Replacement, And Rehabilitation
CPRAB	Coastal Protection and Restoration Authority Board
PED	Preconstruction Engineering and Design
NED	National Economic Development
ASA-CW	Assistant Secretary of the Army (Civil Works)
WSE	Water Surface Elevation
ASTM	American Society for Testing and Materials
ESA	Environmental Site Assessment
URA	Uniform Relocation Assistance
PDT	Project Delivery Team
ROW	Right-Of-Way
CEMVS	St. Louis District
CEMVN	New Orleans District
FEMA	Federal Emergency Management Agency
NCC	Notice of Construction Completion

CDC	Center for Disease Control and Prevention
SVI	Socially Vulnerable Index
PMP	Project Management Plan
PPA	Project Partnership Agreement