Gulf Coast Ecosystem Restoration Council
Finding of No Significant Impact
City of Loxley Corn Creek Tributary Restoration Project - Implementation

The Gulf Coast Ecosystem Restoration Council (RESTORE Council or Council) hereby adopts the December 10, 2021 U.S. Army Corps of Engineers (USACE) Environmental Assessment (EA) prepared for Clean Water Act Section 404 nationwide permit 27 (NWP 27) for aquatic habitat restoration, enhancement and establishment (2021 EA). The Council is adopting the 2021 EA in order to address requirements of the *National Environmental Policy Act* (NEPA) (42 U.S.C. §§ 4321 et seq.) associated with the approval of implementation funding for the "City of Loxley Corn Creek Tributary Restoration" project sponsored by the Alabama Department of Conservation and Natural Resources (ADCNR) and located in Baldwin County, Alabama. This project is a component of the Funded Priorities List (FPL) 3b Coastal Alabama Regional Water Quality Program.

The Council has reviewed the 2021 EA and determined that it addresses the environmental effects of the activity to be funded. On November 13, 2023, the Council opened a public comment period on this proposed project and the associated environmental compliance documentation. (This public notice also sought comment on the Council's proposal to approve implementation funding for the separate "Carpenter Creek Bayou Texar Watershed Outfalls" project in the state of Texas.) The public comment period ended on December 12, 2023. The Council received no public comments on the proposed funding approval.

The Council has determined that approval of funding for the City of Loxley Corn Creek Tributary Restoration project would not result in a significant effect on the human environment. The following is a brief description of the activity to be funded, the 2021 EA being adopted by the Council, and contact information pertaining to this action.

Funded Activity

FPLs include activities in two categories. Category 1 activities are approved for funding via a Council vote as set forth in the RESTORE Act (33 U.S.C. § 1321 (t) and *note*). To be approved in Category 1, a project or program must have documentation demonstrating that all applicable environmental laws have been addressed. For example, a construction project would need documentation demonstrating compliance with the NEPA and other applicable laws. Category 2 activities are Council priorities for potential future funding, but are not approved for funding. These are projects and/or programs that are not yet in a position to be approved by the Council, but which the Council considers to be worthy of potential future funding. A Council vote and FPL amendment are required to move an activity from Category 2 to Category 1.

The Council has voted to amend FPL 3b and approve $2,123,000 in Category 1 implementation funding for the City of Loxley Corn Creek Tributary Restoration project. These implementation funds were originally budgeted in FPL 3b Category 2.

This project will restore a channelized tributary to Corn Creek, which feeds into Fish River, Weeks Bay, and eventually Mobile Bay. This tributary runs through the Loxley Elementary School property and the City of Loxley's utilities property. These large open floodplain areas provide an opportunity to improve sinuosity and construct a more natural stream. The project will restore a tributary reach of approximately 2,660 feet with off-channel stormwater management areas utilizing Low Impact Development techniques such as bioretention cells and constructed stormwater wetlands to reduce nutrient and sediment loading. In addition, riparian buffer vegetation and interpretive signage will be established to provide a "hands-on" learning environment for the elementary school students and faculty and provide a significant enhancement to the visual aesthetics of the area. Environmental benefits include improved water quality and ecosystem function/habitat along the restored stream. The plan includes sediment removal in the existing infrastructure or pipes and culverts to avert resuspension and transport downstream.

More information on the RESTORE Act and FPL 3b can be found at www.restorethegulf.gov.

Environmental Compliance

On June 16, 2023, the City of Loxley received Clean Water Act Section 404 authorization under the Department of Army Nationwide Permit 27. To comply with NEPA, the Council is adopting the 2021 EA. ADCNR also completed additional environmental compliance with the Fish and Wildlife Coordination Act (FWCA), Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA) in coordination with the U.S. Fish and Wildlife Service (USFWS), and the Alabama Historical Commission. The Council has reviewed the applicable environmental compliance documentation. To ensure compliance with FWCA, ESA, NHPA, and other relevant laws, the Council will require that the sponsor of the project adhere to all applicable conditions in the Nationwide Permit 27 authorization and the associated environmental compliance documents.

Finding of No Significant Impact

Based on an independent review of the information and analysis provided in the 2021 EA, the Council hereby issues this Finding of No Significant Impact (FONSI) for the City of Loxley Corn Creek Tributary Restoration project. This determination is based on consideration of the factors listed in the NEPA regulations issued by the Council on Environmental Quality (40 CFR Parts 1500 Through 1508). The RESTORE Council has authorized the Executive Director of the RESTORE Council to execute this FONSI on its behalf.

Determination by Responsible Official

Based on the foregoing, on January 17, 2023, the RESTORE Council voted to (i) adopt the 2021 EA, and (ii) amend FPL 3b to approve $2,123,000 in implementation funding for the City of Loxley Corn Creek Tributary Restoration project.

I have determined that this proposed activity would not have a significant effect on the human environment.

Mary Walker
Executive Director, Gulf Coast Ecosystem Restoration Council

(Signature) MARY WALKER Digitally signed by MARY WALKER Date: 2024.01.17 15:00:56 -06'00'

For Further Information

For further information, please contact John Ettinger, Director of Policy and Environmental Compliance, Gulf Coast Ecosystem Restoration Council, at (504) 444-3522 or by e-mail at john.ettinger@restorethegulf.gov.

US Army Corps of Engineers

This notice of authorization must be conspicuously displayed at the site of work.

A permit to perform work authorized by statutes and regulations of the Department of the Army at

Baldwin County Parcel Numbers 05-42-05-15-1-000-015.000 and 05-42-05-15-0-000-023.000, near 4999 and 5151 County Road 49; in Loxley, Baldwin County, Alabama

has been issued to City of Loxley, Attention: Mayor Richard Teal **on** June 16, 2023

Address of Permittee: 1089 South Hickory Street, Loxley, Alabama 36551

PERMIT NUMBER

SAM-2023-00338-JCC

Digitally signed by Jessica Crochet Comeaux
Date: 2023.06.16 11:46:54 -05'00'

Jessica Comeaux, Senior Project Manager

South Alabama Branch, Regulatory Division

For the **District Commander**

ENG FORM 4336, Jul 81 (33 CFR 320-330) EDITION OF JUL 70 MAY BE USED

Proponent: CECW-O

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, MOBILE DISTRICT
P.O. BOX 2288
MOBILE, AL 36628-0001

June 16, 2023

South Alabama Branch
Regulatory Division

SUBJECT: Department of the Army Nationwide Permit, File Number SAM-2023-00338-JCC, City of Loxley, Baldwin County, Alabama

City of Loxley
Attention: Mayor Richard Teal
Email Address: RDavis@townofloxley.org
1089 South Hickory Street
Loxley, Alabama 36551

Dear Mayor Teal:

This letter is in response to your request for verification of Department of the Army Nationwide Permit (NWP) authorization to realign and restore an unnamed tributary to Fish River. The project has been assigned file number SAM-2023-00338-JCC, which should be referred to in any future correspondence with this office concerning this project. The project is located at Baldwin County Parcel Numbers 05-42-05-15-1-000-015.000 and 05-42-05-15-0-000-023.000, near 4999 and 5151 County Road 49; at Latitude 30.612974° North, Longitude -87.759191° West; within Section 15, Township 5 South, Range 3 East; in Loxley, Baldwin County, Alabama.

Department of the Army permit authorization is necessary because your project involves work and fill in waters of the United States, including wetlands, under our regulatory jurisdiction. The project activities include the placement of 1,375 cubic yards of fill material within 22,960 square feet (0.53-acre) of wetlands and 2,516 linear feet of an existing, modified stream channel for the realignment and restoration of 2,660 linear feet of stream. The construction will occur in three phases and will attenuate stormwater flow and reduce nutrient and sediment transport downstream. Phase 1 will restore approximately 1,760 feet of stream, phase 2 will restore approximately 900 feet of stream, and phase 3 will remove sediment from existing pipes and culverts. Heavy machinery will be used to reshape and realign the channel and will require impacts to 8,390 square feet (0.193-acre) of Wetland 1 and 14,570 square feet (0.334-acre) of Wetland 2, as identified on the attached site plans. All fill material used will be native to the project site and will be used to promote positive drainage to the proposed new channel alignment. Native wetland vegetation will be planted at appropriate heights within 126,504 square feet (2.9 acres) surrounding the new stream corridor to reduce erosion and stabilize the realigned channel.

Based upon the information and plans you provided, we hereby verify the work described above, which would be performed in accordance with the attached drawings, is authorized by NWP 27, *Aquatic Habitat Restoration,* in accordance with 33 CFR Part 330 of our regulations. This NWP and associated Regional and General Conditions are attached for your review and compliance.

This verification is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked prior to March 14, 2026. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to commence this activity before the date the relevant NWP is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

Your use of this NWP is subject to the following special conditions:

a. The activity shall be conducted in accordance with the information submitted and meets the conditions applicable to the NWP, as described at Parts B and C of the NWP Program and State Regional Conditions.

b. The disposal of trees, brush and other project related debris in any wetland, stream corridor or other surface water is prohibited. Trees, brush, other debris, excess soil and other materials generated from project construction must be removed to an upland disposal area.

c. It is the responsibility of the permittee to ensure that all persons and contractors working on this project are aware of all general and special conditions of the permit. A copy of the permit and its general and special conditions shall remain on site at all times during construction.

d. Within 30 days of completion of the work authorized, the attached Compliance Certification form must be completed and submitted to the USACE.

e. The attached yellow Notice of Authorization sign must be posted prominently at the site during construction of the permitted activity.

f. Best Management Practices (BMPs) shall be implemented to minimize the loss of turbidity and sediment to adjacent wetlands and waters of the United States. Appropriate erosion, sediment, and turbidity control measures must be utilized and maintained in effective operating condition during construction. All exposed soil surfaces and fill material must be permanently stabilized at the earliest practicable opportunity and all temporary erosion control features shall remain in place until permanent stabilization measures have been completed and become fully effective.

g. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to preconstruction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Nothing in this letter shall be construed as excusing you from compliance with other federal, state, or local statutes, ordinances, or regulations which may affect this work. Revisions to your proposal may invalidate this authorization. In the event changes to this project are contemplated, it is recommended that you coordinate with us prior to proceeding with the work.

You are receiving an electronic copy only of this verification letter. If you wish to receive a paper copy, you should send a written request to this office at the following address: U.S. Army Corps of Engineers, Mobile District, Regulatory Division, Post Office Box 2288, Mobile, Alabama 36628. Electronic copies of this letter are also being sent to your agent, Thompson Engineering, Inc., Attention: Mr. Cade Burgin, at cburgin@thompsonengineering.com; and to the Alabama Department of Environmental Management, Mobile Branch / Coastal Section, Attention: Mr. Scott Brown, at coastal@adem.alabama.gov.

Please contact me at (251) 508-4266, or by e-mail at Jessica.C.Comeaux@usace.army.mil if you have any questions. For additional information about our Regulatory Program, visit our web site at http://www.sam.usace.army.mil/Missions/Regulatory.aspx, and please take a moment to complete our customer satisfaction survey. Your responses are appreciated and will allow us to improve our services.

Sincerely,

Digitally signed by Jessica Crochet Comeaux
Date: 2023.06.16 11:42:36 -05'00'

Jessica C. Comeaux
Senior Project Manager
South Alabama Branch
Regulatory Division

Attachments

When the structures or work authorized by this nationwide permit (file number **SAM-2023-00338-JCC**) are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____

(TRANSFEREE) (DATE)

COMPLIANCE CERTIFICATION

US Army Corps of Engineers
Mobile District

Permit Number: **SAM-2023-00338-JCC**

Name of Permittee: **City of Loxley, Attention: Mayor Richard Teal**

Date of Issuance: **June 16, 2023**

Upon completion of the activity authorized by this permit and any mitigation required by the permit, please sign this certification and return it to the following address:

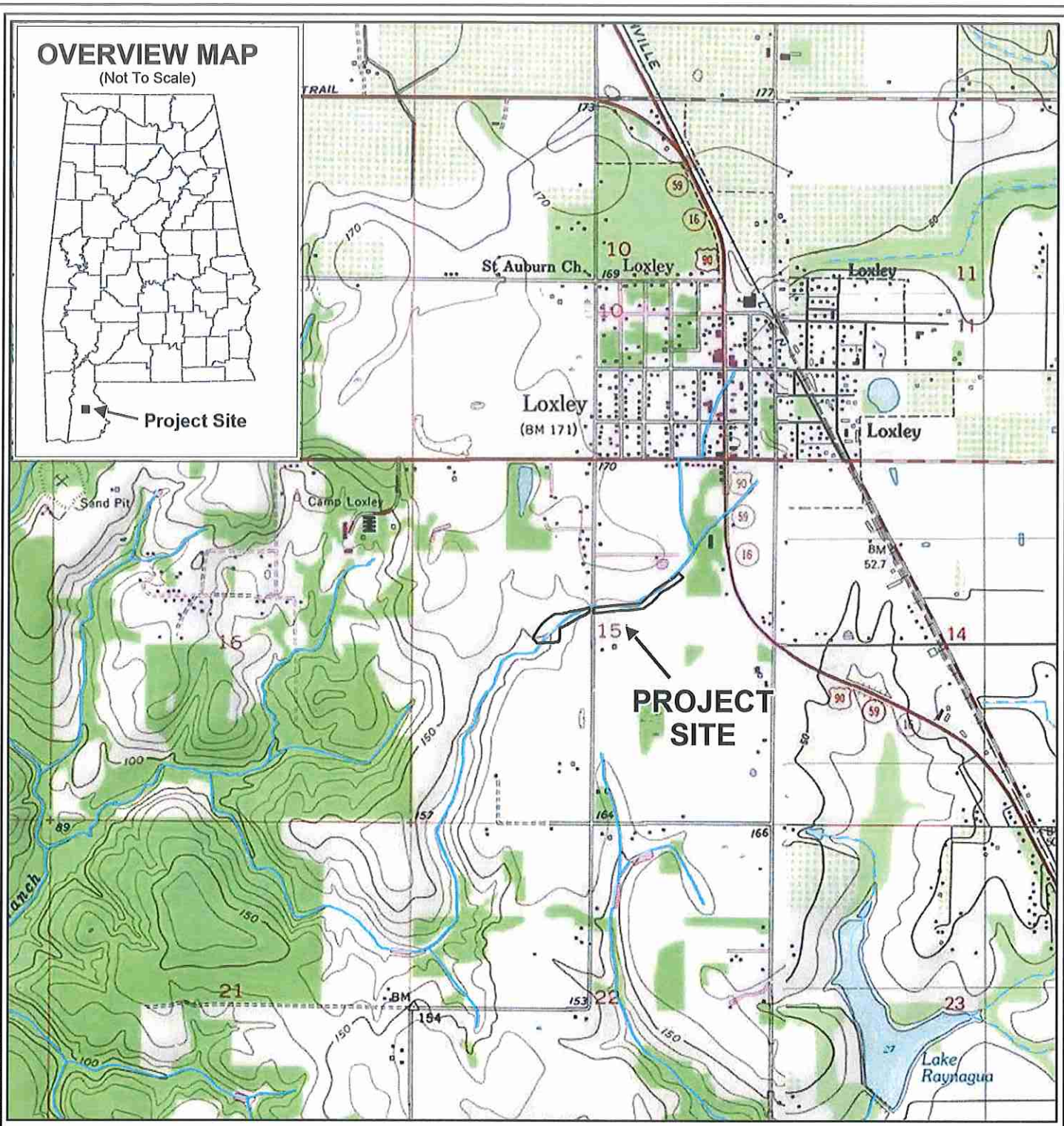
U.S. Army Corps of Engineers
Mobile District
Regulatory Division
Post Office Box 2288
Mobile, Alabama 36628-0001

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with all terms and conditions of this permit, the permit is subject to permit suspension, modification, or revocation and you are subject to an enforcement action by this office.

I hereby certify that the work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of the said permit including any general or specific conditions, and the required mitigation was completed in accordance with the permit conditions and documentation required by 33 CFR 332.3(l)(3) has been provided to this office.

_____ _____

Signature of Permittee Date



LEGEND

Project Site

1:24,000

0 2,000 4,000 Feet

1 in = 2,000 ft

N

NOT A SURVEY - For representation purposes only.

CITY OF LOXLEY
CORN BRANCH RESTORATION
NATIONWIDE PCN APPLICATION
BALDWIN COUNTY, ALABAMA

thompson ENGINEERING

FIGURE 1
VICINITY MAP

PROJECT NO.:	DATE:
22-1101-0132	MARCH 2023

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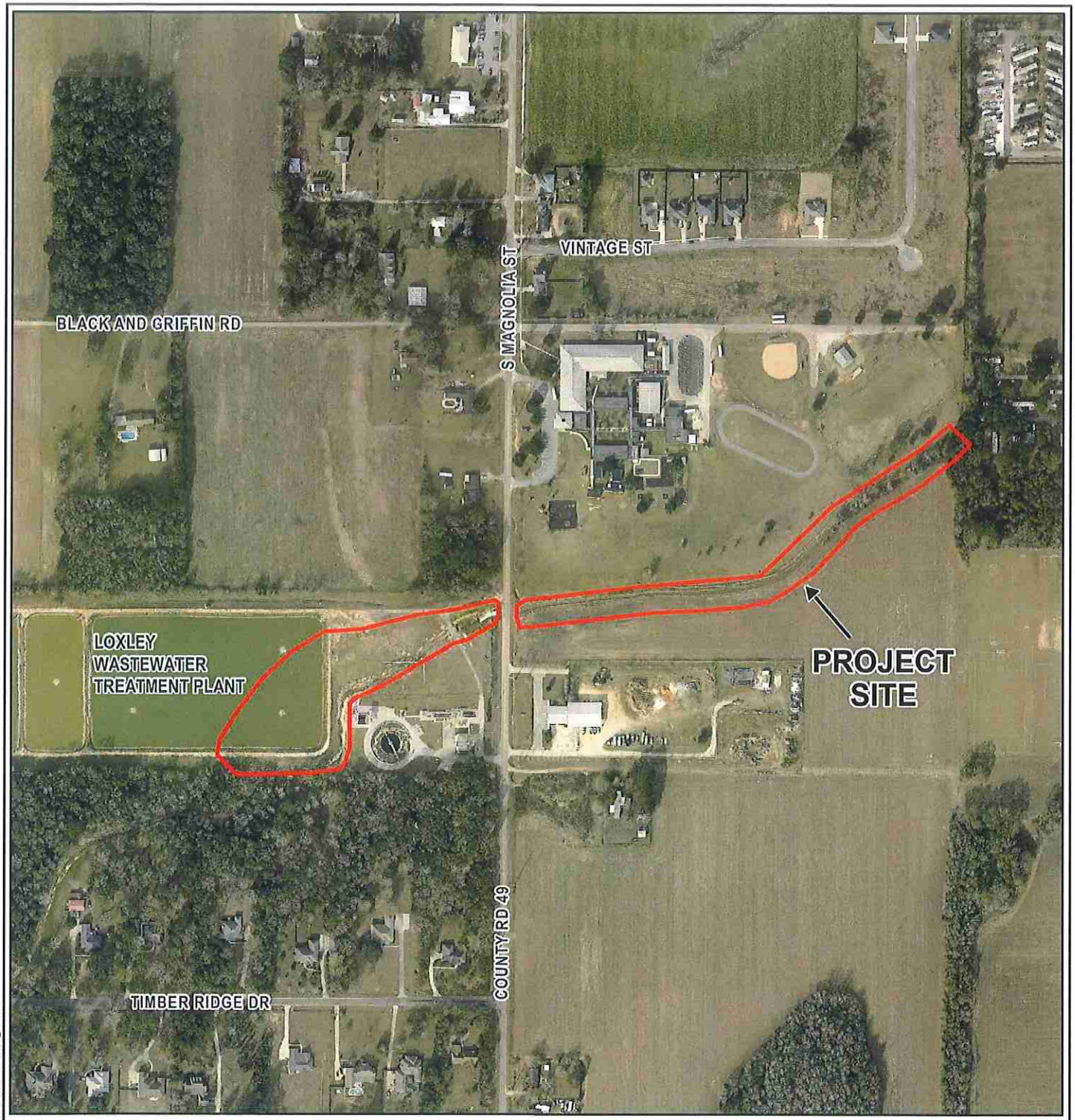

LEGEND

Project Site

1:4,800

0 400 800 Feet

1 in = 400 ft

N

NOT A SURVEY - For representation purposes only.
Baldwin County 2018 Imagery - 1 Foot Resolution

CITY OF LOXLEY CORN BRANCH RESTORATION NATIONWIDE PCN APPLICATION BALDWIN COUNTY, ALABAMA	thompson ENGINEERING	FIGURE 2 AERIAL PHOTOGRAPH PROJECT NO.: 22-1101-0132 DATE: MARCH 2023

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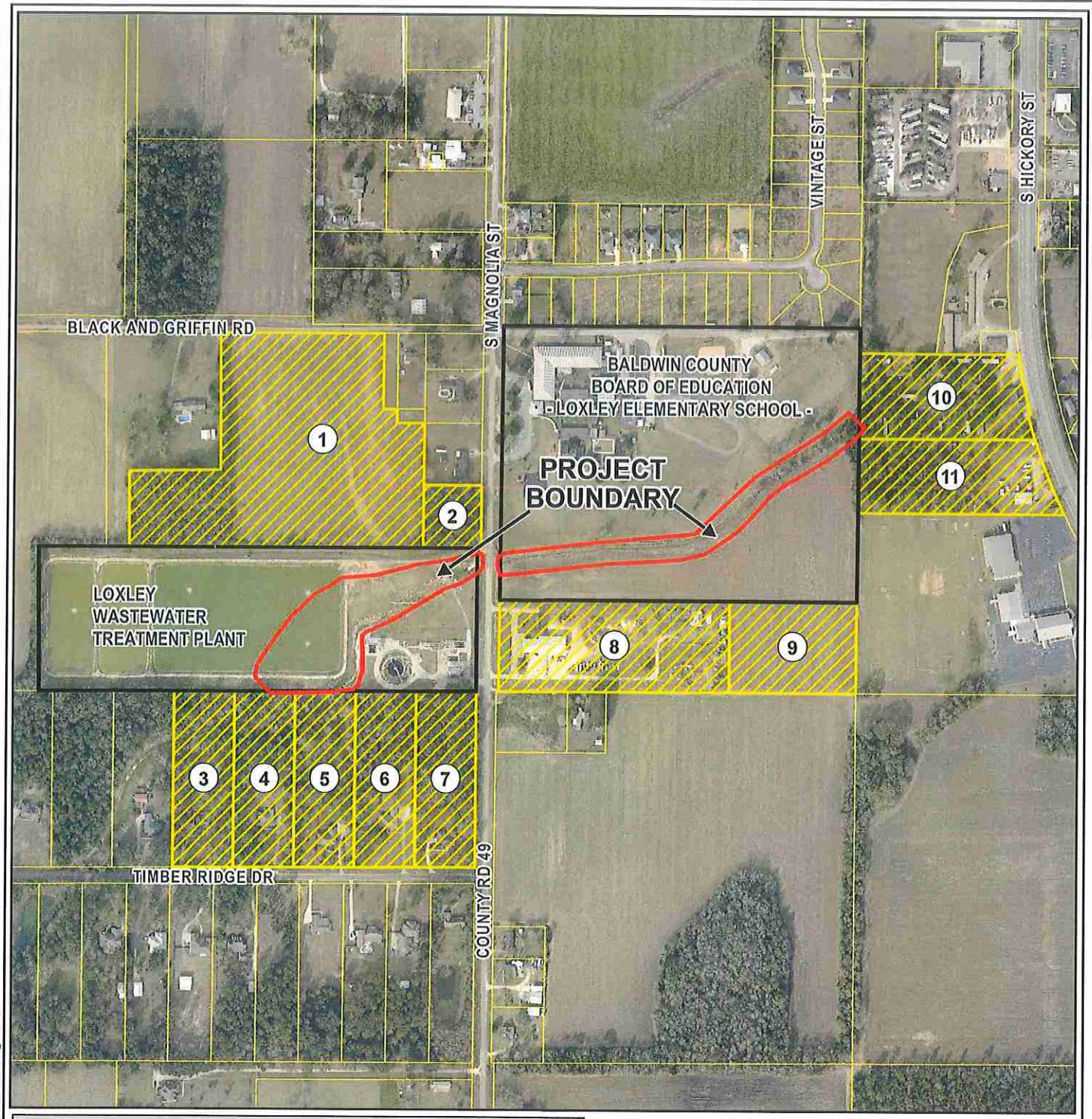

LEGEND

- Project Parcels
- Adjacent Property Owner
- Parcel Line
- Project Boundary

1:6,000

0 400 800 Feet

1 in = 500 ft

N

NOT A SURVEY - For representation purposes only.
Baldwin County Parcel Data - Dec. 2020 - Ownership Details provided in attached table.
Baldwin County 2018 Imagery - 1 Foot Resolution

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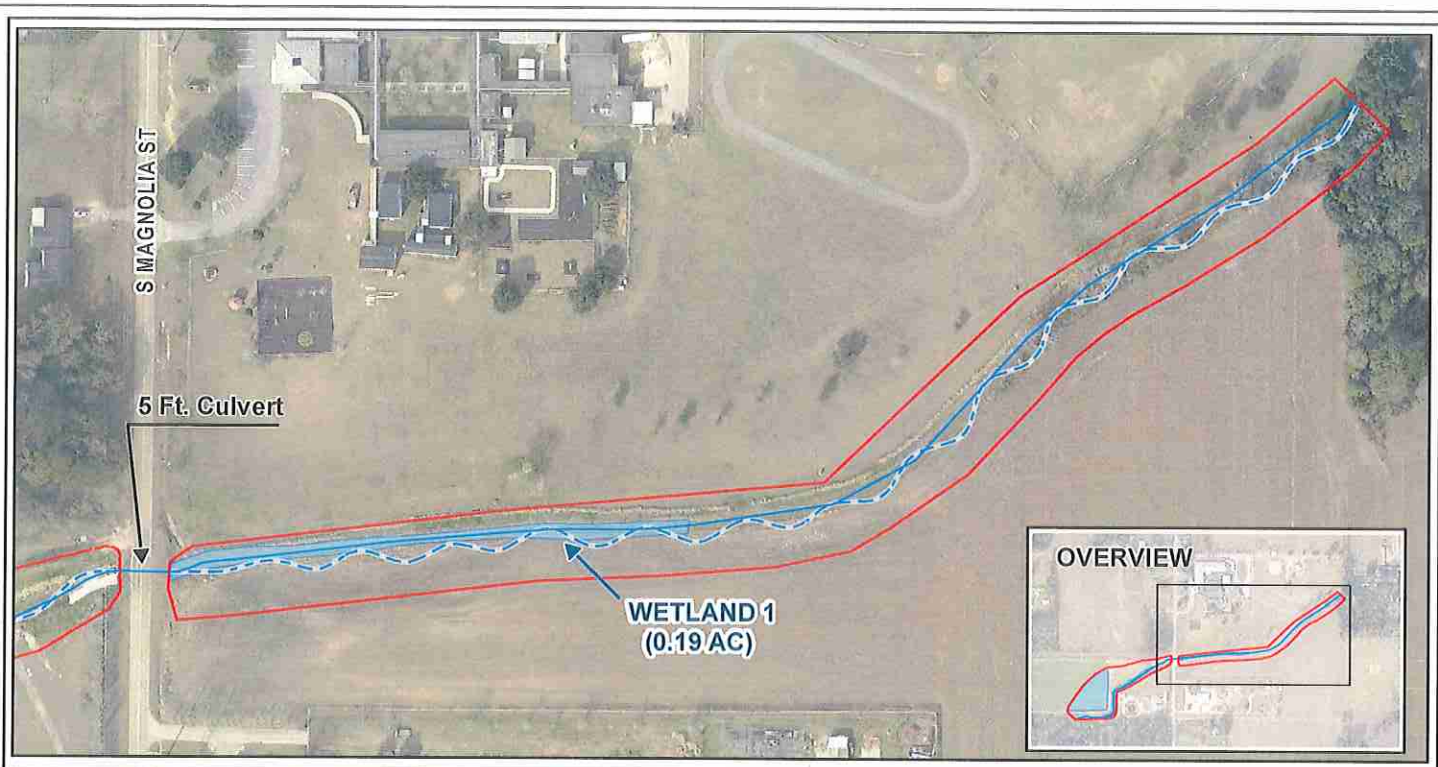
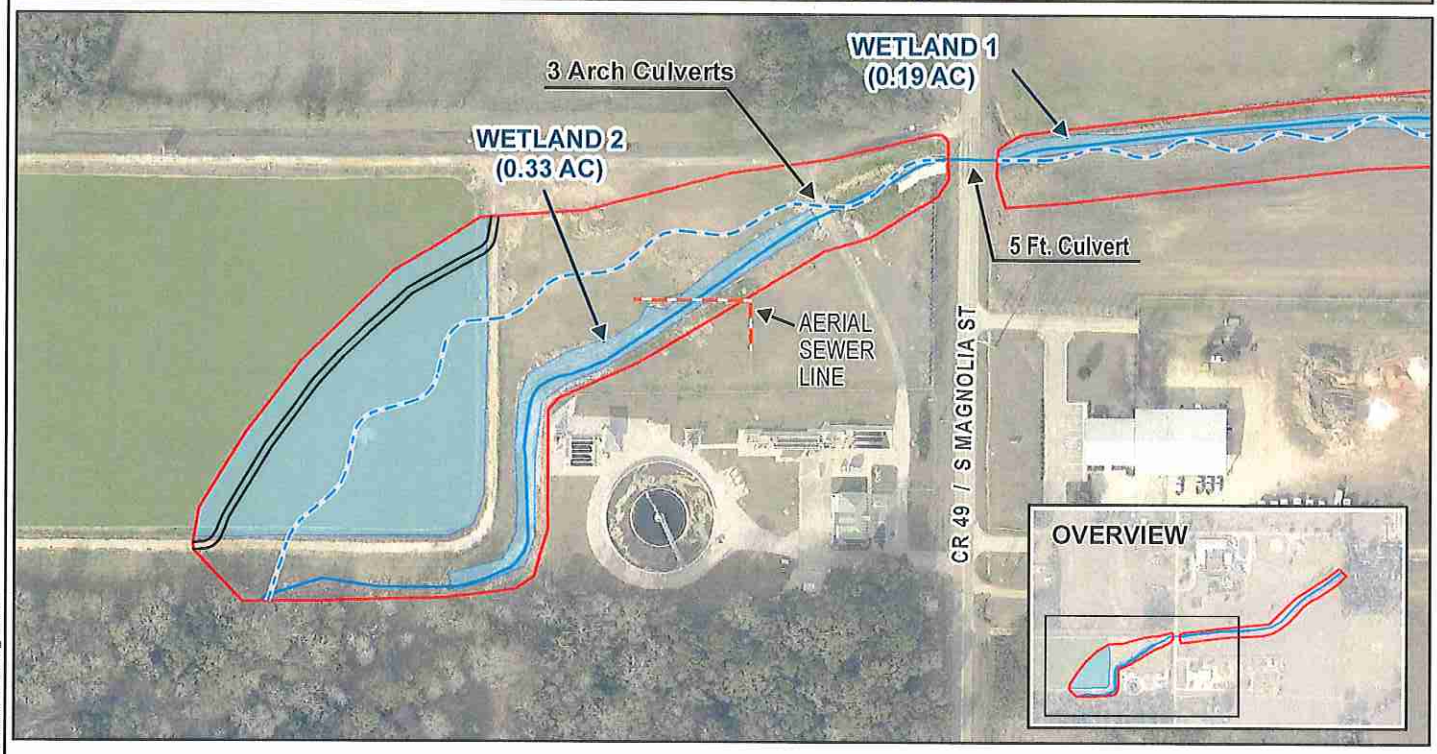
CITY OF LOXLEY
CORN BRANCH RESTORATION
NATIONWIDE PCN APPLICATION
BALDWIN COUNTY, ALABAMA

thompson ENGINEERING

FIGURE 3
ADJACENT PROPERTY OWNERS

PROJECT NO.:	DATE:
22-1101-0132	MARCH 2023





LEGEND

- Stream Delineation*
- Wetland Delineation*
- Project Boundary
- Proposed Levee
- Proposed Stream Alignment

1:2,400

0 200 400 Feet

1 in = 200 ft

N

*Thompson Wetland and Stream Field Survey, January 2023
Baldwin County 2018 Imagery - 1 Foot Resolution

CITY OF LOXLEY CORN BRANCH RESTORATION NATIONWIDE PCN APPLICATION BALDWIN COUNTY, ALABAMA	thompson ENGINEERING	FIGURE 4 WETLAND IMPACTS PROJECT NO.: 22-1101-0132 DATE: MARCH 2023

P:\2022\Projects\1101\22-1101-0132 Loxley Corn Branch Restoration\Working\Environmental\GIS\MXD\PERMIT_FIG4.mxd

NOT FOR CONSTRUCTION

REVISION NO.	DESCRIPTION	DATE	BY
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REVISION NO. A	90% DESIGN SUBMITTAL	DATE 3/17/23	BY NTC

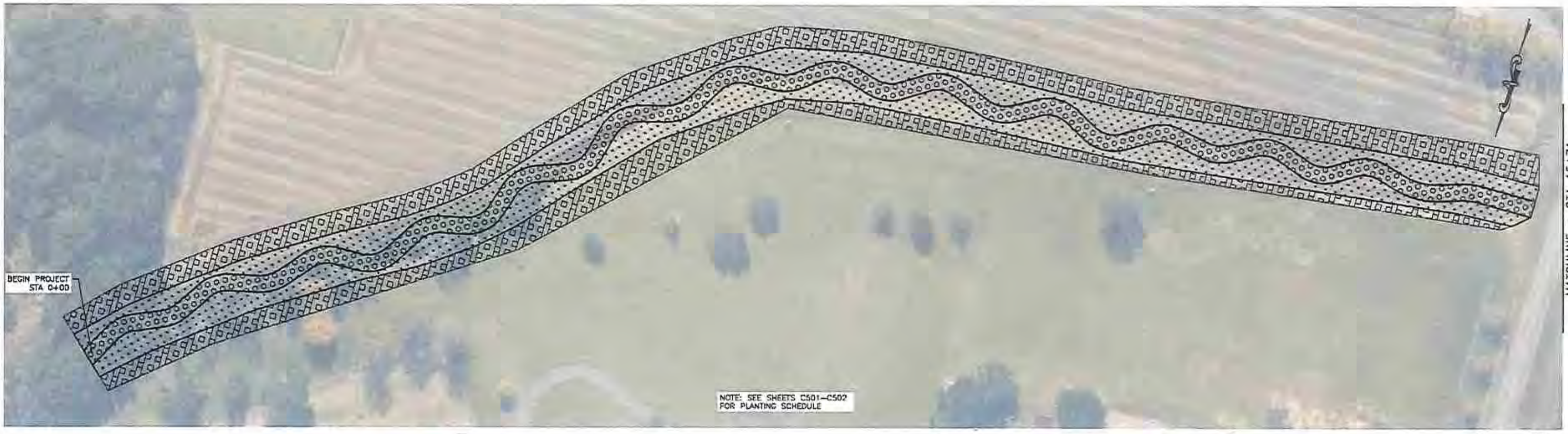
CITY OF LOXLEY

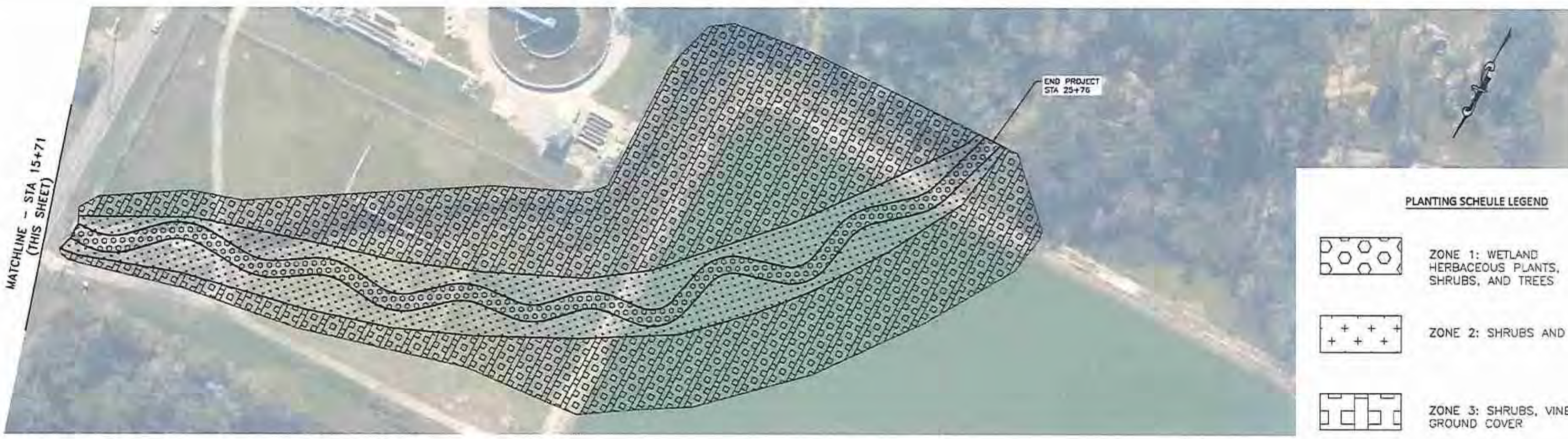
CORN BRANCH TRIBUTARY RESTORATION

thompson
ENGINEERING
2970 COTTAGE HILL RD., STE. 196
MOBILE, ALABAMA 36606
TEL: (251) 928-2643
FAX: (251) 928-6402

OVERALL SITE PLAN

SCALE	PLOT SCALE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	JOB NO.	DRAWING NO.	REVISION NO.
	1:1	NTC	EHB	MCR	MARCH 2023	22-1101-0132	C100	A





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REVISION NO.	DESCRIPTION	DATE	BY
A	60% DESIGN SUBMITTAL	3/17/23	NTC

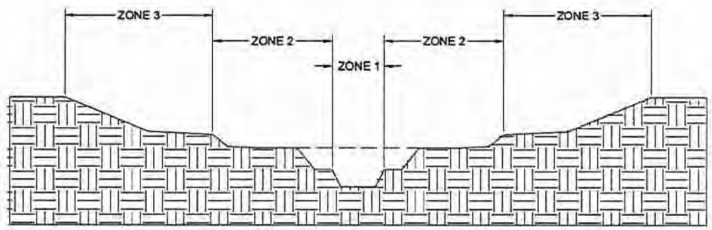
CITY OF LOXLEY

CORN BRANCH TRIBUTARY RESTORATION

thompson ENGINEERING

PLANTING PLAN

SCALE	PLOT SCALE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	JOB NO.	DRAWING NO.	REVISION NO.
	1:1	NTC	EHP	MCR	MARCH 2023	22-1101-0132	C500	A



PLANTING ZONE CROSS SECTION

Quantity	ZONE 3 Plant Species	Planting	Spacing
685	Southern Wax Myrtle, *Morella cerifera*	bare root	4'
300	Strawberry Bush, *Euonymus americanus*	bare root	4'
300	Beautyberry, *Callicarpa americana*	bare root	4'
300	Sparkleberry, *Vaccinium arboreum*	bare root	4'
150	Trumpet Creeper, *Campsis radicans*	bare root	4'
150	Purple Passion Flower, *Passiflora incarnata*	bare root	4'
30	Permanent Seed Mix	seed	

Quantity	ZONE 1 Plant Species	Planting	Spacing
240	Lizard's tail, *Saururus cernuus*	plug	18"
240	Duck potato, *Sagittaria latifolia*	plug	18"
240	Pickerelweed, *Pontederia cordata*	plug	18"
3585	Soft Rush, *Juncus effusus*	plug	18"
240	Virginia Iris, *Iris virginica*	plug	18"
240	Carex spp.	plug	18"
380	Southern Wax Myrtle, *Morella cerifera*	bare root	4'
30	Strawberry Bush, *Euonymus americanus*	bare root	4'
60	Virginia Sweetspire, *Itea virginica*	live stake	2'
30	Buttonbush, *Cephalanthus occidentalis*	bare root	4'
30	Sweet Pinxter Azalea, *Rhodedendron canescens* or Swamp Azalea, *Rhodendron viscosum*	bare root	4'
60	Sweetbay Magnolia, *Magnolia virginiana*	bare root	4'
60	Red Maple, *Acer rubrum*	bare root	4'
60	Bald Cypress, *Taxodium distichum*	bare root	4'
60	Sweet gum, *Liquidambar styraciflua*	bare root	4'
60	Swamp Chestnut Oak, *Quercus michauxii*	bare root	4'
60	Overcup Oak, *Quercus lyrata*	bare root	4'
60	Willow Oak, *Quercus phellos*	bare root	4'
60	Southern Magnolia, *Magnolia grandiflora*	bare root	4'
60	Tulip Poplar, *Liriodendron tulipifera*	bare root	4'
Quantity	**ZONE 2 Plant Species**	**Planting**	**Spacing**
395	Southern Wax Myrtle, *Morella cerifera*	bare root	4'
85	Strawberry Bush, *Euonymus americanus*	bare root	4'
100	Virginia Sweetspire, *Itea virginica*	live stake	2'
85	Florida Anise, *Illicium floridanum*	bare root	4'
85	Sweet Pinxter Azalea, *Rhodedendron canescens*	bare root	4'
85	American Holly, *Ilex americana*	bare root	4'
1750	Silky Willow, *Salix sericea* (live stakes)	live stake	2'
1750	Elderberry, *Sambucus nigra* (live stakes)	live stake	2'
85	River Birch, *Betula nigra*	bare root	4'
85	Sweetbay Magnolia, *Magnolia virginiana*	bare root	4'
85	Red Maple, *Acer rubrum*	bare root	4'
85	Willow Oak, *Quercus phellos*	bare root	4'
85	Southern Magnolia, *Magnolia grandiflora*	bare root	4'
85	Tulip Poplar, Liriodendron tulipifera	bare root	4'
85	American Hornbeam, *Carpinus caroliniana*	bare root	4'
85	American Holly, *Ilex opaca*	bare root	4'
85	Longleaf Pine, *Pinus palustris*	bare root	4'

NOT FOR CONSTRUCTION

Revision No.	Description	Date	By
A	90% DESIGN SUBMITTAL	3/17/23	NTC

CITY OF LOXLEY

thompson ENGINEERING

CORN BRANCH TRIBUTARY RESTORATION

PLANTING SCHEDULE

Scale	Plot Scale	Drawn By	Checked By	Approved By	Date	Job No.	Drawing No.	Revision No.
	1:1	NTC	EHB	MCR	MARCH 2023	22-1101-0132	C501	A

Permanent Groundcover Seeding: Ernst Pollinator Mix ERNMX-187 (20 lb/acre)	
Mix Composition	
Percentage	Species
65.3%	Schizachyrium scoparium, 'Camper' (Little Bluestem, 'Camper')
15.0%	Elymus virginicus, AR Ecotype (Virginia Wildrye, AR Ecotype)
3.0%	Chamaecrista fasciculata, FL Ecotype (Partridge Pea, FL Ecotype)
3.0%	Rudbeckia hirta (Blackeyed Susan)
2.0%	Coreopsis lanceolata (Lanceleaf Coreopsis)
2.0%	Helianthus angustifolius, Coastal Plain NC Ecotype (Narrowleaf Sunflower, Coastal Plain NC Ecotype)
2.0%	Lespedeza virginica, VA Ecotype (Slender Lespedeza, VA Ecotype)
1.1%	Monarda punctata, FL Ecotype (Spotted Beebalm, FL Ecotype)
1.0%	Aster spectabilis, NC Ecotype (Showy Aster, NC Ecotype)
1.0%	Baptisia pendula, FL Ecotype (Largeleaf Wild Indigo, FL Ecotype)
1.0%	Coreopsis grandiflora, Piedmont GA Ecotype (Largeflower Tickseed, Piedmont GA Ecotype)
1.0%	Silphium asteriscus var. laevicaule, GA Ecotype (Starry Rosinweed, GA Ecotype)
0.9%	Eupatorium coelestinum, VA Ecotype (Mistflower, VA Ecotype)
0.7%	Solidago speciosa (Showy Goldenrod)
0.5%	Coreopsis basalis, FL Ecotype (Goldenmane Tickseed, FL Ecotype)
0.5%	Vernonia gigantea, PA Ecotype (Giant Ironweed, PA Ecotype)

Supplemental Permanent Groundcover Seeding (Reccomended to Increase Diversity and Provide Differing Germination Times to Assist with Short and Long Term Herbaceous Cover)	
Application Rate	Species
1 lb/acre	Lemon mint, Monarda citriodora
1 lb/acre	Side oats grama, Bouteloua curtipendula
1 lb/acre	Blue grama, Bouteloua gracilis
0.1 lb/acre	Sand dropseed, Sporobolus crptandrus
0.5 lb/acre	Green sprangletop, Leptochloa dubia
0.25 lb/acre	Sand lovegrass, Eragrostis trichodes
1 lb/acre	Eastern grama, Tripsacum dactyloides
1 lb/acre	Florida paspalum, Paspalum floridanum
2 lb/acre	Illinois bundleflower, Desmanthus illinoensis
1 lb/acre	Canada wild rye, Elymus canadensis
0.25 lb/acre	Butterfly milkweed, Asclepias tuberosa
1 lb/acre	Blue flax, Linum lewisii
1 lb/acre	Cowpen daisy, Verbesina enceliodes
1 lb/acre	Sleepy daisy, Xanthisma texana

NOT FOR CONSTRUCTION

REVISION NO.	DESCRIPTION	DATE	BY
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REVISION NO.	DESCRIPTION	DATE	BY
REVISION NO.	DESCRIPTION	DATE	BY
REVISION NO. A	DESCRIPTION 60% DESIGN SUBMITTAL	DATE 3/17/23	BY NTC

CITY OF LOXLEY

thompson ENGINEERING

CORN BRANCH TRIBUTARY RESTORATION

PLANTING SCHEDULE

SCALE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DATE	JOB NO.	DRAWING NO.	REVISION NO.
1:1	NTC	NTC	EMB	MCB	MARCH 2023	22-1101-0132	C502	A

EROSION/SEDIMENT CONTROL NOTES:

1. ALL EROSION/SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED AND MAINTAINED IN ACCORDANCE WITH ADEM/EPA "BEST MANAGEMENT PRACTICES" AND ADEM NPDES CONSTRUCTION GENERAL PERMIT CONDITIONS. MEASURES SHOWN ON THE PLANS SHOULD BE CONSIDERED MINIMUMS. THE ENGINEER, QCP, ADEM AND/OR LOCAL AUTHORITIES MAY REQUIRE CLEAN UP OF SILT/SEDIMENT, REPLACEMENT OF EROSION CONTROL MEASURES, OR ADDITIONAL EROSION CONTROL MEASURES AT ANY TIME OVER THE COURSE OF THE PROJECT IF THE MEASURES IN PLACE DO NOT APPEAR TO BE ADEQUATE AND/OR FUNCTIONING PROPERLY.
2. ALL CONTROL MEASURES SHALL BE CHECKED AND REPAIRED AS NECESSARY, MONTHLY IN DRY CONDITIONS AND WITHIN 24 HOURS AFTER ANY RAINFALL AT THE SITE OF 0.75 INCHES OR GREATER WITHIN A 24 HOUR PERIOD. DAILY CHECKING AND, IF NECESSARY, REPAIRING SHALL BE DONE DURING PROLONGED RAINFALLS. THE PERMITTEE SHALL MAINTAIN WRITTEN RECORDS OF SUCH CHECKS AND REPAIRS ON SITE AT ALL TIMES, AND RECORDS SHALL BE SUBJECT TO INSPECTION AT ANY REASONABLE TIME.
3. THE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED AS REQUIRED TO PREVENT SILT/SEDIMENT FROM LEAVING THE SITE. THIS INCLUDES BUT IS NOT LIMITED TO WASH DOWN OF THE CONSTRUCTION ENTRANCE, INSTALLING AND UTILIZING A VEHICLE WASH DOWN AREA, INSTALLING ADDITIONAL STONE, ETC.
4. ANY AND ALL SILT/SEDIMENTATION SHALL BE FREQUENTLY REMOVED FROM THE SILT FENCE, DITCHES, CHECK DAMS, AND RETENTION AREAS. AT THE END OF CONSTRUCTION, THESE AREAS SHALL BE COMPLETELY FREE OF SILT/SEDIMENTATION AND SHALL BE STABILIZED AS STATED IN THE PLANS AND SPECIFICATIONS.
5. ALL BMP'S SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE ALABAMA HANDBOOK FOR EROSION CONTROL, SEDIMENT CONTROL, AND STORM WATER MANAGEMENT ON CONSTRUCTION SITES AND URBAN AREAS, LOCAL STANDARDS FOR EROSION AND SEDIMENT CONTROL, AND THE PLANS AND SPECIFICATIONS. IF CONFLICTS ARISE BETWEEN THESE REQUIREMENTS, THE MORE STRINGENT SHALL APPLY.
6. BMP'S SHOWN ALONG THE PERIMETER OF THE DISTURBED AREAS SHALL BE INSTALLED PRIOR TO DISTURBANCE ACTIVITY. OTHER BMP'S SHALL BE INSTALLED AS SOON AS CONSTRUCTION SEQUENCES ALLOW.
7. TEMPORARY DIVERSION OF RUNOFF/RUNON WATER SHALL BE INSTALLED AS NEEDED TO FACILITATE CONSTRUCTION OR AS DIRECTED ON SITE BY THE ENGINEER.
8. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY AFTER THE COMPLETION OF THE GRADING OPERATION. AREAS REQUIRING COCONUT COIR MATTING SHALL BE SEEDED AND MULCHED FOR STABILIZATION PRIOR TO THE INSTALLATION OF THE MATTING.
9. TEMPORARY STABILIZATION OF DISTURBED AREAS MUST BE INITIATED IMMEDIATELY WHENEVER WORK TOWARD PROJECT COMPLETION AND FINAL STABILIZATION OF ANY PORTION OF THE SITE HAS TEMPORARILY CEASED AND WILL NOT RESUME FOR A PERIOD EXCEEDING THIRTEEN (13) CALENDAR DAYS. THOSE AREAS SHALL BE SEEDED AND MULCHED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
10. NECESSARY MEASURES SHALL BE TAKEN TO PRODUCE AND MAINTAIN AN ACCEPTABLE STAND OF GRASS. SAID MEASURES TO INCLUDE BUT NOT LIMITED TO WATERING, RE-SEEDING, REGRADING ERODED AREAS, RE-FERTILIZING, ETC.
11. CONTRACTOR IS RESPONSIBLE FOR KEEPING MUD AND DEBRIS OFF PUBLIC STREETS AND ROW. CLEANUP IS REQUIRED DAILY.
12. CONTRACTOR SHALL KEEP A COPY OF THE NPDES CONSTRUCTION GENERAL PERMIT AND THE "CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN" ON SITE AT ALL TIMES FOR THE LIFE OF THE PROJECT.
13. ALL HAZARDOUS SUBSTANCES USED FOR THIS PROJECT (PAINT, OIL, GREASE, AND OTHER PETROLEUM PRODUCTS) SHALL BE STORED IN ACCORDANCE WITH SPCC REGULATIONS. THESE SUBSANCES SHALL BE STORED AWAY FROM DRAINS AND DITCHES IN WATERTIGHT CONTAINERS. DISPOSAL OF THESE SUBSTANCES SHALL BE IN ACCORDANCE WITH ADEM REGULATIONS. DAILY INSPECTIONS SHALL BE PERFORMED FOR LEAK DETECTION. IF LEAKS OCCUR, APPROPRIATE ACTION SHALL BE TAKEN TO CONTAIN AND REMEDIATE THE SPILL. ADEQUATE TRASH CONTAINERS SHALL BE KEPT ON SITE FOR THE DISPOSAL OF CONSTRUCTION MATERIALS WASTE. NECESSARY MEASURES SHALL BE TAKEN TO PREVENT ANY TRASH OR OTHER POLLUTANTS FROM ENTERING "WATERS OF THE UNITED STATES."
14. ALL TEMPORARY MEASURES SHALL BE REMOVED ONCE ACCEPTABLE PERMANENT STABILIZATION IS ACHIEVED. THE ENGINEER SHALL DETERMINE IF THE PERMANENT STABILIZATION IS ACCEPTABLE.

ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

HORIZONTAL COORDINATES SHOWN HEREON ARE REFERENCED TO STATE PLANE COORDINATES, ALABAMA WEST ZONE, NAD 83

LEGEND

Symbol	Description
C.I.P.F.	INDICATES CAPPED IRON PIN FOUND
C.I.P.S.	INDICATES CAPPED 5/8" IRON PIN SET
C.T.I.P.F.	INDICATES CRIMPED TOP IRON PIN FOUND
O.T.I.P.F.	INDICATES OPEN TOP IRON PIN FOUND
REBAR	INDICATES REBAR FOUND
C.M.F.	INDICATES CONCRETE MONUMENT FOUND
PP	INDICATES POWER POLE
GP	INDICATES GUY POLE
GUY	INDICATES GUY WIRE
—OHE—	INDICATES OVERHEAD ELECTRIC
—UGE—	INDICATES UNDERGROUND ELECTRIC
LP	INDICATES LIGHT POLE
MP	INDICATES METER POLE
PB	INDICATES POWER BOX
/—/—/—/-	INDICATES WOODEN FENCE
O—O—O—O-	INDICATES CHAIN LINK FENCE
X—X—X—X-	INDICATES WIRE FENCE
TP	INDICATES TELEPHONE PEDESTAL
—T—T—	INDICATES O/H TELEPHONE LINE
—UGT—	INDICATES UNDERGROUND TELEPHONE LINE
FOCM	INDICATES FIBER OPTIC MARKER
D	INDICATES STORM WATER MANHOLE
— — — —	EXISTING MAJOR CONTOUR
- - - - -	EXISTING MINOR CONTOUR
----------	EASEMENT LINE (TBA)
————	RIGHT OF WAY (EXISTING)
GM	INDICATES GAS METER
GV	INDICATES GAS VALVE
—G—G—	INDICATES GAS LINE
GLM	INDICATES GAS LINE MARKER
FH	INDICATES FIRE HYDRANT
WM	INDICATES WATER METER
WV	INDICATES WATER VALVE
—W—	INDICATES WATER LINE
S	INDICATES SANITARY SEWER MANHOLE
—SS—	INDICATES SANITARY SEWER LINE
C.O.	INDICATES CLEAN OUT
SV	INDICATES SEWER VALVE
CP	INDICATES CABLE PEDESTAL
BP	INDICATES BUMPER POST
N/F	NOW OR FORMERLY
RCP	REINFORCED CONCRETE PIPE
CMP	CORRUGATED METAL PIPE
MB	INDICATES MAIL BOX
	OAK TREE
	CONSTRUCTED RIFFLE WITH IMPORTED MATERIAL
	BOULDER CONSTUCTED RIFFLE
	TENSAR SIERRA-SCAPE RETAINING WALL
	LEDGED ROCK WALL
	VEGETATED RIPRAP
	COIR SOIL LIFT (ROLANKA BIO D-BLOCK SYSTEM)

NOT FOR CONSTRUCTION

REVISION NO.	DESCRIPTION	DATE	BY
A	90% DESIGN SUBMITTAL	3/17/23	NTC

CITY OF LOXLEY

thompson ENGINEERING

CORN BRANCH TRIBUTARY RESTORATION

PLANS LEGEND & PROJECT NOTES

SCALE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	JOB NO.	DRAWING NO.	REVISION NO.
1:1	NTC	EHB	MCP	MARCH 2023	22-1101-0132	0102	A

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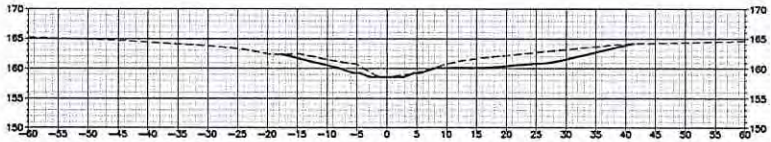

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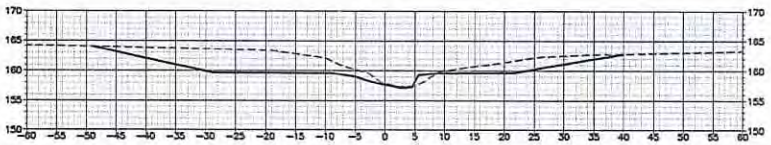

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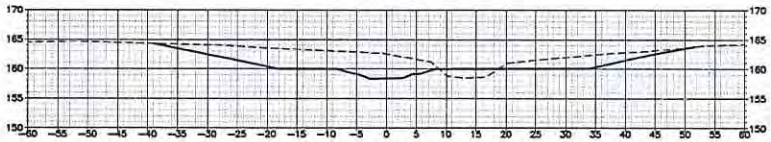

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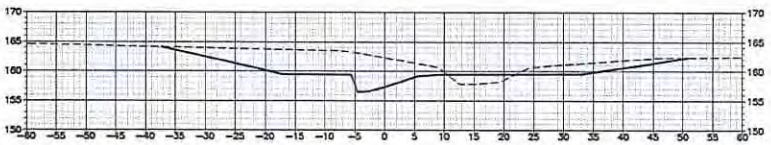

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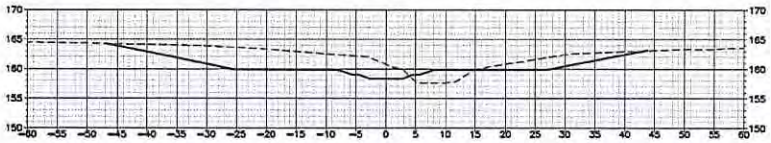

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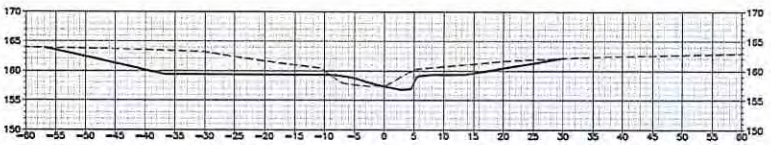

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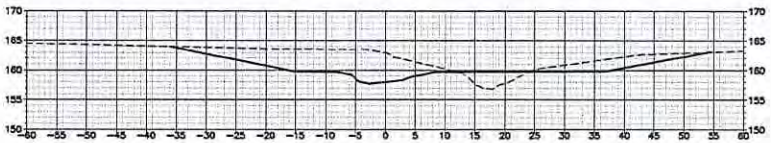

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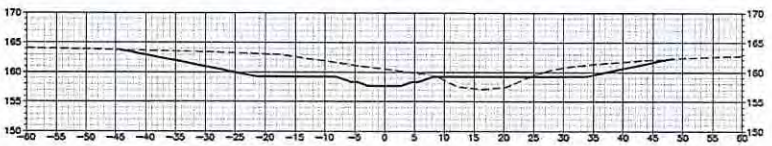

NOT FOR CONSTRUCTION

REVISION NO.	DESCRIPTION	DATE	BY
A	90% DESIGN SUBMITTAL	3/17/23	NTC

CITY OF LOXLEY

thompson
ENGINEERING
2970 CITYGATE HILL RD., STE. 150
MOBILE, ALABAMA 36693
TEL: (251) 928-1443
FAX: (251) 928-1423

CORN BRANCH TRIBUTARY RESTORATION

CROSS SECTIONS

SCALE	PLOT SCALE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	JOB NO.	DRAWING NO.	REVISION NO.
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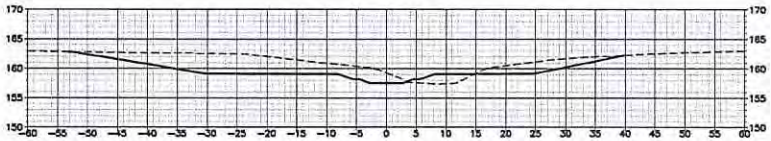

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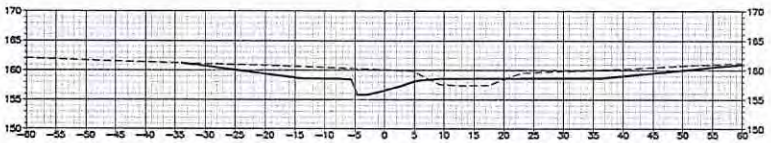

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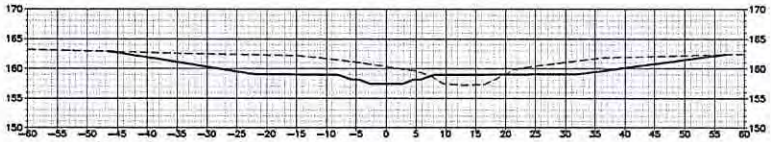

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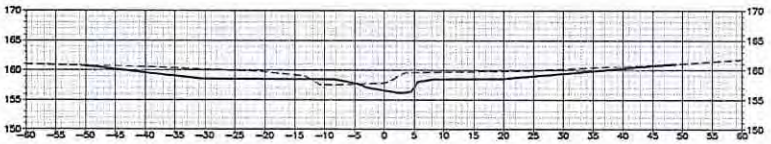

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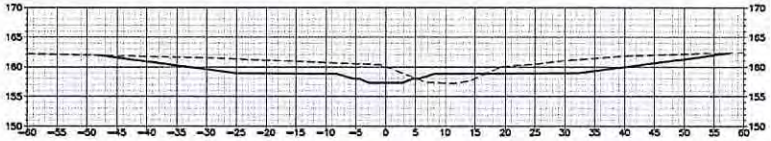

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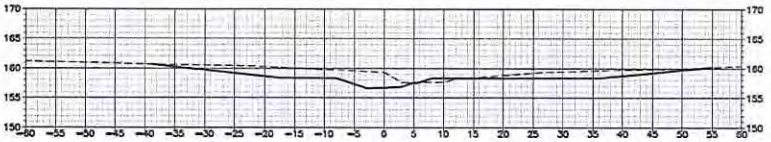

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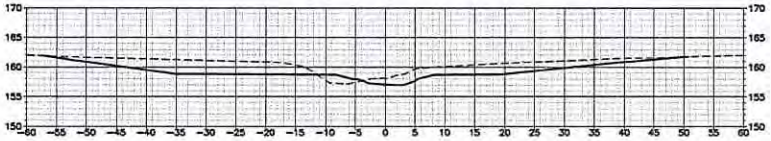

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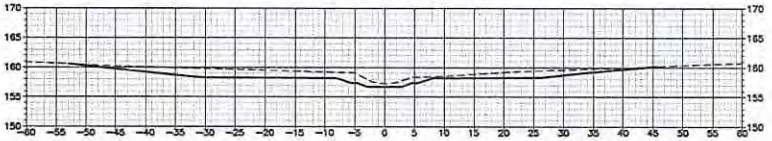

NOT FOR CONSTRUCTION

REVISION NO.	DESCRIPTION	DATE	BY
A	60% DESIGN SUBMITTAL	3/17/23	NTC

CITY OF LOXLEY

thompson ENGINEERING
29170 CEDAR HILL RD., STE. 190
LOXLEY, ALABAMA 36551
TEL: (251) 929-2483
FAX: (251) 929-2402

CORN BRANCH TRIBUTARY RESTORATION

CROSS SECTIONS

SCALE	PLOT SCALE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	JOB NO.	DRAWING NO.	REVISION NO.
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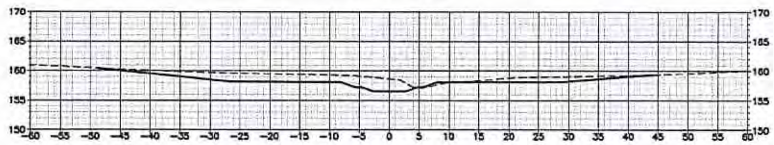

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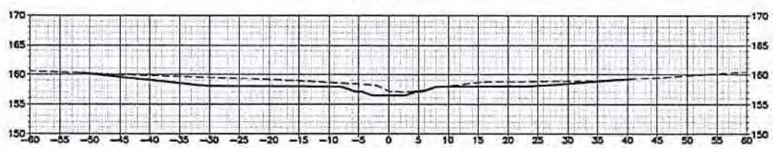

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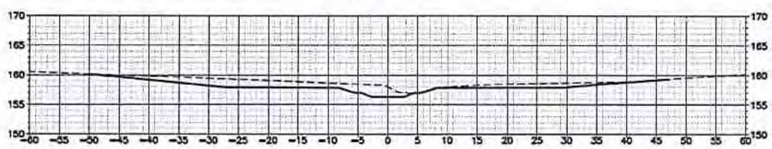

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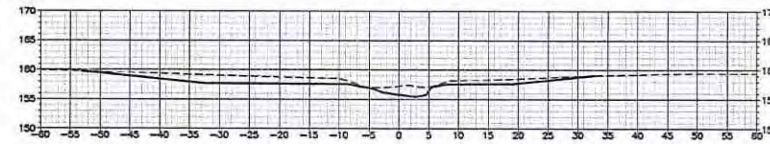

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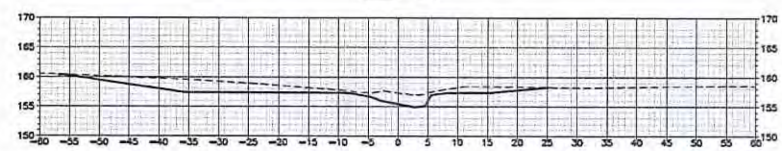

11+50.00

NOT FOR CONSTRUCTION

REVISION NO.	DESCRIPTION	DATE	BY
A	90% DESIGN SUBMITTAL	3/17/23	NTC

CITY OF LOXLEY

thompson ENGINEERING

CORN BRANCH TRIBUTARY RESTORATION

CROSS SECTIONS

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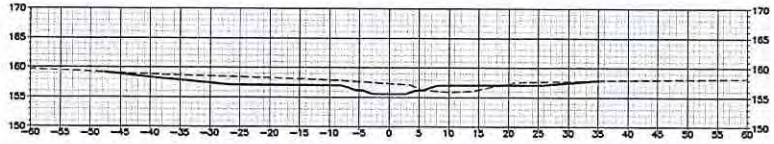

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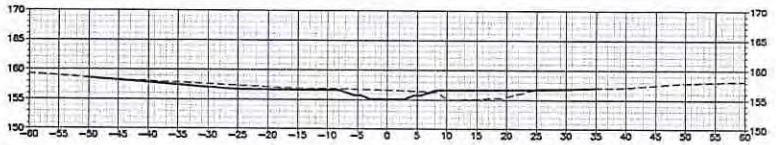

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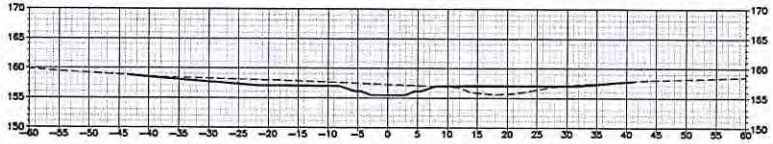

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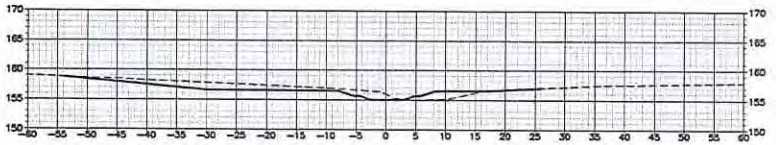

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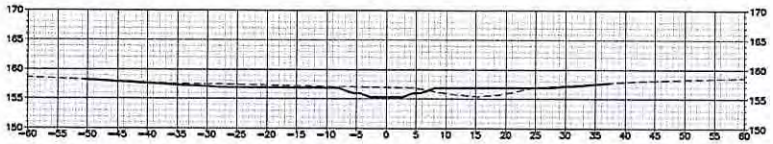

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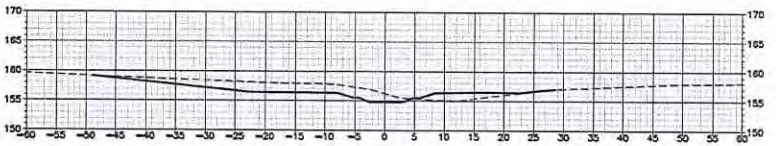

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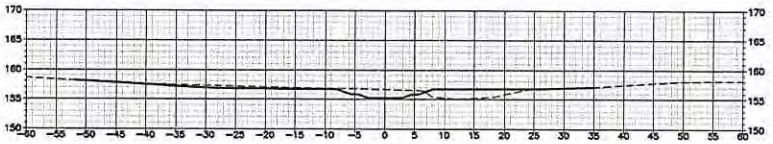

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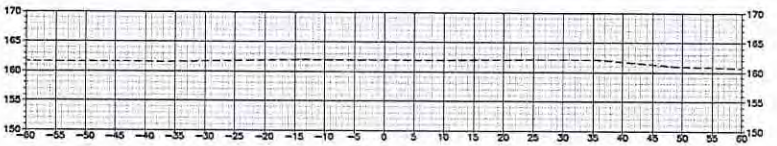

NOT FOR CONSTRUCTION

REVISION NO.	DESCRIPTION	DATE	BY
REVISION NO.	DESCRIPTION	DATE	BY
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REVISION NO.	DESCRIPTION	DATE	BY
REVISION NO.	DESCRIPTION	DATE	BY
REVISION NO. A	DESCRIPTION 90% DESIGN SUBMITTAL	DATE 3/17/23	BY NTC

CITY OF LOXLEY

CORN BRANCH TRIBUTARY RESTORATION

2970 COTTAGE HILL RD., STE. 116
MOBILE, ALABAMA 36606
thompson ENGINEERING
TEL (251) 665-2442
FAX (251) 665-2422

CROSS SECTIONS

SCALE	PLOT SCALE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	JOB NO.	DRAWING NO.	REVISION NO.
1" = 10'	1:1	NTC	EHB	MCR	MARCH 2023	22-1101-0132	C903	A

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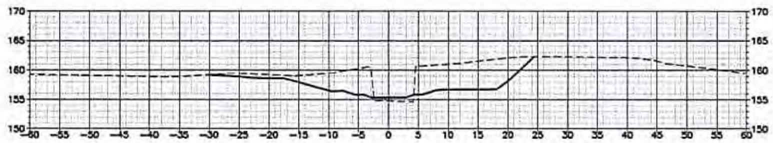

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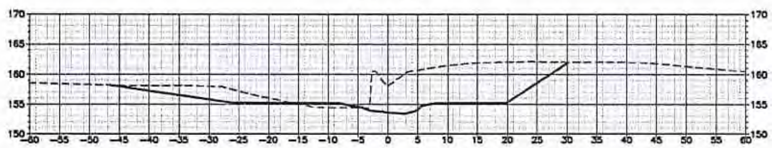

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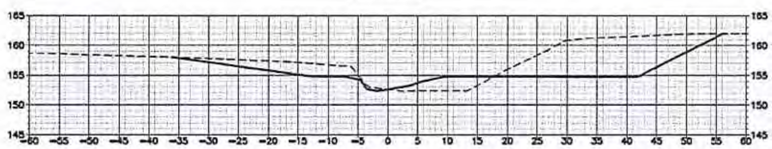

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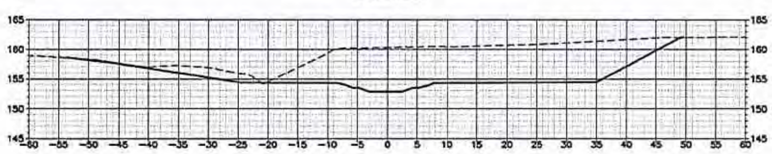

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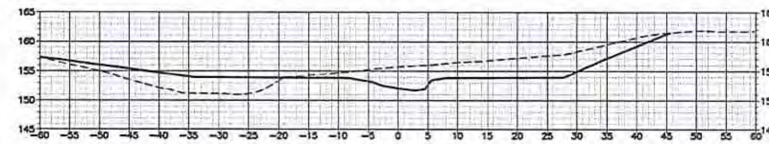

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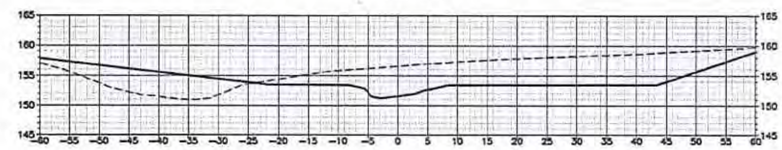

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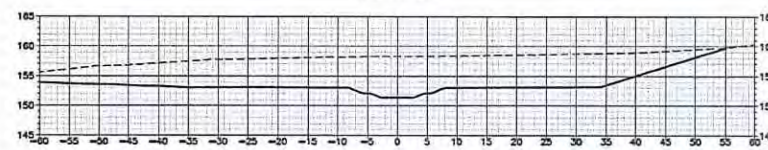

19+50.00

NOT FOR CONSTRUCTION

REVISION NO.	DESCRIPTION	DATE	BY
A	90% DESIGN SUBMITTAL	3/17/23	NTC

CITY OF LOXLEY

thompson ENGINEERING

CORN BRANCH TRIBUTARY RESTORATION

CROSS SECTIONS

SCALE	PLOT SCALE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	JOB NO.	DRAWING NO.	REVISION NO.
1" = 10'	1:1	NTC	EHB	MCR	MARCH 2023	22-1101-0132	C904	A

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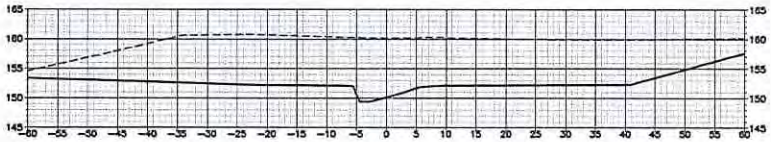

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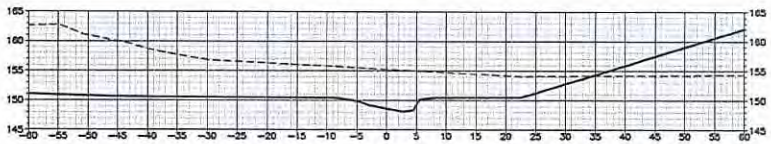

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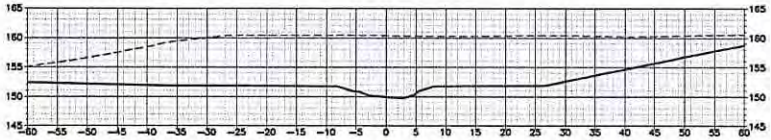

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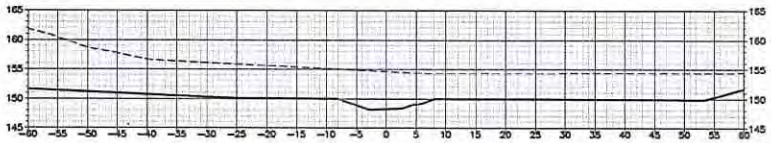

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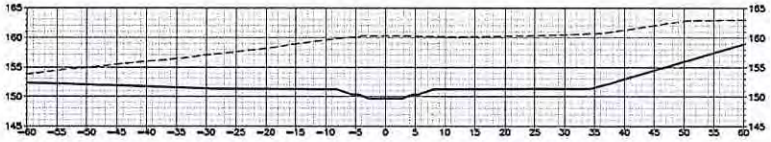

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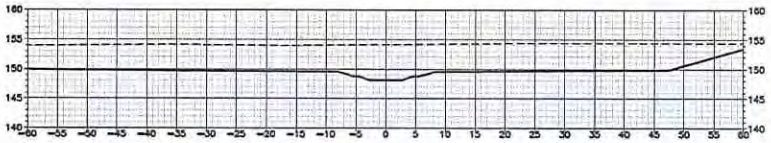

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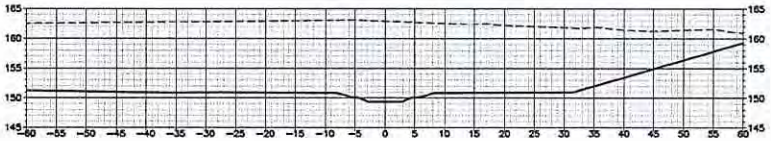

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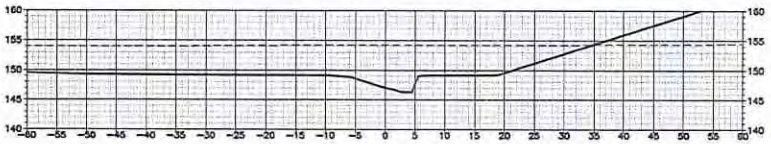

NOT FOR CONSTRUCTION

REVISION NO.	DESCRIPTION	DATE	BY
REVISION NO.	DESCRIPTION	DATE	BY
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REVISION NO.	DESCRIPTION	DATE	BY
REVISION NO. A	DESCRIPTION 90% DESIGN SUBMITTAL	DATE 3/17/23	BY NTC

CITY OF LOXLEY

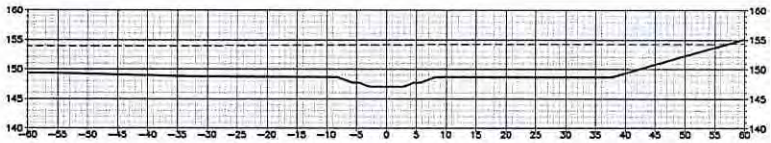
thompson ENGINEERING
OFFICE LOCATION: MOBILE, ALABAMA 36609
TEL: (251) 928-2443
FAX: (251) 928-2422

CORN BRANCH TRIBUTARY RESTORATION

CROSS SECTIONS

SCALE	PLOT SCALE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	JOB NO.	DRAWING NO.	REVISION NO.
1" = 10'	1:1	NTC	EHB	MCR	MARCH 2023	22-1101-0132	C905	A

24+00.00



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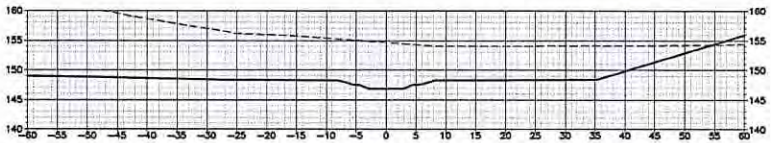

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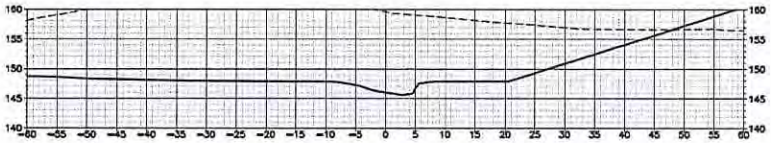

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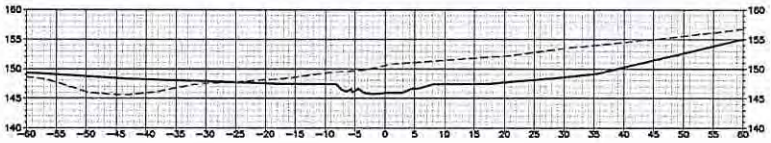

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REVISION NO. A	DESCRIPTION 90% DESIGN SUBMITTAL	DATE 3/17/23	BY NTC

CITY OF LOXLEY

CORN BRANCH TRIBUTARY RESTORATION

2970 COTTAGE HILL RD., STE. 190
MOBILE, ALABAMA 36606
thompson ENGINEERING
TEL: (251) 665-2442
FAX: (251) 665-2453

CROSS SECTIONS

SCALE	PLOT SCALE	DRAWN BY	CHECKED BY	APPROVED BY	DATE	JOB NO.	DRAWING NO.	DESIGN NO.
1" = 10'	1:1	NTC	EHB	MCR	MARCH 2023	22-1101-0132	C906	A

STANDARD MANATEE CONDITIONS FOR IN-WATER WORK OR EVENTS in ALABAMA

The project manager shall comply with the following conditions intended to protect manatees from direct project effects:

a. Instruct all personnel associated with the project/event about the potential presence of manatees and the need to avoid collisions with manatees. Advise all personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973, and Alabama Nongame Species Regulation.

b. Operate all vessels associated with the project/event at "no wake/idle" speeds at all times while in the project/event area, and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom when possible. All vessels will follow routes of deep water whenever possible.

c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.

d. All on-site project/event personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shut down if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

e. Any collision with and/or injury to a manatee shall be reported immediately to the Dauphin Island Sea Lab's Manatee Sighting Network (1-866-493-5803) and the U.S. Fish and Wildlife Service in Daphne, Alabama, at (251) 441-5839 or (251) 441-5181 and emailed to: Alabama@fws.gov. Please report nonemergency manatee observations to the numbers above or online at: http://manatee.disl.org/.

f. Temporary signs using text exactly as below shall be posted prior to and during all in-water project or event activities. Signs shall be at least 8½" by 11" explaining the requirements for the "Idle/No Wake" and the shut down of in-water operations. Signs must be posted in locations prominently visible to all personnel engaged in water-related activities and placed visible to each vessel operator. All signs are to be removed by project manager upon completion of the project or event. Questions concerning these signs can be forwarded to the email address listed above. An example is enclosed and can be copied and used during construction/event activities.

Revised Jan 2015

CAUTION:
MANATEE HABITAT

IDLE SPEED IS REQUIRED IF OPERATING A VESSEL IN THE CONSTRUCTION OR EVENT AREA

All equipment must be SHUTDOWN if a manatee comes within 50 FEET of operation

Report any collision with and/or injury to a manatee immediately to:

Dauphin Island Sea Lab's Manatee Sighting Network:

1-866-493-5803

and the U.S. Fish and Wildlife Service in Daphne, AL:

(251) 441-5839 or (251) 441-5181

U S Army Corps of Engineers

2021 Nationwide Permit Summary

33 CFR Part 330; Issuance of Nationwide Permits – February 25, 2022

27. Aquatic Habitat Restoration, Enhancement, and Establishment Activities. Activities in waters of the United States associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and riparian areas, the restoration and enhancement of nontidal streams and other non-tidal open waters, and the rehabilitation or enhancement of tidal streams, tidal wetlands, and tidal open waters, provided those activities result in net increases in aquatic resource functions and services.

To be authorized by this NWP, the aquatic habitat restoration, enhancement, or establishment activity must be planned, designed, and implemented so that it results in aquatic habitat that resembles an ecological reference. An ecological reference may be based on the characteristics of one or more intact aquatic habitats or riparian areas of the same type that exist in the region. An ecological reference may be based on a conceptual model developed from regional ecological knowledge of the target aquatic habitat type or riparian area.

To the extent that a Corps permit is required, activities authorized by this NWP include, but are not limited to the removal of accumulated sediments; releases of sediment from reservoirs to maintain sediment transport continuity to restore downstream habitats; the installation, removal, and maintenance of small water control structures, dikes, and berms, as well as discharges of dredged or fill material to restore appropriate stream channel configurations after small water control structures, dikes, and berms are removed; the installation of current deflectors; the enhancement, rehabilitation, or re-establishment of riffle and pool stream structure; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to enhance, rehabilitate, or re-establish stream meanders; the removal of stream barriers, such as undersized culverts, fords, and grade control structures; the backfilling of artificial channels; the removal of existing drainage structures, such as drain tiles, and the filling, blocking, or reshaping of drainage ditches to restore wetland hydrology; the installation of structures or fills necessary to restore or enhance wetland or stream hydrology; the construction of small nesting islands; the construction of open water areas; the construction of oyster habitat over unvegetated bottom in tidal waters; coral restoration or relocation activities; shellfish seeding; activities needed to reestablish vegetation, including plowing or discing for seed bed preparation and the planting of appropriate wetland species; re-establishment of submerged aquatic vegetation in areas where those plant communities previously existed; reestablishment of tidal wetlands in tidal waters where those wetlands previously existed; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site.

This NWP authorizes the relocation of non-tidal waters, including non-tidal wetlands and streams, on the project site provided there are net increases in aquatic resource functions and services. Except for the relocation of non-tidal waters on the project site, this NWP does not authorize the conversion of a stream or natural wetlands to another aquatic habitat type (e.g., the conversion of a stream to wetland or vice versa) or uplands. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during wetland rehabilitation activities are not considered a conversion to another aquatic habitat type. This NWP does not authorize stream channelization. This NWP does not authorize the relocation of tidal waters or the conversion of tidal waters, including tidal wetlands, to other aquatic uses, such as the conversion of tidal wetlands into open water impoundments.

Compensatory mitigation is not required for activities authorized by this NWP since these activities must result in net increases in aquatic resource functions and services.

Reversion. For enhancement, restoration, and establishment activities conducted:

(1) In accordance with the terms and conditions of a binding stream or wetland enhancement or restoration agreement, or a wetland establishment agreement, between the landowner and the U.S. Fish and Wildlife Service (FWS), the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), the National Marine Fisheries Service (NMFS), the National Ocean Service (NOS), U.S. Forest Service (USFS), or their designated state cooperating agencies;

(2) as voluntary wetland restoration, enhancement, and establishment actions documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or

(3) on reclaimed surface coal mine lands, in accordance with a Surface Mining Control and Reclamation Act permit issued by the Office of Surface Mining Reclamation and Enforcement (OSMRE) or the applicable state agency, this NWP also authorizes any future discharge of dredged or fill material associated with the reversion of the area to its documented prior condition and use (i.e., prior to the restoration, enhancement, or establishment activities).

The reversion must occur within five years after expiration of a limited term wetland restoration or establishment agreement or permit, and is authorized in these circumstances even if the

discharge of dredged or fill material occurs after this NWP expires. The five-year reversion limit does not apply to agreements without time limits reached between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS, or an appropriate state cooperating agency. This NWP also authorizes discharges of dredged or fill material in waters of the United States for the reversion of wetlands that were restored, enhanced, or established on prior-converted cropland or on uplands, in accordance with a binding agreement between the landowner and NRCS, FSA, FWS, or their designated state cooperating agencies (even though the restoration, enhancement, or establishment activity did not require a section 404 permit). The prior condition will be documented in the original agreement or permit, and the determination of return to prior conditions will be made by the Federal agency or appropriate state agency executing the agreement or permit. Before conducting any reversion activity, the permittee or the appropriate Federal or state agency must notify the district engineer and include the documentation of the prior condition. Once an area has reverted to its prior physical condition, it will be subject to whatever the Corps Regulatory requirements are applicable to that type of land at the time. The requirement that the activity results in a net increase in aquatic resource functions and services does not apply to reversion activities meeting the above conditions. Except for the activities described above, this NWP does not authorize any future discharge of dredged or fill material associated with the reversion of the area to its prior condition. In such cases a separate permit would be required for any reversion.

Reporting. For those activities that do not require pre-construction notification, the permittee must submit to the district engineer a copy of:

(1) The binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement, or a project description, including project plans and location map;

(2) the NRCS or USDA Technical Service Provider documentation for the voluntary stream enhancement or restoration action or wetland restoration, enhancement, or establishment action; or

(3) the SMCRA permit issued by OSMRE or the applicable state agency.

The report must also include information on baseline ecological conditions on the project site, such as a delineation of wetlands, streams, and/or other aquatic habitats. These documents must be submitted to the district engineer at least 30 days prior to commencing activities in waters of the United States authorized by this NWP.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing any activity (see general condition 32), except for the following activities:

(1) Activities conducted on non-Federal public lands and private lands, in accordance with the terms and conditions of a binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS or their designated state cooperating agencies;

(2) Activities conducted in accordance with the terms and conditions of a binding coral restoration or relocation agreement between the project proponent and the NMFS or any of its designated state cooperating agencies;

(3) Voluntary stream or wetland restoration or enhancement action, or wetland establishment action, documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or

(4) The reclamation of surface coal mine lands, in accordance with an SMCRA permit issued by the OSMRE or the applicable state agency.

However, the permittee must submit a copy of the appropriate documentation to the district engineer to fulfill the reporting requirement. (Authorities: Sections 10 and 404).

Note: This NWP can be used to authorize compensatory mitigation projects, including mitigation banks and in-lieu fee projects. However, this NWP does not authorize the reversion of an area used for a compensatory mitigation project to its prior condition, since compensatory mitigation is generally intended to be permanent.

A. Regional Conditions

1. **Alabama Water Quality Certification - See Attached**
2. **Alabama Coastal Zone Management Conditions - See Attached**

B. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

☐ 1. **Navigation**.

☐ (a) No activity may cause more than a minimal adverse effect on navigation.

☐ (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

☐ (c) The permittee understands and agrees that, if future operations by the United States require the

removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

☐ 2. **Aquatic Life Movements**. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

☐ 3. **Spawning Areas**. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

☐ 4. **Migratory Bird Breeding Areas**. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

☐ 5. **Shellfish Beds**. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

☐ 6. **Suitable Material**. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

☐ 7. **Water Supply Intakes**. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

☐ 8. **Adverse Effects From Impoundments**. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

☐ 9. **Management of Water Flows**. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

☐ 10. **Fills Within 100-Year Floodplains**. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

☐ 11. **Equipment**. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

☐ 12. **Soil Erosion and Sediment Controls**. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

☐ 13. **Removal of Temporary Fills**. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

☐ 14. **Proper Maintenance**. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

☐ 15. **Single and Complete Project**. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

☐ 16. **Wild and Scenic Rivers**.

☐ (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

☐ (b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

☐ (c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: https://www.rivers.gov/.

☐ 17. **Tribal Rights**. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

☐ 18. **Endangered Species**.

☐ (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

☐ (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

☐ (c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

☐ (d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

☐ (e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

☐ (f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7

consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

☐ (g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at https://www.fws.gov/ or https://www.fws.gov/ipac/ and https://www.fisheries.noaa.gov/topic/endangered-species-conservation respectively.

☐ 19. **Migratory Birds and Bald and Golden Eagles.** The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

☐ 20. **Historic Properties.**

☐ (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

☐ (b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

☐ (c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

☐ (d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

☐ (e) Prospective permittees should be aware that section 110(k) of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity

of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

☐ 21. **Discovery of Previously Unknown Remains and Artifacts**. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

☐ 22. **Designated Critical Resource Waters**. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

☐ (a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

☐ (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

☐ 23. **Mitigation**. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

☐ (a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

☐ (b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

☐ (c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

☐ (d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

☐ (e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are

determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

☐ (f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

☐ (1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

☐ (2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

☐ (3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

☐ (4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

☐ (5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

☐ (6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

☐ (g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

☐ (h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

☐ (i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

☐ 24. **Safety of Impoundment Structures**. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

☐ 25. **Water Quality**.

☐ (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must

be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

☐ (b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

☐ (c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

☐ 26. **Coastal Zone Management**. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

☐ 27. **Regional and Case-By-Case Conditions**. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

☐ 28. **Use of Multiple Nationwide Permits**. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

☐ (a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

☐ (b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

☐ 29. **Transfer of Nationwide Permit Verifications**. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

(Transferee)

_____

(Date)

☐ 30. **Compliance Certification**. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

☐ (a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

☐ (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

☐ (c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

☐ 31. **Activities Affecting Structures or Works Built by the United States.** If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

☐ 32. **Pre-Construction Notification.**

☐ (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional infomation necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested infomation has been received by the district engineer. The prospective permittee shall not begin the activity until either:

☐ (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

☐ (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

☐ (b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

☐ (1) Name, address and telephone numbers of the prospective permittee;

☐ (2) Location of the proposed activity;

☐ (3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

☐ (4)

☐ (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

☐ (ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

☐ (iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

☐ (5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

☐ (6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

☐ (7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

☐ (8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

☐ (9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

☐ (10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

☐ (c) Form of Pre-Construction Notification: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

☐ (d) Agency Coordination:

☐ (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

☐ (2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

☐ (3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile

transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

☐ (4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

☐ (5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

C. District Engineer's Decision

☐ 1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

☐ 2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

☐ 3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the

district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

☐ 4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

D. Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

E. Nationwide Permit Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s) but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility.

Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high-water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required, and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23).

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable

substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high-water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high-water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channel ward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a "water of the United States." If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

LANCE R. LEFLEUR
DIRECTOR

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December 14, 2020

Colonel Sebastien P. Joly
Commander, Mobile District
U.S. Army Corps of Engineers
P.O. Box 2288
Mobile, AL 36628-0001

RE: Clean Water Act (CWA) Section 401 Water Quality Certification (WQC), U.S. Army Corps of Engineers (COE) 2020 Proposed Issuance of Alabama Nationwide Permits (ALNWPs) For Activities Within the State of Alabama

Dear Colonel Joly:

This office has completed a review of the above-referenced notice and all associated materials submitted related to the proposed ALNWPs. Any comments made during the public notice period have also been forwarded to the Department for review.

1. Aids to Navigation
2. Structures in Artificial Canals
3. Maintenance
4. Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities
5. Scientific Measurement Devices
6. Survey Activities
7. Outfall Structures and Associated Intake Structures
8. Oil and Gas Structures on the Outer Continental Shelf
9. Structures in Fleeting and Anchorage Areas
10. Mooring Buoys
11. Temporary Recreational Structures
12. Oil or Natural Gas Pipeline Activities
13. Bank Stabilization
14. Linear Transportation Projects
15. U.S. Coast Guard Approved Bridges
16. Return Water From Upland Contained Disposal Areas
17. Hydropower Projects
18. Minor Discharges
19. Minor Dredging
20. Response Operations for Oil or Hazardous Substances
21. Surface Coal Mining Activities
22. Removal of Vessels
23. Approved Categorical Exclusions
24. Indian Tribe or State Administered Section 404 Programs
25. Structural Discharges
26. [Reserved]
27. Aquatic Habitat Restoration, Establishment, and Enhancement Activities
28. Modifications of Existing Marinas

JAN 14 2021

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
3664 Dauphin Street, Suite B
Mobile, AL 36608
(251) 304-1176
(251) 304-1189 (FAX)

29. Residential Developments
30. Moist Soil Management for Wildlife
31. Maintenance of Existing Flood Control Facilities
32. Completed Enforcement Actions
33. Temporary Construction, Access, and Dewatering
34. Cranberry Production Activities
35. Maintenance Dredging of Existing Basins
36. Boat Ramps
37. Emergency Watershed Protection and Rehabilitation
38. Cleanup of Hazardous and Toxic Waste
39. Commercial and Institutional Developments
40. Agricultural Activities
41. Reshaping Existing Drainage Ditches
42. Recreational Facilities
43. Stormwater Management Facilities
44. Mining Activities
45. Repair of Uplands Damaged by Discrete Events
46. Discharges in Ditches
47. [Reserved]
48. Commercial Shellfish Mariculture Activities
49. Coal Remining Activities
50. Underground Coal Mining Activities
51. Land-Based Renewable Energy Generation Facilities
52. Water-Based Renewable Energy Generation Pilot Projects
53. Removal of Low-Head Dams
54. Living Shorelines

A. Seaweed Mariculture Activities
B. Finfish Mariculture Activities
C. Electric Utility Line and Telecommunications Activities
D. Utility Line Activities for Water and Other Substances
E. Water Reclamation and Reuse Facilities

Because action pertinent to WQC is required by Section 401(a)(1) of the CWA, 33 U.S.C. Section 1251, et seq., we hereby issue certification that there is reasonable assurance that the discharge resulting from the proposed activities as submitted will not violate applicable water quality standards established under Section 303 of the CWA and Title 22, Section 22-22-9(g), Code of Alabama, 1975, provided the applicant acts in accordance with the following conditions as specified. We further certify that there are no applicable effluent limitations under Sections 301 and 302 nor applicable standards under Sections 306 and 307 of the CWA in regard to the activities specified. This certification shall expire at the same time as the expiration date for the above-referenced Alabama Nationwide Permits for activities within the State of Alabama.

To minimize adverse impacts to State waters, by copy of this letter we are requesting the Mobile District Corps of Engineers to incorporate the following as special conditions as appropriate to the type, location, scope, duration, and potential impact of each activity in Alabama authorized by the COE NWPs:

1. During project implementation, the applicant shall ensure compliance with applicable requirements of ADEM. Admin. Code Chapter 335-6-6 [National Pollutant Discharge Elimination System (NPDES)], Chapter 335-6-10 (Water Quality Criteria), and Chapter 335-6-11 (Water Use Classifications for Interstate and Intrastate Waters).

2. ADEM permit coverage may be required prior to commencing and/or continuing certain activities/operations relating to or resulting from the project. If an applicant has any questions regarding ADEM regulated activity or the need for NPDES permit coverage, the applicant can contact ADEM's Water Division at (334) 271-7823. If an applicant has any questions regarding ADEM regulated activity or the need for air permit coverage, the applicant can contact ADEM's Air Division at (334) 271-7869. If the applicant has any questions regarding ADEM regulated activity or the need for hazardous, toxic, and/or solid waste permit coverage, the applicant can contact ADEM's Land Division at (334) 271-7730.

3. Upon the loss or failure of any treatment facility, Best Management Practice (BMP), or other control, the applicant shall, where necessary to maintain compliance with this certification, suspend, cease, reduce or otherwise control work/activity and all discharges until effective treatment is restored. It shall not be a defense for the applicant in a compliance action that it would have been necessary to halt or reduce work or other activities in order to maintain compliance with the conditions of this certification.

4. The applicant shall retain records adequate to document activities authorized by this certification for a period of at least three years after completion of work/activity authorized by the certification. Upon written request, the applicant shall provide ADEM with a copy of any record/information required to be retained by this paragraph.

5. The applicant shall conduct or have conducted, at a minimum, weekly comprehensive site inspections until completion of the proposed activity to ensure that effective BMPs are properly designed, implemented, and regularly maintained (i.e. repair, replace, add to, improve, implement more effective practice, etc.) to prevent/minimize to the maximum extent practicable discharges of pollutants in order to provide for the protection of water quality.

6. The applicant shall implement a project-specific or a detailed general BMP Plan prepared by an ADEM recognized qualified credentialed professional (QCP) applicable to and commensurate with activities of the type proposed. Effective BMPs shall be implemented and continually maintained for the prevention and control of turbidity, sediment, and other sources of pollutants, including measures to ensure permanent revegetation or cover of all disturbed areas, during and after project implementation.

7. The applicant shall implement a Spill Prevention Control and Countermeasures (SPCC) Plan for all temporary and permanent onsite fuel or chemical storage tanks or facilities consistent with the requirements of ADEM Admin. Code R. 335-6-6-.12(r), Section 311 of the Federal Water Pollution Control Act, and 40 CFR Part 112. The applicant shall maintain onsite or have readily available sufficient oil & grease absorbing material and flotation booms to contain and clean-up fuel or chemical spills and leaks. The applicant shall immediately notify ADEM after becoming aware of a significant visible oil sheen in the vicinity of the proposed activity. In the event of a spill with the potential to impact groundwater or other waters of the State, the applicant should immediately call the National Response Center at 1-800-424-8802 and the Alabama Emergency Management Agency at 1-800-843-0699. The caller should be prepared to report the name, address and telephone number of person reporting spill, the exact location of the spill, the company name and location, the material spilled, the estimated quantity, the source of spill, the cause of the spill, the nearest downstream water with the potential to receive the spill, and the actions taken for containment and cleanup.

8. Additional, effective BMPs shall be fully implemented and maintained on a daily basis as needed to prevent to the maximum extent possible potential discharges of pollutants from activities authorized by this certification, directly to or to a tributary or other stream segment, that have the potential to impact a State water currently considered impaired [waterbody is identified on the Alabama 303(d) list, a total maximum daily load (TMDL) has been finalized for the waterbody, and/or the waterbody is otherwise considered a Tier 1 water pursuant to ADEM Admin. Code Ch. 335-6-10]. The applicant shall inspect all BMPs as often as is necessary (daily if needed) for effectiveness, need for maintenance, and the need to implement additional, effective BMPs. Additional effective BMPs shall immediately be implemented as needed to ensure full compliance with ADEM requirements and the protection of water quality in the impaired waterbody.

9. All construction and worker debris (e.g. trash, garbage, etc.) must be immediately removed and disposed in an approved manner. If acceptable offsite options are unavailable, effective onsite provisions for collection and control of onsite worker toilet wastes or gray waste waters (i.e. port-o-let, shower washdown, etc.) must be implemented and maintained. Soil contaminated by paint or chemical spills, oil spills, etc. must be immediately cleaned up or be removed and disposed in an approved manner. Also, the applicant shall manage and dispose of any trash, debris, and solid waste according to applicable state and federal requirements.

10. All materials used as fill, or materials used for construction of structures in a waterbody, must be non-toxic, non-leaching, non-acid forming, and free of solid waste or other debris. This requirement does not preclude the use of construction materials authorized by the COE that are typically utilized in marine or other aquatic applications.

11. The applicant shall implement appropriate measures to minimize the potential for a decrease of instream dissolved oxygen concentrations as a result of project implementation. In addition, the applicant shall ensure that the activities authorized by this certification do not significantly contribute to or cause a violation of applicable water quality standards for instream dissolved oxygen.

12. The applicant shall implement appropriate, effective BMPs, including installation of floating turbidity screens as necessary, to minimize downstream turbidity to the maximum extent practicable. The applicant shall visually monitor or measure background turbidity. The applicant must suspend operations should turbidity resulting from project implementation exceed background turbidity by more than 50 NTUs. Operations may resume when the turbidity decreases to within acceptable levels.

13. The applicant shall evaluate, characterize, and as necessary, conduct regular analysis of any material proposed to be dredged/removed/disturbed in order to ensure that potential pollutants are not present in concentrations that could cause or contribute to a violation of applicable water quality standards. Information regarding the evaluation, characterization, or detailed results of any analyses shall be made available to ADEM upon request.

14. If upland disposal areas are utilized, the applicant shall be responsible for the condition of the disposal area, including the structural integrity of any embankments, until the disposal area is permanently reclaimed or adequately stabilized, to ensure that sediment and/or turbidity in the return water and/or stormwater runoff will not cause substantial visible contrast with the receiving waters, or result in an increase of 50 NTUs above background turbidity levels in the receiving waters.

15. For proposed activities associated with new or updated docks, marinas, multiple boat slips, floating docks, large or multiple piers, etc. or that increase the number of berthing areas, the applicant shall

ensure that these facilities are equipped with appurtenances (i.e. trash receptacles, receptacles for fish offal and carcasses, SPCC for fueling facilities, and a sewage pump out system where appropriate) as needed to protect water quality.

16. The applicant is encouraged to consider additional pollution prevention practices, low impact development (LID), and other alternatives to assist in complying with applicable regulatory requirements and possible reduction/elimination of pollutant discharges. LID is an approach to land development or re-development that works with nature to manage stormwater as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat stormwater as a resource rather than a waste product. There are many practices that have been used to implement these sustainable ideas such as bio-retention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements. By implementing LID principles and practices, water can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed.

17. The applicant is encouraged to consider and implement a site design plan/strategy for post-construction hydrology to mimic pre-construction hydrology to the extent feasible, and for post-construction stormwater runoff peak flows and total stormwater volume to minimize potential downstream channel and stream bank erosion.

18. In recognition that projects are site specific in nature and conditions can change during project implementation, ADEM reserves the right to require the submission of additional information or require additional management measures to be implemented, as necessary on a case-by-case basis, in order to ensure the protection of water quality. Liability and responsibility for compliance with this certification are not delegable by contract or otherwise. The applicant shall ensure that any agent, contractor, subcontractor, or other person employed by, under contract, or paid a salary by the applicant complies with this certification. Any violations resulting from the actions of such person may be considered violations of this certification.

19. Issuance of a certification by ADEM neither precludes nor negates an operator/owner's responsibility or liability to apply for, obtain, or comply with other ADEM, federal, state, or local government permits, certifications, licenses, or other approvals. This certification does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, trespass, or any infringement of Federal, State, or local laws or regulations, and in no way purports to vest in the applicant title to lands now owned by the State of Alabama, nor shall it be construed as acquiescence by the State of Alabama of lands owned by the State of Alabama that may be in the applicant's possession.

Please feel free to contact me at 334/394-4304 in the event you have any questions.

Sincerely,

Anthony Scott Hughes, Chief
Field Operations Division

File: WQ401

c: Nashville District COE & EPA Region IV

LANCE R. LEFLEUR
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December 15, 2020

Colonel Sebastien P. Joly
District Commander
U. S. Army Corps of Engineers, Mobile District
109 St. Joseph Street
Mobile, Alabama 36619

RE: U. S. Army Corps of Engineers Nationwide Permits (NWPs) Program
State of Alabama Coastal Consistency Concurrence
2020 NWP Reissuance
ACAMP-2016-301.1 | COE-2020-0002

Dear Colonel Joly:

The NWPs listed below have been determined by the ADEM, based on their scope or nature, not to have a significant impact on coastal resources when implemented in accordance with the specific conditions described herein and are therefore categorically certified to be consistent with the ACAMP pursuant to ADEM Administrative Code 335-8-1-.03(4).

1. **Aids to Navigation**
No additional coastal consistency conditions.

2. **Structures in Artificial Canals**
The permittee must obtain all appropriate authorizations required by the Alabama Department of Conservation and Natural Resources – State Lands Division (ADCNR-SLD) prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

3. **Maintenance**
   A. Activities authorized under Nationwide Permit 3 must not be located within or in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources.
   B. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

4. **Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities**
The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

5. **Scientific Measurement Devices**
   A. Activities authorized under Nationwide Permit 5 must not be located within or in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources.
   B. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

6. **Survey Activities**
No additional coastal consistency conditions.

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
3664 Dauphin Street, Suite B
Mobile, AL 36608
(251) 304-1176
(251) 304-1189 (FAX)

7. Outfall Structures and Associated Intake Structures

A. Activities authorized under Nationwide Permit 7 must not be located within or in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources.
B. There must be no placement of new riprap in previously unarmored areas.
C. There must be no construction of new outfall and/or intake structures on properties fronting the Gulf of Mexico, Pelican Bay, Weeks Bay, Dauphin Island Audubon Sanctuary, or the Point aux Pines wetland system owned by the Board of Trustees of the University of Alabama.
D. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

8. Oil and Gas Structures on the Outer Continental Shelf

No additional coastal consistency conditions.

9. Structures in Fleeting and Anchorage Areas

The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

11. Temporary Recreational Structures

The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

12. Utility Line Activities

A. The permittee must submit a copy of the Pre-Construction Notification (PCN) required by the Corps to the ADEM Mobile-Coastal office.
B. Activities authorized under Nationwide Permit 12 must not be located within or in close proximity to existing submersed grassbeds or natural oyster reefs and shall not result in adverse impacts to those resources.
C. The permittee must demonstrate avoidance and minimization of wetland impacts to the maximum extent practicable. Wetland impacts may be considered only after utilization of all available uplands.
D. The permittee must undertake restoration of any wetland areas or State waterbottoms temporarily impacted as a result of activities authorized under Nationwide Permit 12. Disturbed areas must be returned to preproject elevations and wetland areas must be revegetated.
E. The permittee must provide compensatory mitigation for any authorized permanent wetland impacts and must submit supporting documentation (e.g. certificate of credit purchase) to the ADEM Mobile-Coastal office for verification.
F. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

14. Linear Transportation Crossings

A. The permittee must submit a copy of the PCN required by the Corps to the ADEM Mobile-Coastal office.
B. Nationwide Permit 14 may not be used to authorize wetland dredge or fill activities on residential or commercial lots, except on legally platted lots or parcels in existence on or before 14 August 1979. This condition does not apply to uses of regional benefit such as roads, highways, railways, trails, airport runways, and taxiways.
C. The permittee must demonstrate avoidance and minimization of wetland impacts to the maximum extent practicable. Wetland impacts may be considered only after utilization of all available uplands.
D. The permittee must provide compensatory mitigation for any authorized permanent wetland impacts and must submit supporting documentation (e.g. certificate of credit purchase) to the ADEM Mobile-Coastal office for verification.
E. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

15. U.S. Coast Guard Approved Bridges

The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

16. Return Water from Upland Contained Disposal Areas

A. The permittee must ensure the salinity of return waters from dredge disposal sites is similar to the salinity of the receiving waters.
B. The discharge from the upland contained disposal area(s) must not cause a violation of State water quality standards or applicable conditions of the State Clean Water Act Section 401 Water Quality Certification.

17. Hydropower Projects

No additional coastal consistency conditions.

18. Minor Discharges

A. The permittee must submit a copy of the PCN required by the Corps to the ADEM Mobile-Coastal office. The PCN must include a copy of the legal plat.
B. There must be no dredging or filling of wetlands, except on legally platted lots or parcels in existence on or before 14 August 1979.
C. Nationwide Permit 18 must not be used to authorize fill to accommodate construction of swimming pools, boat ramps, tennis courts, lawns, play areas or other ancillary projects or activities not directly related to the construction of residential dwellings and/or associated access drives and parking.
D. Activities authorized under Nationwide Permit 18 must not be located in close proximity to existing submersed grassbeds or natural oyster reefs and shall not result in adverse impacts to those resources.
E. The permittee must demonstrate avoidance and minimization of wetland impacts to the maximum extent practicable. Wetland impacts may be considered only after utilization of all available uplands.
F. The permittee must provide compensatory mitigation for any authorized permanent wetland impacts and must submit supporting documentation (e.g. certificate of credit purchase) to the ADEM Mobile-Coastal office for verification.
G. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

19. Minor Dredging

A. Activities authorized under Nationwide Permit 19 must not be located in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources.
B. Dredging is prohibited in the Gulf of Mexico or Pelican Bay in an area from the ADEM Construction Control Line to a point 1,500 feet seaward of Mean High Tide.
C. Dredging is prohibited in the Gulf of Mexico in an area from the City of Gulf Shores Construction Control Line to a point 1,500 feet seaward of Mean High Tide.
D. Dredged material must be placed in an upland disposal area and properly contained to prevent re-entering the waterway or wetlands unless specifically authorized by other approved permits or exemptions.
E. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

20. Response Operations for Oil and Hazardous Substances

The permittee must undertake restoration of any wetland areas or State waterbottoms temporarily impacted as a result of activities authorized under Nationwide Permit 20. Disturbed areas must be returned to preproject elevations and wetland areas must be revegetated.

22. Removal of Vessels

A. The permittee must undertake restoration of any wetland areas or State waterbottoms temporarily impacted as a result of activities authorized under Nationwide Permit 22. Disturbed areas must be returned to preproject elevations and wetland areas must be revegetated.

B. Vessel removal related to a catastrophic natural disaster (e.g. hurricane, discrete flooding event, etc.) is not authorized during the time an applicable Temporary State/Regional General Permit for Emergency Vessel Removal related to the natural disaster recovery is in effect.

23. Approved Categorical Exclusions

No additional coastal consistency conditions.

25. Structural Discharges

A. Activities authorized under Nationwide Permit 25 must not be located in close proximity to existing submersed grassbeds or natural oyster reefs and shall not result in adverse impacts to those resources.

B. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

27. Aquatic Habitat Restoration, Establishment, and Enhancement Activities

A. The permittee must submit a copy of the PCN required by the Corps to the ADEM Mobile-Coastal office.

B. There must be no construction of open water areas in existing wetlands unless the impacted wetland acreage is replaced elsewhere within the restoration, establishment, and/or enhancement project area.

C. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

28. Modifications of Existing Marinas

A. The permittee must submit notification to the ADEM Mobile-Coastal office prior to reconfiguration of existing docking facilities at marinas having 10 or more wet slips.

B. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

31. Maintenance of Existing Flood Control Facilities

No additional coastal consistency conditions.

32. Completed Enforcement Actions

No additional coastal consistency conditions.

33. Temporary Construction, Access and Dewatering

No additional coastal consistency conditions.

35. Maintenance Dredging of Existing Basins

A. Dredged material must be placed in an upland disposal area and properly contained to prevent re-entering the waterway or wetlands unless specifically authorized by other approved permits or exemptions.

B. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

36. Boat Ramps

A. Activities authorized under Nationwide Permit 36 must not be located within or in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources.

B. Nationwide Permit 36 must not allow construction of boat ramps on properties fronting the Gulf of Mexico, Pelican Bay, Weeks Bay, Dauphin Island Audubon Sanctuary, or the Point aux Pines wetland system owned by the Board of Trustees of the University of Alabama.

C. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

37. Emergency Watershed Protection and Rehabilitation

No additional coastal consistency conditions.

38. Cleanup of Hazardous and Toxic Waste

No additional coastal consistency conditions.

45. Repair of Uplands Damaged by Discrete Events

A. Activities authorized under Nationwide Permit 45 must not be located within or in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources.

B. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

46. Discharges in Ditches and Canals

No additional coastal consistency conditions.

48. Commercial Shellfish Aquaculture Activities

A. Activities and structures authorized under Nationwide Permit 48 must not be located within or in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources. The permittee may be required to submit a submersed grassbed survey to the ADEM Mobile-Coastal office prior to commencement of work.

B. There must be no placement or addition of fill onto State-Owned Submerged Lands.

C. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

53. Removal of Low-Head Dams

A. The permittee must submit a copy of the PCN required by the Corps to the ADEM Mobile-Coastal office.

B. The permittee must undertake the restoration of any wetland areas or State waterbottoms temporarily impacted as a result of activities authorized under Nationwide Permit 53. Disturbed areas must be restored to preproject elevations and wetland areas must be revegetated.

C. The permittee must obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

54. Living Shorelines

A. The permittee must submit a copy of the PCN required by the Corps to the ADEM Mobile-Coastal office.

B. Activities and structures authorized under Nationwide Permit 54 must not be located within or in close proximity to existing submersed grassbeds or natural oyster reefs and shall not result in adverse impacts to those resources. The permittee may be required to submit a submersed grassbed survey to the ADEM Mobile-Coastal office prior to commencement of work.

NWP C Electric Utility Line and Telecommunications Activities

A. The permittee must submit a copy of the PCN required by the Corps to the ADEM Mobile-Coastal office.
B. Activities and structures authorized under NWP C must not be located within or in close proximity to existing submersed grassbeds or natural oyster reefs and shall not result in adverse impacts to those resources.

NWP D Utility Line Activities for Water or Other Substances

A. The permittee must submit a copy of the PCN required by the Corps to the ADEM Mobile-Coastal office.
B. Activities and structures authorized under NWP D must not be located within or in close proximity to existing submersed grassbeds or natural oyster reefs and shall not result in adverse impacts to those resources.

Recognizing that projects are site specific in nature and scope and that conditions may change during project implementation, the ADEM reserves the right to the require a permittee to submit additional information or require additional management measures to be implemented, as necessary on a case-by-case basis, in order to ensure that activities authorized under one or more NWPs are being conducted in a manner that protects water quality and coastal resources.

These coastal consistency concurrences only addresses activities which are also regulated under the enforceable policies of the ACAMP as codified in ADEM Admin. Code R. 335-8. These concurrences do not convey any property rights in either real or personal property, or any exclusive privileges, nor do they authorize any injury to persons or property or invasion of other private rights, trespass, or any infringement of Federal, State, or local laws or regulations and in no way purports to vest in any person title to lands now owned by the State of Alabama nor may it be construed as acquiescence by the State of Alabama of lands owned by the State that may be in anyone's possession. These concurrences do not obviate the responsibility of any applicant to acquire all other needed permits nor do these concurrences, in any way, imply that proposed activities comply with the requirements of any other jurisdictional entity nor do they imply that the projects can or should be approved by any other jurisdictional entity.

The following NWPs have been found to be inconsistent with the ACAMP and are not authorized for use within the coastal area of Alabama without individual review of the applicant's certification of coastal consistency.

10. Mooring Bouys
13. Bank Stabilization
21. Surface Coal Mining Activities
24. Indian Tribe or State Administered Section 404 Programs
26. Reserved
29. Residential Developments
30. Moist Soil Management for Wildlife
34. Cranberry Production Activities
39. Commercial and Institutional Developments
40. Agricultural Activities
41. Reshaping Existing Drainage Ditches
42. Recreational Facilities
43. Stormwater Management Facilities
44. Mining Activities
47. Reserved
49. Coal Remining Activities
50. Underground Coal Mining Activities
51. Land-Based Renewable Energy Generation Facilities

52. Water-Based Renewable Energy Generation Pilot Projects
NWP A – Seaweed Mariculture Activities
NWP B – Finfish Mariculture Activities
NWP E – Water Reclamation and Reuse Facilities

Call, write, or email the Mobile-Coastal office anytime with questions. Always include the ADEM tracking code above when corresponding on this matter. The ADEM contact for this and other coastal zone management issues is J. Scott Brown. He may be reached by telephone at 251. 304.1176 or via e-mail (jsb@adem.alabama.gov).

Sincerely,

A. Scott Hughes, Chief
Field Operations Division

cc: DCNR.Coastal@dcnr.alabama.gov

DECISION DOCUMENT
NATIONWIDE PERMIT 27

This document discusses the factors considered by the Corps of Engineers (Corps) during the issuance process for this Nationwide Permit (NWP). This document contains: (1) the public interest review required by Corps regulations at 33 CFR 320.4(a)(1) and (2); (2) a discussion of the environmental considerations necessary to comply with the National Environmental Policy Act; and (3) the impact analysis specified in Subparts C through F of the 404(b)(1) Guidelines (40 CFR Part 230). This evaluation of the NWP includes a discussion of compliance with applicable laws, consideration of public comments, an alternatives analysis, and a general assessment of individual and cumulative environmental effects, including the general potential effects on each of the public interest factors specified at 33 CFR 320.4(a).

1.0 Text of the Nationwide Permit

Aquatic Habitat Restoration, Enhancement, and Establishment Activities. Activities in waters of the United States associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and riparian areas, the restoration and enhancement of non-tidal streams and other non-tidal open waters, and the rehabilitation or enhancement of tidal streams, tidal wetlands, and tidal open waters, provided those activities result in net increases in aquatic resource functions and services.

To be authorized by this NWP, the aquatic habitat restoration, enhancement, or establishment activity must be planned, designed, and implemented so that it results in aquatic habitat that resembles an ecological reference. An ecological reference may be based on the characteristics of one or more intact aquatic habitats or riparian areas of the same type that exist in the region. An ecological reference may be based on a conceptual model developed from regional ecological knowledge of the target aquatic habitat type or riparian area.

To the extent that a Corps permit is required, activities authorized by this NWP include, but are not limited to the removal of accumulated sediments; releases of sediment from reservoirs to maintain sediment transport continuity to restore downstream habitats; the installation, removal, and maintenance of small water control structures, dikes, and berms, as well as discharges of dredged or fill material to restore appropriate stream channel configurations after small water control structures, dikes, and berms are removed; the installation of current deflectors; the enhancement, rehabilitation, or re-establishment of riffle and pool stream structure; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to enhance, rehabilitate, or re-establish stream meanders; the removal of stream barriers, such as undersized culverts, fords, and grade control structures;

the backfilling of artificial channels; the removal of existing drainage structures, such as drain tiles, and the filling, blocking, or reshaping of drainage ditches to restore wetland hydrology; the installation of structures or fills necessary to restore or enhance wetland or stream hydrology; the construction of small nesting islands; the construction of open water areas; the construction of oyster habitat over unvegetated bottom in tidal waters; coral restoration or relocation activities; shellfish seeding; activities needed to reestablish vegetation, including plowing or discing for seed bed preparation and the planting of appropriate wetland species; re-establishment of submerged aquatic vegetation in areas where those plant communities previously existed; re-establishment of tidal wetlands in tidal waters where those wetlands previously existed; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site.

This NWP authorizes the relocation of non-tidal waters, including non-tidal wetlands and streams, on the project site provided there are net increases in aquatic resource functions and services.

Except for the relocation of non-tidal waters on the project site, this NWP does not authorize the conversion of a stream or natural wetlands to another aquatic habitat type (e.g., the conversion of a stream to wetland or vice versa) or uplands. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during wetland rehabilitation activities are not considered a conversion to another aquatic habitat type. This NWP does not authorize stream channelization. This NWP does not authorize the relocation of tidal waters or the conversion of tidal waters, including tidal wetlands, to other aquatic uses, such as the conversion of tidal wetlands into open water impoundments.

Compensatory mitigation is not required for activities authorized by this NWP since these activities must result in net increases in aquatic resource functions and services.

Reversion. For enhancement, restoration, and establishment activities conducted: (1) In accordance with the terms and conditions of a binding stream or wetland enhancement or restoration agreement, or a wetland establishment agreement, between the landowner and the U.S. Fish and Wildlife Service (FWS), the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), the National Marine Fisheries Service (NMFS), the National Ocean Service (NOS), U.S. Forest Service (USFS), or their designated state cooperating agencies; (2) as voluntary wetland restoration, enhancement, and establishment actions documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or (3) on reclaimed surface coal mine lands, in accordance with a Surface Mining Control and Reclamation Act permit issued by the Office of Surface Mining Reclamation and Enforcement (OSMRE) or the applicable state agency, this NWP also authorizes any future discharge of

dredged or fill material associated with the reversion of the area to its documented prior condition and use (i.e., prior to the restoration, enhancement, or establishment activities). The reversion must occur within five years after expiration of a limited term wetland restoration or establishment agreement or permit, and is authorized in these circumstances even if the discharge of dredged or fill material occurs after this NWP expires. The five-year reversion limit does not apply to agreements without time limits reached between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS, or an appropriate state cooperating agency. This NWP also authorizes discharges of dredged or fill material in waters of the United States for the reversion of wetlands that were restored, enhanced, or established on prior-converted cropland or on uplands, in accordance with a binding agreement between the landowner and NRCS, FSA, FWS, or their designated state cooperating agencies (even though the restoration, enhancement, or establishment activity did not require a section 404 permit). The prior condition will be documented in the original agreement or permit, and the determination of return to prior conditions will be made by the Federal agency or appropriate state agency executing the agreement or permit. Before conducting any reversion activity, the permittee or the appropriate Federal or state agency must notify the district engineer and include the documentation of the prior condition. Once an area has reverted to its prior physical condition, it will be subject to whatever the Corps Regulatory requirements are applicable to that type of land at the time. The requirement that the activity results in a net increase in aquatic resource functions and services does not apply to reversion activities meeting the above conditions. Except for the activities described above, this NWP does not authorize any future discharge of dredged or fill material associated with the reversion of the area to its prior condition. In such cases a separate permit would be required for any reversion.

Reporting. For those activities that do not require pre-construction notification, the permittee must submit to the district engineer a copy of: (1) the binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement, or a project description, including project plans and location map; (2) the NRCS or USDA Technical Service Provider documentation for the voluntary stream enhancement or restoration action or wetland restoration, enhancement, or establishment action; or (3) the SMCRA permit issued by OSMRE or the applicable state agency. The report must also include information on baseline ecological conditions on the project site, such as a delineation of wetlands, streams, and/or other aquatic habitats. These documents must be submitted to the district engineer at least 30 days prior to commencing activities in waters of the United States authorized by this NWP.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing any activity (see general condition 32), except for the following activities:

(1) Activities conducted on non-Federal public lands and private lands, in accordance with the terms and conditions of a binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS or their designated state cooperating agencies;

(2) Activities conducted in accordance with the terms and conditions of a binding coral restoration or relocation agreement between the project proponent and the NMFS or any of its designated state cooperating agencies;

(3) Voluntary stream or wetland restoration or enhancement action, or wetland establishment action, documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or

(4) The reclamation of surface coal mine lands, in accordance with an SMCRA permit issued by the OSMRE or the applicable state agency.

However, the permittee must submit a copy of the appropriate documentation to the district engineer to fulfill the reporting requirement. (Authorities: Sections 10 and 404)

Note: This NWP can be used to authorize compensatory mitigation projects, including mitigation banks and in-lieu fee projects. However, this NWP does not authorize the reversion of an area used for a compensatory mitigation project to its prior condition, since compensatory mitigation is generally intended to be permanent.

1.1 Requirements

General conditions of the NWPs are in the Federal Register notice announcing the issuance of this NWP. Pre-construction notification requirements, additional conditions, limitations, and restrictions are in 33 CFR part 330.

1.2 Statutory Authorities

- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)
- Section 404 of the Clean Water Act (33 U.S.C. 1344)

1.3 Compliance with Related Laws (33 CFR 320.3)

1.3.1 General

Nationwide permits are a type of general permit designed to authorize certain activities that have no more than minimal individual and cumulative adverse environmental effects and generally comply with the related laws cited in 33 CFR 320.3. Activities that result in more than minimal individual and cumulative adverse environmental effects cannot be authorized by NWPs. Individual review of each activity authorized by an NWP will not normally be performed, except when pre-construction notification to the Corps is required or when an applicant requests verification that an activity complies with an NWP. Potential adverse impacts and compliance with the laws cited in 33 CFR 320.3 are controlled by the terms and conditions of each NWP, regional and case-specific conditions, and the review process that is undertaken prior to the issuance of NWPs.

The evaluation of this NWP, and related documentation, considers compliance with each of the following laws, where applicable: Section 10 of the Rivers and Harbors Act of 1899; Sections 401, 402, and 404 of the Clean Water Act; Section 307(c) of the Coastal Zone Management Act of 1972, as amended; Section 302 of the Marine Protection, Research and Sanctuaries Act of 1972, as amended; the National Environmental Policy Act of 1969; the Fish and Wildlife Act of 1956; the Migratory Marine Game-Fish Act; the Fish and Wildlife Coordination Act, the Federal Power Act of 1920, as amended; the National Historic Preservation Act of 1966; the Interstate Land Sales Full Disclosure Act; the Endangered Species Act; the Deepwater Port Act of 1974; the Marine Mammal Protection Act of 1972; Section 7(a) of the Wild and Scenic Rivers Act; the Ocean Thermal Energy Act of 1980; the National Fishing Enhancement Act of 1984; the Magnuson-Stevens Fishery and Conservation and Management Act, the Bald and Golden Eagle Protection Act; and the Migratory Bird Treaty Act. In addition, compliance of the NWP with other Federal requirements, such as Executive Orders and Federal regulations addressing issues such as floodplains, essential fish habitat, and critical resource waters is considered.

For mitigation banks and in-lieu fee programs, this decision document only covers the aquatic habitat restoration, enhancement, and establishment activities that will result in net increases in aquatic resource functions and services (i.e., the physical activities that require DA authorization and generate the mitigation bank or in-lieu fee program credits). This decision document does not cover the review process for proposed mitigation banks and in-lieu fee programs in 33 CFR 332.8(d), including the approval of mitigation banking instruments and in-lieu fee program instruments and modifications of those instruments. It also does not cover modifications or amendments of those instruments. Separate decision documents should be prepared for decisions made by district engineers on whether to approve instruments for proposed mitigation banks or in-lieu fee programs, or modifications

or amendments for previously approved mitigation banking or in-lieu fee program instruments.

1.3.2 Terms and Conditions

Many NWPs have pre-construction notification requirements that trigger case-by-case review of certain activities. Two NWP general conditions require case-by-case review of all activities that might affect federally-listed endangered or threatened species or historic properties (i.e., general conditions 18 and 20, respectively). General condition 16 restricts the use of NWPs for activities that are located in federally-designated wild and scenic rivers. None of the NWPs authorize the construction of artificial reefs. General condition 28 addresses the use of an NWP with other NWPs to authorize a single and complete project, to ensure that the acreage limits of each of the NWPs used to authorize that project are not exceeded.

In some cases, activities authorized by an NWP may require other federal, state, or local authorizations. Examples of such cases include, but are not limited to: activities that are in marine sanctuaries or affect marine sanctuaries or marine mammals; the ownership, construction, location, and operation of ocean thermal conversion facilities or deep water ports beyond the territorial seas; activities that may result in discharges into waters of the United States and require Clean Water Act Section 401 water quality certification; or activities in a state operating under a coastal zone management program approved by the Secretary of Commerce under the Coastal Zone Management Act. In such cases, a provision of the NWPs states that an NWP does not obviate the need to obtain other authorizations required by law. [33 CFR 330.4(b)(2)]

Additional safeguards include provisions that allow the Chief of Engineers, division engineers, and/or district engineers to: assert discretionary authority and require an individual permit for a specific activity; modify NWPs for specific activities by adding special conditions on a case-by-case basis; add conditions on a regional or nationwide basis to certain NWPs; or take action to suspend or revoke an NWP or NWP authorization for activities within a region or state. Regional conditions are imposed to protect important regional concerns and resources. [33 CFR 330.4(e) and 330.5]

1.3.3 Review Process

The analyses in this document and the coordination that was undertaken prior to the issuance of the NWP fulfill the requirements of the National Environmental Policy Act (NEPA), the Fish and Wildlife Coordination Act, and other acts promulgated to protect the quality of the environment.

All NWPs that authorize activities that may result in discharges into waters of the United States require compliance with the water quality certification requirements of

Section 401 of the Clean Water Act. NWPs that authorize activities within, or affecting land or water uses within a state that has a federally-approved coastal zone management program, must also be certified as consistent with the state's program, unless a presumption of concurrence occurs. The procedures to ensure that the NWPs comply with these laws are described in 33 CFR 330.4(c) and (d), respectively.

2.0 Purpose and Need for the Proposed Action

The proposed action is the issuance of this NWP to authorize discharges of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act and structures and work in navigable waters of the United States under Section 10 of the Rivers and Harbors Act of 1899 for aquatic habitat restoration, enhancement, and establishment activities that result in no more than minimal individual and cumulative adverse environmental effects. This proposed action is needed for effective implementation of the Corps' Regulatory Program, by authorizing with little, if any, delay or paperwork this category of activities, when those activities have no more than minimal individual and cumulative adverse environmental effects. This NWP also provides an incentive to project proponents to reduce impacts to jurisdictional waters and wetlands to receive the required authorization under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 in less time than it takes to obtain individual permits for those activities. Issuing an NWP to authorize activities that have no more than minimal adverse environmental effects instead of processing individual permit applications for these activities reduces regulatory burdens on the public, provides environmental benefits through avoidance and minimization of impacts to jurisdictional waters and wetlands in exchange for an expedited DA authorization for regulated activities. The issuance of this NWP also allows the Corps to allocate more of its resources towards evaluating proposed activities requiring Department of the Army authorization under that have the potential to cause more substantial adverse environmental effects.

3.0 Alternatives

This evaluation includes an analysis of alternatives based on the requirements of NEPA, which requires a more expansive review than the Clean Water Act Section 404(b)(1) Guidelines. The alternatives discussed below are based on an analysis of the potential environmental impacts and impacts to the Corps, federal, tribal, and state resource agencies, general public, and prospective permittees. Since the consideration of off-site alternatives under the 404(b)(1) Guidelines does not apply to specific projects authorized by general permits, the alternatives analysis discussed below consists of a general NEPA alternatives analysis for the NWP.

3.1 No Action Alternative (Do Not Reissue the Nationwide Permit)

The no action alternative would be to allow this NWP to continue to authorize activities until it expires on March 18, 2022, and not reissue the NWP. After the NWP expires, under the no action alternative activities that were authorized by this NWP would require individual permits, unless Corps districts issued regional general permits to authorize a similar category of activities that the NWP authorized.

3.2 Reissue the Nationwide Permit With Modifications

This alternative consists of reissuing the NWP with modifications while considering additional changes to the NWP after evaluating the comments received in response to the proposal to reissue this NWP. This alternative includes changes to the terms and conditions of this NWP, including quantitative limits for this NWP, pre-construction notification thresholds and requirements, and other provisions of this NWP. Under this alternative, division and district engineers have the authority under 33 CFR 330.5(c) and (d) to modify, suspend, or revoke NWP authorizations on a regional or case-by-case basis to ensure that the NWP authorizes only those activities that result in no more than minimal individual and cumulative adverse environmental effects.

In the September 15, 2020, Federal Register notice, the Corps requested comments on the proposed reissuance of this NWP. The Corps proposed to modify this NWP to state that an ecological reference may be based on the characteristics of one or more intact aquatic habitats or riparian areas. In addition, the Corps proposed to modify this NWP by adding coral restoration or relocation activities to the list of examples of activities authorized by this NWP. The Corps also proposed to add ‘‘releasing sediment from reservoirs to restore downstream habitat’’ to the list of examples of activities authorized by this NWP because sediments may be deliberately passed through reservoirs to sustain sediment transport functions in riverine systems to sustain or improve downstream habitats.

Since the Corps’ NWP program began in 1977, the Corps has continuously strived to develop NWPs that only authorize activities that result in no more than minimal individual and cumulative adverse environmental effects. Every five years the Corps reevaluates the NWPs during the reissuance process, and may modify an NWP to address concerns for the aquatic environment. Utilizing collected data and institutional knowledge concerning activities authorized by the Corps regulatory program, the Corps reevaluates the potential impacts of activities authorized by NWPs. The Corps also uses substantive public comments on proposed NWPs to assess the expected impacts.

3.3 Reissue the Nationwide Permit Without Modifications

This alternative consists of reissuing the NWP without any modifications before it expires on March 18, 2022. Under this alternative, division and district engineers have the authority under 33 CFR 330.5(c) and (d) to modify, suspend, or revoke NWP authorizations on a regional or case-by-case basis to ensure that the NWP authorizes only those activities that result in no more than minimal individual and cumulative adverse environmental effects.

4.0 Affected Environment

The geographic scope of this environmental assessment covers the United States and its territories because this NWP may be used across the country, unless the NWP is revoked or suspended by a division or district engineer under the procedures in 33 CFR 330.5(c) and (d), respectively. The affected environment consists of the present condition (i.e., structure and function) of aquatic and terrestrial ecosystems in the United States, which have been directly and indirectly affected by past and present federal, non-federal, and private activities, as well as natural events such as storms, earthquakes, and wildfires. The past and present activities that have affected aquatic and terrestrial ecosystems include activities authorized by the various NWPs issued from 1977 to 2017, activities authorized by other types of Department of the Army (DA) permits, as well as other federal, tribal, state, local, and private activities that are not regulated by the Corps. The structure and function of aquatic ecosystems are also influenced by past and present activities in uplands, because land use/land cover changes in uplands and other activities in uplands have indirect effects on aquatic ecosystems (e.g., MEA 2005a, Reid 1993). Due to the large geographic scale of the affected environment (i.e., the United States and its territories), as well as the many past and present human activities that have shaped the affected environment, the affected environment can only be practicably described in general terms. In addition, for this environmental assessment it is not possible to describe the environmental conditions for specific sites where the NWPs may be used to authorize eligible activities because those sites will be identified after this NWP is issued and goes into effect.

The total land area in the United States is approximately 2,260,000,000 acres, and the total land area in the contiguous United States is approximately 1,891,000,000 acres (Bigelow and Borchers 2017). Land uses in the United States as of 2012 is provided in Table 4.1 (Bigelow and Borchers 2017). Of the land area in the entire United States, approximately 60 percent (1,370,000,000 acres) is privately owned (Bigelow and Borchers 2017). Of the remaining lands in the United States, the federal government hold 28 percent (644,000,000 acres), state and local governments own 8 percent (189,000,000 acres), and 3 percent (63,000,000 acres) is held in trust by the Bureau of Indian Affairs (Bigelow and Borchers 2017).

Table 4.1. Major land uses in the United States – 2012 (Bigelow and Borchers 2017).

Land Use	Acres	Percent of Total
Agriculture	1,186,000,000	52.5
Forest land	502,000,000	22.2
Transportation use	27,000,000	1.2
Recreation and wildlife areas	254,000,000	11.2
National defense areas	27,000,000	1.2
Urban land	70,000,000	3.1
Miscellaneous use	196,000,000	8.5
Total land area	2,260,000,000	100.0

4.1 Quantity of Aquatic Ecosystems in the United States

There are approximately 283.1 million acres of wetlands in the United States; 107.7 million acres are in the conterminous United States and the remaining 175.4 million acres are in Alaska (Mitsch and Hernandez 2013). Wetlands occupy less than 9 percent of the global land area (Zedler and Kercher 2005). According to Dahl (2011), wetlands and deepwater habitats cover approximately 8 percent of the land area in the conterminous United States. Rivers and streams comprise approximately 0.52 percent of the total land area of the continental United States (Butman and Raymond 2011). Therefore, the wetlands, streams, rivers, and other aquatic habitats that are potentially waters of the United States and subject to regulation by the Corps under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 comprise a minor proportion of the land area of the United States. The remaining land area of the United States (more than 92 percent, depending on the proportion of wetlands, streams, rivers, and other aquatic habitats that are subject to regulation under those two statutes) is outside the Corps regulatory authority.

Dahl (1990) estimated that approximately 53 percent of the wetlands in the conterminous United States were lost in the 200-year period from the 1780s to 1980s, while Alaska lost less than one percent of its wetlands and Hawaii lost approximately 12 percent of its original wetland acreage. In the 1780s, there were approximately 221 million acres of wetlands in the conterminous United States (Dahl 1990). California lost the largest percentage of its wetlands (91 percent), whereas Florida lost the largest acreage (9.3 million acres) (Dahl 1990). During that 200-year period, 22 states lost more than 50 percent of their wetland acreage, and 10 states have lost more than 70 percent of their original wetland acreage (Dahl 1990).

Frayer et al. (1983) evaluated wetland status and trends in the United States during

the period of the mid-1950s to the mid-1970s. During that 20-year period, approximately 7.9 million acres of wetlands (4.2 percent) were lost in the conterminous United States. Much of the loss of estuarine emergent wetlands was due to changes to estuarine subtidal deepwater habitat, and some loss of estuarine emergent wetlands was due to urban development. For palustrine vegetated wetlands, nearly all of the losses of those wetlands were due to agricultural activities (e.g., conversion to agricultural production).

The U.S. Fish and Wildlife Service also examined the status and trends of wetlands in the United States during the period of the mid-1970s to the 1980s, and found that there was a net loss of more than 2.6 million acres of wetlands (2.5 percent) during that time period (Dahl and Johnson 1991). Freshwater wetlands comprised 98 percent of those wetland losses (Dahl and Johnson 1991). During that time period, losses of estuarine wetlands were estimated to be 71,000 acres, with most of that loss due to changes of emergent estuarine wetlands to open waters caused by shifting sediments (Dahl and Johnson 1991). Conversions of wetlands to agricultural use were responsible for 54 percent of the wetland losses, and conversion to other land uses resulted in the loss of 41 percent of wetlands (Dahl and Johnson 1991). Urban development was responsible for five percent of the wetland loss (Dahl and Johnson 1991). The annual rate of wetland loss has decreased substantially since the 1970s (Dahl 2011), when wetland regulation became more prevalent (Brinson and Malvárez 2002).

Between 2004 and 2009, there was no statistically significant difference in wetland acreage in the conterminous United States (Dahl 2011). According to the 2011 wetland status and trends report, during the period of 2004 to 2009 urban development accounted for 11 percent of wetland losses (61,630 acres), rural development resulted in 12 percent of wetland losses (66,940 acres), silviculture accounted for 56 percent of wetland losses (307,340 acres), and wetland conversion to deepwater habitats caused 21 percent of the loss in wetland area (115,960 acres) (Dahl 2011). Some of the losses occurred to wetlands that are not subject to Clean Water Act jurisdiction and some losses are due to activities not regulated under Section 404 of the Clean Water Act, such as unregulated drainage activities, exempt forestry activities, or water withdrawals. From 2004 to 2009, approximately 100,020 acres of wetlands were gained as a result of wetland restoration and conservation programs on agricultural land (Dahl 2011). Another source of wetland gain is conversion of other uplands to wetlands, resulting in a gain of 389,600 acres during the period of 2004 to 2009 (Dahl 2011). Inventories of wetlands, streams, and other aquatic resources are incomplete because the techniques used for those studies cannot identify some of those resources (e.g., Dahl (2011) for wetlands; Meyer and Wallace (2001) for streams).

Losses of vegetated estuarine wetlands due to the direct effects of human activities have decreased significantly due to the requirements of Section 404 of the Clean Water Act and other laws and regulations (Dahl 2011). During the period of 2004 to

2009, less than one percent of estuarine emergent wetlands were lost as a direct result of human activities, while other factors such as sea level rise, land subsidence, storm events, erosion, and other ocean processes caused substantial losses of estuarine wetlands (Dahl 2011). The indirect effects of other human activities, such as oil and gas development, water extraction, development of the upper portions of watersheds, and levees, have also resulted in coastal wetland losses (Dahl 2011). Eutrophication of coastal waters can also cause losses of emergent estuarine wetlands, through changes in growth patterns of marsh plants and decreases in the stability of the wetland substrate, which changes those marshes to mud flats (Deegan et al. 2012).

The Emergency Wetlands Resources Act of 1986 (Public Law 99-645) requires the USFWS to submit wetland status and trends reports to Congress (Dahl 2011). The latest status and trends report, which covers the period of 2004 to 2009, is summarized in Table 4.2. The USFWS status and trends report only provides information on acreage of the various aquatic habitat categories and does not assess the quality or condition of those aquatic habitats (Dahl 2011).

Table 4.2. Estimated aquatic resource acreages in the conterminous United States in 2009 (Dahl 2011).

Aquatic Habitat Category	Estimated Area in 2009 (acres)
Marine intertidal	227,800
Estuarine intertidal non-vegetated	1,017,700
Estuarine intertidal vegetated	4,539,700
All intertidal waters and wetlands	5,785,200
Freshwater ponds	6,709,300
Freshwater vegetated	97,565,300
• Freshwater emergent wetlands	27,430,500
• Freshwater shrub wetlands	18,511,500
• Freshwater forested wetlands	51,623,300
All freshwater wetlands	104,274,600
Lacustrine deepwater habitats	16,859,600
Riverine deepwater habitats	7,510,500
Estuarine subtidal habitats	18,776,500
All wetlands and deepwater habitats	153,206,400

The acreage of lacustrine deepwater habitats does not include the open waters of Great Lakes (Dahl 2011).

The Federal Geographic Data Committee has established the Cowardin system developed by the U.S. Fish and Wildlife Service (USFWS) (Cowardin et al. 1979) as the national standard for wetland mapping, monitoring, and data reporting (Dahl 2011) (see Federal Geographic Data Committee (2013)). The Cowardin system is a hierarchical system which describes various wetland and deepwater habitats, using structural characteristics such as vegetation, substrate, and water regime as defining characteristics. Wetlands are defined by plant communities, soils, or inundation or flooding frequency. Deepwater habitats are permanently flooded areas located below the wetland boundary. In rivers and lakes, deepwater habitats are usually more than two meters deep. The Cowardin et al. (1979) definition of "wetland" differs from the definition used by the Corps for the purposes of implementing Section 404 of the Clean Water Act. The Corps' regulations define "wetlands" as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." [33 CFR 328.3] The Cowardin et al. (1979) requires only one factor (i.e., wetland vegetation, soils, hydrology) to be present for an area to be a wetland, while the Corps' wetland definition requires all three factors to be present under normal circumstances (Tiner 2017, Mitsch and Gosselink 2015). The NWI produced by applying the Cowardin et al. (1979) definition is the only national scale wetland inventory available. There is no national inventory of wetland acreage based on the Corps' wetland definition at 33 CFR 328.3.

There are five major systems in the Cowardin classification scheme: marine, estuarine, riverine, lacustrine, and palustrine (Cowardin et al. 1979). The marine system consists of open ocean on the continental shelf and its high energy coastlines. The estuarine system consists of tidal deepwater habitats and adjacent tidal wetlands that are usually partially enclosed by land, but may have open connections to open ocean waters. The riverine system generally consists of all wetland and deepwater habitats located within a river channel. The lacustrine system generally consists of wetland and deepwater habitats located within a topographic depression or dammed river channel, with a total area greater than 20 acres. The palustrine system generally includes all non-tidal wetlands and wetlands located in tidal areas with salinities less than 0.5 parts per thousand; it also includes ponds less than 20 acres in size. Approximately 95 percent of wetlands in the conterminous United States are freshwater wetlands, and the remaining 5 percent are estuarine or marine wetlands (Dahl 2011).

According to Hall et al. (1994), there are more than 204 million acres of wetlands and deepwater habitats in the State of Alaska, including approximately 174.7 million acres of wetlands. Wetlands and deepwater habitats comprise approximately 50.7 percent of the surface area in Alaska (Hall et al. 1994).

The National Resources Inventory (NRI) is a statistical survey conducted by the

Natural Resources Conservation Service (NRCS) (USDA 2018) of natural resources on non-federal land in the United States. The NRCS defines non-federal land as privately owned lands, tribal and trust lands, and lands under the control of local and state governments. Acreages of palustrine and estuarine wetlands and the land uses those wetlands are subjected to are summarized in Table 4.3. The 2015 NRI estimates that there are 110,638,500 acres of palustrine and estuarine wetlands on non-Federal land and water areas in the United States (USDA 2018). The 2015 NRI estimates that there are 49,598,800 acres of open waters on non-Federal land in the United States, including lacustrine, riverine, and marine habitats, as well as estuarine deepwater habitats.

Table 4.3. The 2015 National Resources Inventory acreages for palustrine and estuarine wetlands on non-federal land, by land cover/use category (USDA 2018).

National Resources Inventory Land Cover/Use Category	Area of Palustrine and Estuarine Wetlands (acres)
cropland, pastureland, and Conservation Reserve Program land	17,300,000
forest land	65,800,000
rangeland	7,800,000
other rural land	14,600,000
developed land	1,500,000
water area	3,600,000
Total	111,000,000

The land cover/use categories used by the 2015 NRI are defined below (USDA 2018). Croplands are areas used to produce crops grown for harvest. Pastureland is land managed for livestock grazing, through the production of introduced forage plants. Conservation Reserve Program land is under a Conservation Reserve Program contract. Forest land is comprised of at least 10 percent single stem woody plant species that will be at least 13 feet tall at maturity. Rangeland is land on which plant cover consists mostly of native grasses, herbaceous plants, or shrubs suitable for grazing or browsing, and introduced forage plant species. Other rural land consists of farmsteads and other farm structures, field windbreaks, marshland, and barren land. Developed land is comprised of large urban and built-up areas (i.e., urban and built-up areas 10 acres or more in size), small built-up areas (i.e., developed lands 0.25 to 10 acres in size), and rural transportation land (e.g., roads, railroads, and associated rights-of-way outside urban and built-up areas). Water areas are comprised of waterbodies and streams that are permanent open waters.

The wetlands data from the Fish and Wildlife Service's Status and Trends study and the Natural Resources Conservation Service's National Resources Inventory should not be compared, because they use different methods and analyses to produce their results (Dahl 2011).

Leopold, Wolman, and Miller (1964) estimated that there are approximately 3,250,000 miles of river and stream channels in the United States. This estimate is based on an analysis of 1:24,000 scale topographic maps. Their estimate does not include many small streams. Many small streams, especially headwater streams, are not mapped on 1:24,000 scale U.S. Geological Survey (USGS) topographic maps (Leopold 1994) or included in other inventories (Meyer and Wallace 2001), including the National Hydrography Dataset (Elmore et al. 2013). Many small streams and rivers are not identified through maps produced by aerial photography or satellite imagery because of inadequate image resolution or trees or other vegetation obscuring the visibility of those streams from above (Benstead and Leigh 2012). In a study of stream mapping in the southeastern United States, only 20 percent of the stream network was mapped on 1:24,000 scale topographic maps, and nearly none of the observed intermittent or ephemeral streams were indicated on those maps (Hansen 2001). Another study in Massachusetts showed that 1:25,000 metric scale topographic maps exclude over 27 percent of stream miles in a watershed (Brooks and Colburn 2011). For a 1:24,000 scale topographic map, the smallest tributary found by using 10-foot contour interval has a drainage area of 0.7 square mile and length of 1,500 feet, and smaller stream channels are common throughout the United States (Leopold 1994). Benstead and Leigh (2012) found that the density of stream channels (length of stream channels per unit area) identified by digital elevation models was three times greater than the drainage density calculated by using USGS maps. Elmore et al. (2013) made similar findings in watersheds in the mid-Atlantic, where they determined that the stream density was 2.5 times greater than the stream density calculated with the National Hydrography Dataset. Due to the difficulty in mapping small streams, there are no accurate estimates of the total number of river or stream miles in the conterminous United States that might be considered as "waters of the United States."

The quantity of the Nation's aquatic resources presented by studies that estimate the length or number of stream channels (see above) or the acreage of wetlands (e.g., USFWS status and trends studies, National Wetlands Inventory (NWI), and Natural Resources Inventory (NRI)) are underestimates, because those inventories do not include many small wetlands and streams. The USFWS status and trends studies do not include Alaska, Hawaii, or the territories. The underestimate of national wetland acreage by the USFWS status and trends study and the NWI is primarily the result of the minimum size of wetlands detected through remote sensing techniques and the difficulty of identifying certain wetland types through those remote sensing techniques. The remote sensing approaches used by the USFWS for its NWI maps and its status and trends reports result in errors of

omission that exclude wetlands that are difficult to identify through photointerpretation (Tiner 2017). These errors of omission are due to wetland type and the size of target mapping units (Tiner 2017). Therefore, it is important to understand the limitations of the source data when describing the environmental baseline for wetlands using maps and studies produced by remote sensing, especially in terms of wetland quantity.

Factors affecting the accuracy of wetland maps made by remote sensing include: the degree of ease or difficulty in identifying a particular wetland type, map scale, the quality and scale of the source information (e.g., aerial or satellite photos), the environmental conditions when the imagery was obtained, the time of year the imagery was obtained (e.g., leaf-off versus leaf on), the quality of the images, the minimum mapping unit (or target mapping unit), the mapping equipment, and the skills of the people drawing the maps (Tiner 2017). In general, wetland types that are difficult to identify through field investigations are likely to be underrepresented in maps made by remote sensing (Tiner 2017). Wetlands difficult to identify through remote sensing include evergreen forested wetlands, wetlands and the drier end of the wetland hydrology continuum, and significantly drained wetlands (Tiner 2017). Wetland types that are more readily identified and delineated through remote sensing techniques include ponds, marshes, bogs, and fens (Tiner 2017). In the most recent wetland status and trends report published by the U.S. Fish and Wildlife Service, the target minimum wetland mapping unit was 1 acre, although some easily identified wetlands as small as 1/10-acre were identified in that effort (Dahl 2011). The National Wetlands Inventory identifies wetlands regardless of their jurisdictional status under the Clean Water Act (Tiner 2017).

Activities authorized by NWPs will adversely affect a smaller proportion of the Nation's wetland base than indicated by the wetlands acreage estimates provided in the most recent status and trends report, or the NWI maps for a particular region.

Not all wetlands, streams, and other types of aquatic resources are subject to federal jurisdiction under the Clean Water Act (Mitsch and Gosselink 2015). Two U.S. Supreme Court decisions have identified limits to Clean Water Act jurisdiction. In 2001, in *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers* (531 U.S. 159) the U.S. Supreme Court held that the use of isolated, non-navigable, intrastate waters by migratory birds is not, by itself a sufficient basis for exercising federal regulatory authority under the Clean Water Act (see 80 FR 37056). In the Supreme Court's 2006 decision in *Rapanos* v. *United States,* (547 U.S. 715), one justice stated that waters and wetlands regulated under the Clean Water Act must have a "significant nexus" to downstream traditional navigable waters. Four justices (the plurality) concluded that Clean Water Act jurisdiction applies only to relatively permanent waters connected to traditional navigable waters and to wetlands that have a continuous surface connection to those relatively permanent waters. The remaining justices in *Rapanos* stated that Clean Water Act jurisdiction applies to waters and wetlands that meet either the significant

nexus test or the Plurality's test.

There are 94,133 miles of shoreline in the United States (NOAA 1975). Of that shoreline, 88,633 miles are tidal shoreline and 5,500 miles are shoreline along the Great Lakes and rivers that connect those lakes to the Atlantic Ocean. More recently, Gittman et al. (2015) estimated that there are 99,524 miles of tidal shoreline in the conterminous United States.

4.2 Quality of Aquatic Ecosystems in the United States

The USFWS status and trends study does not assess the condition or quality of wetlands and deepwater habitats (Dahl 2011). Information on water quality in waters and wetlands, as well as the causes of water quality impairment, is collected by the U.S. EPA under Sections 305(b) and 303(d) of the Clean Water Act. Table 4.4 provides U.S. EPA's most recent national summary of water quality in the Nation's waters and wetlands.

Table 4.4. National summary of water quality data (U.S. EPA, https://iaspub.epa.gov/waters10/attains_nation_cy.control accessed 11/27/2020).

Category of water	Total waters	Total waters assessed	Percent of waters assessed	Good waters	Threatened waters	Impaired waters
Rivers and streams	3,533,205 miles	1,110,961 miles	31.4	518,293 miles	4,495 miles	588,173 miles
Lakes, reservoirs and ponds	41,666,049 acres	18,629,795 acres	44.7	5,390,570 acres	30,309 acres	13,208,917 acres
Bays and estuaries	87,791 square miles	56,141 square miles	63.9	11,516 square miles	0 square miles	44,625 square miles
Coastal shoreline	58,618 miles	4,627 miles	7.9	1,298 miles	0 miles	3,329 miles
Ocean and near coastal waters	54,120 square miles	6,944 square miles	12.8	726 square miles	0 square miles	6,218 square miles
Wetlands	107,700,000 acres	1,242,252 acres	1.2	569,328 acres	0 acres	672,924 Acres
Great Lakes shoreline	5,202 miles	4,460 miles	85.7	106 miles	0 miles	4,354 miles
Great Lakes open waters	196,343 square miles	39,231 square miles	20.0	1 square mile	0 square miles	39,230 square miles

Waters and wetlands classified by states as “good” meets all their designated uses. Waters classified as “threatened” currently support all of their designated uses, but if pollution control measures are not taken one or more of those uses may become impaired in the future. A water or wetland is classified by the state as “impaired” if any one of its designated uses is not met. The definitions of “good,” “threatened,” and “impaired” are applied by states to describe the quality of their waters (the above definitions were found in the metadata in U.S. EPA (2015)). Designated uses include the “protection and propagation of fish, shellfish and wildlife,” “recreation in and on the water,” the use of waters for “public water supplies, propagation of fish, shellfish, wildlife, recreation in and on the water,” and “agricultural, industrial and other purposes including navigation.” (40 CFR 130.3). These designated uses are assessed by states in a variety of ways, by examining various physical, chemical and biological characteristics, so it is not possible to use the categories of “good,” “threatened,” and “impaired” to infer the level of ecological functions and services these waters perform.

According to the latest U.S. EPA national summary data, 52.9 percent of assessed rivers and streams, 70.9 percent of assessed lakes, reservoirs, and ponds, 79.5 percent of assessed bays and estuaries, 71.9 percent of assessed coastal shoreline, 89.5 percent of assessed ocean and near coastal waters, 54.2 percent of assessed wetlands, 97.6 percent of assessed Great Lakes shoreline, and 100 percent of Great Lakes open water are impaired.

For rivers and streams, 34 causes of impairment were identified, and the top 10 causes are pathogens, sediment, nutrients, organic enrichment/oxygen depletion, temperature, metals (other than mercury), polychlorinated biphenyls, mercury, habitat alterations, and turbidity. The top 10 primary sources of impairment for the assessed rivers and streams are: unknown sources, agriculture, hydromodification, atmospheric deposition, habitat alterations not directly related to hydromodification, unspecified non-point source, municipal discharges/sewage, natural/wildlife, urban-related runoff/stormwater, and silviculture (forestry).

Thirty-three causes of impairment were identified for lakes, reservoirs, and ponds. The top 10 causes of impairment for these waters are: mercury, nutrients, polychlorinated biphenyls, turbidity, organic enrichment/oxygen depletion, metals (other than mercury), pH/acidity/caustic conditions, salinity/total dissolved solids/chlorides/sulfates, algal growth, and nuisance exotic species. For lakes, reservoirs, and ponds, the top 10 sources of impairment are: atmospheric deposition, unknown sources, agriculture, natural/wildlife, unspecified non-point source, other sources, urban-related runoff/stormwater, legacy/historic pollutants, municipal discharges/sewage, and hydromodification.

Twenty-eight causes of impairment were identified for bays and estuaries. The top 10 causes of impairment for these waters are: polychlorinated biphenyls, nutrients,

mercury, turbidity, dioxins, toxic organics, metals (other than mercury), pesticides, pathogens, and organic enrichment/oxygen depletion. For bays and estuaries, the top 10 sources of impairment are: legacy/historic pollutants, urban-related runoff/stormwater, unknown sources, atmospheric deposition, municipal discharges/sewage, unspecified non-point sources, other sources, natural/wildlife, agriculture, and industrial.

Coastal shorelines were impaired by 16 identified causes, the top 10 of which are: mercury, pathogens, turbidity, organic enrichment/oxygen depletion, pH/acidity/caustic conditions, nutrients, oil and grease, temperature, cause unknown – impaired biota, and algal growth. The top 10 sources of impairment of coastal shorelines are municipal discharges/sewage, urban-related runoff/stormwater, unknown sources, recreational boating and marinas, hydromodification, industrial, unspecified non-point sources, agriculture, legacy/historic pollutants, and land application/waste sites/tanks.

Ocean and near coastal waters were impaired by 16 identified causes, the top 10 of which are: mercury, organic enrichment/oxygen depletion, pathogens, metals (other than mercury), pesticides, turbidity, nuisance exotic species, total toxics, pH/acidity/caustic conditions, and polychlorinated biphenyls. The top 10 sources of impairment of ocean and near coastal waters are: atmospheric deposition, unknown sources, unspecified non-point sources, other sources, recreation and tourism (non-boating), recreational boating and marinas, urban-related runoff/stormwater, hydromodification, municipal discharges/sewage, and construction.

For wetlands, 23 causes of impairment were identified, and the top 10 causes are: organic enrichment/oxygen depletion, mercury, metals (other than mercury), salinity/total dissolved solids/chlorides/sulfates, pathogens, nutrients, toxic inorganics, temperature, pH/acidity/caustic conditions, and turbidity. The 10 primary sources for wetland impairment are: unknown sources, natural/wildlife, agriculture, atmospheric deposition, resource extraction, hydromodification, unspecified non-point sources, other, land application/waste sites/tanks, and groundwater loadings/withdrawals.

For Great Lakes shorelines, 12 causes of impairment were identified, and the top 10 causes are: polychlorinated biphenyls, dioxins, mercury, pesticides, toxic organics, pathogens, nutrients, nuisance exotic species, sediment, and habitat alterations. The 10 primary sources for Great Lakes shoreline impairment are: atmospheric deposition, unknown sources, legacy/historic pollutants, agriculture, municipal discharges/sewage, hydromodification, urban-related runoff/stormwater, habitat alterations (not directly related to hydromodifications), industrial, and unspecified non-point sources.

For Great Lakes open waters, 8 causes of impairment were identified, and those causes are: polychlorinated biphenyls, mercury, dioxins, pesticides, toxic organics,

nutrients, metals (other than mercury), and sediment. The 8 sources for Great Lakes open water impairment are: atmospheric deposition, unknown sources, agriculture, municipal discharges/sewage, unspecified non-point sources, industrial, urban-related runoff/stormwater, and legacy/historic pollutants.

Water quality standards are established by states, with review and approval by the U.S. EPA (see Section 303(c) of the Clean Water Act and the implementing regulations at 40 CFR part 131). Under Section 401 of the Clean Water Act States review proposed discharges to determine compliance with applicable water quality standards.

Most causes and sources of impairment identified by states in the water quality summary discussed above are not due to activities regulated under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899. Inputs of sediments into aquatic ecosystems can result from erosion occurring within a watershed (Beechie et al. 2013, Gosselink and Lee 1989). As water moves through a watershed it carries sediments and pollutants to streams (e.g., Allan 2004, Dudgeon et al. 2005, Paul and Meyer 2001) and wetlands (e.g., Zedler and Kercher 2005, Wright et al. 2006). Non-point sources of pollution (i.e., pollutants carried in runoff from farms, roads, and urban areas) are largely uncontrolled (Brown and Froemke 2012) because the Clean Water Act only requires permits for point sources discharges of pollutants (i.e., discharges of dredged or fill material regulated under section 404 and point source discharges of other pollutants regulated under section 402). Habitat alterations as a cause or source of impairment may be the result of activities regulated under section 404 and section 10 because they involve discharges of dredged or fill material or structures or work in navigable waters, but habitat alterations may also occur as a result of activities not regulated under those two statutes, such as the removal of vegetation from upland riparian areas. Hydrologic modifications may or may not be regulated under section 404 or section 10.

The indirect effects of changes in upland land use (which are highly likely not to be subject to federal control and responsibility, at least in terms of the Corps Regulatory Program), including the construction and expansion of upland developments, have substantial adverse effects on the quality (i.e. the ability to perform hydrologic, biogeochemical, and habitat functions) of jurisdictional waters and wetlands because those upland activities alter watershed-scale processes. Those watershed-scale processes include water movement and storage, erosion and sediment transport, and the transport of nutrients and other pollutants.

Habitat alterations as a cause or source of impairment may be the result of activities regulated under section 404 and section 10 because they involve discharges of dredged or fill material into jurisdictional waters or structures or work in navigable waters, but habitat alterations may also occur as a result of activities not regulated under those two statutes, such as the removal of vegetation from upland riparian

areas. Hydrologic modifications may or may not be regulated under section 404 or section 10, depending on whether those hydrologic modifications are the result of discharges of dredged or fill material into waters of the United States regulated under Section 404 of the Clean Water Act or structures or work in navigable waters of the United States regulated under Section 10 of the Rivers and Harbors Act of 1899. When states, tribes, or the U.S. EPA establish total maximum daily loads (TMDLs) for pollutants and other impairments for specific waters, there may be variations in how these TMDLs are defined (see 40 CFR part 130).

As discussed below, many anthropogenic activities and natural processes affect the ability of jurisdictional waters and wetlands to perform ecological functions. Stream and river functions are affected by activities occurring in their watersheds, including the indirect effects of land uses changes (Beechie et al. 2013, Allan 2004, Paul and Meyer 2001). Booth at al. (2004) found riparian land use in residential areas also strongly affects stream condition because many landowners clear vegetation up to the edge of the stream bank. The removal of vegetation from upland riparian areas and other activities in those non-jurisdictional areas do not require DA authorization. Wetland functions are also affected by indirect effects of land use activities in the land area that drains to the wetland (Zedler and Kercher 2005, Wright et al. 2006). Human activities within a watershed or catchment that have direct or indirect adverse effects on rivers, streams, wetlands, and other aquatic ecosystems are not limited to discharges of dredged or fill material into waters of the United States or structures or work in a navigable waters. Human activities in uplands have substantial indirect effects on the structure and function of aquatic ecosystems, including streams and wetlands, and their ability to sustain populations of listed species. It is extremely difficult to distinguish between degradation of water quality caused by upland activities and degradation of water quality caused by the filling or alteration of wetlands (Gosselink and Lee 1989).

The U.S. Environmental Protection Agency (U.S. EPA) has undertaken the National Wetland Condition Assessment (NWCA), which is a statistical survey of wetland condition in the United States (U.S. EPA 2016). The NWCA assesses the ambient conditions of wetlands at the national and regional scales. The national scale encompasses the conterminous United States. The regional scale consists of four aggregated ecoregions: Coastal Plains, Eastern Mountains and Upper Midwest, Interior Plains, and West. In May 2016, U.S. EPA issued a final report on the results of its 2011 NWCA (U.S. EPA 2016).

The 2011 NWCA determined that, across the conterminous United States, 48 percent of wetland area (39.8 million acres) is in good condition, 20 percent of the wetland area (12.4 million acres) is in fair condition, and 32 percent (19.9 million acres) is in poor condition (U.S. EPA 2016). The 2011 NWCA also examined indicators of stress for the wetlands that were evaluated. The most prevalent physical stressors were vegetation removal, surface hardening via conversion to pavement or soil compaction, and ditching (U.S. EPA 2016). In terms of chemical

stressors, most wetlands were subject to low exposure to heavy metals and soil phosphorous, but substantial percentages of wetland area in the West and Eastern Mountains and Upper Midwest ecoregions were found to have moderate stressor levels for heavy metals (U.S. EPA 2016). For soil phosphorous concentrations, stressor levels were high for 13 percent of the wetland area in the Eastern Mountains and Upper Midwest ecoregion (U.S. EPA 2016). Across the conterminous United States, for biological stressors indicated by non-native plants, 61 percent of the wetland area exhibited low stressor levels (U.S. EPA 2016). When examined on an ecoregion basis, the Eastern Mountains and Upper Midwest and Coastal Plains ecoregions had high percentages of wetland area with low non-native plant stressor levels, but the West and Interior Plains ecoregions had small percentages of areas with low non-native plant stressor levels (U.S. EPA 2016).

4.3 Aquatic Resource Functions and Services

Functions are the physical, chemical, and biological processes that occur in ecosystems (33 CFR 332.2). Human communities are tightly interconnected to ecosystems, and depend on those ecosystems for the functions and services that sustain their health and well-being (Cronon 1996). Wetland functions occur through interactions of their physical, chemical, and biological features (Smith et al. 1995). Wetland functions depend on a number of factors, such as the movement of water through the wetland, landscape position, surrounding land uses, vegetation density within the wetland, geology, soils, water source, and wetland size (NRC 1995). In its evaluation of wetland compensatory mitigation in the Clean Water Act Section 404 permit program, the National Research Council (2001) recognized five general categories of wetland functions:

- Hydrologic functions
- Water quality improvement
- Vegetation support
- Habitat support for animals
- Soil functions

Hydrologic functions include short- and long-term water storage and the maintenance of wetland hydrology (NRC 1995). Water quality improvement functions encompass the transformation or cycling of nutrients, the retention, transformation, or removal of pollutants, and the retention of sediments (NRC 1995). Vegetation support functions include the maintenance of plant communities, which support various species of animals as well as economically important plants. Wetland soils support diverse communities of bacteria and fungi which are critical for biogeochemical processes, including nutrient cycling and pollutant removal and transformation (NRC 2001). Wetland soils also provide rooting media for plants, as well as nutrients and water for those plants. These various functions generally interact with each other, to influence overall wetland functioning, or ecological integrity (Smith et al. 1995; Fennessy et al. 2007). As discussed earlier in this

report, the Corps regulations at 33 CFR 320.4(b) list wetland functions that are important for the public interest review during evaluations of applications for DA permits, and for the issuance of general permits.

Not all wetlands perform the same functions, nor do they provide functions to the same degree (Smith et al. 1995). Therefore, it is necessary to account for individual and regional variation when evaluating wetlands and the functions and services they provide. The types and levels of functions performed by a wetland are dependent on its hydrologic regime, the plant species inhabiting the wetland, soil type, and the surrounding landscape, including the degree of human disturbance of the landscape (Smith et al. 1995).

Streams also provide a variety of functions, which differ from wetland functions. Streams also provide hydrologic functions, nutrient cycling functions, food web support, and corridors for movement of aquatic organisms (Allan and Castillo 2007). When considering stream functions, the stream channel should not be examined in isolation. The riparian corridor next to the stream channel is an integral part of the stream ecosystem and has critical roles in stream functions (NRC 2002). Riparian areas provide many of the same general functions as wetlands (NRC 1995, 2002). Fischenich (2006) conducted a review of stream and riparian corridor functions, and through a committee, identified five broad categories of stream functions:

- Stream system dynamics
- Hydrologic balance
- Sediment processes and character
- Biological support
- Chemical processes and landscape pathways

Stream system dynamics refers to the processes that affect the development and maintenance of stream channels, floodplains, and riparian areas over time, as well as energy management by streams, floodplains, and riparian areas. Hydrologic balance includes surface water storage processes, the exchange of surface and subsurface water, and the movement of water through the stream corridor. Sediment processes and character functions relate to processes for establishing and maintaining stream substrate and structure. Biological support functions include the biological communities inhabiting streams, floodplains, and riparian areas. Chemical processes and pathway functions influence water and soil quality, as well as the chemical processes and nutrient cycles that occur in streams, floodplains, and riparian areas. Rivers and streams perform functions to different degrees, depending on watershed condition (Hynes 1975), the severity of direct and indirect impacts to streams caused by human activities, and their interactions with other environmental components, such as floodplains and riparian areas (Allan 2004, Gergel et al. 2002).

Ecosystem services are the benefits that humans derive from ecosystem functions (33 CFR 332.2). The Millennium Ecosystem Assessment (2005a) describes four

categories of ecosystem services: provisioning services, regulating services, cultural services, and supporting services. For wetlands and open waters, provisioning services include the production of food (e.g., fish, fruits, game), fresh water storage, food and fiber production, production of chemicals that can be used for medicine and other purposes, and supporting genetic diversity for resistance to disease. Regulating services relating to open waters and wetlands consist of climate regulation, control of hydrologic flows, water quality through the removal, retention, and recovery of nutrients and pollutants, erosion control, mitigating natural hazards such as floods, and providing habitat for pollinators. Cultural services that come from wetlands and open waters include spiritual and religious values, recreational opportunities, aesthetics, and education. Wetlands and open waters contribute supporting services such as soil formation, sediment retention, and nutrient cycling.

Aquatic ecosystems in the current affected environment provide a wide variety of ecological functions and services to differing degrees (MEA 2005a) to human communities. When natural ecosystems are converted to human-dominated ecosystems, there are tradeoffs between the losses in ecosystem services provided by natural ecosystems and the gains in goods and services provided by land use changes (e.g., conversion to agricultural lands, urban and suburban areas), resource extraction, harvesting, and other activities (MEA 2005c). For thousands of years, human communities have altered landscapes and ecosystems to provide goods and services that contribute to their well-being and needs, such as food, safety, and commerce, and made trade-offs by increasing certain ecosystem functions and services while reducing other ecosystem functions and services (Karieva et al. 2007). Degraded ecosystems can provide ecological functions and services that continue to contribute to conservation values (Weins and Hobbs 2015).

Examples of services provided by wetland functions include flood damage reduction, maintenance of populations of economically important fish and wildlife species, maintenance of water quality (NRC 1995, MEA 2005a) and the production of populations of wetland plant species that are economically important commodities, such as timber, fiber, and fuel (MEA 2005a). Wetlands can also provide important climate regulation and storm protection services (MEA 2005a).

Stream functions also result in ecosystem services that benefit society. Streams and their riparian areas store water, which can reduce downstream flooding and subsequent flood damage (NRC 2002, MEA 2005a). These ecosystems also maintain populations of economically important fish, wildlife, and plant species, including valuable fisheries (MEA 2005a, NRC 2002). The nutrient cycling and pollutant removal functions help maintain or improve water quality for surface waters (NRC 2002, MEA 2005a). Streams and riparian areas also provide important recreational opportunities. Rivers and streams also provide water for agricultural, industrial, and residential use (MEA 2005a).

Freshwater ecosystems provide services such as water for drinking, household uses, manufacturing, thermoelectric power generation, irrigation, and aquaculture; production of finfish, waterfowl, and shellfish; and non-extractive services, such as flood control, transportation, recreation (e.g., swimming and boating), pollution dilution, hydroelectric generation, wildlife habitat, soil fertilization, and enhancement of property values (Postel and Carpenter 1997).

Marine ecosystems provide a number of ecosystem services, including fish production; materials cycling (e.g., nitrogen, carbon, oxygen, phosphorous, and sulfur); transformation, detoxification, and sequestration of pollutants and wastes produced by humans; support of ocean-based recreation, tourism, and retirement industries; and coastal land development and valuation, including aesthetics related to living near the ocean (Peterson and Lubchenco 1997).

Costanza et al. (2014) estimated the value of ecosystem services, by general categories of ecosystem type. Their estimates, based on data analysis conducted in 2011 and using the 2007 value of the U.S. dollar, are provided in Table 4.5. The ecosystem categories providing the highest values of ecosystem services by acre per year were coral reefs ($142,661 per acre per year), followed by tidal marshes and mangrove wetlands ($78,506 per acre per year). Forested and floodplain wetlands had a value of $10,401 per acre per year.

Table 4.5 – Estimates of the value of ecosystem services, by ecosystem category (Costanza et al. 2014)

Ecosystem category	2007$ per acre per year
Marine	554
open ocean	24
coastal	3,622
• estuaries	11,711
• seagrass/algae beds	11,711
• coral reefs	142,661
• coastal shelf	900
Terrestrial	1,985
forest	1,539
• tropical	2,180
• temperate/boreal	1,270
grass/rangelands	1,687
wetlands	56,770
• tidal marsh/mangroves	78,506
• swamps/floodplains	10,401
lakes/rivers	5,067
desert	-
tundra	-
ice/rock	-
cropland	2,255
urban	2,698

Ecosystem resilience (i.e., the ability of ecosystems to sustain their structure and function and continue to provide ecosystem services), is affected by anthropogenic disturbances and environmental changes (Biggs et al. 2012, Folke et al. 2004). Climate change may affect how ecosystems function, and the services that arise from those ecological functions (Grimm et al. 2013b). Those effects may be positive, negative, or neutral, depending on context-specific circumstances. Climate change may also affect the ability of ecosystems to perform functions, and how those functions are performed with respect to timing and location within landscapes (Nelson et al. 2013). Ecosystem services that may be affected by climate change include: land-based food production, wildfire regulation, the reductions of hazards in coastal areas (e.g., erosion, flooding), marine fisheries production, water supplies, and nature-dependent tourism and outdoor recreation (Nelson et al. 2013). Climate change has had, and is likely to continue to have, adverse impacts on food production and terrestrial ecosystems, in part because of changing precipitation patterns and temperatures, as well as increases in the frequency and intensity of extreme events, such as droughts, floods, heatwaves, and other events (IPCC 2019).

The adverse effects of climate change, such as sea level rise, coral bleaching, and changes in hydrology and water temperatures, are likely to cause reductions in the

services provided by waters and wetlands (MEA 2005a). Management actions that help sustain or expand the services provided by ecosystems can help communities adapt to climate change, and improve human well-being in those communities (NAS 2019). Examples of such management actions include: improving carbon sequestration by plants and soils, protecting coastal areas from erosion by restoring or establishing wetlands that can adjust to sea level rise, improving fisheries that sustain human livelihoods, and planting trees and other vegetation in urban areas where they can help support biodiversity, moderate temperatures, and provide health and social benefits to people (NAS 2019).

This NWP authorizes activities in all waters of the United States. These waters are included in the marine, estuarine, palustrine, lacustrine, and riverine systems of the Cowardin classification system.

Activities authorized by this NWP will provide a wide variety of services that are valued by society. Aquatic resource restoration, establishment, and enhancement activities provide ecological functions that provide important services for the health and well-being of human communities. Examples of those services are listed above.

4.4 Human Activities and Natural Factors that Affect the Quantity and Quality of Aquatic Ecosystems in the United States

The affected environment is the current environmental setting (i.e., environmental baseline) against which the environmental effects of the proposed action (i.e., the issuance of an NWP that authorizes activities with no more than minimal individual and cumulative adverse environmental effects for a period of no more than five years) are evaluated, to determine whether the issuance of this NWP will have a significant impact on the quality of the human environment. The affected environment is also used as a basis for comparison to determine whether activities authorized by this NWP during the period it is in effect will result in no more than minimal individual and cumulative adverse environmental effects.

Ecosystems are combinations of animals, plants, people, fungi, and other living organisms that interact with the physical environment (NAS 2019). Ecosystems are open systems that are constantly changing because disturbances a normal component of ecosystem dynamics (Wallington et al. 2005). Ecosystems perform a variety of physical, chemical, and biological processes. All of the Earth's ecosystems have been affected either directly or indirectly by human activities (Radeloff et al. 2015, Vitousek et al. 1997). In most areas of the world, there are no pristine ecosystems because of the widespread effects that human activities (e.g., overharvesting of species for food and other purposes, use of fire to control plant communities at a landscape scale) have had on ecosystems since the last Ice Age (Geist and Hawkins 2016). Ecosystems are rapidly changing because of climate change and various categories of human activities, such as pollution, changes in

land use, species introductions, and the exploitation of natural resources (NAS 2019). For thousands of years, human activities have caused substantial amounts of cumulative environmental change, including alterations of ecosystem structure and function and the services those ecosystems provide (Evans and Davis 2018, Geist and Hawkins 2016, Ellis et al. 2010, Cronon 1996, Denevan 1992). The impacts of human activities on the environment occur in cycles, as civilizations and communities rise and fall, and as ecosystems recover after civilizations and communities collapse (Denevan 1992).

Ecosystems are not separate from human communities; they are interdependent with each other and comprise social-ecological systems (Folke et al. 2011). The concept of social-ecological systems has similarities to the definition of "human environment" in CEQ's NEPA regulations at 40 CFR 1508.1(m), which recognizes the relationship between the natural, physical environment and people. Social-ecological systems are dynamic, not static, and can exhibit multiple states (i.e., differences in structure and function) that are separated by thresholds (Walker and Salt 2006). Social-ecological systems exist at a number of scales, ranging from local to regional to global (Folke et al. 2010). Social-ecological systems are affected by human activities, as well as natural perturbations and changing environmental conditions, but they possess resilience and adaptive capacities that allow them to continue to provide ecological functions and services when properly managed (Chapin et al. 2010). From the perspective of social-ecological systems, resilience is defined by Folke et al. (2010) as the capacity of a social-ecological system to withstand disturbance and undergo changes, with little or no change in structure, functions, and interactions (i.e., feedbacks among system components).

People have managed landscapes and ecosystems to provide ecosystems services such as food production; lessening risks from storms, other natural events, and predation; and the production of various goods (Karieva et al. 2007). Human alteration of ecosystems results in trade-offs where some ecosystem services increase, other ecosystem services decrease, and some ecosystem services may be unchanged. Some human alterations of ecosystems benefit humans and other species, some alterations benefit humans and adversely affect other species, and other alterations result in degradation of ecosystems that provides no benefits to humans and other species (Karieva et al. 2007).

Over 75 percent of the ice-free land on Earth has been altered by human activities (IPCC 2019, Ellis and Ramankutty 2008). Approximately 33 percent of the Earth's ice-free land consists of lands heavily used by people: urban areas, villages, lands used to produce crops, and occupied rangelands (Ellis and Ramankutty 2008). For marine ecosystems, Halpern et al. (2008) determined that there are no marine waters that are unaffected by human activities, and that 41 percent of the area of ocean waters is affected by multiple anthropogenic disturbances (e.g., land use activities that generate pollution that reaches coastal waters, marine habitat destruction or modification, and the extraction of resources). The marine waters

most highly impacted by human activities are located on the continental shelf and slope areas, which are affected by both land-based and ocean-based human activities (Halpern et al. 2008).

Human population density is a good indicator of the relative effect that people have had on local ecosystems, with lower population densities generally being associated with smaller impacts to ecosystems and higher population densities generally being associated with larger impacts on ecosystems (Ellis and Ramankutty 2008). Human activities such as urbanization, agriculture, and forestry alter ecosystem structure and function by changing their interactions with other ecosystems, their biogeochemical cycles, and their species composition (Vitousek et al. 1997). Changes in land use reduce the ability of ecosystems to produce ecosystem services, such as food production, reducing infectious diseases, and regulating climate and air quality (IPCC 2019, Foley et al. 2005).

Around the beginning of the 19th century, the degree of impacts of human activities on the Earth's ecosystems began to exceed the degree of impacts to ecosystems caused by natural disturbances and natural variability (Steffen et al. 2007). Aquatic ecosystems have been altered by a number of disturbances that have increased as the human population has increased, especially the removal or reduction of top predators, the removal or reduction of species that are ecosystem engineers, overfishing, habitat degradation and loss, inputs of chemical pollutants such as nutrients and contaminants, changes in connectivity among ecosystem components, changes in ecosystem dynamics, and the homogenization of biological communities (Geist and Hawkins 2016).

Despite the prevalence of human activities that have altered landscapes and seascapes and the ecosystems within those landscapes and seascapes over long periods of time, many of those ecosystems continue to provide ecological functions and services to varying degrees (Clewell and Aronson 2013). Disturbances to ecosystems, landscapes, and seascapes may result in those systems recovering to their original structure and function through biotic and abiotic processes that provide resilience, or those ecosystems may be transformed to a different ecological structure and function (i.e., an alternative state) (van Andel and Aronson 2012). If the ecosystem, landscape, or seascape changes to an alternative structure and function, that alternative state may be considered an improvement or degradation, depending on the perspective of the person evaluating the change (Backstrom et al. 2018, van Andel and Aronson 2012).

Human activities have contributed to warming of the atmosphere, oceans, and land areas through emissions of greenhouse gases (e.g., carbon dioxide, methane, nitrous oxide) (IPCC 2021). Greenhouse gases that are produced by human activities change the Earth's energy balance, as well as its climate (NRC 2020). Since 1900, the Earth's average surface temperature has increased by approximately 1.8 degrees Fahrenheit (NRC 2020). Land plays an important role in

the Earth's climate system because it is a source of greenhouse gas emissions, as well as a sink for greenhouse gases (IPCC 2019).

Climate change has been one of the major drivers of ecosystem change (Hughes et al. 2013, MEA 2005a). Climate change due to both anthropogenic and natural causes is a major driving force for changes in ecosystem structure and function (Millar and Brubaker 2006). However, aquatic and terrestrial ecosystems are subjected to other significant drivers of change. In addition to climate change, aquatic and terrestrial ecosystems are also adversely affected by land use and land cover changes, natural resource extraction (including water withdrawals), pollution, species introductions, and removals of species (NAS 2019, Staudt et al. 2013, Bodkin 2012, MEA 2005a) and changes in nutrient cycling (Julius et al. 2013). Climate change interacts with other human activities that cause changes to ecosystem structure and function, to exacerbate those changes (Grimm et al. 2013b).

Climate change affects ecosystem structure and function through: increases in water temperature; increases in air temperature; changes in precipitation patterns; increases in the intensity of natural disturbances (e.g., storms); changes in species distributions and survival; changes in ocean chemistry; and other impacts (IPCC 2021, NAS 2019). Climate change can increase amounts of rainfall and snowfall because warmer air can hold more water that becomes precipitation, and these larger precipitation events can increase the frequency and intensity of flooding (NRC 2020), which can affect the structure and function of aquatic and terrestrial ecosystems. In addition, climate change can increase the intensity of droughts and the risks of wildfire (NRC 2020), which can also affect the structure and function of aquatic and terrestrial ecosystems. The effects of climate change on ecosystems are dependent on context, and those effects can be positive, negative, or neutral (NAS 2019). As the Earth's climate changes, some ecosystems may become more productive while other ecosystems may become less productive (Grimm et al. 2013a). In the next 50 years, global climate change and nutrient loading are anticipated to become important causes of change in wetlands and waters (MEA 2005a).

Climate change is occurring at a global scale, and is likely to cause complex interactions among ecosystem processes, the species that inhabit ecosystems, and the drivers of ecosystem dynamics (NAS 2019). Climate change affects ecosystem productivity, biogeochemical cycling processes, species ranges, and the distribution of ecosystems (Grimm et al. 2013a) in landscapes and seascapes. Climate change is causing shifts in climate zones in many areas of the Earth, which is resulting in changes in the ranges, behaviors, and populations of various species of plants and animals. (IPCC 2019). Climate change is likely to alter the distributions of some species, because under a changing climate some species may no longer be able to survive in their current habitats while other species may thrive in the changing climate conditions (NRC 2020, Grimm et al. 2013a). Some species may benefit from

changes in in their range, distribution, and phenology, while other species may be adversely affected by these changes (Grimm et al. 2013b).

Climate change is occurring more quickly than the ability of ecosystems to adapt to the altered climate (NAS 2019). For those ecosystems that exhibit non-linear dynamics (i.e., thresholds that, when crossed, cause the ecosystem to exhibit a substantial change in structure and function), climate change can affect their resilience to environmental changes caused by human activities and natural disturbances (NAS 2019). Global climate change is expected to increase the loss and degradation of waters and wetlands, and contribute to the loss or decline of species that inhabit waters and wetlands (MEA 2005a).

In coastal areas, increases in sea level caused by climate change amplifies interactions between coastal waters and the coasts, which can produce more flooding and larger storm surges (IPCC 2021, NRC 2020). Climate change is causing increases in coastal erosion, which is also driving changes in coastal land use (IPCC 2019). Sea level rise and increases in storm surges associated with climate change are likely to cause increases in the erosion of shorelines and their associated habitat, increases in the salinity of estuaries and freshwater aquifers, changes in tidal ranges in rivers and bays, alterations in sediment and nutrient transport, and increases in coastal flooding, which will likely affect the functions and services provided by coastal wetlands, including the vulnerability of some coastal populations to the adverse effects of these changes (MEA 2005a).

In summary, the affected environment (i.e., the current environmental setting, or environmental baseline) has been shaped by a wide variety of human activities and natural factors or disturbances. Those human activities and natural disturbances include land use changes, species invasions, climate change, changes in nutrient cycling (e.g., nitrogen), and others (NAS 2019, Radeloff et al. 2015), with anthropogenic disturbances being the major driver of change. Wetlands, streams, and other aquatic resources and the ecological functions and services they provide are directly and indirectly affected by changes in land use and land cover, species introductions, species overexploitation, pollution, eutrophication, resource extraction (including water withdrawals), climate change, and various natural disturbances (MEA 2005a). A more detailed list of human activities and natural factors that affect aquatic ecosystems and the functions and services they furnish is provided in Table 4.6. Activities regulated by the Corps under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 through the NWPs, individual permits, letters of permission, and regional general permits comprise a small subset of those human activities. Other federal, non-federal, and private activities also contribute to the many categories of human activities that alter the quantity and quality of aquatic resources and the ecological functions and services they provide. Human activities that have occurred in the past often have legacy effects on ecosystems, landscapes, and seascapes that continue under the current environmental setting and affect the quantity of those aquatic ecosystems and the

ecological functions and services they provide.

Table 4.6 – Human activities and natural factors that cause changes in aquatic ecosystems and the functions and services they perform

Resource type(s)	Human activities and natural factors that drive ecosystem change	Reference(s)
wetlands and waters (generally)	• land use/land cover changes • alien species introductions • species overexploitation • pollution • eutrophication • resource extraction (e.g., water withdrawals) • climate change • natural disturbances	MEA (2005a)
rivers and streams	• agriculture • urban development • industrial development • deforestation • mining • water removal • flow alteration • invasive species • point source and non-point source pollution • dams (hydroelectric, water supply) and navigational aids such as locks • dredging • erosion • filling • overfishing • road construction • drainage and channelization • sediment deposition • boating	Palmer et al. (2010) Carpenter et al. (2011) Allan (2004) NRC (1992)

Resource type(s)	Human activities and natural factors that drive ecosystem change	Reference(s)
wetlands	• wetland conversion through drainage, dredging, and filling • hydrologic modifications that change wetland hydrology and hydrodynamics • pollutants (point source and non-point source), including nutrients and contaminants • waterfowl and wildlife management activities • agriculture and aquaculture activities • flood control and stormwater protection (e.g., severing hydrologic connections between rivers and floodplain wetlands) • silvicultural activities • agricultural activities • urban development • mining activities • water withdrawals, aquifer depletion • river management (e.g., channelization, navigation improvements, dams, locks, weirs) • altered sediment transport • introductions of non-native species • land subsidence, erosion	Mitsch and Gosselink (2015) Mitsch and Hernandez (2013) Wright et al. (2006) Zedler and Kercher (2005) Brinson and Malvárez (2002)
seagrass beds	• dredging • coastal development activities • degradation of water quality • sediment and nutrient runoff from adjacent lands • physical disturbances • natural processes, such as herbivore grazing, physical disturbances caused by waves and tidal currents • invasive species • diseases • commercial fishing activities • aquaculture • algal blooms • low light availability • nutrient limitations global climate change	Borum et al. (2013) Waycott et al. (2009) Orth et al. (2006)

Resource type(s)	Human activities and natural factors that drive ecosystem change	Reference(s)
coral reefs	• overexploitation/overfishing • destructive fishing practices • nutrients, sediments, pesticides, and other pollutants (point source and non-point source) • nutrient loading • changes in storm frequency and intensity • increasing ocean surface temperatures • ocean acidification • coastal land uses, including development and agriculture • coral mining • sea level rise • invasive species • diseases • bleaching • global climate change	Sheppard (2014) MEA (2005a) Hughes et al. (2003)
coastal areas	• development activities, including the construction of residences, commercial buildings, industrial facilities, resorts, and port developments • agricultural and forestry activities • point source and non-point source pollution (nutrients, organic matter, other pollutants) • aquaculture • fishing activities • overharvesting of species • intentional and unintentional introductions of non-native species • dredging • reclamation • shore protection and other structures • habitat modifications • changes to hydrology and hydrodynamics • global climate change • shoreline erosion • pathogens and toxins • debris and litter	Korpinen and Andersen (2016) Robb (2014) Day et al. (2013) Lotze et al. (2006) MEA (2005b) NRC (1994)

Resource type(s)	Human activities and natural factors that drive ecosystem change	Reference(s)
Oceans	• pollution (point and non-point source) • fishing activities • aquaculture/mariculture • changes in sea temperatures • ultraviolet light • ocean acidification • species invasions • commercial activities, including industrial activities • tourism • marine transportation • land-based activities, including urban and suburban development, agriculture, forestry, power generation, and mining • ports/marinas • other human activities • benthic structures • offshore energy infrastructure and power generation (e.g., wind farms, pipelines) • global climate change • storms	Korpinen and Andersen (2016) Halpern et al. (2015) Clarke Murray et al. (2014) Halpern et al. (2008)

Wetlands, streams, and other aquatic resources and the functions and services they provide are directly and indirectly affected by changes in land use and land cover, alien species introductions, overexploitation of species, pollution, eutrophication due to excess nutrients, resource extraction including water withdrawals, climate change, and various natural disturbances (MEA 2005a). Freshwater ecosystems such as lakes, rivers, and streams are altered by changes to water flow, climate change, land use changes, additions of chemicals, resource extraction, and aquatic invasive species (Carpenter et al. 2011). Cumulative effects to wetlands, streams, and other aquatic resources that form the current environmental setting are the result of landscape-level processes (Gosselink and Lee 1989). As discussed in more detail below, cumulative or aggregate effects to aquatic resources are caused by a variety of activities (including activities that occur entirely in uplands) that take place within a landscape unit, such as the watershed for a river or stream (e.g., Allan 2004, Paul and Meyer 2001, Leopold 1968) or the contributing drainage area for a wetland (e.g., Wright et al. 2006, Brinson and Malvárez 2002, Zedler and Kercher 2005).

There is little national-level information on the current ecological state of the Nation's wetlands, streams, and other aquatic resources, or the general degree to which they perform various ecological functions, although reviews have acknowledged that most of these aquatic resources are degraded to some degree (Zedler and Kercher 2005, Allan 2004) or impaired (U.S. EPA 2015) because of various activities, disturbances, and other stressors. Therefore, the analysis in this

environmental assessment is a qualitative analysis.

There is a wide variety of causes and sources of impairment of the Nation's rivers, streams, wetlands, lakes, estuarine waters, and marine waters (U.S. EPA 2015), which also contribute to cumulative effects to these aquatic resources. Many of those causes of impairment are point and non-point sources of pollutants that are not regulated under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899. Two common causes of impairment for rivers and streams, habitat alterations and flow alterations, may be due in part to activities regulated by the Corps under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899. Habitat and flow alterations may also be the caused by activities that do not involve discharges of dredged or fill material or structures or work in navigable waters. For wetlands, impairment due to habitat alterations, flow alterations, and hydrology modifications may involve activities regulated under section 404, but these causes of impairment may also be due to unregulated activities, such as changes in upland land use that affects the movement of water through a watershed or contributing drainage area or the removal of vegetation.

The Millennium Ecosystem Assessment (MEA 2005a) broadly defines wetlands as inland wetlands (e.g., swamps, marshes, lakes, rivers, peatlands, and underground water habitats), coastal and near-shore marine wetlands (e.g., coral reefs, mangroves, seagrass beds, and estuaries), and human-made wetlands (e.g., rice fields, dams, reservoirs, and fish ponds). According to the MEA (2005a), the principal drivers of direct change to estuarine and marine wetlands include the conversion of saltwater marshes, mangroves, seagrass meadows, and coral reefs to other land uses, diversions of freshwater flows, increased inputs of nitrogen, overharvesting various species, water temperature changes, and species introductions. These changes are indirectly driven by increases in human populations in coastal areas (MEA 2005a). Robb (2014) identified a number of threats to estuaries and estuarine habitats such as salt marshes, seagrass beds, and sand flats. Those threats include land-based activities in surrounding watersheds, such as development activities, agricultural activities, forestry activities, pollution, freshwater diversions, shoreline stabilization, waterway impairments, and inputs of debris and litter. With respect to activities occurring directly in coastal waters, Robb (2014) identified the following threats: shoreline development, the construction and operation of port facilities, dredging, marine pollution, aquaculture activities, resource extraction activities, species introductions, and recreational activities. Changing climate conditions also pose threats to estuaries through sea level rise, changing water temperatures, ocean acidification, and changing precipitation patterns (Robb 2014).

Marine and coastal waters are affected by human activities in the ocean, coastal areas, and watersheds that drain to those marine and coastal waters (Korpinen and Andersen 2016). In marine and coastal environments, human activities and other

disturbances that affect resources in those waters can come from a variety of sources, including water-based activities (e.g., transportation, fishing, mariculture, power generation, and tourism) and land-based activities (e.g., urban and suburban development, agriculture, non-point source pollution, forestry activities, power generation, and mining activities) (Clark Murray et al. 2014).

Activities that affect wetland quantity and quality include: land use changes that alter local hydrology (including water withdrawal), clearing and draining wetlands, constructing levees that sever hydrologic connections between rivers and floodplain wetlands, constructing other obstructions to water flow (e.g., dams, locks), constructing water diversions, inputs of nutrients and contaminants, and fire suppression (Brinson and Malvárez 2002). Wetland loss and degradation is caused by hydrologic modifications of watersheds, drainage activities, logging, agricultural runoff, urban development, conversion to agriculture, aquifer depletion, river management, (e.g., channelization, navigation improvements, dams, weirs), oil and gas development activities, levee construction, peat mining, and wetland management activities (Mitsch and Hernandez 2013). Upland development adversely affects wetlands and reduces wetland functionality because those activities change surface water flows and alter wetland hydrology, contribute stormwater and associated sediments, nutrients, and pollutants, cause increases in invasive plant species abundance, and decrease the diversity of native plants and animals (Wright et al. 2006). Many of the remaining wetlands in the United States are degraded (Zedler and Kercher 2005). Wetland degradation and losses are caused by changes in water movement and volume within a watershed or contributing drainage area, altered sediment transport, drainage, inputs of nutrients from non-point sources, water diversions, fill activities, excavation activities, invasion by non-native species, land subsidence, and pollutants (Zedler and Kercher 2005). According to Mitsch and Gosselink (2015), categories of activities that alter wetlands include: wetland conversion through drainage, dredging, and filling; hydrologic modifications that change wetland hydrology and hydrodynamics; highway construction and its effects on wetland hydrology; peat mining; waterfowl and wildlife management; agriculture and aquaculture activities; water quality enhancement activities; and flood control and stormwater protection.

The ecological condition of rivers and streams is dependent on the state of their watersheds (NRC 1992), because they are affected by activities that occur in those watersheds, including agriculture, urban development, deforestation, mining, water removal, flow alteration, and invasive species (Palmer et al. 2010, Allan 2004). Land use changes affect rivers and streams through increased sedimentation, larger inputs of nutrients (e.g., nitrogen, phosphorous) and pollutants (e.g., heavy metals, synthetic chemicals, toxic organics), altered stream hydrology, the alteration or removal of riparian vegetation, and the reduction or elimination of inputs of large woody debris (Allan 2004). Agriculture is the primary cause of stream impairment, followed by urbanization (Foley et al. 2005, Paul and Meyer 2001). Agricultural land use adversely affects stream water quality, habitat, and biological communities

(Allan 2004). Urbanization causes changes to stream hydrology (e.g., higher flood peaks, lower base flows), sediment supply and transport, water chemistry, and aquatic organisms (Paul and Meyer 2001). Leopold (1968) found that land use changes affect the hydrology of an area by altering stream flow patterns, total runoff, water quality, and stream structure. Changes in peak flow patterns and runoff affect stream channel stability. Stream water quality is adversely affected by increased inputs of sediments, nutrients, and pollutants, many of which come from non-point sources (Paul and Meyer 2001, Allan and Castillo 2007).

The construction and operation of water-powered mills in the 17th to 19th centuries substantially altered the structure and function of streams in the eastern United States (Walter and Merritts 2008) and those effects have persisted to the present time. In urbanized and agricultural watersheds, the number of small streams has been substantially reduced, in part by activities that occurred between the 19th and mid-20th centuries (Meyer and Wallace 2001). Activities that affect the quantity and quality of small streams include residential, commercial, and industrial development, mining, agricultural activities, forestry activities, and road construction (Meyer and Wallace 2001), even if those activities are located entirely in uplands.

Waycott et al. (2009) estimated that the areal extent of seagrass beds across the world has declined by nearly 30 percent since the late 19th century. They identified two main categories of causes for that decline: direct impacts from dredging and coastal development activities, and indirect impacts from degradation of water quality. Submersed aquatic vegetation is affected by a wide variety of human activities such as dredging in seagrass meadows, anchoring vessels in seagrass beds, coastal development activities, increased sediment inputs from a variety of sources including land development activities, habitat conversions resulting from mariculture activities, increased nutrient inputs to coastal waters, and climate change (MEA 2005a). According to Orth et al. (2006), seagrasses are threatened by numerous stressors, such as sediment and nutrient runoff from adjacent lands, physical disturbances, overgrazing, invasive species, diseases, commercial fishing activities, aquaculture, algal blooms, and global climate change. Human activities that contribute to cumulative effects to submerged aquatic vegetation include coastal development, hard shore stabilization structures, land uses changes in surrounding watersheds that increase inputs of sediments, nutrients, and pollutants to waters inhabited (or could be inhabited) by seagrasses, discharges of pollutants directly into waters, aquaculture activities, and boating activities (Orth et al. 2017, Orth et al. 2006). Orth et al. (2017, 2006) did not quantify how frequently each of these stressors pose threats to seagrasses. the relative contributions of each of the identified human activities that affect seagrasses. Submersed aquatic vegetation may be affected by natural processes, such as herbivore grazing, physical disturbances caused by waves and tidal currents, and other stressors such as low light availability, higher temperatures, or nutrient limitations (Borum et al. 2013). Boating activities (e.g., mooring, use of propellers) and fish and shellfish harvesting activities can also contribute to cumulative impacts to submersed aquatic vegetation

beds (Fonseca et al. 1998). The recovery of submersed aquatic vegetation from anthropogenic and natural disturbances can vary by species, and is dependent in part on the reproductive mechanisms of those species (Borum et al. 2013, Fonseca et al. 1998). At the meadow or landscape scale, seagrass beds can fully recover after disturbance within 5 years, but recovery can take longer if there are persistent environmental changes persist or seagrass seeds or other propagules are not available to reestablish seagrasses in the affected area (O'Brien et al. 2018).

A variety of human activities have caused, and are continuing to cause declines in corals and coral reefs. Coral reefs are adversely affected by pollution, including sedimentation, excess nutrients, oil discharges, pesticides, and sewage (Sheppard 2014; MEA 2005a; Hughes et al. 2003). Shoreline development activities, development activities in watersheds draining to coastal waters, and agriculture activities in coastal watersheds also contribute to declines in corals and coral reefs (Sheppard 2014; MEA 2005a; Hughes et al. 2003). The pollution may be in runoff from nearby lands or discharged directly into waters inhabited by corals. Corals and coral reefs are also harmed by overexploitation, including overfishing, as well as destructive fishing practices (MEA 2005a) and anchors used by boats (Sheppard 2014). Climate change and associated increases in storm frequency and intensity, diseases, water temperatures, and coral bleaching also contribute to declines in corals and coral reefs (Sheppard 2014; MEA 2005a; Hughes et al. 2003). Invasive species have also affected corals and coral reefs (Sheppard 2014).

For aquatic ecosystems, climate change affects water quality, biogeochemical cycling, and water storage (Julius et al. 2013). Climate change will also affect the abundance and distribution of wetlands across the United States, as well as the functions they provide (Mitsch and Gosselink 2015). Climate change results in increases in stream temperatures, more waterbodies with anoxic conditions, degradation of water quality, and increases in flood and drought frequencies (Julius et al. 2013). The increasing carbon dioxide concentration in the atmosphere also lowers the pH of the oceans, resulting in ocean acidification (NRC 2020), which adversely affects marine organisms such as corals and some shellfish species.

In the United States, approximately 39 percent of its population lives in counties that are next to coastal waters, the territorial seas, or the Great Lakes (NOAA 2013). Those counties comprise less than 10 percent of the land area of the United States (NOAA 2013). Humans have been altering estuarine waters and coastal areas for millennia, but those changes have rapidly accelerated over the past 150 to 300 years (Lotze et al. 2006). Coastal waters are also affected by a wide variety of activities. Day et al. (2013) identified the following general categories of human activities that impact estuaries: physical alterations (e.g., habitat modifications and changes in hydrology and hydrodynamics), increases in inputs of nutrients and organic matter (enrichment), releases of toxins, and changes in biological communities as a result of harvesting activities and intentional and unintentional introductions of new species. The major drivers of changes to coastal areas are:

development activities that alter coastal forests, wetlands, and coral reef habitats for aquaculture and the construction of urban areas, industrial facilities, and resort and port developments (MEA 2005b). Dredging, reclamation, shore protection and other structures (e.g., causeways and bridges), and some types of fishing activities also cause substantial changes to coastal areas (MEA 2005b). Nitrogen pollution to coastal zones change coral reef communities (MEA 2005b). Adverse effects to coastal waters are caused by habitat modifications, point source pollution, non-point source pollution, changes to hydrology and hydrodynamics, exploitation of coastal resources, introduction of non-native species, global climate change, shoreline erosion, and pathogens and toxins (NRC 1994). Over the course of history, in estuarine waters human activities caused declines of greater than 90 percent of important species, losses of more than 65 percent of seagrasses and wetland habitat, substantially degraded water quality, and facilitated introductions of new species (Lotze et al. 2006).

Substantial alterations of coastal hydrology and hydrodynamics are caused by land use changes in watersheds draining to coastal waters, the channelization or damming of streams and rivers, water consumption, and water diversions (NRC 1994). Approximately 52 percent of the population of the United States lives in coastal watersheds (NOAA 2013). Eutrophication of coastal waters is caused by nutrients contributed by waste treatment systems, non-point sources, and the atmosphere, and may cause hypoxia or anoxia in coastal waters (NRC 1994). Changes in water movement through watersheds may also alter sediment delivery to coastal areas, which affects the sustainability of wetlands and intertidal habitats and the functions they provide (NRC 1994). Most inland waters in the United States drain to coastal areas, and therefore activities that occur in inland watersheds affect coastal waters (NRC 1994). Inland land uses, such as agriculture, urban development, and forestry, adversely affect coastal waters by diverting fresh water from estuaries and by acting as sources of nutrients and pollutants to coastal waters (MEA 2005b).

Coastal wetlands have been substantially altered by urban development and changes to the watersheds that drain to those wetlands (Mitsch and Hernandez 2013). Coastal habitat modifications are the result of dredging or filling coastal waters, inputs of sediment via non-point sources, changes in water quality, or alteration of coastal hydrodynamics (NRC 1994). Coastal development activities, including those that occur in uplands, affect marine and estuarine habitats (MEA 2005a). The introduction of non-native species may change the functions and structure of coastal wetlands and other habitats (MEA 2005a). Fishing activities may also modify coastal habitats by changing habitat structure and the biological communities that inhabit those areas (NRC 1994).

In order to effectively understand and manage ecosystems, including aquatic ecosystems, it is necessary to take into account how people and societies have reshaped aquatic and terrestrial resources over time (Ellis 2015), through the

effects of human activities on those ecosystems. This includes permitting programs that regulate activities in aquatic resources and other types of natural resources. The current state of an ecosystem (e.g., a wetland or an estuary) can range from “near natural” (i.e., minimally disturbed) to semi-natural to production systems such as agricultural lands to overexploited (i.e., severely impaired) (van Andel and Aronson 2012). Degradation occurs when an ecosystem is subjected to a prolonged disturbance (Clewell and Aronson 2013), and the degree of degradation can be dependent, in part, on the severity of disturbance. Disturbances can be caused by human activities or by natural events, such as changes to ecosystems caused by ecosystem engineers (e.g., beavers) and other organisms, storms, fires, or earthquakes. Two important factors that affect how aquatic ecosystems and other ecosystems respond to disturbances are resistance and resilience.

For ecosystems, stability is the ability of an ecosystem to return its starting state after one or more disturbances cause a significant change in environmental conditions (van Andel et al. 2012). Resistance is the ability of an ecosystem to exhibit little or no change in structure or function when exposed to a disturbance (van Andel et al. 2012). Resilience is the ability of an ecosystem to regain its structural and functional characteristics in a relatively short amount of time after it has been exposed to a disturbance (van Andel et al. 2012). Human activities can change the resilience of ecosystems (Gunderson 2000). In some situations, resilience can be a positive attribute (e.g., the ability to withstand disturbances), and in other situations, resilience can be a negative attribute (e.g., when it is not possible to restore ecosystem because it has changed to the degree where it is resistant to being restored) (Walker et al. 2004). The concept of ecological resilience presumes the existence of multiple stable states, and the ability of ecosystems to tolerate some degree of disturbance before transitioning to an alternative (different) stable state (Gunderson 2000). A regime shift (i.e., a change from one stable state to an alternative stable state) can occur when human activities reduce the resilience of an ecosystem, or functional groups of species within that ecosystem, or when there are changes in the magnitude, frequency, and duration of disturbances (Folke et al. 2004). Folke et al. (2004) and Gunderson (2000) provide examples of aquatic ecosystems that can exist in multiple stable states.

An example of a regime change in an estuary is a shift from an estuary with clear waters and benthic communities dominated by seagrasses, to an estuary with turbid waters dominated by phytoplankton that has insufficient light for seagrasses to grow and persist (Folke et al. 2004). Another example of a regime shift is where an increase in nutrients to a wetland (likely from many sources in the area draining to that wetland) causes a wetland’s plant community from a diverse plant community dependent on low nutrient levels to a monotypic plant community dominated by an invasive species that can persist under the higher nutrient levels (Gunderson 2000).

Determining whether an ecosystem altered by human activities is degraded or in an alternative stable state depends on the perspective of the person making that

judgment (Hobbs 2016). That judgment is dependent in part on the ecological functions and services currently being provided by the alternative stable state and the value local stakeholders place on those ecosystem functions and services. In other words, different people may have different views on the current ecological state of a particular ecosystem (Hobbs 2016, Walker et al. 2004): some people may think it is degraded and other people may think it continues to provide important ecological functions and services. It is also important to understand that degradation falls along a continuum, ranging from minimally degraded to severely degraded, since all ecosystems have been directly or indirectly altered by human activities to some degree. Degraded ecosystems can continue to provide important ecological functions and services, although they may be different from what they provided historically. In summary, the affected environment or current environmental setting consists of a variety of aquatic and terrestrial resources that have been subjected to varying degrees of disturbance by human activities, and provide different degrees of aquatic resource functions and services.

5.0 Environmental Consequences

5.1 General Evaluation Criteria

This document contains a general assessment of the reasonably foreseeable effects of the individual activities authorized by this NWP and the potential cumulative effects of the activities authorized by this NWP during the period (up to five years) it is anticipated to be in effect. In this assessment of individual and cumulative effects, any quantitative or qualitative limits of the NWP, pre-construction notification requirements, the NWP general conditions, and compliance with applicable laws are considered. The NWP general conditions include mitigation measures that reduce individual and cumulative adverse environmental effects of activities authorized by this NWP. The supplemental documentation prepared by division engineers addresses whether regional conditions, including regional suspension or revocation of the NWP, are necessary to help ensure that activities authorized by NWPs with a particular geographic area (e.g., watershed, seascape, county, state) result in no more than minimal individual and cumulative adverse environmental effects in that geographic area (see 33 CFR 330.5(c)). In addition, district engineers may add conditions to site-specific NWP activities to ensure that those activities will result in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.5(d)).

The Council on Environmental Quality’s NEPA regulations at 40 CFR 1508.1(g) defines “effects or impacts’ as “changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed

action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives." Furthermore, 40 CFR 1508.1(g)(2) states that:

> [a] "but for" causal relationship is insufficient to make an agency responsible for a particular effect under NEPA. Effects should generally not be considered if they are remote in time, geographically remote, or the product of a lengthy causal chain. Effects do not include those effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action.

Therefore, the impact analysis in this environmental assessment focuses on the impacts or effects that are reasonably foreseeable and have a reasonably close causal relationship to the activities authorized by this NWP under the Corps' permitting authorities (i.e., discharges of dredged or fill material into waters of the United States regulated under Section 404 of the Clean Water Act and structures and work in navigable waters regulated under Section 10 of the Rivers and Harbors Act of 1899).

The environmental effects of proposed NWP activities are evaluated by assessing the direct and indirect effects that those NWP activities have on the current environmental setting (Canter 1996). The current environmental setting is the product of the cumulative or aggregated effects of human activities that have persisted over time, as well as the natural processes that have influenced, and continue to influence, the structure and function of aquatic ecosystems and other ecosystems. The current environmental setting includes the present effects of past activities authorized by previously issued versions of this NWP and other NWPs. The current environmental setting can vary substantially in different areas of the country and in different waterbodies. The current environmental setting is dependent in part on the degree to which past and present human activities have altered aquatic and terrestrial ecosystems in a particular geographic area over time. For a particular site in which an NWP activity may take place, the current environmental setting can range from highly developed/altered areas (e.g., urban and suburban areas, where human impacts to ecosystems are highest) to production areas (e.g., agricultural lands) to seminatural areas (e.g., parks) to near natural areas (e.g., wilderness where human impacts to ecosystems are lowest) (van Andel and Aronson 2012). Human impacts on semi-natural ecosystems are lower than human impacts to production ecosystems (van Andel and Aronson 2012). Because humans have altered aquatic and terrestrial environments in numerous, substantial ways for thousands of years (e.g., Evans and Davis 2018, Ellis 2015), the current environmental setting takes into account how human activities, natural disturbances, and changing biotic and abiotic conditions have modified existing aquatic and terrestrial resources.

In the context of the Corps' public interest review (33 CFR 320.4(a)(1)), which requires the Corps to consider the cumulative impacts of activities it authorizes, cumulative impacts are the direct and indirect environmental impacts collectively caused by individual activities authorized by this NWP during the period (up to five years) it is anticipated to be in effect. The cumulative environmental impacts caused by activities authorized by this NWP are evaluated against the current environmental setting. The current environmental setting is the affected environment that described, in general terms, at a national scale in section 4.0 of this document, because that is the scale at which this NWP is issued by Corps Headquarters. When determining whether to modify, suspend, or revoke this NWP on a regional basis to ensure that it authorizes only those activities that have no more than minimal individual and cumulative adverse environmental effects, division engineers will evaluate the cumulative impacts of this NWP within a waterbody, watershed, county, state, Corps district, or other appropriate geographic area (see 86 FR 2746).

Under the Clean Water Act Section 404(b)(1) Guidelines, which are the substantive environmental criteria for evaluating discharges of dredged or fill material into waters of the United States, permitting authorities are required to evaluate cumulative impacts for the issuance of a general permit by estimating the number of individual discharge activities likely to be regulated under the general permit until its expiration, including repetitions of individual discharge activities at a single location (see 40 CFR 230.7(b)(3)) In section A.2.2 of Appendix A this document, the Corps estimates the number of times this NWP may be used during the period (up to five years) it is anticipated to be in effect, as well as estimates of the acreage of permanent and temporary impacts, and the acreage of compensatory mitigation required by district engineers to offset losses of jurisdictional waters and wetlands.

Consistent with the definitions cited above, the cumulative impacts of this NWP are the product of how many times this NWP is used to authorize discharges of dredged or fill material into waters of the United States and structures and work in navigable waters of the United States across the country during the period this NWP is anticipated to be in effect. The individual and cumulative impacts of activities authorized by this NWP are evaluated against the current environmental setting. The estimated use of this NWP, as well as the estimated authorized impacts and estimated required compensatory mitigation, during the period this NWP is anticipated to be in effect (up to five years) are reasonably foreseeable and have a reasonably close causal relationship to the reissuance of this NWP.

The evaluation in this document comprises the analysis required by NEPA and the public interest review specified in 33 CFR 320.4(a)(1) and (2). Appendix A of this document provides the impact analysis specified in Subparts C through F of the 404(b)(1) Guidelines (40 CFR Part 230). The issuance of an NWP is based on a general assessment of the effects on public interest and environmental factors that are likely to occur as a result of using this NWP to authorize activities in waters of

the United States. As such, this assessment must be speculative or predictive in general terms. Because the NWPs authorize activities across the nation, projects eligible for NWP authorization may be constructed in a wide variety of environmental settings, and affect waters and wetlands of varying quality, from severely degraded (i.e., performing ecological functions and services to a low degree, or not performing one or more ecological functions and services) to performing some or all ecological functions and services to a high degree. Nationwide permit activities may result in permanent or temporary losses of aquatic resources, or partial or complete losses of aquatic resources. Therefore, it is difficult to predict all of the direct and indirect impacts that may be caused by each activity authorized by an NWP. For example, the NWP that authorizes 25 cubic yard discharges of dredged or fill material into various types of waters of the United States may be used to fulfill a variety of project purposes, and the direct and indirect effects may vary depending on the specific activity and the environmental characteristics of the site in which the activity takes place. Therefore, certain NWPs require pre-construction notification for certain activities to provide district engineers the opportunity to review proposed activities on a case-by-case basis and determine whether they will result in no more than minimal individual and cumulative adverse environmental effects.

Under the Corps' public interest review, indication that a factor is not relevant to a particular NWP does not necessarily mean that the NWP would never have an effect on that factor, but that it is a factor not readily identified with the authorized activity. Factors may be relevant, but the adverse effects on the aquatic environment are negligible, such as the impacts of a boat ramp on water level fluctuations or flood hazards. Consistent with 40 CFR 1501.8(g), only the reasonably foreseeable effects or impacts that have a reasonably close causal relationship to the activities authorized as a result of the reissuance of this NWP are evaluated in detail in the environmental assessment for this NWP. Division and district engineers will impose, as necessary, additional conditions on the NWP authorization or exercise discretionary authority to address regionally or locally important factors or to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects. In any case, adverse effects will be controlled by the terms, conditions, and additional provisions of the NWP. For example, Endangered Species Act Section 7 consultation will be required for all activities that may affect endangered or threatened species or designated critical habitat (see 33 CFR 330.4(f) and NWP general condition 18).

In a specific watershed, division or district engineers may determine that the cumulative adverse environmental effects of activities authorized by this NWP during the period it is in effect (5 years or less) are more than minimal. Division and district engineers will conduct more detailed assessments for geographic areas that are determined to be potentially subject to more than minimal cumulative adverse environmental effects. Division and district engineers have the authority to require individual permits in watersheds or other geographic areas where the cumulative

adverse environmental effects are determined to be more than minimal, or add conditions to the NWP either on a case-by-case or regional basis to require mitigation measures to ensure that the cumulative adverse environmental effects of these activities are no more than minimal. When a division or district engineer determines, using local or regional information, that a watershed or other geographic area is subject to more than minimal cumulative adverse environmental effects due to the use of this NWP, they will use the revocation and modification procedure at 33 CFR 330.5. In reaching the final decision, the division or district engineer will compile information on the cumulative adverse effects and supplement the information in this document.

The Corps expects that the convenience and time savings associated with the use of this NWP will encourage applicants to design their projects within the scope of the NWP rather than request individual permits for activities which could result in greater adverse impacts to the aquatic environment. The avoidance and minimization encouraged by the issuance of this NWP, as well as compensatory mitigation that may be required for specific activities authorized by this NWP, is likely to help reduce cumulative effects to the Nation's wetlands, streams, and other aquatic resources caused by activities authorized by this NWP during the period (up to 5 years) it is anticipated to be in effect.

5.2 Impact Analysis

This NWP authorizes activities in all waters of the United States for aquatic resource restoration, establishment, and enhancement activities. There is no acreage limit for this NWP, but the terms of the NWP limit the types of authorized activities.

Pre-construction notification is required for all activities authorized by this NWP, except for: (1) activities conducted on non-Federal public lands and private lands, in accordance with the terms and conditions of a binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS or their designated state cooperating agencies; (2) activities conducted in accordance with the terms and conditions of a binding coral restoration or relocation agreement between the project proponent and the NMFS or any of its designated state cooperating agencies; (3) a voluntary stream or wetland restoration or enhancement action, or wetland establishment action, documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or (4) reclamation of surface coal mine lands, in accordance with an SMCRA permit issued by the OSMRE or the applicable state agency. The pre-construction notification requirement allows district engineers to review proposed activities on a case-by-case basis to ensure that the individual and cumulative adverse environmental effects of those activities are no more than minimal.

Reporting is required for activities that do not require pre-construction notification. If the district engineer determines that the adverse environmental effects of a particular project are more than minimal after considering mitigation, then discretionary authority will be asserted and the applicant will be notified that another form of DA authorization, such as a regional general permit or individual permit, is required (see 33 CFR 330.4(e) and 330.5).

The potential impacts of activities authorized by this NWP on the Corps' public interest review factors listed in 33 CFR 320.4(a)(1) are discussed in more detail in section 6.0 of this document. The potential impacts on the aquatic environment that could be caused by discharges of dredged or fill material into waters of the United States authorized by this NWP are discussed, in general terms, in the Clean Water Act Section 404(b)(1) Guidelines analysis in Appendix A of this document.

In this environmental assessment, the analysis of environmental consequences is a qualitative analysis because of the scarcity of quantitative data at a national scale on the quantity and quality of aquatic ecosystems and other ecosystems that comprise the affected environment and the various human activities and natural factors that may directly or indirectly affect those ecosystems and the functions and services they provide. As discussed in section 4.4 of this document, the activities authorized by this NWP are just one category among many categories of human activities and natural factors that directly and indirectly affect ocean waters, estuarine waters, lakes, wetlands, streams, and other aquatic resources, and the ecological functions and services they provide. This environmental assessment focuses on the potential impacts on jurisdictional waters and wetlands that are reasonably foreseeable and may occur after this NWP is issued and goes into effect.

The terms of this NWP, including any acreage limits or any other quantitative limits in the text of the NWP, the protections provided by the NWP general conditions, plus any regional conditions imposed by division engineers and activity-specific conditions imposed by district engineers, will help ensure that the activities authorized by this NWP result in no more than minimal individual and cumulative adverse environmental effects. An additional safeguard in the NWP program is the ability of district engineers to exercise discretionary authority and require project proponents to obtain individual permits for proposed activities whenever a district engineer determines that a proposed activity will result in more than minimal individual or cumulative adverse environmental effects after considering any mitigation proposed by the project proponent (see 33 CFR 330.1(e)(3)).

In high value waters, division and district engineers can: 1) prohibit the use of the NWP in those waters and require an individual permit or regional general permit; 2) decrease the acreage limit for the NWP; 3) add regional conditions to the NWP to ensure that the individual and cumulative adverse environmental effects are no more than minimal; or 4) for those NWP activities that require pre-construction

notification, add special conditions to NWP authorizations, such as compensatory mitigation requirements, to ensure that the adverse environmental effects are no more than minimal. NWPs can authorize activities in high value waters as long as the individual and cumulative adverse environmental effects are no more than minimal.

The construction and use of fills for temporary access for construction may be authorized by NWP 33 or regional general permits. The related activity must meet the terms and conditions of the specified permit(s). If the activity is dependent on portions of a larger project that require an individual permit, this NWP will not apply. [See 33 CFR 330.6(c) and (d)]

Corps divisions and districts also monitor the use of this NWP and the authorized impacts identified in NWP verification letters. At a later time, if warranted, a division engineer may add regional conditions to further restrict or prohibit the use of this NWP to ensure that it does not authorize activities that result in more than minimal cumulative adverse environmental effects in a particular geographic region (e.g., a watershed, landscape unit, or seascape unit). To the extent practicable, division and district engineers will use regulatory automated information systems and institutional knowledge about the typical adverse effects of activities authorized by this NWP, as well as substantive public comments, to assess the individual and cumulative adverse environmental effects caused by regulated activities authorized by this NWP.

5.2.1 Individual impacts

The individual environmental impacts are the direct and indirect impacts to ecosystems caused by a specific activity authorized by this NWP (i.e., discharges of dredged or fill material into waters of the United States and/or structures and work in navigable waters of the United States) at a project site. The types of activities generally considered to be “discharges of dredged or fill material into waters of the United States” and “structures and work in navigable waters of the United States” are discussed below.

This NWP authorizes discharges of dredged or fill material into waters of the United States. The Corps’ regulations define “dredged material” as “material that is excavated or dredged from waters of the United States.” [33 CFR 323.2(c)] The term “discharge of dredged material” means “any addition of dredged material into, including redeposit of dredged material other than incidental fallback within, the waters of the United States.” [33 CFR 323.2(d)(1)] The term “discharge of dredged material” includes, but is not limited to, (1) the addition of dredged material to a specified discharge site located in waters of the United States; (2) the runoff or overflow from a contained land or water disposal area; and (3) any addition, including redeposit other than incidental fallback, of dredged material, including excavated material, into waters of the United States which is incidental to any

activity, including mechanized land clearing, ditching, channelization, or other excavation. [33 CFR 323.2(d)(1)]

Under 33 CFR 323.2(d)(2), the term “discharge of dredged material” does not include any of the following:

> (1) discharges of pollutants into waters of the United States resulting from the onshore subsequent processing of dredged material that is extracted for any commercial use (other than fill). These discharges are subject to section 402 of the Clean Water Act even though the extraction and deposit of such material may require a permit from the Corps or applicable State section 404 program.
>
> (2) Activities that involve only the cutting or removing of vegetation above the ground (e.g., mowing, rotary cutting, and chainsawing) where the activity neither substantially disturbs the root system nor involves mechanized pushing, dragging, or other similar activities that redeposit excavated soil material.
>
> (3) Incidental fallback.

The term “fill material” is defined at 33 CFR 323.2(e)(1) as meaning “material placed in waters of the United States where the material has the effect of: (1) replacing any portion of a water of the United States with dry land; or (2) changing the bottom elevation of any portion of a water of the United States. Examples of fill material include: “rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mining or other excavation activities, and materials used to create any structure or infrastructure in the waters of the United States.” [33 CFR 323.2(e)(2)] “Fill material” does not include trash or garbage (see 33 CFR 323.2(e)(3)). Discharges of trash or garbage may be regulated under Section 402 of the Clean Water Act or other federal, state, or local laws and regulations.

The Corps’ regulations define the term “discharge of fill material” as meaning “the addition of fill material into waters of the United States.” [33 CFR 323.2(f)] Examples of discharges of fill material provided in section 323.2(f) include, but are not limited to, the following activities: (1) the placement of fill that is necessary for the construction of any structure or infrastructure in a water of the United States; (2) the building of any structure, infrastructure, or impoundment requiring rock, sand, dirt, or other material for its construction; (3) site-development fills for recreational, industrial, commercial, residential, or other uses; (4) causeways or road fills; (5) dams and dikes; (6) artificial islands; (7) property protection and/or reclamation devices such as riprap, groins, seawalls, breakwaters, and revetments; (8) beach nourishment; (9) levees; (10) fill for structures such as sewage treatment facilities, intake and outfall pipes associated with power plants and subaqueous utility lines; (11) placement of fill material for construction or maintenance of any liner, berm, or

other infrastructure associated with solid waste landfills; (12) placement of overburden, slurry, or tailings or similar mining-related materials; and (13) artificial reefs. Under 33 CFR 323.2(f), the term “discharge of fill material” does not include plowing, cultivating, seeding and harvesting for the production of food, fiber, and forest products.

Discharges of dredged or fill material into a jurisdictional water or wetland authorized under Section 404 of the Clean Water Act may result in the complete or partial loss of stream bed, wetland area, or area of another type of aquatic resource. That complete or partial loss of aquatic ecosystem area may result in a complete or partial loss of aquatic resource functions and services. The direct effects to jurisdictional waters and wetlands caused by activities authorized by this NWP may change those waters and wetlands to components of the built environment or uplands, convert an aquatic resource type to another aquatic resource type, or alter the functions and services provided by those waters and wetlands. The direct effects to jurisdictional waters and wetlands caused by activities authorized by this NWP may be permanent or temporary. The indirect effects to jurisdictional waters and wetlands caused by activities authorized by this NWP may also convert an aquatic resource type to another aquatic resource type. The indirect effects to jurisdictional waters and wetlands caused by activities authorized by this NWP may be permanent or temporary. The contribution of activities authorized by this NWP to cumulative or aggregate effects to ocean waters, estuarine waters, lakes, wetlands, streams, and other aquatic resources is also dependent on the degree or magnitude to which the potentially affected aquatic resources perform ecological functions and services. Nearly all ocean waters, estuaries, lakes, wetlands, streams, and other aquatic resources have been directly and indirectly affected by human activities over time (e.g., Halpern et al. 2008 for oceans, Lotze et al. 2006 for estuaries, Zedler and Kercher (2005) for wetlands, Allan 2004 for streams), including land uses in areas that drain to these aquatic resources.

This NWP authorizes structures and work in navigable waters of the United States. Structures or work in navigable waters of the United States may alter the ecological functions and services performed by those navigable waters. The Corps’ regulations for Section 10 of the Rivers and Harbors Act of 1899 in 33 CFR part 322 define the term “structure” as including, “without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other obstacle or obstruction.” [33 CFR 322.2(b)] The Corps’ section 10 regulations define the term “work” as including, “without limitation, any dredging or disposal of dredged material, excavation, filling, or other modification of a navigable water of the United States.” [33 CFR 322.2(c)] Under this NWP, the section 10 authorization applies to discharges of dredged or fill material into waters of the United States that are also navigable waters under Section 10 of the Rivers and Harbors Act of 1899.

Structures and work in navigable waters of the United States do not typically result in losses of navigable waters, but they may change the ecological functions and services performed by those waters. Examples of exceptions would include fills in navigable waters to create fast land along the shoreline, or artificial islands. Structures and work in navigable waters may alter the physical, chemical, and biological characteristics of those waters, but they generally do not result in a loss in the quantity of navigable waters. Structures and work in navigable waters may alter the ecological functions and services provided by those waters. Those alterations will vary, depending on the specific characteristics of the specific activity authorized by this NWP and the environmental setting in which the NWP activity may occur. The environmental setting will vary from site to site, and from region to region across the country.

As discussed above, the individual impacts of activities authorized by this NWP include the direct and indirect effects caused by discharges of dredged or fill material into waters of the United States and structures and work in navigable waters of the United States at a specific site. Whether the individual adverse environmental effects of an NWP activity are no more than minimal are dependent on activity-specific and site-specific factors. The activity-specific factors include the size and configuration of the NWP, the timing of the NWP activity, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), whether any best management practices or other mitigation measures are used to reduce direct and indirect impacts, and how the project proponent conducts the NWP activity (e.g., what equipment is used to conduct the discharge dredged or fill material or to install structures or do work in navigable waters). The site-specific factors include the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, and the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion).

Ecosystems are heterogeneous, open systems that interact with other ecosystems that occur in a landscape (Wallington et al. 2005) or a seascape. Ecosystems are subjected to multiple categories of disturbances over a variety of spatial (local, regional, global) and temporal scales (Foley et al. 2015, Elmqvist et al. 2003). A disturbance is an anthropogenic or natural event that alters or disrupts the structure and function of an ecosystem, often to a substantial degree (Clewell and Aronson 2013). Disturbances are often caused by external influences, such as human activities (e.g., land use changes) and storms (Clewell and Aronson 2013). Activities authorized by this NWP are likely to be disturbances that have the potential to temporarily or permanently change the structure and function of aquatic ecosystems.

Effects are changes in ecosystem structure and function over time (Spaling and

Smit 1993) that are caused by anthropogenic and natural disturbances. How an ecosystem responds to disturbances is dependent on context, connections at various scales (e.g., local, regional, global) between ecosystems and ecosystem components, and the ecosystem's current structure and function (Walker and Salt 2006). Disturbances to ecosystems are not always harmful, and disturbances may be an important component of the ecosystem's dynamics (Wallington et al. 2005) that help maintain its structure and function, as well as the ecological services it provides. Some ecosystems require management by people to retain their structure and function, as well as their resilience to disturbances (Lui et al. 2007).

The environmental effects or impacts that are likely to be caused by individual activities authorized by this NWP during the period (up to five years) it is anticipated to be in effect are evaluated against the current environmental setting (i.e., the affected environment). The affected environment is described at a national scale in section 4.0 of this document because if the NWP is issued, that is the scale at which the NWP can be used for activities that require DA authorization. As discussed in section 4.0 of this document, all ecosystems have been affected by human activities to some degree. Because historical baselines (i.e., the structure and function of ecosystems in the absence of modifications caused by human activities) no longer exist in most areas, ecosystem management decisions should be made by using contemporary baselines that acknowledge how humans have dominated and changed ecosystems over long periods of time (Kopf et al. 2015). The current environmental setting is the result of human activities altering ecosystems over thousands of years (e.g., Evans and Davis 2019, Perring and Ellis 2013, Cronon 1996, Denevan 1992), as well as natural changes in environmental conditions that have occurred over time.

Human-mediated and natural disturbances are important factors in ecosystem dynamics, and it is important for natural resource managers to understand how ecosystems have changed over time, what interactions at a landscape scale occur among ecosystem components, and what are the internal dynamics of these ecosystems (Wallington et al. 2005). Anthropogenic and natural disturbances to ecosystems can be placed into three categories: (1) disturbances that maintain ecosystem integrity; (2) moderate disturbances where the ecosystem can recover in time through natural processes; and (3) disturbances that result in ecosystem impairment, which may require human intervention (e.g., restoration) to prevent the ecosystem from changing into a different, and potentially less functional ecological state (Clewell and Aronson 2013). Discharges of dredged or fill material into waters of the United States and structures and work in navigable waters of the United States are human-mediated disturbances that can affect the structure and function of aquatic ecosystems, but they are just two categories of anthropogenic disturbances among many categories of anthropogenic and natural disturbances that can affect the structure and function of jurisdictional waters and wetlands and other aquatic ecosystems. Many of the categories of human activities and natural factors that can affect the structure and function of aquatic ecosystems are

identified in section 4.4 of the document.

Among the various regions and individual sites in the United States and its territories where this NWP may be used for activities that require DA authorization, there is substantial variability in the current environmental setting. In some areas of the country and at specific sites, the current environmental setting is the result of substantial alteration of waterbodies and other ecosystems by various human activities and natural disturbances that have occurred over time (Clewell and Aronson 2013). However, in other areas of the country, the current environmental setting has been less affected by various human activities and natural disturbances that have occurred over time, and those alterations are more subtle and more difficult to discern (Clewell and Aronson 2013).

The types of ecological functions and services provided by aquatic ecosystems vary considerably by region and by specific aquatic ecosystems, with some aquatic ecosystems performing ecological functions and services to a high degree, and other aquatic ecosystems performing ecological functions and services to a lesser degree. Given the geographic scope in which this NWP can be used to authorize activities under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899, the wide variability in aquatic resource structure and function from site to site and from region to region, and the limited quantitative data available at a national scale on functions and services provided by various types of aquatic ecosystems, the analysis of potential environmental consequences of the issuance of this NWP is a qualitative analysis. In addition, if this NWP is reissued, it will be reissued before specific sites for proposed NWP activities are identified. Therefore, the impact analysis in this environmental assessment is a general, qualitative analysis and cannot consider site-specific characteristics associated with a particular NWP activity.

The individual activities authorized by this NWP are likely to affect, to some degree, the ecological functions and services provided by jurisdictional waters and wetlands. In addition, individual activities authorized by this NWP may indirectly affect non-aquatic ecosystems, such as upland forests and grasslands, as well as cultural or production ecosystems (e.g., parks or agricultural areas) that are heavily managed by human actions. The severity of potential impacts to aquatic resources caused by NWP activities is dependent on a variety of factors. Impacts to aquatic resources caused by NWP activities may result in a partial, total, or no loss of aquatic resource functions and services, depending on the specific characteristics of the NWP activity and the environmental setting in which the NWP activity occurs. In addition, the duration of those impacts may vary by activity, with some NWP activities causing permanent impacts, some NWP activities causing temporary impacts, and other NWP activities causing both permanent and temporary impacts. In addition, the duration of permanent or temporary impacts caused by an NWP activity may also be influenced by the resilience and resistance of the affected aquatic resource(s) to disturbances caused by that NWP activity.

Because there is considerable variation across the country in terms of the types of aquatic resources, the ecological functions and services they provide, and their resilience and resistances to various anthropogenic and natural disturbances, including disturbances caused by NWP activities, the environmental consequences of the issuance of this NWP will vary by site and by region.

The impacts of individual activities authorized by this NWP are also likely to vary by the biotic and abiotic characteristics of the activity site and the surrounding area. Some NWP activities may result in losses of most or all aquatic resource functions and services at the site of an NWP activity. For example, an NWP activity may convert an aquatic ecosystem or a part of an aquatic ecosystem to dry land or a building or other type of engineered feature, and eliminate all or most of the aquatic ecosystem functions and services that were provided by that site. Some NWP activities may cause losses of some ecosystem functions and services while retaining or enhancing other ecosystem functions and services at the project site (e.g., an NWP activity that converts an aquatic ecosystem to a different type of aquatic or terrestrial ecosystem that provides some ecological functions and services). Some NWP activities may result in no long-term changes in ecological functions and services performed by the affected waters and wetlands because the NWP activity caused only temporary impacts and either the site recovered or was restored after that NWP activity was completed.

When determining whether a proposed NWP activity will cause no more than minimal individual and cumulative adverse environmental effects, the district engineer will consider the direct and indirect effects caused by the NWP activity. The district engineer will also consider the cumulative adverse environmental effects caused by activities authorized by the NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. These criteria are listed in the NWPs in Section D, “District Engineer’s Decision.” The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

For proposed NWP activities that may result in more than minimal individual

adverse environmental effects, the district engineer will provide the applicant the opportunity to submit a mitigation proposal to reduce the adverse environmental effects so that they are no more than minimal (33 CFR 330.1(e)(3)). If the applicant cannot or will not submit an acceptable mitigation proposal to reduce the adverse environmental effects of the proposed NWP activity so that they are no more than minimal, the district engineer will exercise discretionary authority and require an individual permit for that activity (33 CFR 330.1(d)).

Compensatory mitigation required by district engineers for specific activities authorized by this NWP may help reduce the contribution of those activities to cumulative impacts to the Nation's wetlands, streams, and other aquatic resources, by providing ecological functions that partially or fully replace some or all of the aquatic resource functions lost as a result of those activities. Mitigation requirements, including compensatory mitigation requirements for the NWPs, are described in NWP general condition 23. In addition, compensatory mitigation projects for activities authorized by this NWP must comply with the applicable provisions of the Corps' regulations at 33 CFR part 332. District engineers will establish compensatory mitigation requirements on a case-by-case basis during their evaluations of pre-construction notifications. Compensatory mitigation requirements for individual NWP activities will be specified through permit conditions added to NWP authorizations. When compensatory mitigation is required, the permittee is required to submit a mitigation plan prepared in accordance with the requirements of 33 CFR 332.4(c). Credits from approved mitigation banks or in-lieu fee programs may also be used to satisfy compensatory mitigation requirements for NWP activities. Monitoring is required to demonstrate whether the permittee-responsible mitigation project, mitigation bank, or in-lieu fee project is meeting its objectives and providing the intended aquatic ecosystem structure and functions. If the compensatory mitigation project is not meeting its objectives, adaptive management will be required by the district engineer. Adaptive management may involve taking actions such as site modifications, remediation, or design changes, to ensure the compensatory mitigation project meets its objectives (see 33 CFR 332.7(c)).

Additional conditions can be placed on NWP authorizations on a regional or activity-specific basis by division or district engineers to comply with applicable laws (e.g., Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act) and ensure that the authorized activities have no more than minimal individual and cumulative adverse environmental effects. Regional conditions added to this NWP by division engineers will be used to account for differences in aquatic resource functions, services, and values across the country, ensure that the NWP authorizes only those activities with no more than minimal individual and cumulative adverse environmental effects. Regional conditions also allow each Corps district to prioritize its workload based on where its efforts will best serve to protect the aquatic environment and other relevant public interest review factors. Regional conditions can restrict or prohibit the use of an NWP in certain

waters (e.g., high value waters or specific types of wetlands or waters. Specific NWPs can also be revoked on a geographic or watershed basis where the individual and cumulative adverse environmental effects resulting from the use of those NWPs are more than minimal.

Under 33 CFR 330.4(f)(2), for an NWP activity proposed by a non-federal permittee, the district engineer will review the pre-construction notification to determine if ESA section 7 consultation is required for that activity. If the district engineer determines that the proposed NWP activity may affect listed species or designated critical habitat, ESA section 7 consultation will be conducted with the U.S. Fish and Wildlife Service (U.S. FWS) or National Marine Fisheries Service (NMFS) depending on which species the district engineer determined may be affected by the proposed NWP activity. During the ESA section 7 consultation process the U.S. FWS or NMFS will evaluate the effects caused by the proposed NWP activity, the environmental baseline, the status of the species and critical habitat, and the effects of any future state or private activities that are reasonably certain to occur within the action area. For formal ESA section 7 consultations, the U.S. FWS or NMFS will formulate their opinion as to whether the proposed NWP activity is likely to jeopardize the continued existence of listed species (or species proposed for listing) or result in the destruction or adverse modification of critical habitat (or critical habitat proposed for such designation) (see 50 CFR 402.14(g)). The ESA section 7 consultation requirements may also be fulfilled through informal consultation, when the U.S. FWS or NMFS provide their written concurrence that a proposed NWP activity is not likely to adversely affect endangered or threatened species or their designated critical habitat (see 50 CFR 402.13(c)).

5.2.2 Cumulative impacts

As discussed in section 5.1, the cumulative impacts caused by the issuance of this NWP are dependent on the number of times the NWP is used to authorize regulated activities during the period (up to five years) it is anticipated to be in effect. The estimated use of this NWP during the period it is anticipated to be in effect, the estimated impacts to wetlands, streams, and other waters in the United States, and the estimated acreage of compensatory mitigation required by district engineers to offset permitted impacts, are provided in section A.2.2 of Appendix A of this document. Because the activities authorized by this NWP constitute only a small proportion of the categories of human activities across the country that directly and indirectly affect ocean waters, estuarine waters, lakes, wetlands, streams, and other aquatic resources, the activities authorized by this NWP during the period it is anticipated to be in effect are likely to result in only a minor incremental change to the jurisdictional waters and wetlands in the affected environment (i.e., the current environmental setting in the United States and its territories), and the ecological functions and services those waters and wetlands provide. Division and district engineers will monitor the use of this NWP on a regional and activity-specific basis, and under their authorities in 33 CFR 330.5(c) and (d), will modify, suspend, or

revoke NWP authorizations in situations where those activities will result in more than minimal cumulative adverse environmental effects in a waterbody, watershed, or other geographic region.

For the purposes of considering environmental change that occurs in response to multiple human activities over time in a particular geographic area, “cumulative impacts” have been defined from an ecological perspective in various ways (Duinker et al. 2013). An ecological approach to considering cumulative impacts differs from the regulatory approaches under NEPA, the Corps’ public interest review, and for those activities that involve discharges of dredged or fill material into waters of the United States, the Clean Water Act Section 404(b)(1) Guidelines at 40 CFR part 230. The regulatory approaches to considering cumulative effects are not effective in addressing the causes of cumulative environmental change because they fail to take into account all relevant drivers of cumulative environmental change, especially those drivers that fall outside of the Corps’ jurisdiction.

In an ecological context, cumulative impacts to aquatic ecosystems and other ecosystems include all human activities that can affect those ecosystems, and are not limited to activities authorized by this NWP. Cumulative impacts to aquatic ecosystems are caused by a variety of human activities (see section 4.4 for a list of those activities). As one example of defining cumulative impacts in an ecological context, the National Research Council (NRC) (1986) defined “cumulative impacts” as the on-going degradation of ecological systems caused by repeated perturbations or disturbances. MacDonald (2000) defined “cumulative impacts” as the result of the combined effects of multiple activities that occur in a particular area that persist over time. “Cumulative effects” are caused by the interaction of multiple activities in a landscape unit, such as a watershed or ecoregion (Clarke Murray et al. 2014, Crain et al. 2008, Gosselink and Lee 1989). According to Gosselink and others (1990), cumulative impacts are a landscape-scale phenomenon because ecosystems within a landscape interact with each other and the direct and indirect effects of disturbances caused by human activities can reach throughout that landscape.

All ecosystems are subjected to multiple disturbances that cause cumulative impacts to those ecosystems (Hodgson et al. 2019, Hodgson and Halpern 2018, Suding and Hobbs 2009). Cumulative impacts have gained a substantial human component because of the numerous activities conducted by people as they interact with their environment (Crain et al. 2008). Cumulative impacts are evaluated against the current environmental setting, and the current environmental setting is the product of cumulative environmental change (Cocklin et al. 1992) that has occurred over many years over broad geographic areas as a result of a variety of human activities and natural disturbances. For a particular ecosystem, the severity of cumulative impacts may be dependent on the current condition of that ecosystem (Clarke Murray et al. 2014), which may not be well understood with currently available information. Ecological thresholds, which are discussed below, can

provide useful, science-based targets for environmental regulation (Kelly et al. 2014), including the evaluation of the cumulative impacts to ecosystems caused by multiple human activities and natural disturbances.

Cumulative impacts are not limited to activities that are regulated by a single agency, but they also include activities that are not regulated by that agency (Gosselink et al. 1990). Therefore, cumulative impact assessment should consider the impacts of multiple projects that occur in a region, as well as other human activities that are not considered “projects” per se, such as on-going agricultural activities, forestry activities, urbanization, and fossil fuel consumption (Spaling 1992) that are not subjected to environmental review by any entity (Hunsicker et al. 2016) but are likely to directly or indirectly affect the structure and function of ecosystems. Some “non-project” contributors to cumulative impacts may be identified in a cumulative impact analysis but there may be other non-project contributors to cumulative impacts that cannot be identified (Spaling 1992) by the entity conducting the assessment.

Cumulative impact assessment is a complex task because of the need to understand: (1) how multiple disturbances that contribute to cumulative impacts interact with each other, (2) the connectivity among ecosystem components, (3) the pathways by which ecosystems can have linear or non-linear responses to multiple disturbances, and (4) the indirect or higher order interactions among multiple disturbances (Hodgson and Halpern 2018, Spaling 1992). Cumulative effects analysis should take into account the complexity, uncertainty, and natural variation of ecosystems (Clarke Murray et al. 2014). Cumulative impact assessment requires an understanding of how ecosystems, including aquatic ecosystems, withstand and recover from anthropogenic and natural disturbances, as well as their limitations to withstanding and recovering from those disturbances (Noble 2010). Cumulative impact analysis involves uncertainty because of our limited understanding of ecosystems, including aquatic ecosystems, and how various human activities and natural disturbances affect the structure and function of those ecosystems (Clarke Murray et al. 2014). An additional challenge to assessing cumulative impacts is the difficulty of quantifying the response of an ecosystem to a specific disturbance, including the degree to which that disturbance affects the structure and function of that ecosystem (Clarke Murray et al. 2014). Furthermore, if ecosystem response to a particular disturbance is difficult to quantify, then it is likely to be even more difficult to quantify how an ecosystem responds to the cumulative impacts of multiple disturbances. These complexities and challenges point to the challenges and difficulties in quantifying cumulative impacts.

Cumulative impact analysis can utilize either a stressor-based approach or an effects-based approach (e.g., Duinker et al. 2013, Dubé 2003, Cocklin et al. 1992). A stressor-based approach evaluates the cumulative effects caused by a specific type of disturbance or cause of environmental change (Cocklin et al. 1992). A stressor-based approach to cumulative impact assessment does not take into

account other potential anthropogenic or natural disturbances that may also cause changes in ecosystem structure and function (Duinker et al. 2013, Noble 2010). If substantial changes in aquatic ecosystem structure and function occur, then under a stressor-based approach to cumulative impact analysis there will be uncertainty as to whether the specific disturbances considered in the cumulative impact analysis (such as activities authorized by an NWP) are the cause of those substantial changes in aquatic ecosystem structure and function.

A stressor-based approach to cumulative impact assessment would likely not be effective in identifying and implementing management actions that could reduce or reverse those cumulative impacts because it might not identify the primary driver(s) of change in aquatic ecosystem structure. With respect to the activities authorized by this NWP, under a stressor-based approach to cumulative impact analysis, those NWP activities might not be a substantive driver of changes in aquatic ecosystem structure and function in a waterbody, watershed, or other geographic region. Other anthropogenic or natural disturbances that may or may not have been considered during a stressor-based cumulative impact analysis may be primarily responsible for those changes in ecosystem structure and function.

In contrast to a stressor-based approach, an effects-based approach to cumulative effects analysis uses a broader definition of “cumulative impact” and thus takes into account the various categories of human activities (including NWP activities) and natural disturbances that contribute to cumulative environmental change. An effects-based approach to cumulative impact assessment is likely to be more robust than a stressor-based approach (Duinker et al. 2013, Duinker and Greig 2006). The complexity associated with those various categories of anthropogenic and natural disturbances and how they interact with each other present challenges with decision-making and management of cumulative impacts for a particular category of anthropogenic disturbance, such as activities authorized by this NWP. That challenge arises because other anthropogenic disturbances, not activities authorized by the NWP, may be the primary drivers of substantial changes in ecosystem structure and function in the region where the NWP is used. An effects-based approach to cumulative impact analysis may help point managers and decision-makers to broader courses of actions to address cumulative impacts and help ensure the sustainability of ecosystems in a region and their ability to provide ecological functions and services (e.g., Duinker and Greig 2006, Gosselink et al. 1990).

Activities authorized by this NWP do not occur in isolation from other human activities and natural disturbances that can cause changes to the structure and function of aquatic ecosystems and other ecosystems. Because activities not regulated by the Corps under its permitting authorities may contribute to substantial changes in the structure and function of aquatic ecosystems in a region, a broader definition of cumulative impacts should be considered when evaluating substantial changes in aquatic ecosystem structure and function in a waterbody, watershed,

seascape, or other regional geographic area. As discussed below and in section 4.4 of this document, there are numerous other categories of human activities and natural disturbances (e.g., storms, wildfires) that can also alter the structure and function of jurisdictional waters and wetlands, as well as other ecosystems, and contribute to cumulative impacts. These other categories of human activities and natural disturbances that contribute to cumulative effects to aquatic ecosystems and other ecosystems occur concurrently with the activities authorized by this NWP during the period it is in effect. The various human activities and natural disturbances are likely to interact with each other and may affect the structure and function of jurisdictional waters and wetlands. The activities authorized by this NWP are likely to comprise a small fraction of the human activities that alter or cause losses of aquatic ecosystems and other natural resources. The likelihood that activities authorized by this NWP will cause aquatic ecosystems in a region assessed for cumulative impacts to undergo more than minimal changes in structure and function is likely to be small, given the variety and number of human activities and natural disturbances that directly and indirectly affect aquatic ecosystems that are likely to occur concurrently with the activities authorized by this NWP.

There are a number of ecological considerations that should be taken into consideration when evaluating cumulative impacts, including the cumulative impacts of one category of activities (e.g., activities authorized by this NWP), that can alter or disrupt ecological processes and affect the structure and function of jurisdictional waters and wetlands and other aquatic ecosystems and the services they provide. Those ecological considerations include: (1) the difficulties of establishing cause-and-effect relationships between a specific category of anthropogenic or natural disturbance and changes in ecosystem structure and function; (2) evaluating how various types of anthropogenic and natural disturbances interact with each other; (3) ecosystem dynamics; (4) and ecological thresholds in ecosystems that exhibit non-linear dynamics. Another challenge with cumulative impact assessment in practice is that there are currently substantial gaps in our ecological understanding of how multiple anthropogenic and natural disturbances interact with each other to cause changes to ecosystems and the ecological functions and services they provide (Hodgson et al. 2019, Côté et al. 2016, Clarke Murray et al. 2014).

There are also challenges associated with managing cumulative impacts to ecosystems, including aquatic ecosystems, that are affected by multiple categories of disturbances in a waterbody, watershed, or other geographic region. Some activities that cause disturbances to aquatic ecosystems and other ecosystems may be regulated by federal, tribal, state, or local government agencies but many sources of anthropogenic disturbances might not be regulated under any federal, tribal, state, or local government laws or regulations (Dubé 2003, Gosselink and Lee 1989), that is, the problem of fragmented jurisdiction in large-scale ecological systems.

Substantial changes in ecosystem structure and function are usually the result of the cumulative impacts of multiple disturbances (Hughes et al. 2013, Levin and Mollman 2008, Scheffer and Carpenter 2003). An ecosystem's response to cumulative impacts is dependent on the complexity of the ecosystem and its ability to respond to various types of disturbance and degrees of disturbance, as well as its dynamic variability and its capacity to absorb disturbance (Spaling 1992). When considering cumulative impacts to aquatic ecosystems caused by a specific category of anthropogenic disturbances, firmly establishing a cause-and-effect relationship between that disturbance category and subsequent environmental change is difficult because of the complexity of these ecosystems, their dynamic nature, and the many categories of human activities and natural disturbances that can affect their structure and function (e.g., Korpinen and Andersen 2016, Clarke Murray et al. 2014, Cocklin et al. 1992). Cause-and-effect relationships between ecosystems and the disturbances that can affect their structure and function are complex because the number of potential disturbances, the various feedback mechanisms that affect how ecosystems respond to those disturbances, and the variability in how ecosystems respond to multiple disturbances and the variability in feedback mechanisms (Spaling 1992).

When the capacity of a waterbody to perform ecological functions decreases substantially, it is usually difficult to identify one specific activity that is responsible for that degradation, because that degradation is usually the result of multiple anthropogenic disturbances that caused cumulative environmental change in that waterbody (Dubé 2003). The difficulties in establishing cause-and-effect relationships and cumulative environmental change in waterbodies, watersheds, and other geographic regions are pertinent to decision-making by division and district engineers for NWP activities because of the numerous other drivers of cumulative environmental change in jurisdictional waters and wetlands. Natural disturbances may also be responsible, to some degree, for contributing to that cumulative environmental change in aquatic ecosystems. Slowly-occurring changes to ecosystem structure and function can also make it difficult to identify cause-and-effect linkages between disturbances and changes in ecosystem structure and function, making decision-making for regulatory and resource agencies more challenging (Hughes et al. 2013, Kelly et al. 2015).

Establishing a decisive cause-and-effect relationship between the use of the NWP in a region and substantial changes in the structure and function of aquatic ecosystems in that region is difficult because of the greater likelihood that those substantial changes were caused by a combination of human activities and natural disturbances that affect the structure and function of those aquatic ecosystems. NWP activities occur concurrently with other human activities and natural disturbances, and the collective disturbances caused by human activities are the causes of cumulative change in aquatic ecosystems. Attempting to manage cumulative effects requires an understanding all of the various anthropogenic and natural disturbances that can affect the ecosystem(s) being evaluated, not just the

disturbances caused by a specific category of activities (Noble 2010). Therefore, all of those human activities and natural disturbances should be considered when assessing cumulative effects and determining whether there are appropriate management actions that could be required under the Corps' permitting authorities (and any other applicable federal, tribal, state, and local regulatory authorities) to address substantial cumulative adverse environmental effects. Because of the variety of human activities and natural disturbances that contribute to cumulative environmental change, resource managers should also understand that cumulative impacts are likely to continue to occur even if one particular of category of activities (e.g., the activities authorized by this NWP) is prohibited from occurring in that region for the foreseeable future.

Disturbances from various anthropogenic sources interact with each other to cause additional indirect or higher order effects to ecosystems (Hodgson and Halpern 2018). Therefore, when assessing cumulative impacts, it is important to consider not only the multitude of human activities and natural disturbances that contribute to cumulative impacts to aquatic ecosystems and other ecosystems, but how those disturbances interact with each other. Because of the complexity of ecological systems and potential higher order interactions among disturbances that are likely to affect ecosystem components, it is difficult to predict how cumulative impacts will change ecosystem structure and function (Crain et al. 2008). There is substantial uncertainty in determining the severity of cumulative impacts because we do not fully understand how various disturbances interact with each other, and with ecosystem components, over space and time (Clarke Murray et al. 2014), and how those interactions control or influence ecological processes (Groffman et al. 2006).

Interactions among human and natural disturbances to ecosystems may by additive, synergistic, or antagonistic (Côté et al. 2016, Kelly et al. 2014, Crain et al. 2008). Under an additive interaction, an ecosystem's response to two or more disturbances is the sum of those disturbances (Côté et al. 2016). Under a synergistic interaction, an ecosystem's response to two or more disturbances is greater than the response from each disturbance (Côté et al. 2016). That is, for synergistic interactions the collective effects are more severe than they would be if they were added together. Under an antagonistic interaction, an ecosystem's response to two or more disturbances is smaller than the response from each disturbance (Côté et al. 2016). In other words, for antagonistic interactions the collective effects are less than they would be if they were added together. As the number of anthropogenic and natural disturbances affecting an ecosystem increases, the likelihood of more complex interactions among those disturbances increases (Crain et al. 2008). When there are multiple disturbances acting on an ecosystem at the same time, it is difficult to identify which types of disturbance interactions are occurring (Côté et al. 2016).

Many cumulative impact assessment methods assume additive interactions between disturbances and ecosystem components, but broader ecological studies

show that synergistic and antagonistic interactions among disturbances are common (Korpinen and Andersen 2016). Some cumulative impact assessments assume that synergistic interactions are the most common form of disturbance interaction, and more consideration needs to be given to antagonistic and additive interactions (Côté et al. 2016). Assuming that all or most interactions among disturbances are synergistic interactions can lead to a false conclusion that ecosystem structure and function has become more degraded than it really is. To avoid such false conclusions, it is important to consider antagonistic and additive disturbance interactions (Côté et al. 2016) when evaluating cumulative impacts and whether it is necessary to respond to those cumulative impacts. Côté and others (2016) recommend that natural resource managers consider that synergistic, antagonistic, and additive interactions among disturbances are equally likely to occur.

For activities authorized by this NWP, the contribution of those activities to cumulative impacts on the structure and function of jurisdictional waters and wetlands is dependent in part on how the disturbances cause by NWP activities interact with the disturbances caused by other human activities and natural events that occur during the period this NWP is in effect. Those interactions may be additive, synergistic, and/or antagonistic. The specific types of interactions that occur among NWP activities and other anthropogenic disturbances may vary by aquatic resource category and geographic region. The type of interaction that occurs may also depend on the degree to which the affected jurisdictional waters and wetlands perform ecological functions and services, the types of other categories of human activities and natural disturbances that also affect the structure and function of jurisdictional waters and wetlands in that region, and other factors. The complexity of aquatic ecosystems, the potential types of disturbance interactions that can occur, and other factors make it difficult to predict how aquatic ecosystems in a particular region will respond to cumulative impacts. Because of this uncertainty, a monitoring and reactive approach to addressing cumulative impacts through the division and district engineer's authority to modify, suspend, or revoke NWP authorization on a regional or activity-specific basis is likely to be the most effective approach for ensuring in a particular region that this NWP authorizes only those activities that have no more than minimal cumulative adverse environmental effects.

Cumulative impact assessment should also take into account ecosystem dynamics, which are driven in part by how anthropogenic and natural disturbances interact with each other, feedback mechanisms that influence ecosystem structure and function, as well as other factors such as the presence of ecological thresholds and resilience. All ecosystems are dynamic and are subject to disturbances, and it is the type, magnitude, and frequency of disturbances that causes an ecosystem to either: (1) maintain its structure and function, (2) improve its structure and function, or (3) exhibit a decline in its structure and function (Spaling 1992). All ecosystems have some capacity to assimilate various amounts of disturbances without degrading

ecosystem components or processes (Spaling 1992).

Ecological science has altered its understanding of how ecosystems change over time, from static models based on equilibrium and predictable behavior to complex, dynamic models that are based on non-equilibrium and unpredictable behavior that accounts for the complexity and non-linearity of ecosystem dynamics (Wallington et al. 2005). Some ecosystems may exhibit gradual, continuous overall responses to multiple disturbances, while other ecosystems exhibit more complex dynamics, expressing little or no change in structure and function in response to multiple disturbances until a threshold is reached where those ecosystems undergo abrupt, discontinuous (i.e., non-linear) changes in structure and function (Wallington et al. 2005, Scheffer et al. 2001). Most ecosystems exhibit complex dynamics, especially as human activities have had increasing cumulative impacts on these systems (Suding and Hobbs 2009).

Some ecosystems exhibit gradual or linear ecosystem dynamics, where they undergo incremental changes in ecosystem structure and function as they are subjected to an anthropogenic or natural disturbance (Hunsicker et al. 2016, Kelly et al. 2014) over. Ecosystems with linear dynamics do not have resilience and as they are exposed to subsequent disturbances, they respond with gradual changes in their structure and function.

Most ecosystems can tolerate disturbances and continue to provide ecological functions and services until they reach an ecological threshold that when crossed, causes the ecosystem to change to an alternative state with a substantially different structure and function (Selkoe et al. 2015, Hunsicker et al. 2016, Suding and Hobbs 2009, Groffman et al. 2006, Scheffer et al. 2001). For many ecosystems it generally takes a substantial amount of collective disturbance (i.e., cumulative impacts) to cause the ecosystem to cross a threshold and abruptly change to a different structure and function (Scheffer et al. 2001, Selkoe et al. 2015). However, some ecosystems may have a lower capacity to absorb disturbances and resist change because they are currently near an ecological threshold where a small amount of additional disturbance may cause the ecosystem to change to a different structure and function (Selkoe et al. 2015). An ecological threshold is a point where a small change in environmental conditions caused by one or more disturbances results in an ecosystem undergoing a large, non-linear change in its structure and function (Kelly et al. 2015, Suding and Hobbs 2009, Groffman et al. 2006). Abrupt changes in ecosystem structure and function caused by crossing a threshold may occur when human activities reduce the resilience of those ecosystems (Folke et al. 2004).

Non-linear ecosystem dynamics can occur in two ways: threshold dynamics or hysteresis (Suding and Hobbs 2009). Under threshold dynamics, ecosystem structure and function change abruptly after one or more disturbances cause a threshold or tipping point to be reached, and the pathway by which ecosystem

recovery can occur is similar to the pathway that resulted in the abrupt change in ecosystem structure and function (Suding and Hobbs 2009). Under hysteresis, ecosystem structure and function change abruptly as an ecological threshold is crossed, but the pathway by which ecosystem recovery can occur (if it can occur through restoration or other means) is not the same as the pathway that caused the abrupt change in ecosystem structure and function (Suding and Hobbs 2009). Non-linear threshold dynamics in ecosystems are more difficult to predict than linear ecosystem responses to disturbances (Foley et al. 2015).

Non-linear ecosystems dynamics and thresholds apply to a wide variety of ecosystems, but not all ecosystems (Foley et al. 2015, Groffman et al. 2006, Suding and Hobbs 2009). Non-linear ecosystem dynamics and threshold responses are common in marine ecosystems (Hunsicker et 2016). Numerous aquatic ecosystems (e.g., lakes, coral reefs, oyster reefs, fish communities) can shift between alternative states instead of exhibiting gradual responses to disturbances and changing environmental conditions (Scheffer et al. 2001). Ecological thresholds associated with shifts to alternative states have been observed in marine ecosystems (Hunsicker et al. 2016), as well as terrestrial ecosystems (Groffman et al. 2006). Ecological thresholds are more difficult to identify in terrestrial ecosystems because those ecosystems change more slowly (Groffman et al. 2006). It is also more challenging to identify thresholds in ecosystems that respond more slowly to disturbances, and to develop effective management responses when those ecosystems change to an alternative state (Hughes et al. 2013). Threshold dynamics in ecosystems are strongly influenced by human activities (Suding and Hobbs 2009).

Resilience is the ability of ecosystems to withstand or absorb disturbance while maintaining their basic structure and function (Suding and Hobbs 2009, Walker and Salt 2006, Folke et al. 2004). An ecosystem with greater resilience can absorb more disturbances than an ecosystem with lower resilience (Kelly et al. 2014). Resilience is linked to non-linear dynamics, where an ecosystem can absorb disturbances to some degree before approaching an ecological threshold where an additional amount of disturbance causes that ecosystem to abruptly change to a different structure and function (Kelly et al. 2014). Loss of resilience can increase an ecosystem's susceptibility to changing to a different structure and function, and some changes to alternative states may be irreversible (Folke et al. 2004). Human activities affect the resilience of ecosystems by changing the biotic composition and how those ecosystems respond to disturbances (Suding and Hobbs 2009). Human activities that reduce the resilience of ecosystems, and the ability of those ecosystems to sustain their structure and function, include land use changes, pollution, resource exploitation, changes in disturbance regimes, and climate change (Folke et al. 2004). Activities authorized by this NWP may also contribute to decreases in aquatic ecosystem resilience.

Jurisdictional waters and wetlands may exhibit linear or non-linear ecosystem

dynamics in response to direct and indirect impacts caused by activities authorized by this NWP and other anthropogenic and natural disturbances. Therefore, there is uncertainty in how these aquatic ecosystems will respond to activities authorized by this NWP and other disturbances. Depending on the degree to which jurisdictional waters and wetlands are resilient to disturbances caused by activities authorized by this NWP and to other anthropogenic and natural disturbances, some jurisdictional waters and wetlands in a region may exhibit little or no change in ecosystem structure and function during the period this NWP is in effect. Under these circumstances, the use of this NWP during the period it is in effect could be considered as resulting in no more than minimal cumulative adverse environmental effects. There may be waterbodies, watersheds, or other regions where jurisdictional waters and wetlands are at or near ecological thresholds that where additional disturbances, including disturbances caused by activities authorized by this NWP, may cause those aquatic ecosystems to shift to an alternative state (i.e., a substantially different structure and function). In those situations, division and district engineers will determine whether activities authorized by this NWP were responsible for the substantial change in the structure and function the of jurisdictional waters and wetlands in that region, and may take action to modify, suspend, or revoke the NWP in that region.

Current environmental laws (e.g., the Clean Water Act, the National Environmental Policy Act) were passed in the late 1960s and early 1970s, before ecological science began to understand that many ecosystems exhibit non-linear responses to disturbances (Kelly et al. 2014). Therefore, those environmental laws assume that ecosystems exhibit linear responses to disturbances. Activities authorized by this NWP are likely to contribute to the cumulative impacts that affect the dynamics of aquatic ecosystems, and those dynamics may be linear or non-linear. In most cases, our current understanding of aquatic ecosystems or other ecosystems is not sufficient for predicting how they are likely to respond to single disturbances or multiple disturbances (Clarke Murray et al. 2014, Kelly et al. 2014, Suding and Hobbs 2009, Cocklin et al. 1992).

The use of thresholds for determining the significance or severity of cumulative impacts should focus on the use of ecological thresholds, rather than regulatory thresholds, because regulatory thresholds are typically not based on ecological concepts (Duinker et al. 2013), such as ecosystems dynamics in response to multiple disturbances and other drivers. In addition, some regulatory thresholds, especially qualitative thresholds (e.g., an environmental change that is “no more than minimal”), are subjective, and present challenges in defining that regulatory threshold and how to apply it to decision-making. Compared to regulatory thresholds, one advantage that ecological thresholds have as an environmental decision-making tool is that ecological thresholds are not arbitrary because they are based on observable biophysical ecosystem responses (Kelly et al. 2015).

Ecological thresholds can guide decision-making for regulatory programs (Kelly et

al. 2014) for ecosystems with non-linear dynamics. Ecological thresholds are less useful for decision-making for ecosystems that have linear dynamics, because they change gradually in response to multiple disturbances over time, with no discernable threshold. Duinker and others (2013) stated that thresholds are a critical tool for evaluating the significance of cumulative impacts. However, it is difficult to predict where these thresholds are, and ecosystems may exhibit little change before a threshold is reached (Scheffer et al. 2009).

If an ecological threshold exists, it may be difficult to identify because many thresholds are not known to exist until after an ecosystem has changed to an alternative state, especially if the ecosystem has resisted change after being exposed to multiple disturbances (Selkoe et al. 2015). Identifying ecological thresholds requires gathering sufficient information to better understand ecosystem dynamics and reduce uncertainty about where ecological thresholds may occur and under what circumstances they may be reached (Kelly et al. 2014) and cause the ecosystem to exhibit a substantial change in structure and function. In addition, ecological thresholds are likely to change as ecosystems change over time, and it may be difficult to predict where an ecological threshold will exist in the future (Standish et al. 2014). Another factor to consider regarding the use of ecological thresholds in decision-making is that slower transitions to alternative states (i.e., substantial changes in ecosystem structure and function) can be more difficult to identify and manage than sudden transitions to alternative states (Hughes et al. 2013). In some ecosystems, these transitions can take decades, centuries, or longer to occur (Hughes et al. 2013). Therefore, the utility of ecological thresholds in decision-making by Corps divisions and districts, as well as natural resource managers, is dependent on how quickly these transitions shifts are likely to occur in a particular ecosystem.

The aquatic ecosystems that may be affected by activities authorized by this NWP and other Department of the Army permits may respond to multiple disturbances under any of the three models described above, and we likely do not know which model may apply to a particular aquatic ecosystem, watershed, or other geographic area over which cumulative impacts are assessed. This includes aquatic ecosystems that are subject to regulation by the Corps under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. The type of dynamics an aquatic ecosystem exhibits may also depend on how various disturbances (including disturbances caused by activities authorized by this NWP) will interact with each other and cause gradual or abrupt changes in aquatic ecosystem structure and function. Natural resource managers often do not have sufficient information as to whether an ecological threshold exists in a particular ecosystem, under what conditions that threshold might be crossed, and whether hysteresis may prevent the ecosystem from returning to its previous state (Foley et al. 2015). We are not currently capable of developing accurate, predictive models for complex systems (Scheffer et al. 2012), such as aquatic ecosystems that may be affected by the activities authorized by this NWP, that could be consistently

relied upon for decision-making and management for cumulative adverse environmental effects.

Implementing an approach to use ecological thresholds to make decisions regarding cumulative environmental change and shifts to alternative states has a number of challenges, such as the difficulty of identifying useful thresholds and the possibility that some for ecosystems it might not be possible to identify practical thresholds (Duinker and Greig 2006). The identification of ecological thresholds is also complicated by the complexity of interactions between ecosystems, geography, local environmental factors, and large-scale environmental factors, and how ecosystems respond to disturbance (Standish et al. 2014). In addition, thresholds are likely to vary by specific ecosystems, with individual ecosystems having different thresholds, depending on site-specific and regional characteristics, including the types of disturbances a particular ecosystem is subjected (Groffman et al. 2006). Because of the difficulty in identifying thresholds in advance of an ecosystem shifting to a substantially different structure and function, the most certain way to identify thresholds in ecosystems is to observe when a change to a substantially different structure and function occurs (Kelly et al. 2014, Selkoe et al. 2015).

For jurisdictional waters and wetlands that exhibit non-linear responses to multiple disturbances, including disturbances caused by NWP activities, the “more than minimal cumulative adverse environmental effects” threshold could be interpreted as the occurrence of a substantial change in structure and function after an ecological threshold is crossed. In other words, cumulative effects caused by activities authorized by this NWP during the period it is in effect would be no more than minimal if the aquatic ecosystems within the regional spatial scale at which cumulative effects are assessed (e.g., a waterbody, watershed, county, state, or Corps district) exhibit little or no change in aquatic ecosystem structure and function during that time period.

Some jurisdictional waters and wetlands may exhibit gradual, continuous responses to disturbances caused by activities authorized by this NWP and other anthropogenic and natural disturbances. For jurisdictional waters and wetlands that exhibit linear (additive or gradual) responses to multiple disturbances, including disturbances caused by NWP activities, the “more than minimal cumulative adverse environmental effects” threshold is more difficult to define ecologically because each disturbance causes an incremental change in the structure and function of that aquatic ecosystem. For jurisdictional waters and wetlands that exhibit linear responses to multiple disturbances, division and district engineers would have to exercise their judgment as to when the “more than minimal cumulative adverse environmental effects” threshold is exceeded in a particular region.

Because of differences between linear and non-linear ecosystem responses to cumulative impacts, and other variables such as aquatic ecosystem resilience, the degree to which aquatic ecosystems have been affected by past human activities

and natural disturbances, and gaps in understanding how aquatic ecosystems respond to multiple, interacting disturbances, a reactive approach by division and district engineers to address the potential cumulative adverse environmental effects caused by activities authorized by this NWP during the period it is in effect is warranted. If division and district engineers observe that jurisdictional waters and wetlands in a region are undergoing substantial changes in structure and function, they can take actions under 33 CFR 330.5(c) and (d) to modify, suspend, or revoke that NWP in that geographic area.

For the purposes of this environmental assessment, which is prepared at the national scale because the NWP would authorize activities across the country, the activities authorized by this NWP during the period it is in effect are anticipated to result in no more than minimal cumulative adverse environmental effects. If, during the period the NWP is in effect, Corps Headquarters determines that this NWP is resulting in more than minimal cumulative adverse environmental effects across the country, it will take action under 33 CFR 330.5(b) to modify, suspend, or revoke this NWP. At a regional scale, division and district engineers will take actions under 33 CFR 330.5(c) and (d) respectively, to modify, suspend, or revoke this NWP when they determine that the use of this NWP in a region or for a specific activity will result in more than minimal cumulative adverse environmental effects.

To conduct the discharges of dredged or fill material into waters of the United States and/or the structures or work in navigable waters of the United States authorized by this NWP, permittees or their contractors may use construction equipment and other equipment that utilizes fossil fuels that emit greenhouse gases during their operation. The quantities of greenhouse gases emitted by the use of construction equipment varies, and the variation in emissions is dependent in part on the types of activities (e.g., hauling, digging, dumping) for which that construction equipment is used and how much that equipment is idling (Heidari and Marr 2015). Emissions of greenhouse gases from construction equipment used to conduct activities authorized by this NWP are likely to be an extremely small fraction of the overall global greenhouse gas emissions that are likely to occur during the construction period. The Corps does not have authority to regulate emissions of greenhouse gases. The emissions of greenhouse gases may be regulated by the U.S. EPA under its authorities under the Clean Air Act, or by states with approved programs under the Clean Air Act.

5.3 Impact Analysis for Alternatives to the Proposed Action

5.3.1 No Action Alternative (Do Not Reissue the Nationwide Permit)

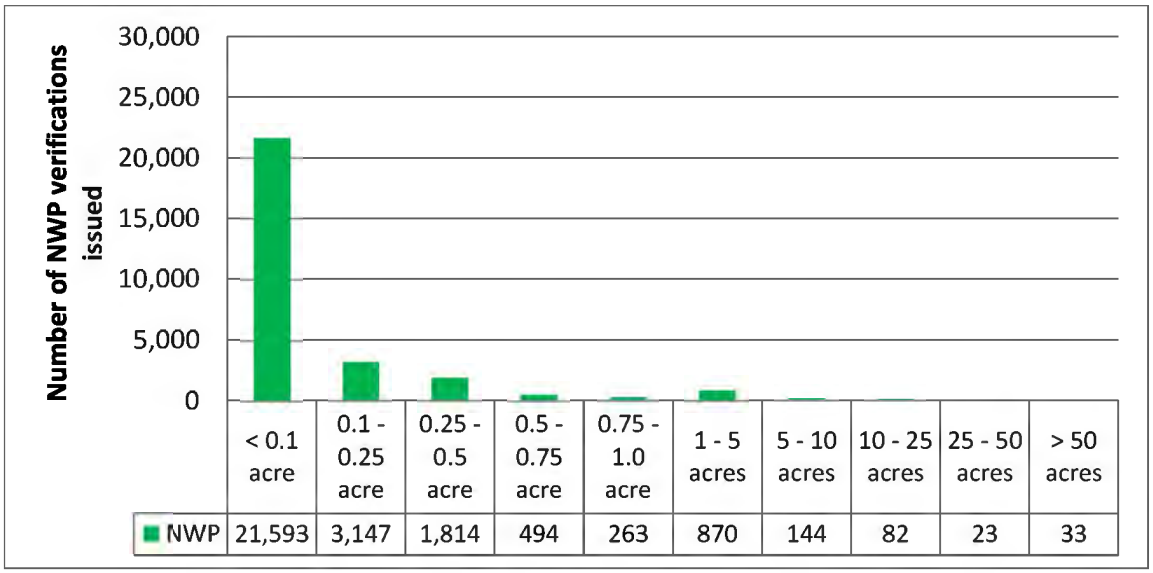
The no action alternative would not achieve one of the goals of the Corps' Nationwide Permit Program, which is to regulate with little, if any, delay or

paperwork certain activities having minimal impacts (33 CFR 330.1(b)). The no action alternative would also reduce the Corps' ability to pursue the current level of review for other activities that have greater adverse effects on the aquatic environment, including activities that require standard individual permits as a result of division or district engineers exercising their discretionary authority under the NWP program. The no action alternative would also reduce the Corps' ability to conduct compliance actions.

If this NWP is not available, substantial additional resources would be required for the Corps to evaluate these minor activities through the standard individual permit process, and for the public and federal, tribal, and state resource agencies to review and comment on the large number of public notices for these activities. In a considerable majority of cases, when the Corps publishes public notices for proposed activities that result in no more than minimal adverse environmental effects, the Corps typically does not receive responses to these public notices from either the public or federal, tribal, and state resource agencies. Therefore, processing standard individual permits for these minimal impact activities is not likely to result in substantive changes to those activities. Another important benefit of the NWP program that would not be achieved through the no action alternative is the incentive for project proponents to design their projects so that those activities meet the terms and conditions of an NWP. The Corps believes the NWPs have significantly reduced adverse effects to the aquatic environment because most applicants modify their activities that require DA authorization to comply with the NWPs and avoid the longer permit application review times and larger costs typically associated with the individual permit process.

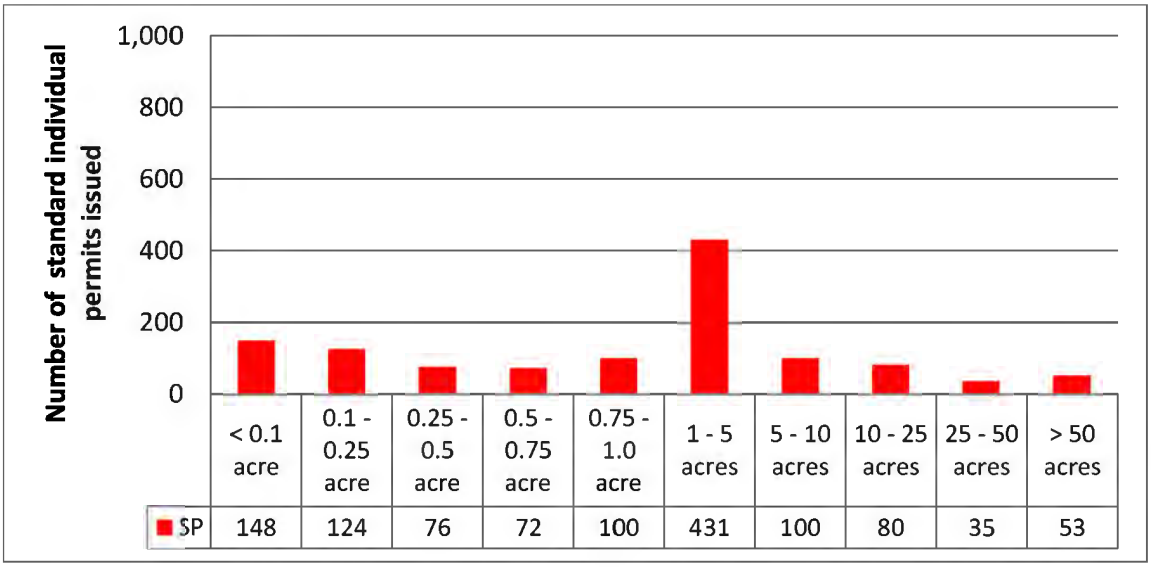
The NWP program has been effective in reducing losses of jurisdictional waters and wetlands, with a substantial majority of losses of waters of the United States authorized by NWP being 1/10-acre or less. For example, Figure 5.3-1 shows that for NWP verifications issued by Corps districts in FY2020, 76 percent of the authorized impacts (permanent and temporary) to waters of the United States were less than 1/10-acre.

Figure 5.3-1. Authorized permanent and temporary impacts to jurisdictional waters and wetlands, including rivers and streams, in acreage range categories, for NWP verifications during FY 2020. 76% of verified impacts were to less than 1/10-acre of jurisdictional waters and wetlands.



For standard individual permits issued in FY2020, the most frequently authorized impacts to waters of the United States were between 1 acre and 5 acres (431 activities) (see Figure 5.3-2). These data show the larger impacts to jurisdictional waters and wetlands that are often authorized by standard individual permits compared to the smaller impacts to jurisdictional waters and wetlands authorized by NWPs, and the avoidance and minimization conducted by project proponents to obtain NWP authorization. If the NWPs are allowed to expire without being reissued, and if project proponents seek individual permits for activities that require DA authorization, those standard individual permits may result in larger amounts of permanent and temporary impacts to waters of the United States because standard individual permits do not have any acreage limits or other quantitative limits. Therefore, the no action alternative could have more severe adverse environmental impacts than the other two alternatives.

Figure 5.3-2. Authorized permanent and temporary impacts to jurisdictional waters and wetlands for standard individual permits issued during FY 2020, by acreage range categories.



Under the no action alternative, district engineers may issue regional general permits or programmatic general permits to authorize similar categories of activities that would have no more than minimal adverse environmental effects that could have been authorized by this NWP. However, those regional general permits or programmatic general permits may have different quantitative limits, different restrictions, and other permit conditions, and those quantitative limits, restrictions, and permit conditions may result in the authorization of activities that have greater, similar, or lesser adverse environmental effects than the activities that would have been authorized by this NWP. Under the no action alternative, there may be differences in consistency in implementation of the Corps Regulatory Program among Corps districts. District engineers can tailor their regional general permits and programmatic general permits to effectively address the specific categories of aquatic resources found in their geographic areas of responsibility, the specific categories of activities that occur in those geographic areas, and the ecological functions and services those categories of aquatic resources provide. The environmental consequences of this aspect of the no action alternative are more difficult to predict because of the potential variability of regional general permits and programmatic general permits among Corps districts across the country, when such general permits are available to authorize a similar category of activities as this NWP authorizes.

If this NWP is not reissued, districts would have to draft, propose, and issue regional general permits or programmatic general permits through the public notice

and comment process and prepare applicable environmental documentation to support their decisions on whether to issue those regional general permits or programmatic general permits. It would take a substantial amount of time to issue those regional general permits and programmatic general permits, and in the interim proposed activities would have to be authorized through the individual permit process.

5.3.2 Reissue the Nationwide Permit With Modifications

This NWP was developed to authorize discharges of dredged or fill material into waters of the United States and structures and work in navigable waters of the United States for aquatic habitat restoration, enhancement, and establishment activities that have no more than minimal individual and cumulative adverse environmental effects. The Corps has considered changes to the terms and conditions of this NWP suggested by comments received in response to the proposed rule, as well as modifying or adding NWP general conditions, as discussed in Appendix C of this document and the preamble of the Federal Register notice announcing the reissuance of this NWP.

Changing the terms and conditions of this NWP would likely result in changes the number of activities authorized by this NWP, and the environmental impacts of authorized activities. The environmental consequences of changing the terms and conditions of this NWP may vary, depending on whether modifications for the reissued NWP are more restrictive, less restrictive, or is similarly restrictive compared to previously issued versions of this NWP. The environmental consequences of changing the terms and conditions of this NWP are also dependent on the application of existing tools used to ensure that activities authorized by this NWP will only have no more than minimal adverse environmental effects. Those tools include the quantitative limits of the NWP, the pre-construction notification process, and the ability of division and district engineers to modify, suspend, or revoke this NWP on a regional or case-by-case basis.

Changing the national terms and conditions of this NWP may change the incentives for project proponents to reduce their proposed impacts to jurisdictional waters and wetlands to qualify for NWP authorization, and receive the required DA authorization for regulated activities in less time than it would take to receive individual permits for those activities. Under the individual permit process, the project proponent may request authorization for activities that have greater impacts on jurisdictional waters and wetlands, and may result in larger losses of aquatic resource functions and services. The NWP program has been effective in reducing losses of jurisdictional waters and wetlands, with a substantial majority of losses of waters of the United States authorized by NWP being 1/10-acre or less (see Figure 5.3-1).

The environmental consequences of division engineers exercising their

discretionary authority to modify, suspend, or revoke this NWP on a regional basis may be a reduction in the number of activities that could be authorized by this NWP in a region or more NWP activities requiring pre-construction notification through regional changes in the PCN requirements for this NWP. The environmental consequences are likely to include reduced losses of waters of the United States because regional conditions can only further condition or restrict the applicability of an NWP (see 33 CFR 330.1(d)). The modification, suspension, or revocation of this NWP on a regional basis by division engineers may also reduce the number of activities authorized by this NWP, which may increase the number of activities that require standard individual permits. If more activities require standard individual permits, permitted losses of jurisdictional waters and wetlands may increase because standard individual permits have no quantitative limits.

An environmental consequence of regional conditions added to the NWPs by division engineers is the enhanced ability to address differences in aquatic resource functions, services, and values among different regions across the nation. Corps divisions may add regional conditions to the NWPs to enhance protection of the aquatic environment in a region (e.g., a Corps district, state, or watershed) and address regional concerns regarding jurisdictional waters and wetlands and other resources (e.g., listed species or cultural resources) that may be affected or impacted by the activities authorized by this NWP. Division engineers can also revoke an NWP in a region if the use of that NWP results in more than minimal adverse environmental effects, especially in high value or rare waters or wetlands. When an NWP is issued or reissued by the Corps, division engineers issue supplemental documents that evaluate potential impacts of the NWP at a regional level, and assess cumulative impacts caused by this NWP on a regional basis during the period this NWP is in effect. [33 CFR 330.5(c)]

An environmental consequence of district engineers modify, suspending, or revoking this NWP on a case-by-case basis is the ability of district engineers to address site-specific conditions, including the degree to which aquatic resources on the project site provide ecological functions and services. Activity-specific modifications may also address site-specific resources (e.g., listed species or cultural resources) that may be affected by NWP activities. The environmental consequences of modification of this NWP on an activity-specific basis by district engineers may be further reductions in losses of waters of the United States for specific activities authorized by NWP because of mitigation required by district engineers during their reviews of PCNs to ensure that those activities result in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). Examples of mitigation that may be required by district engineers include permit conditions requiring compensatory mitigation to offset losses of waters of the United States or conditions added to the NWP authorization to prohibit the permittee from conducting the activity during specific times of the year to protect spawning fish and shellfish. If a proposed NWP activity will result in more than minimal adverse environmental effects, then the district engineer will exercise

discretionary authority and require an individual permit. The individual permit review process requires a project-specific alternatives analysis, including the consideration of off-site alternatives, and a public interest review.

5.3.3 Reissue the Nationwide Permit Without Modifications

Retaining the current terms and conditions of this NWP would likely result in little or no changes in the number of activities authorized by this NWP, and the environmental impacts of authorized activities. Project proponents would likely continue to design their project to qualify for NWP authorization. Retaining the current national terms and conditions of this NWP would likely continue to provide incentives for project proponents to reduce their proposed impacts to jurisdictional waters and wetlands to qualify for NWP authorization, and receive the required DA authorization for regulated activities in less time than it would take to receive individual permits for those activities. Under this alternative, for those activities that require individual permits project proponents may request authorization for activities that have greater impacts on jurisdictional waters and wetlands, and may result in larger losses of aquatic resource functions and services. The NWP program has been effective in reducing losses of jurisdictional waters and wetlands, with a substantial majority of losses of waters of the United States authorized by NWP being 1/10-acre or less. For example, Figure 5.3-1 shows that for NWP verifications issued by Corps districts in FY2020, 76 percent of the authorized impacts (permanent and temporary) to waters of the United States were less than 1/10-acre. For standard individual permits issued in FY2020, the most frequent authorized impacts to waters of the United States were between 1 acre and 5 acres (see Figure 5.3-2).

Under this alternative, the environmental consequences of division engineers exercising their discretionary authority to modify, suspend, or revoke this NWP on a regional basis would be similar to the environmental consequences discussed in section 5.3.2 of this document. Corps divisions may add regional conditions to the NWPs to enhance protection of the aquatic environment in a region (e.g., a Corps district, state, or watershed) and address regional concerns regarding jurisdictional waters and wetlands and other resources (e.g., listed species or cultural resources) that may be affected or impacted by the activities authorized by this NWP. Division engineers can also revoke an NWP in a region if the use of that NWP results in more than minimal adverse environmental effects, especially in high value or rare waters or wetlands. When an NWP is issued or reissued by the Corps, division engineers issue supplemental documents that evaluate potential impacts of the NWP at a regional level, and assess cumulative impacts caused by this NWP on a regional basis during the period this NWP is in effect. [33 CFR 330.5(c)]

Under this alternative, the ability of district engineers to modify, suspended, or revoke this NWP on a case-by-case to address site-specific conditions, including the degree to which aquatic resources on the project site provide ecological

functions and services, is likely to have environmental consequences similar to the environmental consequences of the alternative identified in section 3.2 of this document. Activity-specific modifications under this alternative may also address site-specific resources (e.g., listed species or cultural resources) that may be affected by NWP activities. Activity-specific modifications may also include mitigation requirements similar to the potential mitigation requirements discussed in section 5.3.2 of this document.

The reissuance of this NWP adopts the alternative identified in section 3.2 of this document. The Corps has considered the comments received in response to the proposed rule, and made changes to the NWPs, general conditions, and definitions to address those comments. Division engineer may add regional conditions to this NWP to help ensure that the use of the NWPs in a particular geographic area will result in no more than minimal individual and cumulative adverse environmental effects. District engineers may also add regional conditions to this NWP to help ensure compliance with other applicable laws, such as Section 7 of the Endangered Species Act, Section 106 of the National Historic Preservation Act, and the essential fish habitat provisions of the Magnuson-Stevens Fishery Conservation and Management Act. Division engineers may also add regional conditions to this NWP to fulfill its tribal trust responsibilities.

Corps divisions and districts also monitor the use of this NWP and the authorized impacts identified in NWP verification letters. At a later time, if warranted, a division engineer may add regional conditions to further restrict or prohibit the use of this NWP to ensure that it does not authorize activities that result in more than minimal adverse environmental effects in a particular geographic region (e.g., a watershed, landscape unit, or seascape unit). To the extent practicable, division and district engineers will use regulatory automated information systems and institutional knowledge about the typical adverse effects of activities authorized by this NWP, as well as substantive public comments, to assess the individual and cumulative adverse environmental effects resulting from regulated activities authorized by this NWP.

6.0 Public Interest Review

6.1 Public Interest Review Factors (33 CFR 320.4(a)(1))

For each of the 20 public interest review factors, the extent of the Corps consideration of expected impacts resulting from the use of this NWP is discussed, as well as the reasonably foreseeable cumulative adverse effects that are expected to occur. The Corps decision-making process involves consideration of the benefits and detriments that may result from the activities authorized by this NWP.

(a) Conservation: The activities authorized by this NWP will improve the natural resource characteristics of the project area through the restoration, enhancement, and establishment of aquatic habitats, because the NWP requires all activities to result in net increases in aquatic resource functions and services. There may be trade-offs with some aquatic resource functions and services to achieve those net gains, as some aquatic resource functions and services are increased while other aquatic resource functions and services decrease. Those trade-offs may also occur in a temporal scale, with some temporary adverse effects to aquatic resource functions and services occurring during regulated activities to restore, enhance, or establish aquatic resources with the objective of producing long-term gains in aquatic resource functions and services as the aquatic habitat undergoes ecosystem development over time.

(b) Economics: The activities authorized by this NWP will benefit certain segments of the local economy, especially recreational activities that depend on large populations of fish and wildlife. Aquatic resource restoration, establishment, and enhancement activities will have positive impacts on the local economy. During construction, these activities will generate jobs and revenue for local contractors as well as revenue to building supply companies that sell construction materials. Other facilities associated with these types of activities, such as nature preserves, parks, hunting areas, fishing areas, and hiking trails will provide employment opportunities for the operation and maintenance of these facilities.

(c) Aesthetics: The activities authorized by this NWP may alter the visual character of some waters of the United States, but usually these alterations will be beneficial. The extent and perception of these changes will vary, depending on the size and configuration of the authorized activity, the nature of the surrounding area, and the public uses of the area. Air quality and noise levels are unlikely to be adversely affected by aquatic resource restoration, establishment, and enhancement activities, except during construction.

(d) General environmental concerns: Activities authorized by this NWP will not adversely affect general environmental concerns, such as water, air, noise, and land pollution, except during construction. The authorized activities will improve the physical, chemical, and biological characteristics of the aquatic environment. Adverse effects to the chemical composition of the aquatic environment will be controlled by general condition 6, which states that the material used for construction must be free from toxic pollutants in toxic amounts. Specific environmental concerns are addressed in other sections of this document.

Executive Order 12898, “Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations,” requires, to the greatest extent practicable and permitted by law, that each federal agency make achieving environmental justice part of its mission by identifying and addressing, as

appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana islands. Guidance issued by U.S. EPA (U.S. EPA 1998) suggests three steps for considering environmental justice: (1) determine the existence of minority and low-income populations; (2) determine if resource impacts are high and adverse; and (3) determine if the impacts fall disproportionately on minority and low-income populations.

Applying these three steps to the reissuance of this NWP, the Corps finds that this NWP can be used to authorize discharges of dredged or fill material into waters of the United States and structures and work in navigable waters of the United States in areas with minority populations and low-income populations. In addition, this NWP can be used to authorize discharges of dredged or fill material into waters of the United States and structures and work in navigable waters of the United States in areas with majority populations and high-income populations. This NWP is issued by Corps Headquarters to be used anywhere in the United States, its territories, and possessions to authorize discharges of dredged or fill material into waters of the United States and structures and work in navigable waters of the United States that have no more than minimal individual and cumulative adverse environmental effects. Because this NWP authorizes only those activities involving discharges of dredged or fill material into waters of the United States and structures and work in navigable waters of the United States that have no more than minimal individual and cumulative adverse environmental effects, the reissuance of this NWP will not result in high and adverse resource impacts to areas with minority and low-income populations. Because this NWP can be used to authorize discharges of dredged or fill material into waters of the United States and structures and work in navigable waters of the United States across the United States, its territories, and possessions that have no more than minimal adverse environmental effects, the activities authorized by this NWP and their associated impacts will not fall disproportionately on minority and low-income populations. The reissuance of this NWP is not expected to negatively impact any community, and therefore is not expected to cause any disproportionately high and adverse impacts to minority or low-income communities (i.e., environmental justice communities).

Division engineers have discretionary authority to modify, suspend, or revoke NWP authorizations for any specific geographic area, class of activities, or class of waters within a Corps division because of concerns regarding the environment or the other relevant factors of the public interest (33 CFR 330.5(c)(1)). District engineers have discretionary authority to review any activity authorized by NWP to determine whether the activity complies with the NWP, including whether the proposed activity would have more than minimal individual or cumulative net adverse effects on the environment or otherwise may be contrary to the public interest (33 CFR 330.1(d). Environmental justice considerations may be identified by division and district

engineers assessing the potential impacts of NWP activities on the Corps' public interest review factors. The discretionary authority of division and district engineers can be used to address environmental justice considerations on a regional or activity-specific basis, when environmental justice considerations in a region or for a particular NWP activity are determined by a division or district engineer to be contrary to the public interest.

(e) Wetlands: In general, wetlands will be restored, enhanced, or established through activities authorized by this NWP. Activities into waters of the United States for aquatic resource restoration, establishment, and enhancement projects may result in the alteration of wetlands. Non-tidal wetlands may also be changed by conversion to another aquatic habitat type, but the same type of wetland (e.g., emergent, scrub-shrub) must be provided elsewhere on the project site. The conversion of tidal wetlands is not authorized by this NWP. Tidal wetlands may be rehabilitated or enhanced by activities authorized by this NWP. Some wetlands may be temporarily impacted by the activity when used for temporary staging areas and access roads. These wetlands will be restored, but the plant community may be different, especially if the site was originally forested.

Wetlands provide habitat, including foraging, nesting, spawning, rearing, and resting sites for aquatic and terrestrial species. The alteration of wetlands may alter natural drainage patterns. Wetlands reduce erosion by stabilizing the substrate. Wetlands also act as storage areas for stormwater and flood waters. Wetlands may act as groundwater discharge or recharge areas. The loss of wetland vegetation will adversely affect water quality because these plants trap sediments, pollutants, and nutrients and transform chemical compounds. Wetland vegetation also provides habitat for microorganisms that remove nutrients and pollutants from water. Wetlands, through the accumulation of organic matter, act as sinks for some nutrients and other chemical compounds, reducing the amounts of these substances in the water.

Division engineers can regionally condition this NWP to restrict or prohibit its use in high value non-tidal wetlands. General condition 22 requires submittal of a pre-construction notification prior to use of this NWP in designated critical resource waters and adjacent wetlands, which may include high value wetlands. District engineers will also exercise discretionary authority to require an individual permit if the affected wetlands are high value and the activity will result in more than no more than minimal adverse environmental effects. District engineers can also add case-specific special conditions to the NWP authorization to reduce impacts to wetlands.

(f) Historic properties: General condition 20 states that in cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act have been satisfied.

(g) Fish and wildlife values: This NWP authorizes activities that restore, establish, or enhance aquatic habitat for many species of fish and wildlife. Activities authorized by this NWP may alter the habitat characteristics of streams and wetlands, favoring certain species at the expense of other species. Tidal open waters, tidal streams, and tidal wetlands may be rehabilitated or enhanced as a result of activities authorized by this NWP. Wetland and riparian vegetation provides food and habitat for many species, including foraging areas, resting areas, corridors for wildlife movement, and nesting and breeding grounds. Open waters provide habitat for fish and other aquatic organisms. Fish and other motile animals will avoid the project site during construction. Woody riparian vegetation shades streams, which reduces water temperature fluctuations and provides habitat for fish and other aquatic animals. Riparian vegetation provides organic matter that is consumed by fish and aquatic invertebrates. Woody riparian vegetation creates habitat diversity in streams when trees and large shrubs fall into the channel, forming snags that provide habitat and shade for fish. The morphology of a stream channel may be altered by activities authorized by this NWP, which can affect fish populations, but such changes should improve the quality of aquatic habitat. The project proponent may remove invasive non-native plant species to improve the quality of fish and wildlife habitat. If the site is to be planted by the project proponent, only native species should be planted. For those activities authorized by this NWP that require pre-construction notification, the district engineer will have an opportunity to review the proposed activity and assess potential impacts on fish and wildlife values to ensure that the authorized activity results in no more than minimal adverse environmental effects.

General condition 2 will reduce the adverse effects to fish and other aquatic species by prohibiting activities that substantially disrupt the movement of indigenous aquatic species, unless the primary purpose of the activity is to impound water. Compliance with general conditions 3 and 5 will ensure that the authorized activity has no more than minimal adverse effects on spawning areas and shellfish beds, respectively. The authorized activity cannot have more than minimal adverse effects on breeding areas for migratory birds, due to the requirements of general condition 4.

For an NWP activity, compliance with the Bald and Golden Eagle Protection Act (16 U.S.C. 668(a)-(d)), the Migratory Bird Treaty Act (16 U.S.C. 703; 16 U.S.C. 712), and the Marine Mammal Protection Act (16 U.S.C. 1361 et seq.) is the responsibility of the project proponent. General condition 19 states that the permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether “incidental take” permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

Consultation pursuant to the essential fish habitat provisions of the Magnuson-Stevens Fishery Conservation and Management Act will occur as necessary for proposed NWP activities that may adversely affect essential fish habitat. Consultation may occur on a case-by-case or programmatic basis. Division and district engineers can impose regional and special conditions to ensure that activities authorized by this NWP will result in no more than minimal adverse effects on essential fish habitat.

(h) Flood hazards: The activities authorized by this NWP are unlikely to adversely affect the flood-holding capacity of 100-year floodplains. Compliance with general condition 9 will also reduce flood hazards. This general condition requires the permittee to maintain, to the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters, except under certain circumstances.

(i) Floodplain values: Activities authorized by this NWP may affect floodplain values by changing plant communities, substrate, and elevations. In most cases, these changes will be beneficial to the aquatic environment. The flood-holding capacity of the floodplain is unlikely to be adversely affected by the activities authorized by this NWP. Some of the activities authorized by this NWP may be designed to increase the frequency of flooding to improve local water quality and benefit certain organisms that depend on flooding patterns as part of their life cycles. The fish and wildlife habitat values of floodplains may be adversely affected by activities authorized by this NWP, by modifying or eliminating areas used for nesting, foraging, resting, and reproduction by certain species of wildlife. The water quality functions of floodplains may also be altered by these activities. Modification of the floodplain may also affect other hydrological processes, such as groundwater recharge.

The stream and wetland restoration and enhancement activities authorized by this NWP will have only minor adverse effects on floodplain values. General condition 23 requires avoidance and minimization of impacts to waters of the United States to the maximum extent practicable at the project site, which will reduce losses of floodplain values. The mitigation requirements of this general condition will ensure that the adverse effects of these activities on floodplain values are no more than minimal. Compliance with general condition 9 will ensure that activities on floodplains will not cause more than minimal adverse effects on floodplain values, especially flood storage and conveyance.

(j) Land use: Activities authorized by this NWP will retain the natural land use of the project area. Conservation easements, deed restrictions, or other agreements to maintain the aquatic habitats on the property, including riparian areas, may be required as conditions added to this NWP by district engineers. Since the primary responsibility for land use decisions is held by state, local, and Tribal governments, the Corps' control and responsibility is limited to significant issues of overriding

national importance, such as navigation and water quality (see 33 CFR 320.4(j)(2)).

(k) Navigation: Activities authorized by this NWP will not adversely affect navigation, because these activities must comply with general condition 1. The pre-construction notification requirements and reported activities will allow district engineers to review proposed activities and assess the potential adverse effects on navigation. If there are navigation concerns, then the district engineer can exercise discretionary authority and require an individual permit for the proposed activity.

(l) Shore erosion and accretion: The activities authorized by this NWP may affect shore erosion and accretion processes, if they are constructed in coastal areas. These activities are likely to have minor adverse effects on shore erosion and accretion. The restoration, enhancement, or establishment of wetlands in coastal areas will stabilize sediments and improve water quality. Some bank protection may be necessary to protect the wetlands that are restored, enhanced, or established along the shore. Controlled releases of sediments from reservoirs can provide sediment to downstream habitats to maintain or restore the structure, functions, and dynamics of those downstream habitats. Sediment in riverine systems should be recognized as a beneficial resource to be managed, rather than as a pollutant (Tullos et al. 2021), because maintaining the continuity of sediment transport in these systems and other downstream systems (e.g., coastal areas) is important for sustaining downstream aquatic habitats.

(m) Recreation: Activities authorized by this NWP may change the recreational uses of the area. Certain recreational activities, such as bird watching, hunting, and fishing may be improved by providing habitat for species that attract bird watchers, hunters, and fishermen. Some aquatic resource restoration, establishment, or enhancement activities may eliminate certain recreational uses of the area, especially of the landowner restricts access to the area. Overall, the activities authorized by this NWP will benefit certain recreational uses of the area.

(n) Water supply and conservation: Activities authorized by this NWP may affect both surface water and groundwater supplies. Surface water supplies may be increased through the construction of impoundments. Groundwater recharge may be improved by wetland restoration, establishment, or enhancement activities. The activities authorized by this NWP are likely to enhance water supplies by improving local water quality. General condition 7 prohibits discharges in the vicinity of public water supply intakes.

(o) Water quality: The activities authorized by this NWP will improve water quality. These activities will increase the quantity and quality of wetlands, riparian areas, and streams in the watershed. The establishment and maintenance of wetland and riparian vegetation will improve water quality because these plants trap sediments, pollutants, and nutrients and transform chemical compounds. Wetland and riparian vegetation also provides habitat for microorganisms that remove nutrients and

pollutants from water. Wetlands, through the accumulation of organic matter, act as sinks for some nutrients and other chemical compounds, reducing the amounts of these substances in the water column. Wetlands and riparian areas also decrease the velocity of flood waters, removing suspended sediments from the water column and reducing turbidity. Riparian vegetation also serves an important role in the water quality of streams by shading the water from the intense heat of the sun.

During construction, small amounts of oil and grease from construction equipment may be discharged into the waterway. Because most of the construction will occur during a relatively short period of time, the frequency and concentration of these discharges are not expected to have more than minimal adverse effects on overall water quality. The activities authorized by this NWP may require Clean Water Act Section 401 water quality certification, because some of those activities may result in discharges into waters of the United States. Most water quality concerns are addressed by the state or tribal certifying authority.

(p) Energy needs: During construction, the activities authorized by this NWP will temporarily increase energy consumption in the area, but adverse effects to energy needs will be negligible.

(q) Safety: The activities authorized by this NWP will be subject to Federal, state, and local safety laws and regulations. Therefore, this NWP will not adversely affect the safety of the project area.

(r) Food and fiber production: Activities authorized by this NWP may adversely affect food and fiber production, especially where wetland restoration, establishment, or enhancement projects are conducted on land used for agricultural production. Stream restoration and enhancement activities may also decrease the amount of farmland, if, for example, a riparian zone is established along a stream that runs through cropland. The loss of farmland is more appropriately addressed through the land use planning and zoning authority held by state and local governments. Some aquatic habitat restoration, establishment, and enhancement activities may increase populations of economically important game species, which provide food for some citizens.

(s) Mineral needs: Activities authorized by this NWP may increase demand for aggregates and stone, which may be used to construct the aquatic resource restoration, establishment, or enhancement project. The activities authorized by this NWP will have negligible adverse effects on the demand for other building materials, such as steel, aluminum, and copper, which are made from mineral ores.

(t) Considerations of property ownership: The NWP complies with 33 CFR 320.4(g), which states that an inherent aspect of property ownership is a right to reasonable private use. The NWP provides expedited DA authorization for aquatic resource restoration, establishment, and enhancement activities, provided the activity

complies with the terms and conditions of the NWP and results in no more than minimal adverse environmental effects.

6.2 Additional Public Interest Review Factors (33 CFR 320.4(a)(2))

6.2.1 Relative extent of the public and private need for the proposed structure or work

This NWP authorizes activities in all waters of the United States, including discharges of dredged or fill material, for aquatic resource restoration, establishment, and enhancement activities that have no more than minimal individual and cumulative adverse environmental effects. These activities satisfy public and private needs for aquatic resource functions, services, and values. The need for this NWP is based upon the number of these activities that occur annually with no more than minimal individual and cumulative adverse environmental effects.

6.2.2 Where there are unresolved conflicts as to resource use, the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work

Most situations in which there are unresolved conflicts concerning resource use arise when environmentally sensitive areas are involved (e.g., special aquatic sites, including wetlands) or where there are competing uses of a resource. The nature and scope of the activity, when planned and constructed in accordance with the terms and conditions of this NWP, reduce the likelihood of such conflict. In the event that there is a conflict, the NWP contains provisions that are capable of resolving the matter (see section 1.2 of this document).

General condition 23 requires permittees to avoid and minimize adverse effects to waters of the United States to the maximum extent practicable on the project site. Consideration of off-site alternative locations is not required for activities that are authorized by general permits. General permits authorize activities that have no more than minimal individual and cumulative adverse effects on the environment and the overall public interest. The district engineer will exercise discretionary authority and require an individual permit if the proposed activity will result in more than minimal adverse environmental effects on the project site. The consideration of off-site alternatives can be required during the individual permit process.

6.2.3 The extent and permanence of the beneficial and/or detrimental effects which the proposed structure or work is likely to have on the public and private uses to which the area is suited

The nature and scope of the activities authorized by the NWP will most likely restrict the extent of the beneficial and detrimental effects to the area immediately

surrounding the aquatic resource restoration, establishment, or enhancement activity. Activities authorized by this NWP will have no more than minimal individual and cumulative adverse environmental effects.

The terms, conditions, and provisions of the NWP were developed to ensure that individual and cumulative adverse environmental effects are no more than minimal. Specifically, NWPs do not obviate the need for the permittee to obtain other Federal, state, or local authorizations required by law. The NWPs do not grant any property rights or exclusive privileges (see 33 CFR 330.4(b) for further information). Additional conditions, limitations, restrictions, and provisions for discretionary authority, as well as the ability to add activity-specific or regional conditions to this NWP, will provide further safeguards to the aquatic environment and the overall public interest. There are also provisions to allow suspension, modification, or revocation of the NWP.

7.0 Determinations

7.1 Finding of No Significant Impact

Based on the information in this document, the Corps has determined that the discharges of dredged or fill material into waters of the United States and the structures and work in navigable waters of the United States authorized by the issuance of this NWP will not have a significant impact on the quality of the human environment. During the period (up to five years) this NWP is anticipated to be in effect, the activities authorized by this NWP will result in only minor changes to the affected environment described in section 4.0 of this environmental assessment. Therefore, the preparation of an environmental impact statement is not required for the issuance of this NWP.

7.2 Public Interest Determination

In accordance with the requirements of 33 CFR 320.4, the Corps has determined, based on the information in this document, that the issuance of this NWP to authorize discharges of dredged or fill material into waters of the United States and structures and work in navigable waters of the United States for aquatic habitat restoration, enhancement, and establishment activities that result in net gains in aquatic resource functions and services is not contrary to the public interest.

7.3 Section 404(b)(1) Guidelines Compliance

In Appendix A of this document, this NWP has been evaluated for compliance with the 404(b)(1) Guidelines, including Subparts C through G. Based on the information in this document, the Corps has determined that the discharges authorized by this NWP comply with the 404(b)(1) Guidelines, with the inclusion of appropriate and practicable conditions, including mitigation measures required by the NWP general conditions, that minimize adverse effects on affected aquatic ecosystems. The discharges of dredged or fill material into waters of the United States authorized by this NWP will result in only minor changes to the current environmental setting described in section 4.0 of this document, and will have no more than minimal individual and cumulative adverse effects on the aquatic environment during the period (up to five years) this NWP is anticipated to be in effect.

7.4 Section 176(c) of the Clean Air Act General Conformity Rule Review

This issuance of this NWP has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities authorized by this permit will not exceed *de minimis* levels of direct emissions of a criteria pollutant or its precursors and are exempted by 40 CFR 93.153. Any later indirect emissions are generally not within the Corps continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons, a conformity determination is not required for this NWP.

FOR THE COMMANDER

Dated: DEC 10 2021

William H. Graham, Jr.
Major General, U.S. Army
Deputy Commanding General for
Civil and Emergency Operations

Appendix A – Clean Water Act Section 404(b)(1) Guidelines Analysis

The 404(b)(1) Guidelines compliance criteria for general permits are provided at 40 CFR 230.7. This 404(b)(1) Guidelines compliance analysis includes analyses of the direct, secondary, and cumulative effects on the aquatic environment caused by discharges of dredged or fill material into waters of the United States authorized by this NWP.

For discharges of dredged or fill material into waters of the United States authorized by general permits, the analysis and documentation required by the 404(b)(1) Guidelines are to be performed at the time of issuance of a general permit, such as an NWP. The analysis and documentation will not be repeated when discharges of dredged or fill material into waters of the United States are conducted under the NWP. The 404(b)(1) Guidelines do not require reporting or formal written communication at the time individual discharges of dredged or fill material into waters of the United States are conducted under an NWP, but a particular NWP may require appropriate reporting. [40 CFR 230.6(d) and 230.7(b)]

A.1 Evaluation Process (40 CFR 230.7(b))

A.1.1 Alternatives (40 CFR 230.10(a))

General condition 23 requires permittees to avoid and minimize discharges of dredged or fill material into waters of the United States to the maximum extent practicable on the project site. The consideration of off-site alternatives is not directly applicable to general permits (see 40 CFR 230.7(b)(1)).

A.1.2 Prohibitions (40 CFR 230.10(b))

This NWP authorizes discharges of dredged or fill material into waters of the United States, which require water quality certification. Water quality certification requirements will be met in accordance with the procedures at 33 CFR 330.4(c) and 40 CFR part 121.

No toxic discharges will be authorized by this NWP. General condition 6 states that the material must be free from toxic pollutants in toxic amounts.

This NWP does not authorize discharges of dredged or fill material into waters of the United States that are likely to jeopardize the continued existence of any listed threatened or endangered species or result in the destruction or adverse modification of critical habitat. Reviews of preconstruction notifications and reports, regional conditions, and local operating procedures for endangered species will ensure compliance with the Endangered Species Act. Refer to general condition 18 and to 33 CFR 330.4(f) for information and procedures.

This NWP will not authorize discharges of dredged or fill material into waters of the United States that violate any requirement to protect any marine sanctuary. Refer to section A.2.3(j)(1) of this Appendix for further information.

A.1.3 Findings of Significant Degradation (40 CFR 230.10(c))

Potential impact analysis (Subparts C through F): The potential impact analysis specified in Subparts C through F is discussed in section A.2.3 of this Appendix. Mitigation required by the district engineer will ensure that the adverse effects on the aquatic environment caused by discharges of dredged or fill material into waters of the United States are no more than minimal.

Evaluation and testing (Subpart G): Because the terms and conditions of the NWP specify the types of discharges that are authorized, as well as those that are prohibited, individual evaluation and testing for the presence of contaminants will normally not be required. If a situation warrants, provisions of the NWP allow division or district engineers to further specify authorized or prohibited discharges and/or require testing. General condition 6 requires that materials used for construction be free from toxic pollutants in toxic amounts.

Based upon Subparts B and G, after consideration of Subparts C through F, the discharges of dredged or fill material into waters of the United States authorized by this NWP will not cause or contribute to significant degradation of waters of the United States.

A.1.4 Factual determinations (40 CFR 230.11)

The factual determinations required in 40 CFR 230.11 are discussed in section A.2.3 of this Appendix.

A.1.5 Appropriate and practicable steps to minimize potential adverse impacts (40 CFR 230.10(d))

As demonstrated by the information in this document, as well as the terms, conditions, and provisions of this NWP, actions to minimize adverse effects (Subpart H) have been thoroughly considered and incorporated into the NWP. General condition 23 requires permittees to avoid and minimize discharges of dredged or fill material into waters of the United States to the maximum extent practicable on the project site. Since the discharges of dredged or fill material into waters of the United States authorized by this NWP must result in net increases in aquatic resource functions and services, compensatory mitigation is not necessary for these activities.

A.2 Evaluation Process (40 CFR 230.7(b))

A.2.1 Description of permitted activities (40 CFR 230.7(b)(2))

As indicated by the text of this NWP in section 1.0 of this document, and the discussion of potential impacts in section 5.0 of this document, the activities authorized by this NWP are sufficiently similar in nature and environmental impact to warrant authorization under a single general permit. Specifically, the purpose of the NWP is to authorize discharges of dredged or fill material for aquatic resource restoration, establishment, and enhancement activities. The nature and scope of the impacts are controlled by the terms and conditions of the NWP.

The activities authorized by this NWP are sufficiently similar in nature and environmental impact to warrant authorization by a general permit. The terms of the NWP authorize a specific category of activity (i.e., discharges of dredged or fill material for aquatic resource restoration, establishment, and enhancement activities) in a specific category of waters (i.e., waters of the United States). The restrictions imposed by the terms and conditions of this NWP will result in the authorization of activities that have similar impacts on the aquatic environment, namely aquatic resource restoration, establishment, and enhancement activities.

If a situation arises in which the activity requires further review, or is more appropriately reviewed under the individual permit process, provisions of the NWPs allow division and/or district engineers to take such action.

A.2.2 Cumulative effects (40 CFR 230.7(b)(3))

The 404(b)(1) Guidelines at 40 CFR 230.11(a) define cumulative effects as "…the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material." For the issuance of general permits, such as this NWP, the 404(b)(1) Guidelines require the permitting authority to "set forth in writing an evaluation of the potential individual and cumulative impacts of the categories of activities to be regulated under the general permit." [40 CFR 230.7(b)] More specifically, the 404(b)(1) Guidelines cumulative effects assessment for the issuance or reissuance of a general permit is to include an evaluation of "the number of individual discharge activities likely to be regulated under a general permit until its expiration, including repetitions of individual discharge activities at a single location." [40 CFR 230.7(b)(3)] If a situation arises in which cumulative effects are likely to be more than minimal and the proposed discharge of dredged or fill material into waters of the United States requires further review, or is more appropriately reviewed under the individual permit process, provisions of the NWPs allow division and/or district engineers to take such action.

Based on reported use of this NWP during the period of March 19, 2017, to March 18, 2019, the Corps estimates that this NWP will be used approximately 1,350 times

per year on a national basis, resulting in impacts to approximately 3,500 acres of waters of the United States, including jurisdictional wetlands. The reported use includes pre-construction notifications submitted to Corps districts, as required by the terms and conditions of the NWP. The reported use also includes the reports required to be submitted by certain entities when pre-construction notification is not required. Therefore, all activities authorized by this NWP are reported to the Corps districts through either pre-construction notifications or reports for activities that do not require pre-construction notification.

Because the activities authorized by this NWP are required to result in net increases in aquatic resource functions and services, compensatory mitigation will not be required for authorized activities (see the text of the NWP). The verified activities that do not require compensatory mitigation will have been determined by Corps district engineers to result in no more than minimal individual and cumulative adverse effects on the aquatic environment without compensatory mitigation. During the period of 2022-2026, the Corps expects little change to the percentage of NWP 27 verifications requiring compensatory mitigation, because there have been no substantial changes in the mitigation general condition or the NWP regulations for determining when compensatory mitigation is to be required for NWP activities. The demand for these types of activities could increase or decrease during the period this NWP is in effect.

Based on these annual estimates, the Corps estimates that approximately 5,400 activities could be authorized until this NWP expires, resulting in impacts to approximately 14,000 acres of waters of the United States, including jurisdictional wetlands. Because of the requirements of this NWP, those impacts will result in net gains in aquatic resource functions and services as the aquatic habitat restoration, enhancement, and establishment activities undergo ecosystem development processes after the permitted activities occur. The authorized impacts and their temporary adverse effects are expected to result in only minor changes to the affected environment (i.e., the current environmental setting), which is described in section 4.0 of this document.

As discussed below, restoration of wetlands and streams can increase the ecological functions and services provided by those aquatic resources. However, restoration typically cannot return a degraded wetland or stream to a prior historic condition because of changes in environmental conditions at various scales over time (e.g., Moreno-Mateos et al. 2016; Higgs et al. 2014, Jackson and Hobbs 2009, Zedler and Kercher 2005; Palmer et al. 2014), and many of those environmental changes are beyond the control of the mitigation provider. Therefore, it is important to establish realistic goals and objectives for wetland and stream restoration projects (e.g., Hobbs 2007, Ehrenfeld 2000).

Rey Banayas et al. (2009) concluded that restoration activities can increase biodiversity and the level of ecosystem services provided. However, such increases

do not approach the amounts of biodiversity and ecosystem services performed by undisturbed reference sites. The ability to restore ecosystems to provide levels of ecological functions and services similar to historic conditions or reference standard conditions is affected by human impacts (e.g., urbanization, agriculture) to watersheds or other landscape units and to the processes that sustain those ecosystems (Zedler et al. 2012, Hobbs et al. 2014). Those changes need to be taken into account when establishing goals and objectives for restoration projects (Zedler et al. 2012), including compensatory mitigation projects. The ability to reverse ecosystem degradation to restore ecological functions and services is dependent on the degree of degradation of that ecosystem and the surrounding landscape, and whether that degradation is reversible (Hobbs et al. 2014). Most studies of the ecological performance of compensatory mitigation projects have focused solely on the ecological attributes of the compensatory mitigation projects, and few studies have also evaluated the aquatic resources impacted by permitted activities (Kettlewell et al. 2008), so it is difficult to assess whether compensatory mitigation projects have fully or partially offset the lost functions provided by the aquatic resources that are impacted by permitted activities.

Wetland restoration, enhancement, and establishment projects can provide wetland functions, as long as the wetland compensatory mitigation project is placed in an appropriate landscape position, has appropriate hydrology for the desired wetland type, and the watershed condition will support the desired wetland type (NRC 2001). Site selection is critical to find a site with appropriate hydrologic conditions and soils to support a replacement wetland that will provide the desired wetland functions and services (Mitsch and Gosselink 2015). In a meta-analysis of 70 wetland restoration studies, Meli et al. (2014) concluded that wetland restoration activities increase biodiversity and ecosystem service provision in degraded wetlands, but the degree of recovery is context dependent. They identified the following factors as influencing wetland restoration outcomes: wetland type, the main cause of degradation, the type of restoration action conducted, and the assessment protocol used to evaluate restoration outcomes. Moreno-Mateos et al. (2015) reviewed the recovery trajectories of 628 wetland restoration and creation projects and concluded that restoring or establishing wetland hydrology is of primary importance, and is more likely to be ecologically successful if wetland hydrology can be achieved by re-establishing water flows instead of extensive earthwork. In addition, they determined that, with respect to the plant community, natural revegetation is sufficient for recovery and development of most wetland types after wetland hydrology is restored or established.

The ecological performance of wetland restoration, enhancement, and establishment is dependent on practitioner’s understanding of wetland functions, allowing sufficient time for wetland functions to develop, and allowing natural processes of ecosystem development (self-design or self-organization) to take place, instead of over-designing and over-engineering the replacement wetland (Mitsch and Gosselink 2015). The likelihood of ecological success in wetland

restoration varies by wetland type, with the higher rates of success for coastal, estuarine, and freshwater marshes, and lower rates of success for forested wetlands and seagrass beds (Lewis et al. 1995). In its review, the NRC (2001) concluded that some wetland types can be restored or established (e.g., non-tidal emergent wetlands, some forested and scrub-shrub wetlands, seagrasses, and coastal marshes), while other wetland types (e.g., vernal pools, bogs, and fens) are difficult to restore and should be avoided where possible. Restored riverine and tidal wetlands achieved wetland structure and function more rapidly than depressional wetlands (Moreno-Mateos et al. 2012). Because of its greater potential to provide wetland functions, restoration is the preferred compensatory mitigation mechanism (33 CFR 332.3(a)(2)). Bogs, fens, and springs are considered to be difficult-to-replace resources and compensatory mitigation should be provided through in-kind rehabilitation, enhancement, or preservation of these wetlands types (33 CFR 332.3(e)(3)).

In its review of outcomes of wetland compensatory mitigation activities, the NRC (2001) stated that wetland functions can be replaced by wetland restoration and establishment activities. They discussed five categories of wetland functions: hydrology, water quality, maintenance of plant communities, maintenance of animal communities, and soil functions. It is difficult to restore or establish natural wetland hydrology, and water quality functions are likely to be different than the functions provided at wetland impact sites (NRC 2001). Reestablishing or establishing the desired plant community may be difficult because of invasive species colonizing the mitigation project site (NRC 2001). The committee also found that establishing and maintaining animal communities depends on the surrounding landscape. Soil functions can take a substantial amount of time to develop, because they are dependent on soil organic matter and other soil properties (NRC 2001). The NRC (2001) concluded that the ecological performance in replacing wetland functions depends on the particular function of interest, the restoration or establishment techniques used, and the extent of degradation of the compensatory mitigation project site and its watershed.

The ecological performance of wetland restoration and enhancement activities is affected by the amount of changes to hydrology and inputs of pollutants, nutrients, and sediments within the watershed or contributing drainage area (Wright et al. 2006). Wetland restoration is becoming more effective at replacing or improving wetland functions, especially in cases where monitoring and adaptive management are used to correct deficiencies in these efforts (Zedler and Kercher 2005). Wetland functions take time to develop after the restoration or enhancement activity takes place (Mitsch and Gosselink 2015, Gebo and Brooks 2012), and different functions develop at different rates (Moreno-Mateos 2012, NRC 2001). Irreversible changes to landscapes, especially those that affect hydrology within contributing drainage areas or watersheds, cause wetland degradation and impede the ecological performance of wetland restoration efforts (Zedler and Kercher 2005). Gebo and Brooks (2012) evaluated wetland compensatory mitigation projects in Pennsylvania

and compared them to reference standards (i.e., the highest functioning wetlands in the study area) and natural reference wetlands that showed the range of variation due to human disturbances. They concluded that most of the wetland mitigation sites were functioning at levels within with the range of functionality of the reference wetlands in the region, and therefore were functioning at levels similar to some naturally occurring wetlands. The ecological performance of mitigation wetlands is affected by on the landscape context (e.g., urbanization) of the replacement wetland and varies with wetland type (e.g., riverine or depressional) (Gebo and Brooks 2012). Moreno-Mateos et al. (2012) conducted a meta-analysis of wetland restoration studies and concluded that while wetland structure and function can be restored to a large degree, the ecological performance of wetland restoration projects is dependent on wetland size and local environmental setting. They found that wetland restoration projects that are larger in size and in less disturbed landscape settings achieve structure and function more quickly.

Under the Corps' regulations, streams considered to be are difficult-to-replace resources and compensatory mitigation should be provided through stream rehabilitation, enhancement, and preservation since those techniques are most likely to be ecologically successful (see 33 CFR 332.3(e)(3)). For the purposes of this section, the term "stream restoration" is used to cover river and stream rehabilitation and enhancement activities. Restoration can be done on large rivers and small streams, and sometimes entire stream networks (Wohl et al. 2015), in a variety of watershed land use settings, including urban and agricultural areas.

River and stream restoration activities can improve the functions performed by these aquatic ecosystems, and the ecosystem services they provide (Wohl et al. 2015, Beechie et al. 2010). Because of changes in land use and other changes in the watershed that have occurred over time, stream restoration can improve stream functions but cannot return a stream to a historic state (Wohl et al. 2015, Roni et al. 2008). Improvements in ecological performance of stream restoration projects is dependent on the restoration method and how outcomes are assessed (Palmer et al. 2014). The ability to restore the ecological functions of streams is dependent on the condition of the watershed draining to the stream being restored because human land uses and other activities in the watershed affect how that stream functions (Palmer et al. 2014). Ecologically successful stream restoration activities depend on addressing the factors that most strongly affect stream functions, such as water quality, water flow, and riparian area quality, rather than focusing solely on restoring the physical habitat of streams (Palmer et al. 2010, Roni et al. 2008), especially the stream channel.

To be effective, stream restoration activities need to address the causes of stream degradation, which are often within the watershed and outside of the stream channel (Palmer et al. 2014). Actions that focus on restoring processes and connectivity are more likely to be successful that channel reconfiguration efforts (Hawley 2018). Stream rehabilitation and enhancement projects, including the

restoration and preservation of riparian areas, provide riverine functions (e.g., Allan and Castillo (2007) for rivers and streams, NRC (2002) for riparian areas). Ecologically effective stream restoration can be conducted by enhancing riparian areas, removing dams, reforestation, and implementing watershed best management practices that reduce storm water and agricultural runoff to streams (Palmer et al. 2014). Process-based stream restoration is intended to address the causes of stream degradation, and should be conducted at the appropriate scale for the cause of stream degradation, such as the watershed or stream reach (Beechie et al. 2010). Process-based stream restoration has substantial potential to re-establish the physical, chemical, and biological processes that sustain riverine ecosystems, including their floodplains (Beechie et al. 2010). Process-based stream restoration can also reduce long-term restoration costs (Beechie et al. 2013, Hawley 2018).

Restoration of incised streams can be accomplished allowing beavers to construct dams in these streams, or by placing structures in the stream channel that mimic the effects that beaver dams have on these steams (DeVries et al. 2012). Examples of stream restoration and enhancement techniques include: dam removal and modification, culvert replacement or modification, fish passage structures when connectivity cannot be restored or improved by dam removal or culvert replacement, levee removal or setbacks, reconnecting floodplains and other riparian habitats, road removal, road modifications, reducing sediment and pollution inputs to streams, replacing impervious surfaces with pervious surfaces, restoring adequate in-stream or base flows, restoring riparian areas, fencing streams and their riparian areas to exclude livestock, improving in-stream habitat, recreating meanders, and replacing hard bank stabilization structures with bioengineering bank stabilization measures (Roni et al. 2013). Miller and Kochel (2010) recommend that stream restoration projects allow the stream channel to self-adjust in response to changing hydrologic and sediment regimes in the watershed, and include other restoration actions such as re-establishing riparian areas next to the stream channel and excluding livestock from the riparian area and stream channel. Large and medium sized rivers can be restored through various approaches, including levee setbacks, levee removal, or creating openings in levees, to restore or improve connectivity between the river and the floodplain, as well as other ecological and geomorphic processes (Wohl et al. 2015). Dam removal, as well as changes in dam operations that provide environmentally-beneficial flows of water and sediment, can also restore functions of rivers and larger streams (Wohl et al. 2015).

Hydrologic restoration can be more effective than in-stream habitat restoration projects (Hawley 2018) because they can help address alterations in watershed hydrology through land use and other watershed changes. Examples of hydrologic restoration approaches include reforestation, floodplain restoration, bankfull wetlands, detention basins, beaver reintroduction, and placement of large woody debris into the stream channel. Restoration actions outside of the stream channel,

such as constructed wetlands, storm water management ponds, and revegetating riparian areas, can result in significant improvements in the biodiversity, community structure, and nutrient cycling processes of downstream waters (Smucker and Detenbeck 2014). Non-structural and structural techniques can be used to rehabilitate and enhance streams, and restore riparian areas (NRC 1992). Examples of non-structural stream restoration practices include removing disturbances to allow recovery of stream and riparian area structure and function, restoring natural stream flows by reducing or eliminating activities that have altered stream flows, preserving or restoring floodplains, and restoring and protecting riparian areas, including fencing to exclude livestock and people that can degrade riparian areas (NRC 1992).

Form based restoration efforts, such as channel reconfiguration, can cause substantial adverse impacts to riverine systems through earthmoving activities (which can cause substantial increases in sediment loads) and the removal of riparian trees and other vegetation, with little demonstrable improvements in stream functions (Palmer et al. 2014). In-stream habitat enhancement activities, such as channel reconfiguration and adding in-stream structures, have resulted in limited effectiveness in improving biodiversity in streams (Palmer et al. 2010). In an evaluation of 644 stream restoration projects, Palmer et al. (2014) concluded that stream channel reconfiguration does not promote ecological recovery of degraded streams, but actions taken within the watershed and in riparian areas to restore hydrological processes and reduce pollutant inputs to streams can improve stream functions and ecological integrity. Stream restoration activities should also include consideration of social factors, especially the people that live in the floodplain or near the river or stream (Wohl et al. 2015). These social factors may also impose constraints on what restoration actions can be taken.

Seagrass beds are dynamic ecosystems that can persist for long periods of time or change from season to season (Fonseca et al. 1998). Seagrass beds can be restored, but these restoration activities generally have lower rates of ecological success than the restoration of other wetland types, such as estuarine and freshwater marshes (Lewis et al. 1995). The restoration and natural recovery of seagrasses requires consideration of addressing impediments that occur at various scales, including larger scale problems such as water quality and land use practices (Orth et al. 2006). The ecological success of seagrass restoration can be influenced by the dynamics of coastal environments and various stressors (e.g., reduced water quality/eutrophication, construction activities, dredging, other direct impact, natural disturbances) that affect seagrasses (van Katwijk et al. 2016). Realistic expectations should be established for seagrass restoration activities because of our limited understanding of seagrasses and the challenges of controlling conditions in open coastal waters (Fonseca 2011).

Site selection is critical for successful restoration of seagrasses (Fonseca 2011, Fonseca et al. 1998). Ecologically successful seagrass restoration is dependent on

finding sites where seagrass beds recently existed (Fonseca et al. 1998). The ecological outcomes of seagrass restoration activities is also affected by the size of the restoration project, with larger restoration efforts more likely to be ecologically successful and sustainable because larger projects can produce positive feedbacks that facilitate the establishment and persistence of seagrasses (van Katwijk et al. 2016). At some proposed seagrass restoration sites, it may be infeasible to change the site from a stable unvegetated state to a stable vegetated state through seagrass planting efforts (Fonseca 2011). Small scale restoration activities may be overwhelmed by natural processes that prevent seagrasses from becoming reestablished (Fonseca 2011). Another impediment to ecologically successful seagrass restoration is bioturbation, which can impede natural seagrass recruitment (Fonseca 2011) or disturb plantings. Bioturbation can be caused by animals such as shrimp, crabs, ducks, fish, and urchins, and result in stable, unvegetated benthic habitats (Fonseca 2011).

Fonseca (2011) recommends locating seagrass restoration activities in areas with water depths similar to nearby natural seagrass beds, at a sufficient size to achieve restoration goals, with characteristics that are similar to those at other ecologically successful seagrass restoration projects, and where anthropogenic disturbances can be reduced or removed. Restoration of submersed aquatic vegetation beds requires taking actions to reduce inputs of sediment, nutrients, and organic matter into estuarine waters and avoiding physical damage from boating activities and fishing gear (Waycott et al. 2009). Controlling these stressors has been more effective at restoring seagrass beds than seagrass transplantation efforts (Waycott et al. 2009). Potential restoration sites need to have sufficient light, moderate nutrient loads, suitable salinity and water temperatures, available seeds and other propagules, and an absence of mechanical disturbances that will destroy or degrade plants (Fonseca et al. 1998). Seagrass recovery is affected by numerous factors, such as the characteristics of the target seagrass species, disturbance intensity, disturbance characteristic(s), environmental conditions, disturbance history, the condition of existing seagrass beds, population structure, reproductive capacity, timing, and feedbacks between biotic and abiotic components at the site (O'Brien et al. 2018).

As discussed in section 4.0 of this document, the status of waters and wetlands in the United States as reported under the provisions of Sections 303(d) and 305(b) of the Clean Water Act exhibits considerable variation, ranging from "good" to "threatened" to "impaired." The activities authorized by this NWP are expected to improve the status of waters and wetlands in the United States because the authorized activities must result in net increases in aquatic resource functions and services. One of the criteria that district engineers consider when they evaluate proposed NWP activities is the "degree or magnitude to which the aquatic resources perform these functions" (see paragraph 2 of Section D, "District Engineer's Decision." The quality of the affected waters is considered by district engineers when making decisions on whether to require compensatory mitigation for proposed

NWP activities to ensure no more than minimal adverse environmental effects (see 33 CFR 330.1(e)(3)), and amount of compensatory mitigation required (see 33 CFR 332.3(f)). The quality of the affected waters also factors into the determination of whether the required compensatory mitigation offsets the losses of aquatic functions caused by the NWP activity.

The compensatory mitigation required by district engineers in accordance with general condition 23 and through activity-specific conditions added to the NWP authorization is expected to provide aquatic resource functions and services to offset some or all of the losses of aquatic resource functions caused by the activities authorized by this NWP, and reduce the incremental contribution of those activities to the cumulative effects on the Nation's wetlands, streams, and other aquatic resources. The required compensatory mitigation must be conducted in accordance with the applicable provisions of 33 CFR part 332, which requires development and implementation of approved mitigation plans, as well as monitoring to assess ecological success in accordance with ecological performance standards established for the compensatory mitigation project. The district engineer will evaluate monitoring reports to determine if the compensatory mitigation project has fulfilled its objectives, is ecological successful, and offsets the permitted impacts. If the monitoring efforts indicate that the compensatory mitigation project is failing to meet its objectives, the district engineer may require additional measures, such as adaptive management or alternative compensatory mitigation, to address the compensatory mitigation project's deficiencies. [33 CFR 332.7(c)]

According to Dahl (2011), during the period of 2004 to 2009 approximately 489,620 acres of former upland were converted to wetlands as a result of wetland reestablishment and establishment activities. Efforts to reestablish or establish wetlands have increased wetland acreage in the United States.

The individual and cumulative adverse effects on the aquatic environment resulting from the discharges of dredged or fill material into waters of the United States authorized by this NWP, including compliance with all applicable NWP general conditions as well as regional conditions imposed by division engineers and activity-specific conditions imposed by district engineers, are expected to be no more than minimal. The Corps expects that the convenience and time savings associated with the use of this NWP will encourage applicants to design their projects within the scope of the NWP, including its limits, rather than request individual permits for projects that could result in greater adverse impacts to the aquatic environment. Division and district engineers will restrict or prohibit this NWP on a regional or case-specific basis if they determine that these activities will result in more than minimal individual and cumulative adverse effects on the aquatic environment.

A.2.3 Section 404(b)(1) Guidelines Impact Analysis, Subparts C through F

(a) Substrate: Discharges of dredged or fill material into waters of the United States

may result in minor changes to the substrate of those waters, since the NWP authorizes activities that restore, establish, or enhance aquatic habitats. There should be beneficial changes to the physical, chemical, and biological characteristics of the substrate. The original substrate may be removed and replaced with material that will improve the growth and reproduction of vegetation or improve the aquatic habitat characteristics of the area. Temporary fills may be placed upon the substrate, but must be removed upon completion of the activity (see general condition 13). Some erosion may occur during construction, but general condition 12 requires the use of appropriate measures to control soil erosion and sediment.

(b) Suspended particulates/turbidity: Depending on the method of construction, soil erosion and sediment control measures, equipment, composition of the bottom substrate, and wind and current conditions during construction, dredged or fill material placed in open waters is likely to temporarily increase water turbidity. Particulates may be resuspended in the water column during removal of temporary fills. The turbidity plume will normally be limited to the immediate vicinity of the disturbance and should dissipate shortly after each phase of the construction activity. General condition 12 requires the permittee to stabilize exposed soils and other fills, which will reduce turbidity. In many localities, sediment and erosion control plans are required to minimize the entry of soil into the aquatic environment. NWP activities cannot create turbidity plumes that smother important spawning areas downstream (see general condition 3).

(c) Water: The discharges of dredged or fill material into waters of the United States authorized by this NWP may affect some characteristics of water, such as water clarity, chemical content, dissolved gas concentrations, pH, and temperature, but these effects are likely to be positive, with benefits to the local aquatic environment. Those effects are likely to be temporary as the restored, enhanced, or established aquatic habitat undergoes ecosystem development processes. The chemical and physical characteristics of the waterbody may be changed by aquatic habitat restoration, establishment, or enhancement activities, but such changes should be improvements or negligible adverse effects. Changes in water quality can affect the species and quantities of organisms inhabiting the aquatic area. Water quality certification is required for discharges into waters of the United States authorized by this NWP, which will ensure that those activities do not violate applicable water quality requirements. The establishment of riparian vegetation will help improve or maintain water quality, by removing nutrients, moderating water temperature changes, and trapping sediments.

(d) Current patterns and water circulation: Discharges of dredged or fill material into waters of the United States authorized by this NWP may adversely affect the movement of water in the aquatic environment. Since certain activities authorized by this NWP require pre-construction notification and others require reporting, the district engineer will have an opportunity to review the proposed activity and assess

potential impacts on current patterns and water circulation. The installation of water control structures and habitat features may affect current patterns and water circulation, but the adverse effects are likely to be minor. General condition 9 requires the authorized activity to be designed to withstand expected high flows and to maintain the course, condition, capacity, and location of open waters to the maximum extent practicable.

(e) Normal water level fluctuations: The discharges of dredged or fill material into waters of the United States authorized by this NWP are likely to have negligible adverse effects on normal water level fluctuations. Some discharges of dredged or fill material into waters of the United States may involve the construction of water control structures, which will likely alter the water level fluctuations of non-tidal waters. This NWP does not authorize the conversion of tidal waters to other aquatic uses, which will prevent adverse effects to tidal fluctuations in the area. General condition 9 requires the permittee to maintain the pre-construction course, condition, capacity, and location of open waters, to the maximum extent practicable.

(f) Salinity gradients: The discharges of dredged or fill material into waters of the United States activities authorized by this NWP are unlikely to adversely affect salinity gradients, because the NWP authorizes the restoration, establishment, or enhancement of aquatic resources, but does not authorize the relocation or conversion of tidal waters. The discharges of dredged or fill material into waters of the United States authorized by this NWP are not likely to cause more than minimal changes to salinity gradients.

(g) Threatened and endangered species: No discharge of dredged or fill material into waters of the United States is authorized by any NWP if that discharge is likely to jeopardize the continued existence of a threatened or endangered species as listed or proposed for listing under the Endangered Species Act of 1973, as amended, or to destroy or adversely modify the critical habitat of such species. See 33 CFR 330.4(f) and paragraph (a) of general condition 18. For NWP activities, compliance with the Endangered Species Act is discussed in more detail in Appendix B of this document.

(h) Fish, crustaceans, molluscs, and other aquatic organisms in the food web. The discharges of dredged or fill material into waters of the United States authorized by this NWP are likely to benefit most species of fish, crustaceans, molluscs, and other aquatic organisms in the food web. Some species may be adversely affected by changes in habitat characteristics that may occur as a result of discharges of dredged or fill material into waters of the United States authorized by this NWP. These discharges of dredged or fill material into waters of the United States are expected to increase or improve the habitat for these species, which will increase populations of those organisms. Certain activities require pre-construction notification and others require reporting. Therefore, the district engineer will review the proposed discharge of dredged or fill material into waters of the United States

and assess potential impacts on fish and other aquatic organisms and ensure that those impacts are no more than minimal. Fish and other motile animals are likely to avoid the project site during construction. Sessile or slow-moving animals in the path of discharges, equipment, and building materials may be harmed or destroyed. Some aquatic animals may be smothered by the placement of fill material. Motile animals are likely to return to those areas that are temporarily impacted by the activity and restored or allowed to revert back to pre-construction conditions. Benthic and sessile animals are expected to recolonize sites after construction. Discharges of dredged or fill material into waters of the United States that alter the riparian zone, especially floodplains, may adversely affect populations of fish and other aquatic animals, by altering stream flow, flooding patterns, and surface and groundwater hydrology. The discharges of dredged or fill material into waters of the United States authorized by this NWP may favor certain riparian species at the detriment of other riparian species. Some species of fish spawn on floodplains, which could be prevented if the authorized activity causes substantial adverse changes to floodplain habitat. The removal of invasive non-native plant species may benefit aquatic organisms in the food web.

Division and district engineers can place conditions on this NWP to restrict or prohibit discharges during important stages of the life cycles of certain aquatic organisms. Such time of year restrictions can prevent adverse effects to these aquatic organisms during reproduction and development periods. General conditions 3 and 5 address protection of spawning areas and shellfish beds, respectively. General condition 3 states that activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. In addition, general condition 3 also prohibits activities that result in the physical destruction of important spawning areas. General condition 5 prohibits activities in areas of concentrated shellfish populations. General condition 9 requires the maintenance of pre-construction course, condition, capacity, and location of open waters to the maximum extent practicable, which will help minimize adverse impacts to fish, shellfish, and other aquatic organisms in the food web.

(i) Other wildlife: Discharges of dredged or fill material into waters of the United States authorized by this NWP are likely to benefit other wildlife associated with aquatic ecosystems, such as resident and transient mammals, birds, reptiles, and amphibians, through the restoration, establishment, or enhancement of aquatic habitat, including breeding and nesting areas, escape cover, travel corridors, and preferred food sources. However, certain species may benefit from these changes while other species may be harmed or displaced by the destruction of specialized habitat. This NWP does not authorize discharges of dredged or fill material into waters of the United States that are likely to jeopardize the continued existence of federally-listed endangered and threatened species (or species proposed for listing) or result in the destruction or adverse modification of designated critical habitat (or critical habitat proposed for such designation). General condition 4 states that activities in breeding areas for migratory birds must be avoided to the maximum

extent practicable.

(j) Special aquatic sites: The potential impacts to specific special aquatic sites are discussed below:

(1) Sanctuaries and refuges: The discharges of dredged or fill material into waters of the United States authorized by this NWP may have adverse effects on waters of the United States within sanctuaries or refuges designated by federal or state laws or local ordinances, but those adverse effects are likely to be temporary as the restored, enhanced, or established aquatic habitat develops through ecosystem development processes and produces net gains in aquatic resource functions and services. General condition 22 requires submittal of a pre-construction notification prior to the use of this NWP in NOAA-designated marine sanctuaries and marine monuments and National Estuarine Research Reserves. District engineers will exercise discretionary authority and require individual permits for specific projects in waters of the United States in sanctuaries and refuges if those activities will result in more than minimal adverse effects on the aquatic environment. Division engineers may add regional conditions to this NWP to restrict or prohibit its use in sanctuaries and refuges.

(2) Wetlands: The discharges of dredged or fill material into waters of the United States authorized by this NWP may have adverse effects on wetlands, but those adverse effects are likely to be temporary as the restored, enhanced, or established aquatic habitat develops through ecosystem development processes and produces net gains in aquatic resource functions and services. District engineers will exercise discretionary authority and require individual permits for specific projects in wetlands if those discharges will result in more than minimal adverse effects on the aquatic environment. Division engineers may add regional conditions to this NWP to restrict or prohibit its use in wetlands. See paragraph (e) of section 6.1 of this document for a more detailed discussion of potential impacts to wetlands.

(3) Mud flats: The discharges of dredged or fill material into waters of the United States authorized by this NWP may have adverse effects on mud flats, but those adverse effects are likely to be temporary as the restored, enhanced, or established aquatic habitat develops through ecosystem development processes and produces net gains in aquatic resource functions and services. District engineers will exercise discretionary authority and require individual permits for specific projects in mud flats if those discharges will result in more than minimal adverse effects on the aquatic environment. Division engineers may add regional conditions to this NWP to restrict or prohibit its use in mud flats.

(4) Vegetated shallows: The discharges of dredged or fill material into waters of the United States authorized by this NWP may have adverse effects on vegetated shallows, but those adverse effects are likely to be temporary as the

restored, enhanced, or established aquatic habitat develops through ecosystem development processes and produces net gains in aquatic resource functions and services. District engineers will exercise discretionary authority and require individual permits for specific projects in vegetated shallows if those discharges will result in more than minimal adverse effects on the aquatic environment. Division engineers may add regional conditions to this NWP to restrict or prohibit its use in vegetated shallows.

(5) Coral reefs: The discharges of dredged or fill material into waters of the United States authorized by this NWP may have adverse effects on coral reefs, but those adverse effects are likely to be temporary as the restored or enhanced aquatic habitat develops through ecosystem development processes and produces net gains in aquatic resource functions and services. District engineers will exercise discretionary authority and require individual permits for specific projects in coral reefs if those discharges will result in more than minimal adverse effects on the aquatic environment. Division engineers may add regional conditions to this NWP to restrict or prohibit its use in coral reefs.

(6) Riffle and pool complexes: Stream restoration and enhancement activities authorized by this NWP may adversely affect riffle and pool complexes, but the adverse effects will be no more than minimal because stream restoration and enhancement activities improve habitat characteristics. The district engineer will review pre-construction notifications and reported activities to determine if proposed activities will result in no more than minimal adverse effects on the aquatic environment. If the riffle and pool complexes are high value and the activity will result in more than minimal adverse effects on the aquatic environment, the district engineer will exercise discretionary authority to require the project proponent to obtain an individual permit. Division engineers may add regional conditions to this NWP to restrict or prohibit its use in riffle and pool complexes.

(k) Municipal and private water supplies: See paragraph (n) of section 6.1 of this document for a discussion of potential impacts to water supplies.

(l) Recreational and commercial fisheries, including essential fish habitat: The discharges of dredged or fill material into waters of the United States authorized by this NWP may adversely affect waters of the United States that act as habitat for populations of economically important fish and shellfish species. Division and district engineers can condition this NWP to restrict or prohibit discharges during important life cycle stages, such as spawning or development periods, of economically valuable fish and shellfish. In response to a pre-construction notification or report, the district engineer which will review the activity to ensure that adverse effects to economically important fish and shellfish are no more than minimal. Compliance with general conditions 3 and 5 will ensure that the authorized activity does not adversely affect important spawning areas or concentrated shellfish populations. As discussed in paragraph (g) of section 6.1 of this document,

there are procedures to help ensure that individual and cumulative impacts to essential fish habitat are no more than minimal. For example, division and district engineers can impose regional and special conditions to ensure that activities authorized by this NWP will result in no more than minimal adverse effects on essential fish habitat.

(m) Water-related recreation: See paragraph (m) of section 6.1 of this document.

(n) Aesthetics: See paragraph (c) of section 6.1 of this document.

(o) Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar areas: General condition 22 requires submittal of a pre-construction notification prior to the use of this NWP in designated critical resource waters and adjacent wetlands, which may be located in parks, national and historical monuments, national seashores, wilderness areas, and research sites. This NWP can be used to authorize discharges of dredged or fill material into waters of the United States in parks, national and historical monuments, national seashores, wilderness areas, and research sites if the manager or caretaker wants to conduct discharges in waters of the United States and those discharges will result in no more than minimal adverse effects on the aquatic environment. Division engineers can add regional conditions to the NWP to restrict or prohibit its use in designated areas, such as national wildlife refuges or wilderness areas.

Appendix B – Endangered and Threatened Species

No activity is authorized by any NWP if that activity is likely to jeopardize the continued existence of a threatened or endangered species as listed or proposed for listing under the Federal Endangered Species Act (ESA), or to destroy or adversely modify the critical habitat of such species (33 CFR 330.4(f)). If the district engineer determines a proposed NWP activity may affect listed species or designated critical habitat, he or she will conduct ESA Section 7 consultation with the U.S. FWS and/or NMFS as appropriate. The proposed NWP activity is not authorized until the ESA Section 7 consultation process is completed or the district engineer determines the proposed NWP activity will have no effect on listed species or designated critical habitat. Current local procedures in Corps districts are effective in ensuring compliance with ESA. Those local procedures include regional programmatic consultations and the development of Standard Local Operating Procedures for Endangered Species (SLOPES). The issuance or reissuance of an NWP, as governed by NWP general condition 18 (which applies to every NWP and which relates to endangered and threatened species and critical habitat) and 33 CFR 330.4(f), results in "no effect" to listed species or critical habitat, because no activity that "may affect" listed species or critical habitat is authorized by NWP unless ESA Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service (NMFS) has been completed. If the non-federal project proponent does not comply with 33 CFR 330.4(f)(2) and general condition 18, and does not submit the required PCN, then the activity is not authorized by NWP. In such situations, it is an unauthorized activity and the Corps district will determine an appropriate course of action under its regulations at 33 CFR part 326 to respond to the unauthorized activity. Unauthorized activities may also be subject to the prohibitions of Section 9 of the ESA.

Each activity authorized by an NWP is subject to general condition 18, which states that "[n]o activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation." In addition, general condition 18 explicitly states that the NWP does not authorize "take" of threatened or endangered species, which will ensure that permittees do not mistake the NWP authorization as a Federal authorization to take threatened or endangered species. General condition 18 also requires a non-federal permittee to submit a pre-construction notification to the district engineer if any listed species or designated critical habitat (or proposed species or proposed critical habitat) might be affected or is in the vicinity of the project, or if the project is located in designated or proposed critical habitat. The Corps established the "might affect" threshold in 33 CFR 330.4(f)(2) and paragraph (c) of general condition 18 because it is more stringent than the "may affect" threshold for section 7 consultation in the USFWS's and NMFS's ESA Section 7 consultation regulations at 50 CFR part 402. The word

"might" is defined as having "less probability or possibility" than the word "may" (Merriam-Webster's Collegiate Dictionary, 10th edition). Since "might" has a lower probability of occurring, it is below the threshold (i.e., "may affect") that triggers the requirement for ESA Section 7 consultation for a proposed Federal action This general condition also states that, in such cases, non-federal permittees shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized.

Under the current Corps regulations (33 CFR 325.2(b)(5)), the district engineer must review all permit applications for potential impacts on threatened and endangered species or critical habitat. For the NWP program, this review occurs when the district engineer evaluates the pre-construction notification or request for verification. Nationwide permit general condition 18 requires a non-federal applicant to submit a pre-construction notification to the Corps if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat (or critical habitat proposed for such designation). Based on the evaluation of all available information, the district engineer will initiate consultation with the USFWS or NMFS, as appropriate, if he or she determines that the proposed activity may affect any threatened and endangered species or designated critical habitat. Consultation may occur during the NWP authorization process or the district engineer may exercise discretionary authority to require an individual permit for the proposed activity and initiate section 7 consultation during the individual permit process. If the district engineer determines a proposed NWP activity is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat, he or she will initiate a conference with the USFWS or NMFS. If ESA Section 7 consultation or conference is conducted during the NWP authorization process, then the applicant will be notified that he or she cannot proceed with the proposed NWP activity until section 7 consultation is completed.

If the district engineer determines that the proposed NWP activity will have no effect on any threatened or endangered species or critical habitat, then the district engineer will notify the applicant that he or she may proceed under the NWP authorization as long as the activity complies with all other applicable terms and conditions of the NWP, including applicable regional conditions. When the Corps makes a "no effect" determination, that determination is documented in the record for the NWP verification.

In cases where the Corps makes a "may affect" determination, formal or informal section 7 consultation is conducted before the activity is authorized by NWP. A non-federal permit applicant cannot begin work until notified by the Corps that the proposed NWP activity will have "no effect" on listed species or critical habitat, or until ESA Section 7 consultation has been completed (see also 33 CFR 330.4(f)). Federal permittees are responsible for complying with ESA Section 7(a)(2) and

should follow their own procedures for complying with those requirements (see 33 CFR 330.4(f)(1)). Therefore, permittees cannot rely on complying with the terms of an NWP without considering ESA-listed species and critical habitat, and they must comply with the NWP conditions to ensure that they do not violate the ESA. General condition 18 also states that district engineers may add activity-specific conditions to the NWPs to address ESA issues as a result of formal or informal consultation with the USFWS or NMFS.

Each year, the Corps conducts thousands of ESA Section 7 consultations with the FWS and NMFS for activities authorized by NWPs. These section 7 consultations are tracked in ORM. During the period of March 19, 2017, to October 20, 2020, Corps districts conducted 1,294 formal consultations and 8,233 informal consultations under NWP PCNs where the Corps verified that the proposed activities were authorized by NWP. During that time period, the Corps also used regional programmatic consultations for 21,677 NWP verifications to comply with ESA Section 7. Therefore, each year an average of 8,700 formal, informal, and programmatic ESA Section 7 consultations are conducted with the USFWS and/or NMFS in response to NWP PCNs, including those activities that required PCNs under paragraph (c) of general condition 18. In a study on ESA Section 7 consultations tracked by the USFWS, Malcom and Li (2015) found that during the period of 2008 to 2015, the Corps conducted the most formal and informal section 7 consultations, far exceeding the numbers of section 7 consultations conducted by other federal agencies.

Section 7 consultations are often conducted on a case-by-case basis for activities proposed to be authorized by NWP that may affect listed species or critical habitat, in accordance with the USFWS's and NMFS's interagency regulations at 50 CFR part 402. Instead of activity-specific section 7 consultations, compliance with ESA may also be achieved through formal or informal regional programmatic consultations. Compliance with ESA Section 7 may also be facilitated through the adoption of NWP regional conditions. In some Corps districts SLOPES have been developed through consultation with the appropriate regional offices of the USFWS and NMFS to make the process of complying with section 7 more efficient.

Corps districts have, in most cases, established informal or formal procedures with local offices of the USFWS and NMFS, through which the agencies share information regarding threatened and endangered species and their critical habitat. This information helps district engineers determine if a proposed NWP activity may affect listed species or their critical habitat and, when a "may affect" determination is made, initiate ESA Section 7 consultation. Corps districts may utilize maps or databases that identify locations of populations of threatened and endangered species and their critical habitat. Where necessary, regional conditions are added to one or more NWPs to require pre-construction notification for NWP activities that occur in known locations of threatened and endangered species or critical habitat. Any information provided by local maps and databases and any comments received

during the pre-construction notification review process will be used by the district engineer to make a “no effect” or “may affect” determination for the pre-construction notification.

Based on the safeguards discussed in this Appendix, especially general condition 18 and the NWP regulations at 33 CFR 330.4(f), the Corps believes that the activities authorized by this NWP comply with the ESA. Although the Corps continues to believe that these procedures ensure compliance with the ESA, the Corps has taken some steps to provide further assurance. Corps district offices meet with local representatives of the USFWS and NMFS to establish or modify existing procedures such as regional conditions, where necessary, to ensure that the Corps has the latest information regarding the existence and location of any threatened or endangered species or their critical habitat. Corps districts can also establish, through SLOPES or other tools, additional safeguards that ensure compliance with the ESA. Through ESA Section 7 formal or informal consultations, the Corps ensures that no activity is authorized by any NWP if that activity is likely to jeopardize the continued existence of a threatened or endangered species as listed or proposed for listing under the ESA, or to destroy or adversely modify the critical habitat of such species. Other tools such as ESA Section 7 conferences, SLOPES, the development of regional conditions added to the NWP by the division engineer, and conditions added to a specific NWP authorization by the district engineer help ensure compliance with the ESA.

If informal section 7 consultation is conducted, and the USFWS and/or NMFS issues a written concurrence that the proposed activity may affect, but is not likely to adversely affect, listed species or designated critical habitat based on conservation measures incorporated in the project to avoid or minimize potential effects to ESA resources, the district engineer will add conditions (e.g., conservation measures) to the NWP authorization. If the USFWS and/or NMFS does not issue a written concurrence that the proposed NWP activity “may affect, but is not likely to adversely affect” listed species or critical habitat, the Corps will initiate formal section 7 consultation if it changes its determination to “may affect, likely to adversely affect.”

If formal section 7 consultation is conducted and a biological opinion is issued, the district engineer will add conditions to the NWP authorization to incorporate appropriate elements of the incidental take statement of the biological opinion into the NWP authorization, if the biological opinion concludes that the proposed NWP activity is not likely to jeopardize the continued existence of listed species or adversely modify or destroy critical habitat. If the biological opinion concludes that the proposed NWP activity is likely to jeopardize the continued existence of listed species or adversely modify or destroy critical habitat, the proposed activity cannot be authorized by NWP and the district engineer will instruct the applicant to apply for an individual permit. The incidental take statement includes reasonable and prudent measures and terms and conditions such as mitigation, monitoring, and

reporting requirements that minimize incidental take. To fulfill its obligations under Section 7(a)(2) of the ESA, the Corps will determine which elements of an incidental take statement are appropriate to be added as permit conditions to the NWP authorization (see 33 CFR 325.4(a)). The appropriate elements of the incidental take statement are those reasonable and prudent measures and terms and conditions that: (1) apply to the activities over which the Corps has control and responsibility (i.e., structures or work in navigable waters and/or the discharges of dredged or fill material into waters of the United States), and (2) the Corps has the authority to enforce under its permitting authorities. Incorporation of the appropriate elements of the incidental take statement into the NWP authorization through binding, enforceable permit conditions may provide the project proponent an exemption from the "take" prohibitions in ESA Section 9 (see Section 7(o)(2) of the ESA).

The Corps can modify this NWP at any time that it is deemed necessary to protect listed species or their critical habitat, either through: 1) national general conditions or national-level modifications, suspensions, or revocations of the NWPs; 2) regional conditions or regional modifications, suspensions, or revocations of NWPs; or 3) activity-specific permit conditions (modifications) or activity-specific suspensions or revocations of NWP authorizations. Therefore, although the Corps has issued the NWPs, the Corps can address any ESA issue, if one should arise. The NWP regulations also allow the Corps to suspend the use of some or all of the NWPs immediately, if necessary, while considering the need for permit conditions, modifications, or revocations. These procedures are provided at 33 CFR 330.5.

Appendix C – Public Comments and Responses to Comments

For a summary of the public comments received in response to the September 15, 2020, Federal Register notice, refer to the preamble in the Federal Register notice announcing the reissuance of this NWP. The substantive comments received in response to the September 15, 2020, Federal Register notice were used to improve the NWP by changing NWP terms and limits, pre-construction notification requirements, and/or NWP general conditions, as necessary.

One commenter expressed support for the reissuance of this NWP because it allows for expedited permitting for much needed aquatic habitat restoration and enhancement projects, especially in coastal areas. One commenter stated that broad application of this NWP supports proactive state planning efforts on resiliency and flooding master plans. One commenter recommended revising the text of this NWP to make it clear that it provides approval for restoration projects, particularly those activities that will provide documented net ecological uplifts and have already undergone federal and/or state review through integrated and advance planning activities. One commenter also suggested modifying this NWP to authorize the removal of low-head dams and culverts for stream mitigation credits.

The Corps acknowledges that this NWP provides an expedited authorization process for aquatic habitat restoration, enhancement, and establishment activities that result in net increases in aquatic resource functions and services and have no more than minimal individual and cumulative adverse environmental effects. The aquatic resource restoration, enhancement, and establishment activities authorized by this NWP can be located in coastal areas. The aquatic habitat restoration, enhancement, and establishment activities authorized by this NWP can also provide water retention and storage functions that contribute to ecological services such as natural hazard mitigation, including water storage to reduce flood hazards. The activities authorized by this NWP may have also been reviewed by state agencies and other federal agencies, but review by these agencies is not required before the Corps authorizes these activities under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. The removal of low-head dams to produce stream mitigation credits may be authorized by NWP 53. In the third paragraph of NWP 27, the removal of stream barriers (such as undersized culverts, fords, and grade control structures) is included in the list of examples of activities authorized by this NWP. The removal of undersized or perched culverts may be authorized by this NWP and successful completion of those activities may generate stream compensatory mitigation credits.

A few commenters expressed support for allowing the use of more than one ecological reference site. One commenter said that this NWP should be modified to address inconsistences in triggering mitigation requirements. One commenter said that the word “delineation” be replaced with “description” in the text of this NWP. Commenter stated preparing an aquatic resources delineation per the Corps’

delineation standards and guidelines is a costly and time-consuming component of project planning and does not seem to provide any additional protection to waters and wetlands.

The Corps has adopted the proposed change regarding the use of one or more intact aquatic habitats or riparian areas as an ecological reference site. The sixth paragraph of this NWP states that compensatory mitigation is not required for activities authorized by this NWP because the authorized activities must result in net increases in aquatic resource functions and services. Therefore, there should be no compensatory mitigation requirements for aquatic habitat restoration, enhancement, or establishment activities authorized by this NWP.

The reports required for NWP 27 activities that do not require PCNs must include a delineation of wetlands, streams, and/or other aquatic habitats on the project site. Delineation is necessary to provide district engineers with a sufficient description of the baseline ecological conditions for that site to assist the Corps in determining whether the reported activity is likely to result in net increases in aquatic resource functions and services. A description of aquatic resources on the project site is not sufficient to help district engineers determine whether a proposed activity will satisfy the requirements of this NWP. The project plans for the proposed aquatic habitat restoration, enhancement, or establishment activity, plus the delineation of aquatic resources on the project site, are necessary for making certain determinations. Those determinations are whether net gains in aquatic resource functions and services are likely to occur as a result of the discharges of dredged or fill material into waters of the United States and/or structures or work in navigable waters of the United States, and whether any potential changes to existing aquatic resources on the project site will help ensure that such net gains will occur.

One commenter said that this NWP should be changed to clarify that it authorizes actions by a third-party ecological restoration provider in connection with a compensatory mitigation project, a restoration project, or a resiliency-focused project that generates net ecological uplift. One commenter stated that this NWP should be modified to allow waters and wetland conversions to natural conditions for a different aquatic habitat type if the proposed activity as a whole will result in a net increase in aquatic resource functions and services.

As stated in the “Note” in this NWP, this NWP authorizes aquatic habitat restoration, enhancement, and establishment activities that are conducted by third-party ecological restoration providers for the purposes of compensatory mitigation for NWPs and other forms of DA authorization, such as individual permits and regional general permits. This NWP can also be used to authorize aquatic habitat restoration projects that are conducted for the purpose of increasing the functions and services provided by degraded aquatic habitat, but are not being conducted for providing compensatory mitigation for NWPs or other types of DA permits. Resiliency projects may be authorized by this NWP as long as they are aquatic habitat restoration,

enhancement, or establishment projects, result in net gains in aquatic resource functions and services and resemble ecological references. Some resiliency projects, such as nature-based solutions that are modified ecosystems designed and constructed to provide ecosystem functions and services (National Academy of Sciences 2019), might not resemble ecological references because they consist of combinations of natural and engineered components. Living shorelines are an example of resiliency projects in coastal areas that do not resemble ecological references because they may include engineered structures such as sills or breakwaters. Living shorelines can be authorized by NWP 54. Green infrastructure projects constructed to manage stormwater, such as rain gardens or constructed wetlands, might not resemble ecological references and may be authorized by NWP 43 or other NWPs, or by individual permits.

The Corps is retaining the current prohibitions on conversions of streams or natural wetlands to other aquatic habitat types because those conversions typically focus on increasing a specific aquatic resource function or service while resulting in net losses in most of the other ecological functions and services performed by the impacted aquatic habitat type. These converted aquatic habitats may also result in hybrid aquatic habitats that do not resemble ecological references. This NWP also retains the prohibitions on the conversion of tidal waters and tidal wetlands to other aquatic uses, to ensure that activities authorized by NWP 27 result in no more than minimal individual and cumulative adverse environmental effects. Conversions of natural wetlands, streams, and other types of waters to different aquatic habitat types result in artificial conditions, not natural conditions, and project proponents can seek DA authorization for these activities through other means, such as the individual permit process, other NWPs, or if available, regional general permits.

One commenter said that the Corps should issue a separate NWP for voluntary wetland restoration projects to distinguish those projects from development projects. One commenter stated that the text of this NWP should include a definition for voluntary wetland restoration projects that includes restoration projects that occur in altered, degraded, and former wetlands. A commenter said that a new federal process should be established for permitting voluntary wetland restoration projects. One commenter said that to ensure that voluntary wetland restoration projects result in net increases of wetland functions and services, those projects should be prohibited as serving to fulfilling mitigation requirements. One commenter stated that this NWP should clarify that it authorizes permittee-responsible mitigation activities.

This NWP authorizes both voluntary wetland restoration projects and wetland restoration projects that are required by regulatory agencies or other agencies. This NWP does not authorize development activities. Other NWPs, such as NWP 29 (residential developments) and NWP 39 (commercial and institutional developments), may be used to authorize development activities. The Corps declines to add a definition of “voluntary wetland restoration project,” because this

NWP does not distinguish between voluntary wetland restoration projects and wetland restoration projects that may be conducted for other reasons, such as wetland restoration requirements imposed by other federal, tribal, state, or local government agencies. There is no need to establish a new federal permitting process for voluntary wetland restoration projects because the Corps currently authorizes wetland restoration projects through its permitting authorities under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. While this NWP can be used to authorize discharges of dredged or fill material into waters of the United States and/or structures or work in navigable waters of the United States for wetland restoration projects, those activities can also be authorized by individual permits and regional general permits.

Voluntary wetland restoration projects are conducted by people or organizations for the purpose of increasing wetland acreage and the associated wetland functions and services, or the level of wetland functions and services performed by areas of existing, degraded wetlands. Wetland restoration for compensatory mitigation serves a different purpose, which is to offset losses of wetland functions and services caused by permitted activities. Third-party mitigation providers (e.g., mitigation bank sponsors and in-lieu fee program sponsors) may conduct wetland restoration projects to provide compensatory mitigation for NWPs and other DA permits, or to fulfill other federal, state, or local government mitigation requirements without being driven to do so by regulatory requirements. Both voluntary wetland restoration projects and wetland compensatory mitigation projects are expected to result in net increases in wetland functions and services, which is a basic requirement of this NWP. This NWP can be used to authorize permittee-responsible mitigation projects, including advance permittee-responsible mitigation projects where there is no DA permit to authorize discharges of dredged or fill material into waters of the United States or structures or work in navigable waters of the United States for the advance permittee-responsible mitigation project.

One commenter said that this NWP should be modified to explicitly add the restoration of vegetated and unvegetated intertidal and subtidal areas—including mudflats, sandflats, and submerged aquatic vegetation—to the list of examples of activities authorized by this NWP. Commenter said that the activities authorized by this NWP will alter and destroy open water habitats in tidal estuaries and convert them to types of habitat that were never historically present in those waters. This commenter also stated that the activities authorized by this NWP would make open water sites unusable by fishermen and species that currently rely on those open water habitats. One commenter said that the authorization of structures and fills by this NWP creates overlap between NWP 27 and NWP 54 (living shorelines) and should be revised. One commenter stated that the text of this NWP should be clarified regarding the degradation of downstream waters.

As stated in the first paragraph of this NWP, it authorizes the rehabilitation and enhancement of tidal streams, tidal wetlands, and tidal open waters as long as

those activities result in net increases in aquatic resource functions and services. This includes vegetated and unvegetated intertidal areas (e.g., mud flats and sand flats) and vegetated and unvegetated subtidal areas (e.g., submerged aquatic vegetation). Tidal open waters include mud flats and sand flats. Tidal wetlands include submerged aquatic vegetation. The fifth paragraph of this NWP states that it does not authorize activities that convert tidal waters, including tidal wetlands, to other aquatic uses. Therefore, this NWP cannot be used to authorize discharges of dredged or fill material that convert tidal waters into uplands or non-tidal aquatic habitats. In addition, because the text of this NWP states that it authorizes the rehabilitation and enhancement of tidal open waters, it limits the authorized activities to those that improve either the suite of functions or a smaller number of functions performed by tidal waters. It does not authorize activities that degrade or destroy tidal waters, or render them unusable by fishermen. Aquatic habitat restoration and enhancement activities may alter which species use the restored or enhanced site, and which habitat functions support or deter certain species.

Activities authorized by NWP 27 must result in an aquatic habitat that resembles an "ecological reference," consistent with the definition of that term in section F of the NWPs. A living shoreline usually consists of living components (e.g., marsh grasses, oysters) and engineered components (e.g., sills or breakwaters constructed from stone), and may not resemble an ecological reference. There is no overlap between NWP 27 and NWP 54, although tidal wetlands restored or enhanced as a result of the activities authorized by this NWP may help reduce erosion as an ecological service.

Several commenters stated that NWP 27 has PCN thresholds that are inconsistent with, and more stringent than, the PCN thresholds for other NWPs, such as NWP 12 and the two new NWPs 57 and 58 that were issued in the final rule published in the January 13, 2021, issue of the Federal Register (86 FR 2744). Some of these commenters suggested that this NWP should be modified to require PCNs for proposed discharges of dredged or fill material into non-wetland special aquatic sites or if the proposed activity results in loss of greater than 1/10-acre of wetland. One commenter stated support of the PCN notification exemption to continue to allow statewide aquatic habitat restoration and enhancement activities to be conducted in an efficient and timely manner. One commenter said that in order to reduce unnecessary delays and expenses from the PCN process, this NWP should be modified by removing the exception from the requirement to submit PCNs for activities on non-federal public lands and private lands conducted under agreements between the landowner and federal agencies or their designated state cooperating agencies.

The PCN thresholds for this NWP are no more stringent that the PCN thresholds for many other NWPs. All activities authorized by this NWP require some form of advance notification to district engineers before commencing authorized activities, to provide district engineers with the opportunity to take action on those proposed

activities that do not comply with the requirements of the NWP, such as activities that are not expected to result in net gains in aquatic resource functions and services or activities that are not likely to resemble ecological references. The advance notification takes the form of either: (1) pre-construction, or (2) reporting. The activities identified in the “Notification” paragraph require PCNs and reports are required for the activities identified in the “Reporting” paragraph. Most of the NWPs require PCNs for all authorized activities, or for a subset of authorized activities.

The suggested PCN thresholds for discharges of dredged or fill material into non-wetland special aquatic sites or for losses of greater than 1/10-acre of wetland are not appropriate for an NWP that authorizes discharges of dredged or fill material or structures or work into all types of waters of the United States. Wetlands are a subset of jurisdictional waters in which this NWP can be used to authorize regulated activities associated with aquatic habitat restoration, enhancement, and establishment. This NWP authorizes activities in tidal and non-tidal wetlands, rivers and streams, lakes, estuaries, and ocean waters. Some form of case-by-case review is needed for all authorized activities to ensure their compliance with the NWP and that they will result in no more than minimal individual and cumulative adverse environmental effects.

This NWP does not have an acreage or other quantitative limits. Instead of a quantitative limit, this NWP requires that aquatic habitat restoration, enhancement, and establishment activities result in net increases in aquatic resource functions and services and resemble ecological references. Aquatic habitat restoration, enhancement, and establishment activities can occur over large or small areas, and the PCN and reporting requirements facilitate the expedited review process for activities that provide benefits for the aquatic environment, as well as ecological services for people. The reporting requirement was established for certain NWP 27 activities on non-federal public lands and private lands to reduce costs associated with preparing PCNs, while providing district engineers with the opportunity to review proposed activities that do not require PCNs. The reporting requirement provides district engineers with the opportunity to take action if they determine that a proposed activity does not qualify for NWP 27 authorization because it is not an aquatic habitat restoration, enhancement, or establishment activity; it is not likely to result in net gains in aquatic resource functions and services; or it does not resemble an ecological reference.

Several commenters expressed support for adding coral restoration activities to the list of examples of activities that may be authorized by NWP 27. One commenter stated that authorizing coral restoration activities under this NWP would streamline and simplify restoration activities and reduce burdens on the local agencies.

The Corps has added coral restoration activities and coral relocation activities to the list of examples of activities authorized by this NWP when those activities require

DA authorization under Section 10 of the Rivers and Harbors Act of 1899 and/or Section 404 of the Clean Water Act.

Many commenters stated opposition to the proposed inclusion of reservoir sediment releases as an example of an activity authorized by NWP 27 while many commenters expressed support for the proposed inclusion of that activity as an example of activities authorized by this NWP. A few commenters stated that controlled sediment releases can benefit downstream river and stream beds and embankments. One commenter asserted that these activities should require individual permits. One commenter suggested rewording the proposed modification to the following: “reservoir sediment management to provide continuity in sediment transport through reservoirs.”

The Corps is adding “releases of sediment from reservoirs to maintain sediment transport continuity to restore downstream habitats” to the list of examples of activities authorized by this NWP instead of the proposed text of “releasing sediment from reservoirs to restore downstream habitat.” These activities can be conducted in a manner that improves the functions and services performed by downstream river and stream habitats and results in no more than minimal individual and cumulative adverse environmental effects. The revised text is intended to emphasize the notion of rehabilitating downstream habitats and improving the functions and services performed by those habitats by maintaining continuity of sediment transport through reservoirs rather than emphasizing reservoir management activities. Sediment releases from reservoirs must have the purpose of maintaining sediment transport through rivers that sustains or improves downstream habitat that is adversely affected by the reservoir because that reservoir disrupts normal sediment transport processes in the river. The Corps declines to revise the text to refer to reservoir sediment management activities because the modification of this NWP addresses only one approach to reservoir sediment management.

The movement of sediment via flowing water through watersheds and river and stream networks is a natural watershed process (Black 1997). Reservoirs trap sediment and disrupt the continuity of sediment transport though the river network in a watershed, which reduces the amount of sediment transported downstream that helps maintain river channel form as well as adjacent riparian areas and floodplains (Kondolf et al. 2014). Periodic releases of sediment stored in reservoirs can help maintain the continuity of sediment transport in riverine systems and help sustain or enhance downstream riverine and riparian habitats, including floodplains. In coastal areas, periodic releases of sediment from reservoirs can provide sediment that helps sustain coastal wetlands and unvegetated coastal habitats (Kondolf et al. 2014). Those sediments can accrete in coastal wetlands and help those wetlands adjust to sea level rise. The activities authorized by this NWP require either PCNs or reports to district engineers, so it is not necessary to add a PCN requirement specific to releases of sediment from reservoirs to maintain sediment transport

continuity in riverine systems to restore or enhance downstream habitats. District engineers will review these proposed activities through either PCNs or reporting documentation submitted by project proponents to Corps district offices.

Releases of sediment from reservoirs may or may not require DA authorization, depending on how those sediment releases are conducted. Guidance is provided in Regulatory Guidance Letter (RGL) 05-04: ‘‘Guidance on the Discharge of Sediments From or Through a Dam and the Breaching of Dams, for Purposes of Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899.’’ The RGL explains the circumstances in which sediment releases from reservoir do not require DA authorization, and how reservoir sediment releases can be conducted without the need to obtain Clean Water Act Section 404 authorization from the Corps. In general, releases of sediments that are incidental to normal reservoir operations—such as releases of water through the dam to restore reservoir capacity during events like spring run-off, flooding, or storms—are considered de minimis discharges of dredged material. They do not require DA authorization under section 404 so long as the sediment loads of waters released from reservoirs are consistent with the sediment loads entering the reservoir from the upstream waters. The modification of this NWP clarifies that this NWP can be used to provide DA authorization under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act for sediment releases from reservoirs that require such authorization, as long as those sediment releases rehabilitate downstream habitats and result in net gains in aquatic resource functions and services.

Several commenters stated that sediment releases from reservoirs authorized by this NWP should have quantitative limits to ensure that no more than minimal adverse impacts occur as a result of these activities. One commenter said that the text of this NWP should clarify that sediment releases from reservoirs must be linked to a clear restoration action or plan and should not be authorized by this NWP solely for the purpose of reservoir management or dam maintenance. Many commenters stated that PCNs should be required for all sediment releases authorized by this NWP. Several commenters objected to the proposed modification, stating that sediment release activities under NWP 27 should require PCNs when dam removal projects would result in large amounts of sediments being released. One commenter said that a PCN threshold should be added to this NWP to address discharges associated with sediment releases and the frequency of those sediment releases, to ensure that those activities result in no more than minimal adverse environmental effects.

The Corps does not agree that there should be quantitative limits for reservoir sediment releases authorized by this NWP because of the variability in hydrology and sediment transport in rivers and streams across the country and the variability in reservoir characteristics, such as their dimensions, how they are operated, and the hydrologic and sediment regimes of the watershed in which a reservoir is

located. In addition, the appropriate amount of sediment that may be released from a reservoir to maintain continuity of sediment transport to restore downstream habitats is affected by a number of factors, which makes it infeasible to establish a national quantitative limit for these activities. Such factors include water and sediment inputs to the river, including upstream, lateral, and downstream inputs; valley geometry, substrate, and vegetation; river geometry, including the cross sectional geometry, planform, and gradient; and the disturbance regime of the river (Wohl et al. 2015). These factors vary considerably among rivers across the United States. Therefore, the appropriate amount of sediment to be released from reservoirs, as well as the timing of those releases, to provide sediment transport continuity and rehabilitate downstream habitats needs to be determined on a case-by-case basis.

Activities authorized by NWP 27, including wetland and stream restoration and enhancement activities, do not require formal restoration plans, although a project proponent may provide restoration plans with the PCN or report if she or he believes that information would help the district engineer determine whether the proposed activity is authorized by this NWP. The Corps does not believe it is necessary to require more information for proposed releases of sediment from reservoirs than it requires for other aquatic habitat restoration, enhancement, or establishment activities authorized by this NWP. Wetland and stream restoration activities can involve substantial amounts of earth moving and sediment releases, and the Corps believes that proposed releases of sediment from reservoirs do not require a higher information standard than wetland and stream restoration activities. The sediment releases from reservoirs to rehabilitate downstream habitats do not require a formal restoration plan, but the reservoir operator may develop an operations plan that establishes protocols for sediment releases that are intended to maintain sediment transport continuity to restore downstream habitats. The project proponent can provide a copy of that plan with the PCN or report.

To be authorized by this NWP, the sediment releases from reservoirs must result in net gains in aquatic habitat functions and services. This NWP does not authorize sediment releases that are conducted primarily for the purpose of reservoir management or maintenance. The primary purpose of the authorized activity must be to restore downstream habitats. However, controlled releases of sediment from reservoirs to maintain sediment transport continuity to restore or enhance downstream habitats may have a secondary benefit of prolonging the operational life of reservoirs and reducing the need to construct additional reservoirs in a region (Kondolf et al. 2014). This NWP does not authorize releases of large amounts of sediment from reservoirs that would adversely affect downstream habitats and result in net losses, rather than net gains, in aquatic resource functions and services.

Several commenters said that the text of this NWP should clarify whether the sediment releases from reservoirs are one-time activities or they can be conducted

on a recurring, routine basis. One commenter said that PCNs for proposed sediment releases from reservoirs should indicate whether the proposed release is part of a single event or proposed as a routine management technique and should include a plan describing the amount, frequency, timing, and duration of sediment to be released. A few commenters support adding releases of sediment from reservoirs into downstream habitats to the examples in NWP 27, but said that sediment releases should have established criteria as determined by state resource managers to maintain balanced sediment levels within individual watersheds.

The timing and frequency of sediment releases from reservoirs to restore downstream habitats are likely to differ because of the variability in climate, watersheds, and rivers across the country, and the variability in water and sediment regimes in rivers. Sediment releases from reservoirs that trigger a requirement for DA authorization under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899 may occur during multiple times during the period (up to five years) this NWP is in effect. This NWP includes a number of examples of authorized activities that may occur more than once during the period this NWP is in effect, such as the removal of accumulated sediments from waterbodies, shellfish seeding activities, plowing or discing activities for seeding and planting wetland species, and mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation. If the project proponent anticipates conducting multiple sediment releases during the period this NWP authorization is in effect, in the PCN or report for the proposed activity he or she should provide information on the anticipated number of releases during that time. If the proposed activity requires a PCN, the description of the proposed activity required by paragraph (b)(4)(i) of general condition 32 should including the number of anticipated sediment releases from the reservoir and their timing. Sediment transport in rivers typically occurs in a non-linear, episodic manner (Wohl et al. 2015), and releasing sediments in smaller pulses may more closely mimic non-linear, episodic natural sediment transport processes. This NWP does not authorize large sediment releases that will cause losses of aquatic resource functions and services.

The Corps does not agree that there should be coordination of proposed activities between district engineers and state resource managers. None of the other aquatic habitat restoration, enhancement, and establishment activities authorized by this NWP require coordination between district engineers and state resource managers. Therefore, releases of sediment to restore or enhance downstream habitat should not be subject to a coordination requirement between district engineers and state resource managers. However, district engineers have the discretion to coordinate proposed NWP 27 activities requiring DA authorization with other federal, tribal, state, or local resource agencies on a case-by-case basis, within the timeframes for reviewing PCNs (generally 45 days) and reports (30 days), if they want assistance with their evaluations of those PCNs and reports.

A few commenters stated that sediment releases authorized by this NWP should be clearly linked to a restoration plan and not be solely for the purpose of reservoir or dam maintenance. Several commenters stated that PCNs for proposed sediment releases from reservoirs should include study results that evaluated and addressed the volume of sediment to be released, sediment size and distribution, reach conditions, downstream habitat and aquatic species impacts, and the time of year for releases. Another commenter stated that PCNs for sediment release activities authorized by this NWP should include the plan used for sediment releases and the benefits of each activity must be clarified regarding the resulting changes on hydrology, geomorphology, and habitat, as well as watershed stability.

Aquatic habitat restoration, enhancement, and establishment activities authorized by NWP 27 do not require comprehensive restoration plans. Releases of sediment from reservoirs to maintain sediment transport continuity to restore downstream habitats that require DA authorization will require either PCNs or reporting to district engineers. The Corps does not agree that it is necessary to establish information requirements for releases of sediment from reservoirs that differ from the information requirements for the wide variety of other aquatic habitat restoration, enhancement, or establishment activities authorized by this NWP. The Corps is applying the same PCN information requirements for proposed sediment releases from reservoirs that it requires for all other aquatic habitat restoration, enhancement, and establishment activities authorized by this NWP. Those other aquatic habitat restoration, enhancement, and establishment activities, including wetland and stream restoration activities, can involve substantial amounts of discharges of dredged or fill material into waters of the United States and other regulated activities to restore, enhance, or establish aquatic habitats so that they provide net increases in aquatic resource functions and services after completion of the authorized activities.

For those activities that require PCNs, paragraph (b)(4)(i) of general condition 32 requires the following: a description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity; and a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity. The amount and type of information to be provided in the description of the proposed activity in the PCN should be appropriate to the type of aquatic habitat restoration, enhancement, or establishment activity the project proponent wants to conduct under the NWP 27 authorization. For example, for proposed sediment releases to restore downstream aquatic habitats, in the description of the proposed activity the project proponent should describe the amount, frequency, timing, and duration of sediment to be released from the reservoir. A formal study is not required for a complete PCN. The project description should be in sufficient detail to provide the district engineer with enough information

to determine whether the proposed activity will result in a net increase in aquatic resource functions and services.

For releases of sediment from reservoirs that may be authorized by this NWP, the PCN should also describe any mitigation measures the project proponent intends to implement to reduce adverse environmental effects and ensure that the authorized activity results in net gains in aquatic resource functions and services. Mitigation measures may include releasing sediment in pulses during periods of sufficient water flow so that the released sediments restore or enhance, rather than degrade, downstream habitats. Releases of sediment from reservoirs to maintain continuity of sediment transport and restore downstream habitats can have a secondary benefit of helping maintain the water storage capacity of reservoirs. However, if the PCN or report states that primary purpose of the sediment releases are for reservoir maintenance, then the district engineer should notify the project proponent that the proposed activity is not authorized by NWP 27, and that another type of DA authorization will be needed for the proposed reservoir or dam maintenance activities.

The sediment releases from reservoirs authorized by this NWP are not likely to result in substantial changes in hydrology, geomorphology, aquatic habitat, or watershed stability because they are intended to maintain continuity in sediment transport to restore or enhance downstream habitats that have been adversely affected by the disruption in sediment transport processes caused by the construction of a reservoir. The activities authorized by this NWP must result in net gains in aquatic resource functions and services. These activities are likely to improve watershed functioning and the sustainability of aquatic habitats within the watershed to some degree by maintaining the continuity of sediment transport in rivers within the watershed.

One commenter stated additional clarification on the definition for the term "release" is needed to encourage natural sediment transport downstream if that is the intent of the proposed change to this NWP. One commenter expressed concern with authorizing sediment releases from reservoirs under this NWP because of uncertainty of the objectives and nature of potential sediment releases. One commenter said that releasing sediment from reservoirs to restore downstream habitat is not suitable for NWP authorization because while it can improve habitat, it can also result in adverse effects on wetlands and riparian areas.

The term “release” applies to discharges of dredged or fill material regulated under Section 404 of the Clean Water Act and “work” regulated under Section 10 of the Rivers and Harbors Act of 1899 because those are the types of activities authorized by this NWP under the permitting authorities for NWP 27. There are circumstances where releases of sediment from reservoirs do not require DA authorization (see Regulatory Guidance Letter 05-04). The intent of adding “releases of sediment from reservoirs to maintain sediment transport continuity to restore downstream habitats”

to the list of examples of activities authorized by this NWP is to clarify that this NWP can be used to authorize sediment releases from reservoirs that require DA authorization as long as those activities result in net gains in aquatic resource functions and services and have no more than minimal adverse environmental effects. The third paragraph of this NWP is a list of examples of aquatic habitat restoration, enhancement, and establishment activities that may be authorized by this NWP when those activities require DA authorization. This addition to the list of examples of activities authorized by this NWP is highly specific; it is limited to sediment releases from reservoirs that maintain sediment transport continuity to restore downstream habitat. It does not cover sediment releases from reservoirs for other purposes, such as maintaining the designed water storage capacity of the reservoir. The objective of this addition to the list of examples of activities authorized by this NWP is to provide sediment for downstream habitats that have been adversely affected by the disruption of sediment transport caused by the dam that created the reservoir, so that continuity of sediment transport is maintained to a degree that helps sustain or improve the structure, functions, and dynamics of downstream riverine and riparian habitats, and in coastal areas, downstream coastal habitats.

Sediment releases from reservoirs can be conducted in a manner that does not require DA authorization. Sediment releases from reservoirs can also be conducted in a manner so that they result in no more than minimal individual and cumulative adverse environmental effects. This NWP requires that releases of sediment from reservoirs that require DA authorization result in net gains in aquatic resource functions and services. Sediment releases from reservoirs that require DA authorization but do not result in net gains in aquatic resource functions and services are not authorized by this NWP. The construction of reservoirs disrupts sediment transport to downstream habitats, including wetlands and riparian areas. When sediment transport processes are disrupted by the construction of a dam across a river, downstream riverine wetlands and riparian areas may erode when sediment supplies from upstream waters diminish as sediment is trapped by the reservoir. Coastal wetlands also require periodic inputs of sediment to sustain their structure and function, and sediment releases from reservoirs in coastal areas can help sustain these wetlands (Kondolf et al. 2014). While this NWP may authorize the removal of small water control structures, it does not authorize the removal of large dams. Low-head dam removals may be authorized by NWP 53.

Several commenters stated that the timing, location, and magnitude of sediment releases are crucial factors, as they could be beneficial for some species that require turbidity for spawning, or harmful for species that require clean substrate for nest building. One commenter said that the Corps' decision document for this NWP should provide further clarification of the positive and negative impacts on the aquatic environment downstream from sediment releases and that the NWP should provide a mechanism that will carefully consider these potential impacts and offer practices aimed to reduce negative impacts. One commenter stated that the NWPs

are designed for minor discharges with no more than minimal adverse environmental impacts and that individual permits should be required for discharges of sediment for habitat improvement. One commenter said that large amounts of sediments being released downstream should require full evaluation of best management options.

The Corps agrees that the timing, location, and magnitude of sediment releases are crucial factors, and that these activities need to be carefully planned and implemented to ensure that the sediment releases from reservoirs result in net increases in aquatic resource functions and services. The degrees to which some species may benefit from the sediment released from reservoirs and other species may be adversely affected weighs into the determination as to whether the sediment releases result in net gains in aquatic resource functions and services. As with many aquatic habitat restoration, enhancement, and establishment activities, there may be short-term, temporary adverse effects while authorized activities such as discharges of dredged or fill material into waters of the United States are conducted. But over the long-term, as the aquatic habitat responds to the restoration, enhancement, or establishment activities through ecosystem development processes, there should be more permanent, sustainable gains in aquatic habitat functions and services. The Corps has revised its national decision document for this NWP to provide additional discussion of the positive and negative impacts of releases of sediment from reservoirs to maintain sediment transport continuity to rehabilitate downstream aquatic habitats.

If the district engineer reviews the PCN or report and determines the proposed activity may affect listed species or designated critical habitats, the district engineer will conduct ESA Section 7 consultation with the U.S. FWS and/or NMFS as appropriate, unless another federal agency has conducted ESA Section 7 consultation for the proposed activity. The information requirements for these activities are similar to the information requirements for other aquatic habitat restoration, enhancement, and establishment activities authorized by this NWP, and project proponents can provide additional information voluntarily if they think that additional information will help with receiving an NWP verification letter from the district engineer.

When evaluating PCNs for proposed NWP 27 activities, district engineers will consider the 10 criteria in paragraph 2 of section D, District Engineer’s Decision to determine whether a proposed activity will result in no more than minimal individual and cumulative adverse environmental effects. Aquatic habitat restoration, enhancement, and establishment activities can vary substantially in size, and in the amount of dredged or fill material that is discharged into waters of the United States to conduct those activities. For aquatic habitat restoration, enhancement, and establishment projects, the quantity of discharges of dredged or fill material into waters of the United States is not indicative of whether the completed activity will result in net gains in aquatic habitat functions and services. It is the longer-term

outcomes of the aquatic habitat restoration, enhancement, or establishment activities that determine whether net gains in aquatic resource functions and services occur after the temporary impacts associated with the permitted activities are supplanted by the ecosystem development processes that occur over time to produce gains in aquatic resource functions and services. These concepts apply to releases of sediment from reservoirs to maintain sediment transport continuity to restore downstream habitats.

Many commenters expressed concern with possible levels of pollutants and water quality impairments from sediment releases. One commenter stated that dam removal projects require sediment contaminant testing to ensure sediment contaminants to be released downstream would not negatively impact the environment, and that this NWP should have a similar requirement for sediment releases from reservoirs. One commenter stated that release of sediments from reservoirs as part of a restoration activity should not contain actionable levels of pollutants such as nitrates, phosphorus, metals, or pesticides. Many commenters said that PCNs for proposed releases of sediment from reservoirs should require sediment analysis to determine contaminant levels. One commenter said that sediment load and the concentrations of any contaminants relative to background levels are key parameters for determining downstream environmental impacts of these activities. Many commenters said that there is potential for contaminants and pollutants that have accumulated in reservoir sediments to be released which may cause significant ecosystem impacts downstream. A few commenters stated that sediment releases from reservoirs would result in water quality violations and disperse contaminated sediments.

Dam removal projects do not always require sediment testing. The need for sediment testing for sediments to be released via dam removal project is determined on a case-by-case basis by applying the criteria at 40 CFR 230.60. The same approach applies to releases of sediment from reservoirs to maintain sediment transport continuity to restore downstream habitats. In addition, sediment releases from reservoirs authorized by this NWP may require water quality certification under Section 401 of the Clean Water Act. The applicable certifying authority determines whether a discharge may occur, and if the certifying authority determines that a discharge into waters of the United States may occur it notifies the project proponent that water quality certification or waiver is required before conducting the proposed discharge.

Decisions to require testing of sediments released from reservoirs are more appropriately made by the agencies responsible for making water quality certification decisions under Section 401 of the Clean Water Act. If the proposed release of sediment from a reservoir requires DA authorization, the district engineer should defer to the applicable certifying authority regarding whether sediment testing is necessary to ensure compliance with applicable water quality requirements. If a release of sediments from a reservoir will result in a regulated

discharge of dredged or fill material, the district engineer has the discretion to determine that there is a need to test sediment that might be stored in the reservoir for contaminants, based on a ‘‘reason to believe’’ approach similar to the EPA’s inland testing manual for dredged material.

One commenter expressed concern for authorizing sediment releases under an NWP because there is little opportunity for coordination with natural resource agencies. A few commenters said that the Corps should develop appropriate general and/or regional conditions for reservoir sediment releases through coordination with natural resource agencies and reservoir operators. One commenter stated that the Corps should require project proponents proposing sediment releases from reservoirs to notify downstream drinking water utilities of potential sediment releases when necessary to benefit downstream habitat. One commenter said that PCNs for proposed sediment releases from reservoirs should require consultation with state resource agencies to ensure potential sediment contamination and changes in dissolved oxygen levels are considered because suspended and embedded sediment has been shown to affect aquatic species, such as fish, through direct physiological effects, decreased water clarity, or sediment deposition.

The Corps does not believe it is necessary to require agency coordination for PCNs or reports submitted to district engineers for releases of sediment from reservoirs to maintain the continuity of sediment transport in riverine systems, when those activities are authorized by this NWP. District engineers have the discretion to coordinate PCNs and reports with their counterparts at federal, tribal, state, or local resource agencies. Sediment transport in rivers and streams is a natural process, with a suspended load conveying finer sediment in the water column and a bed load conveying coarser sediment along the river or stream bed. Therefore, the Corps does not believe that it is necessary to notify downstream drinking water utilities of proposed releases of sediment from reservoirs. Potential concerns about sediment contamination and changes in dissolved oxygen levels are more appropriately addressed by certifying authorities through the Clean Water Act Section 401 water quality certification process. Sediment transport is a natural river function, and fish that live in rivers are adapted to cope with suspended sediments and sediments on the river bed. The activities authorized by this NWP must result in net gains in aquatic resource functions and services and result in no more than minimal individual and cumulative adverse environmental effects. District engineers will review PCNs and reports for these proposed activities, and if they determine that adverse effects to fish and other aquatic organisms will be more than minimal after considering mitigation proposed by project proponents, they will exercise discretionary authority and require individual permits for these activities.

One commenter recommended modifying this NWP to allow longer reaches of stream be allowed to be temporarily impacted without need for a permit to help to facilitate more streambank stabilization and restoration activities, because of the

high costs for designing, engineering, and permitting these activities. This commenter said that these administrative costs often exceed the actual cost of implementing the beneficial improvement work. One commenter said that the Corps must assess the potential for NWP 27 activities to affect ESA-listed species, and that potential impacts from those activities must be analyzed through programmatic ESA Section 7 consultations.

This NWP has no quantitative limits, so there are no limits on the amount of stream bed that can be restored or enhanced by activities authorized by this NWP. There are no exemptions from Clean Water Act Section 404 permitting requirements for stream restoration activities. Paragraph (c) of general condition 18, endangered species, requires non-federal permittees to submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation. District engineers will review those PCNs and determine whether the proposed activity may affect listed species or designated critical habitat. If the district engineer determines a proposed activity may affect ESA-listed species or designated critical habitat, then she or he will conduct ESA Section 7 consultation with the U.S. FWS and/or NMFS as appropriate. Compliance with ESA Section 7 may be achieved through activity-specific formal or informal ESA Section 7 consultations or formal or informal regional programmatic ESA Section 7 consultations.

One commenter stated that the scope of projects authorized by NWP 27 should be broadened to expedite the review and permitting process to help support the growing ecological restoration industry. One commenter requested that Corps be required to issue an NWP 27 verification concurrent with the execution of a mitigation banking instrument in states where a state has assumed the responsibilities for permitting discharges of dredged or fill material into waters of the United States.

This NWP authorizes a wide variety of aquatic habitat restoration, enhancement, and establishment activities. Those activities can be conducted by the ecological restoration industry, government agencies, non-governmental organizations, private individuals, and other entities. If a state has assumed the responsibilities for implementing the Clean Water Act Section 404 permit program, this NWP likely cannot be used to authorize discharges of dredged or fill material into waters of the United States in waters that have been assumed by that state. A state permit would be required to authorize those discharges of dredged or fill material into waters of the United States.

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Biological Evaluation Form

Gulf Coast Ecosystem Restoration Council (RESTORE Council)

U.S. Fish and Wildlife Service & National Marine Fisheries Service

This form will be filled out by the Implementing RESTORE Council members or their representatives and used by the regulatory agencies. The form will provide information to initiate informal Section 7 consultations under the Endangered Species Act (ESA) and may be used to document a No Effect determination or to initiate pre-consultation technical assistance. This form could also be completed to inform and evaluate additional needs for compliance with the following authorities: Migratory Bird Treaty Act (MBTA), Marine Mammal Protection Act (MMPA), Coastal Barrier Resources Act (CBRA), and Bald and Golden Eagle Protection Act (BGEPA).

Further information may be required beyond what is captured on this form. If needed, please attach additional pages.

For assistance, please contact the USFWS and NMFS liaisons:
USFWS: Michael Barron at michael_barron@fws.gov
NMFS: Mike Tucker at michael.tucker@noaa.gov

A. Project Identification

Federal Action Agency DOI ☐ NOAA ☐ EPA ☐ USDA ☐ RESTORE Council ☒

Council Member(s): Alabama

Contact Name: Click to enter text Phone: 000-000-0000 Email: Click to enter text

Program and/or Project Name(s): Corn Branch Tributary Restoration

IAA FAIN# Click to enter text Bucket #: Click to enter text FPL # Click here to enter text

B. Project Phase

Please choose the box which best describes the project status, as proposed in this BE form, check ALL that apply:

Construction/Implementation ☐ Planning/Conceptual ☐ Engineering & Design ☒

If "Engineering & Design" was selected, please describe the level of design that has been completed and is available for review:
100% design has been completed, but project has not entered into the construction phase.

C. Project Location

I. State and County/Parish of action area
Baldwin County, Alabama

II. Latitude/Longitude for action area (Decimal degrees and datum [e.g., 27.71622°N, 80.25174°W NAD83)
[online conversion: https://www.fcc.gov/encyclopedia/degrees-minutes-seconds-tofrom-decimal-degrees]
Lat: 30.6124 N Long: -87.7592 W

III. Maps, Drawings, and GIS Data

Please insert any maps, aerial photographs, or design drawings here or attach to the end of this BE form. GIS files may be added to the same folder location as where this BE is filed on Sharepoint . Examples of such supporting documentation include, but are not limited to:

- Plan view of design drawings
- Aerial images of project action area and surrounding area, showing state or regional scale
- Map of project area with elements proposed (polygons showing proposed construction elements)
- Map of action area with critical habitat units or sensitive habitats overlayed
- GIS Files to include ARCGIS, KMZ, CAD, or other GIS files are required (WGS 84) for projects with a field component

D. Existing Compliance Documentation

NEPA Documents

Are there any **existing** draft or final NEPA analyses that cover all or part of this project?

YES☐ NO☒

Examples:
- EA or EIS (draft or final)
-USACE programmatic NEPA analysis
-USACE Clean Water Act individual permit for the project
-NEPA analysis provided by a federal agency that gave approval, funding or authorization

Permits

Have any federal permits been obtained for this project, if so which ones and what is the permit number(s)?

YES☒ NO☐ Permit Number and Type: USACE NWP 27: SAM-2023-00338-JCC

Have any federal permits been applied for but not yet obtained, if so which ones and what is the permit number(s)?

YES☒ NO☐ Permit Number and Type: Click or tap here to enter text.

If yes to any question above, please provide details in the text box (i.e. link to the NEPA document, or name of the document, year, lead federal agency, POC, copy of the permit or permit application, etc.). This is needed to check for consistency of the project scope across different sources and to facilitate the NEPA analysis. If you do not have a link, email the documents to the representative for designated lead federal agency for the review.
Click here to enter text.

Any documentation or information provided will be very helpful in moving your project forward.

Name and Contact Information of Person Completing this Form: Cade Burgin. Phone: 251-375-4793
email:cburgin@thompsonengineering.com
Name and Contact Information of Project Lead: Click here to enter text.
Date Form Completed: October 4, 2023
Date Form Updated: Click here to enter text.

E. Description of Action Area

Provide a description of the existing environment (e.g., topography, vegetation type, soil type, substrate type, water quality, water depth, tidal/riverine/estuarine, hydrology and drainage patterns, current flow and direction), and land uses (e.g., public, residential, commercial, industrial, agricultural). Describe all areas that may be directly or indirectly affected by the action. If critical habitat (CH) is not designated in the area, then describe any suitable habitat in the area.

a. Waterbody & Wetlands

If applicable. Name the body of water, including wetlands (freshwater or estuarine), on which the project is located. If applicable, please describe water quality, depth, hydrology, current flow, and direction of flow.

Unnamed Tributary to Fish River

Does the project area include a river or estuary?

YES☐ NO☒

If yes, please approximate the navigable distance from the project location to the marine environment.
Click or tap here to enter text.

b. Existing Structures

If applicable. Describe the current and historical structures found in the action area (e.g., buildings, parking lots, docks, seawalls, groins, jetties, marina). If known, please provide the years of construction.

Waste water treatment facility is located in the west portion of the project area. Years of construction are unknown.

c. Seagrasses & Other Marine Vegetation

If applicable. Describe seagrasses found in action area. If a benthic survey was done, provide the date it was completed and a copy of the report. Estimate the species area of coverage and density. Attach a separate map showing the location of the seagrasses in the action area.

None

d. Mangroves

If applicable. Describe the mangroves found in action area. Indicate the species found (red, black, white), the species area of coverage in square footage and linear footage along project shoreline. Attach a separate map showing the location of the mangroves in the action area.

None

e. Corals

If applicable. Describe the corals found in action area. If a benthic survey was done, provide the date it was completed and a copy of the report. Estimate the species area of coverage and density. Attach a separate map showing the location of the corals in the action area. Click here to enter text.

Click here to enter text.

f. Uplands

If applicable. Describe the current terrestrial habitat in which the project is located (e.g. pasture, forest, meadows, beach and dune habitats, etc.).

Eastern portion of project is located immediately adjacent to a grassed field.

g. Soils and Sediments

If applicable. Indicate topography, soil type, substrate type.

Soils discussion can be found in attached Wetlands, Streams, and Endangered Species Survey Report.

h. Land Use

If applicable. Indicate existing or previous land use activities (agriculture, dredge disposal, etc).

Land use activities consist of a Waste Water treatment Facility around the western portion of the project area and a grassed field around the eastern portion of the project area

i. Marine Mammals

Please select the following marine mammals that could be present within the project area:

Dolphins YES☐ NO☒
Whales YES☐ NO☒
Manatees YES☐ NO☒

If applicable. Indicate and describe the species found in the action area. Use NMFS' Stock Assessment Reports (SARs) for more information, see http://www.nmfs.noaa.gov/pr/sars/region.htm

Click here to enter text.

F. Project Description

I. *Describe the Proposed Action/Project Objectives: What are you trying to accomplish and how with this project? Describe in detail the construction equipment and methods** needed; long term vs. short term impacts; duration of short term impacts; dust, erosion, and sedimentation controls; restoration areas; if the project is growth-inducing or facilitates growth; whether the project is part of a larger project or plan; and what permits will need to be obtained.*

Attach a separate map showing project footprint, avoidance areas, construction accesses, staging/laydown areas.

***If construction involves overwater structures, pilings and sheetpiles, boat slips, boat ramps, shoreline armoring, dredging, blasting, artificial reefs or fishery activities, list the method here, but complete the next section(s) in detail.*

Heavy machinery will be used to reshape and realign the stream channel to stable dimension pattern and profile. This will require impact to 8,389.87 sq ft of wetland 1 and 14,570 sq ft of wetland 2 (0.53 acres total). All fill material used will be native to the project site. Fill will be used to promote positive drainage to the proposed new channel alignment.

Of these impacts, wetland 1 will receive 172.89 cu yds of native fill material and 94.27 cu yds will be removed. Net earthwork in wetland 1 will be 78.62 cu yds of fill. Wetland 1 is located between stations 09+50 and 15+00 shown on the overall site plan. Cut will occur in wetland 1 where needed to create sinuosity of new channel as specified in the design drawings. Fill will be added to wetland 1 to promote positive drainage to the proposed new channel alignment.

Wetland 2 will receive 1,201.76 cu yds of native fill material and 37.21 cu yds will be removed. Net earthwork in wetland 2 is 1,164.55 cu yds of fill. Wetland 2 is located between stations 17+60 and 25+00 shown on the overall site plan. Cut will occur in wetland 2 between Station 17+60 and 18+50 to create the new channel profile. The remainder of wetland 2 will receive native fill material to promote positive drainage to the proposed new channel alignment.

The project will impact 2,516 linear feet of an existing stream channel. Impacts to the stream include heavy machinery removing native materials and reusing them as fill to create a new and improved sinuous stream channel as specified in the design drawings. All fill material will be native to the project site. Excess cut material will be hauled off and disposed of properly by the contractor.

The project design includes the installation of plants along the immediate streambank area for streambank stabilization. The project will create a total of 2.91 acres of wetlands.

II. *Construction Schedule (What is the anticipated schedule for major phases of work? Include duration of in-water work.)*
Click here to enter text.

III. *Specific In-Water and/or Terrestrial Construction Methods*

Please check yes or no for the following questions related to in-water work and overwater structures

Does this project include in-water work?	YES☐	NO☐
Does this project include terrestrial construction?	YES☐	NO☐
Does this project include construction of an overwater structure?	YES☐	NO☒
Will fishing be allowed from this overwater structure?	YES☐	NO☒

Will wildlife observation be allowed from this overwater structure?	YES☐ NO☒
Will boat docking be allowed from this overwater structure?	YES☐ NO☒

If this is a fishing pier, please provide the following information: public or private access to pier, estimated number of people fishing per day, plan to address hook and line captures of protected species, specific operating hours/open 24 hours, artificial lighting of pier (if any), number of fish cleaning stations, and number of pier attendants (if any).

N/A

Construction: Provide a detailed account of construction methods. It is important to include step-by-step descriptions of how demolition or removal of structures is conducted and if any debris will be moved and how. Describe how construction will be implemented, what type and size of materials will be used and if machines will be used, manual labor, or both. Indicate if work will be done from upland, barge, or both.)

iii. *Use of "Dock Construction Guidelines"?* https://media.fisheries.noaa.gov/dam-migration/dockkey2002.pdf

iv. *Type of decking: Grated – 43% open space; Wooden planks or composite planks – proposed spacing?*

v. *Height above Mean High Water (MHW) elevation?*

vi. *Directional orientation of main axis of dock?*

vii. *Overwater area (sq ft)?*

Click here to enter text.

b. *Pilings & Sheetpiles: If this project includes installation of pilings or sheets, please provide answers to questions 1-11 listed below*

1. Method of pile installation	
2. Material type of piles used	
3. Size (width) of piles/sheets	
4. Total number of piles/sheets	
5. Number of strikes for each single pile	
6. Number of strikes per hour (for a single pile)	
7. Expected number of piles to be driven each day	
8. Expected amount of time needed to drive each pile (minutes of driving activities)	
9. Expected number of sequential days spent pile driving	
10. Whether pile driving occurring in-water or on land	
11. Depth of water where piles will be driven	

c. *Marinas and Boat Slips (Describe the number and size of slips and if the number of new slips changes from what is currently available at the project. Indicate how many are wet slips and how many are dry slips. Estimate the shadow effect of the boats - the area (sqft) beneath the boats that will be shaded.)*

N/A

d. *Boat Ramp (Describe the number and size of boat ramps, the number of vessels that can be moored at the site (e.g., staging area) and if this is a public or private ramp. Indicate the boat trailer parking lot capacity, and if this number changes from what is currently available at the project.)*

N/A

e. *Shoreline Armoring (This includes all manner of shoreline armoring (e.g., riprap, seawalls, jetties, groins, breakwaters, etc.). Provide specific information on material and construction methodology used to install the shoreline armoring materials. Include linear footage and square footage. Attach a separate map showing the location of the shoreline armoring in the action area.*

N/A

f. *Dredging or digging (Provide details about dredge type (hopper, cutterhead, clamshell, etc.), maximum depth of dredging, area (ft2) to be dredged, volume of material (yd3) to be produced, grain size of material, sediment testing for contamination, spoil disposition plans, and hydrodynamic description (average current speed/direction)). If digging in the terrestrial environment, please describe fully with details about possible water jetting, vibration methods to install pilings for dune walk-over structure, or other methods. If using devices/methods/turtle relocation dredging to relocate sea turtles, then describe the methods here.*

N/A

g. *Blasting (Projects that use blasting might not qualify as "minor projects," and a Biological Assessment (BA) may need to be prepared for the project. Arrange a technical consultation meeting with NMFS Protected Resources Division to determine if a BA is necessary. Please include explosive weights and blasting plan.)*

N/A

h. *Artificial Reefs (Provide a detailed account of the artificial reef site selection and reef establishment decisions [i.e., management and siting considerations, stakeholder considerations, environmental considerations, long term maintenance plan (periodic clean-up of lost fishing gear/debris]), deployment schedule, materials used, deployment methods, as well as final depth profile and overhead clearance for vessel traffic. For additional Information and detailed guidance on artificial reefs, please refer to the artificial reef program websites for the particular state the project will occur in.*

N/A

i. *Fishery Activities (Describe any use of gear that could entangle or capture protected species. This includes activities that may enhance fishing opportunities (e.g. fishing piers) or be fishery/gear research related (e.g. involve trawl gear, gillnets, hook and line gear, crab pots etc)).*

None

G. NOAA Essential Fish Habitat (EFH)

If applicable, describe any designated Essential Fish Habitat within the project area in the text box and answer the questions below about habitat effects, conversions or benefits. If there is no EFH in your project area, enter N/A in the box below and move to section F.

Depending on the effects of your project, EFH consultation with NMFS may be required:
https://www.fisheries.noaa.gov/southeast/consultations/essential-fish-habitat-consultations-southeast
N/A

In this table, please use checkboxes to indicate which EFH eco-region(s) and habitat zone(s) in which the project is located. For more information about EFH Eco Regions see the references here:
https://noaasdd.sharepoint.com/:f:/s/tcover/Euupi2PMtXdEqQtJSdKyq-wBdyb42ubMUUbMy7QsijqK7A?e=oYqSsb
https://portal.gulfcouncil.org/EFHreview.html

Gulf of Mexico EFH Eco-Region	Estuarine	Nearshore	Offshore
Eco-Region 1: South Florida (*Florida Keys north to Tarpon Springs, Florida*)	☐	☐	☐
Eco-Region 2: North Florida	☐	☐	☐

(Tarpon Springs, Florida, north and west to Pensacola Bay, Florida)			
Eco-Region 3: East Louisiana, Mississippi, and Alabama *(Pensacola Bay, Florida, west to the Mississippi River Delta)*	☐	☐	☐
Eco-Region 4: East Texas and West Louisiana *(Mississippi River Delta west and south to Freeport, Texas)*	☐	☐	☐
Eco-Region 5: West Texas *(Freeport, Texas south to the U.S./Mexico border)*	☐	☐	☐

Effects to EFH

In this section, please indicate if your project has effects on EFH, either beneficial or adverse. For example, whether the project creates, improves, removes or converts habitat. Please describe the types of habitats that will be affected by the project, including number of acres.

Will this project affect EFH?	YES☐ NO☒
If no, please proceed to section X. (For example, your project is wholly upland or includes only desktop analysis tasks) *If yes, please proceed to additional boxes below.*	

Click here to enter text.

Will this project have beneficial effects to EFH?	YES☐ NO☐
If yes, please describe how your project will have beneficial effects the text box below:	

Click here to enter text.

Will this project have adverse effects on EFH?	YES☐ NO☐
If yes, please describe what type of adverse effects your project will cause to EFH in the text bow below:	

Click here to enter text.

H. NOAA ESA Species and Critical Habitat and Effects Determination Requested

If your project occurs in a location that does not contain any listed NOAA species or designated Critical Habitats, please check the box below. If this box is checked, you may skip Section H. and proceed to Section I.

xThis project occurs in a location that does not contain any listed NOAA species or designated Critical Habitats.

☐ESA effects have been accounted for under an existing consultation.

1. List all species, critical habitat, proposed species and proposed critical habitat that may be found in the action area. Species that do not currently occur in the action area (but are listed on county species lists) do not need to be listed in drop downs. For species not included in the drop down menu please add manually to the table.

2. Attach a separate map identifying species/critical habitat locations within the action area. For information on species and critical habitat under NMFS jurisdiction, visit:
http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf.

If Gulf sturgeon in marine waters may be affected, include them in the table here. If Gulf Sturgeon in riverine/freshwater may be affected include them in the USFWS table below in Section I. If sea turtles in water may be affected include them in the table here. If sea turtles on land may be affected include them in the USFWS table below in Section I.

Species and/or Critical Habitat	**CH Unit** (if applicable)	**Location** (Sea turtles and Gulf Sturgeon **only**)	**Determinations** (see definitions below)	**For "No Effect", please select justification.**
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.

Determination Definitions

Please make the appropriate choice in the drop down menus for both species and designated critical habitat listed in the firs column.

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat.

NLAA = may affect, not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response requested is concurrence with the not likely to affect determination. This conclusion is appropriate when effects to the species or critical habitat will be wholly beneficial, discountable, or insignificant. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact, while discountable effects are those that are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully

measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. If the Services concur in writing with the Action Agency's determination of "is not likely to adversely affect" listed species or critical habitat, the section 7 consultation process is completed.

LAA = may affect, likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response requested for listed species is formal consultation for action with a likely to adversely affect determination, with a biological opinion as the concluding document. This conclusion is reached if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable or insignificant. In the event the overall effect of the proposed action is beneficial to the listed species or critical habitat, but may also cause some adverse effect on individuals of the listed species or segments of the critical habitat, then the determination is "likely to adversely affect." Any LAA determination requires formal section 7 consultation and will require additional information.

I. USFWS Species and Critical Habitat and Effects Determination Requested

If your project occurs in a location that does not contain any listed USFWS species or designated Critical Habitats, please check the box below. If this box is checked, you may skip Section I and proceed to Section J.

xThis project occurs in a location that does not contain any listed USFWS species or designated Critical Habitats.

☐ESA effects have been accounted for under an existing consultation.

*1. List all species, critical habitat, proposed species and proposed critical habitat **generated by IPaC** that may be found in the action area*. For species not included in the drop down menu please add manually to the table. The IPaC website can be found here: https://ipac.ecosphere.fws.gov/.

2. Attach a separate map identifying species/critical habitat locations within the action area. For information on species and critical habitat under NMFS jurisdiction, visit: http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf.

If Gulf sturgeon in riverine/freshwater waters may be affected, include them in the table here. If Gulf Sturgeon in marine waters may be affected include them in the NMFS table above in Section H. If sea turtles on land may be affected include them in the table here. If sea turtles in water may be affected include them in the NMFS table above in Section H.

Species and/or Critical Habitat	**CH Unit** (if applicable)	**Location** (Sea turtles and Gulf Sturgeon **only**)	**Determinations** (see definitions below)	**For "No Effect", please select justification.**
Eastern Black Rail		Choose an item.	No Effect	Species does not occur within action area
Alligator Snapping Turtle		Choose an item.	No Effect	Species does not occur within action area
Eastern Indigo Snake		Choose an item.	No Effect	Species does not occur within action area
Monarch Butterfly		Choose an item.	No Effect	Species does not occur within action area
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.

Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.

Determination Definitions

Please make the appropriate choice in the drop down menus for both species and designated critical habitat

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat.

NLAA = may affect, not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response requested is concurrence with the not likely to affect determination. This conclusion is appropriate when effects to the species or critical habitat will be wholly beneficial, discountable, or insignificant. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact, while discountable effects are those that are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. If the Services concur in writing with the Action Agency's determination of "is not likely to adversely affect" listed species or critical habitat, the section 7 consultation process is completed.

LAA = may affect, likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response requested for listed species is formal consultation for action with a likely to adversely affect determination, with a biological opinion as the concluding document. This conclusion is reached if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable or insignificant. In the event the overall effect of the proposed action is beneficial to the listed species or critical habitat, but may also cause some adverse effect on individuals of the listed species or segments of the critical habitat, then the determination is "likely to adversely affect." Any LAA determination requires formal section 7 consultation and will require additional information.

J. Effects of the Proposed Project to the Species and Actions to Reduce Impacts

NOTE: Species selected as "No Effect" with justification in tables above do not need to be addressed in Section J or K.

I. *Explain the potential beneficial and adverse effects to each species listed above. Describe what, when, and how the species will be impacted and the likely response to the impact. Be sure to include direct, indirect, and cumulative impacts and where possible, quantify effects.*

If species are present (or potentially present) and will not be adversely affected describe your rationale. If species are unlikely to be present in the general area or action area, explain why. This justification provides documentation for your administrative record, avoids the need for additional correspondence regarding the species, and helps expedite review.

Surveys for these species have been conducted (report attached). None occur within the action area.

II. *Explain the actions to reduce adverse effects to each species listed above. For each species for which impacts were identified, describe any Conservation Measures and/or BMPs that will be implemented to avoid or minimize the impacts. Conservation Measures and/or BMPs are designed to avoid or minimize effects to listed species and critical habitats or further the recovery of the species under review. Conservation Measures and/or BMPs are considered part of the proposed action and their implementation is required. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to reinitiate this consultation.*

***Frequently Recommended Conservation Measures and BMPs*: This checklist provides standard practices recommended by NMFS and USFWS. Please select any BMPs that will be implemented:**

- ☐ **USFWS Standard Manatee In Water Conditions**
- ☐ **NMFS Protected Species Construction Conditions (2021)[1]**
- ☐ **NMFS Measures for Reducing the Entrapment Risk to Protected Species[1]**
- ☐ **NMFS Vessel Strike Avoidance Measures (2021)[1]**

Additional BMPs or Conservation Measures

Use the box below to indicate which best management practices or conservation measures you'll be using in your project (that were not listed in Section J.II, above)

Click here to enter text.

K. Effects to Critical Habitats and Actions to Reduce Impacts

NOTE: Species selected as "No Effect" with justification in table do not need to be addressed in Section J or K.

I. *Explain the potential beneficial and adverse effects to critical habitat listed above. Describe what, when, and how the critical habitat will be impacted and the likely response to the impact. Be sure to include direct, indirect, and cumulative impacts to physical and biological features, and where possible, quantify effects (e.g. acres of habitat, miles of habitat).*

Describe your rationale if designated or proposed critical habitats are present and will not be adversely affected.

Click here to enter text.

II. *Explain the actions to reduce adverse effects to critical habitat listed above. For critical habitat for which impacts were identified, describe any conservation measures (e.g. BMPs) that will be implemented to avoid or minimize the impacts. Conservation measures are designed to avoid or minimize effects to listed species and critical habitats or further the recovery of the species under review. Conservation measures are considered part of the proposed action and their implementation is required. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to reinitiate this consultation.*

Click here to enter text.

L. Marine Mammals

I. The Marine Mammal Protection Act prohibits the taking (including disruption of behavior, entrapment, injury, or death) of all marine mammals (e.g.,whales, dolphins, manatees). However, the MMPA allows limited exceptions to the take prohibition if authorized, such as the incidental (i.e., unintentional but not unexpected) take of marine mammals. The following questions are designed to allow the Agencies to quickly determine if your action has the potential to take marine mammals. If the information provided indicates that incidental take is possible, further discussion with the Agencies is required.

Is your activity occurring in or on marine or estuarine waters? xNO ☐YES

If yes, is your activity likely to cause large-scale, ecosystem level impacts to the quality (e.g. salinity, temperature) of marine or estuarine waters? ☐NO ☐YES

II. If Yes, describe activities further using checkboxes. Does your activity involve any of the following:

[1] https://www.fisheries.noaa.gov/southeast/consultations/regulations-policies-and-guidance

NO	YES	ACTIVITY
☐	☐	*a) Use of active acoustic equipment (e.g., echosounder) producing sound below 200 kHz*
☐	☐	*b) In-water construction or demolition*
☐	☐	*c) Temporary or fixed use of active or passive sampling gear (e.g., nets, lines, traps; turtle relocation trawls)*
☐	☐	*d) In-water Explosive detonation*
☐	☐	*e) Aquaculture*
☐	☐	*f) Restoration of barrier islands, levee construction or similar projects*
☐	☐	*g) Fresh-water river diversions*
☐	☐	*h) Building or enhancing areas for water-related recreational use or fishing opportunities (e.g. fishing piers, bridges, boat ramps, marinas)*
☐	☐	*i) Dredging or in-water construction activities to change hydrologic conditions or connectivity, create breakwaters and living shorelines, etc.*
☐	☐	*j) Conducting driving of sheet piles or pilings*
☐	☐	*k) Use of floating pipeline during dredging activities*

III. If you checked "Yes" to any of the activities immediately above or the activity could impact the quality of marine or estuarine waters, please describe the nature of the activities in more detail or indicate which section of the form already includes these descriptions. See the NOAA Acoustic Guidance for more information: http://www.nmfs.noaa.gov/pr/acoustics/faq.htm

Click here to enter text.

IV. *Frequently Recommended BMPs for marine mammals (manatees are covered in Section J, above): This checklist provides standard BMPs recommended by NOAA. Please select any BMPs that will be implemented:*

☐	NMFS Southeast U.S. Marine Mammal and Sea Turtle Viewing Guidelines[2]
☐	NMFS Protected Species Construction Conditions (2021)[3]
☐	NMFS Measures for Reducing the Entrapment Risk to Protected Species (2012)[3]
☐	NMFS Vessel Strike Avoidance Measures and Reporting for Mariners (2021)[3]
☐	NMFS Reproducing and posting outreach signs: Dolphin Friendly Fishing Tips sign, Don't Feed Wild Dolphins sign[4]

If not listed above, please describe any additional BMPs or conservation measures that may be be implemented for marine mammals.
Click here to enter text.

M. Bald Eagles

Are bald eagles present in the action area? x NO ☐YES

If YES, the following conservation measures should be implemented:

1. If bald eagle breeding or nesting behaviors are observed or a nest is discovered or known, all activities (e.g., walking, camping, clean-up, use of a UTV, ATV, or boat) should avoid the nest by a minimum of 660 feet. If the nest is protected by a vegetated buffer where there is *no* line of sight to the nest, then the minimum avoidance distance is 330 feet. This avoidance distance

[2] https://www.fisheries.noaa.gov/topic/marine-life-viewing-guidelines
[3] https://www.fisheries.noaa.gov/southeast/consultations/regulations-policies-and-guidance
[4] https://www.fisheries.noaa.gov/southeast/consultations/protected-species-educational-signs

shall be maintained from the onset of breeding/courtship behaviors until any eggs have hatched and eaglets have fledged (approximately 6 months).

2. If a similar activity (e.g., driving on a roadway) is closer than 660 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
3. If a vegetated buffer is present and there is no line of sight to the nest and a similar activity is closer than 330 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
4. In some instances, activities conducted at a distance greater than 660 feet of a nest may result in disturbance. If an activity appears to cause initial disturbance, the activity shall stop and all individuals and equipment will be moved away until the eagles are no longer displaying disturbance behaviors.

Will you implement the above measures? ☐NO x YES

If these measures cannot be implemented, then you must contact the Service's Migratory Bird Permit Office.
Texas – (505) 248-7882 or by email: permitsR2MB@fws.gov
Louisiana, Mississippi, Alabama, Florida – (404) 679-7070 or by email: permitsR4MB@fws.gov

N. Migratory Bird Treaty Act

In accordance with the Migratory Bird Treaty Act of 1918 as amended (16 U.S.C. 703-712), will this project cause the take of any birds covered under this act? x NO ☐ YES

If YES, please explain and indicate if the pertinent permits will be or have been obtained:

Project proponent will review the appropriate BMPs and CMs found at this website and implement the appropriate measures to the extent practicable:
https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
☐NO x YES

If NO, please explain:

O. Request Approval for Use of NMFS PDCs for This Project

Complete this section only if your project qualifies for streamlined ESA consultation under the ESA Framework Programmatic Informal Consultation between the Council and NMFS.

To be eligible for streamlined ESA consultation with NMFS, you must implement all Project Design Criteria (PDCs) applicable to your project. Check "yes" for PDC categories that apply to the proposed project, and request the relevant PDC checklist from NMFS.

NO	YES	ACTIVITY
☐	☐	**Marsh Creation, Maintenance, or Enhancement**
☐	☐	**Living Shorelines Construction Maintenance, or Expansion**
☐	☐	**Removal of Fishing Gear and Other Marine Debris**
☐	☐	**Oyster Reefs Creation, Maintenance, or Enhancement**
☐	☐	**Pile-Supported Structures, including Non-fishing Piers, Anchored Buoys, and In-water Sign Posts**
☐	☐	**Artificial Reefs Construction, Maintenance, or Expansion**
☐	☐	**Boat Ramps Installation, Repair, Replacement, or Removal**
☐	☐	**Water Management Outfall Structures and Associated Endwalls Installation, Repair, Replacement or Removal**
☐	☐	**Establishing or Restoring SAV**

☐	☐	**Scientific Surveys or Research Projects and the Installation, Repair, or Removal of Equipment**

P. Submitting the BE Form

For NOAA consultations: We request that all BE forms and consultation materials be emailed to the contact below for review. Upon receipt, we will conduct a preliminary review and provide any comments and feedback, including any requests for modifications or additional information.

If modifications or additional information is necessary, we will work with you until the Biological Evaluation form is considered complete. Once complete, we will use the Biological Evaluation form to initiate appropriate consultations.

NMFS ESA § 7 Consultation
Michael Tucker, National Oceanic Atmospheric Administration
Email: michael.tucker@noaa.gov
Phone: 727-209-5981

For USFWS consultations: The USFWS conducts all environmental reviews through the "IPaC" system. The project proponent can upload this form through the IPaC portal at https://ipac.ecosphere.fws.gov/. The Consultation Builder portion of the process is not necessary. Once a letter is generated by the system, that letter and the BE form can be emailed to the appropriate Ecological Services office as indicted in the letter. This will start the consultation process. For assistance related to the use of IPaC please contact the USFWS liaison listed below.

USFWS ESA § 7 Consultation
Michael Barron, U.S. Fish and Wildlife Service
Email: michael_barron@fws.gov
Phone: 251-421-7030