

**U.S. ARMY CORPS OF ENGINEERS  
WILMINGTON DISTRICT**

Action Id. SAW-2015-02207 County: Dare U.S.G.S. Quad: NC-OREGON INLET

**GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION**

Permittee: NC Department of Transportation

Phil Harris

Address: 1598 Mail Service Center

Raleigh, NC, 27699-1598

Telephone Number:

Size (acres) 57 acres

Nearest Town Nags Head

Nearest Waterway Atlantic Ocean

River Basin Albemarle

USGS HUC 03010205

Coordinates Latitude: 35.75084041

Longitude: -75.58649065

Location description: The project area is a 57 acre area located southwest of Bonner Bridge and Oregon Inlet near a stable shoal in the Pamlico Sound.

Description of projects area and activity: NCDOT proposes to construct a 500 foot long wavebreak structure designed to attenuate wave energy and improve habitat function. The project was designed to meet mitigation requirements established in the NCDCM Major Permit to replace Bonner Bridge in Oregon Inlet, Dare County, North Carolina. See also SAW-1993-03077

Applicable Law:  Section 404 (Clean Water Act, 33 USC 1344)  
 Section 10 (Rivers and Harbors Act, 33 USC 403)

Authorization: Regional General Permit Number or Nationwide Permit Number: NWP 27 Aquatic Habitat Restoration, Establishment, and Enhancement Activities.

***SEE ATTACHED RGP or NWP GENERAL, REGIONAL AND SPECIAL CONDITIONS***

**Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted application and attached information dated 02/19/2016. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order, a Class I administrative penalty, and/or appropriate legal action.**

This verification will remain valid until the expiration date identified below unless the nationwide authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Quality (telephone 919-807-6300) to determine Section 401 requirements.

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management in Elizabeth City, NC, at (252) 264-3901.

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact Tracey Wheeler at 910-251-4627 or Tracey.L.Wheeler@usace.army.mil.

Corps Regulatory Official: 1271895182

Date: 04/01/2016

Expiration Date of Verification: 03/18/2017

WHEELER.TRACEY.L.  
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DN: cn=US, o=US Government, ou=DoD, ou=PKI,  
ou=USA, cn=WHEELER.TRACEY.L.1271895182  
Date: 2016.04.01 15:59:54 -0400

## Determination of Jurisdiction:

- A.  Based on preliminary information, there appear to be waters of the US including wetlands within the above described project area. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).
- B.  There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- C.  There are waters of the US and/or wetlands within the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- D.  The jurisdictional areas within the above described project area have been identified under a previous action. Please reference jurisdictional determination issued . Action ID: **SAW-** .

**Basis For Determination: Project area is located entirely below OHWM in the tidal waters of Oregon Inlet and Pamlico Sound.**

### E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

### F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B and C above).

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers  
South Atlantic Division  
Attn: Jason Steele, Review Officer  
60 Forsyth Street SW, Room 10M15  
Atlanta, Georgia 30303-8801  
Phone: (404) 562-5137

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by .

**\*\*It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.\*\***

Corps Regulatory Official: WHEELER.TRACEY.L.1271895182  
**Tracey Wheeler**

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DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA,  
cn=WHEELER.TRACEY.L.1271895182  
Date: 2016.04.01 16:00:14 -0400

Date of JD: **04/01/2016**

Expiration Date of JD: **04/01/2021**

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## **SPECIAL CONDITIONS**

1. This project does not meet standards described in the USACE Mitigation Rule and may not be used to provide compensatory mitigation for impacts authorized by any USACE permits.
2. NCDOT must coordinate with USCG to satisfy marking and lighting requirements for the structure.
3. If functional uplift is not achieved, NCDOT must coordinate with USACE to determine appropriate remedial action, which may include removal of the structure.

Action ID Number: SAW-2015-02207

County: Dare

Permittee: NC Department of Transportation  
Phil Harris

Project Name: NCDOT/Bridge 11 Bonner Bridge/Wavebreak/SAV Habitat Enhancement Structure

Date Verification Issued: 04/01/2016

Project Manager: Tracey Wheeler

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

US ARMY CORPS OF ENGINEERS  
WILMINGTON DISTRICT  
Attn: Tracey Wheeler  
2407 West 5<sup>th</sup> Street  
Washington, North Carolina 27889

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. Failure to comply with any terms or conditions of this authorization may result in the Corps suspending, modifying or revoking the authorization and/or issuing a Class I administrative penalty, or initiating other appropriate legal action.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Date



**NATIONWIDE PERMIT 27**  
**DEPARTMENT OF THE ARMY**  
**CORPS OF ENGINEERS**  
**FINAL NOTICE OF ISSUANCE AND MODIFICATION OF NATIONWIDE PERMITS**  
**FEDERAL REGISTER**  
**AUTHORIZED MARCH 19, 2012**

**Aquatic Habitat Restoration, Establishment, and Enhancement 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 the extent that a Corps permit is required, activities authorized by this NWP include, but are not limited to: the removal of accumulated sediments; 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, restoration, or establishment of riffle and pool stream structure; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to restore or establish stream meanders; 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 establish or re-establish 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; 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., 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 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 31), 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 U.S. FWS, NRCS, FSA, NMFS, NOS, USFS or their designated state cooperating agencies;

(2) 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

(3) 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. (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.

## NATIONWIDE PERMIT CONDITIONS

The following General Conditions must be followed in order for any authorization by a NWP to be valid:

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 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.

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 and storm water management activities, 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.

13. Removal of Temporary Fills. 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. No 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. 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).

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 the critical habitat of such species. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, 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 designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. 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. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have “no effect” on listed species or critical habitat, or until Section 7 consultation 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 with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a 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 U.S. 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) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.noaa.gov/fisheries.html> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for obtaining any “take” permits required under the U.S. Fish and Wildlife Service’s regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such “take” permits are required for a particular activity.

20. Historic Properties. (a) 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 (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. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may 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 may be affected by the proposed work 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 resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, 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, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and 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 or that consultation under Section 106 of the NHPA has been completed.

(d) 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. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA

section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work 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 110k of the NHPA (16 U.S.C. 470h-2(k)) 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. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you 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 NWP 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 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, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined 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 adverse effects on the aquatic environment are 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 adverse effects to the aquatic environment are 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 effects of the proposed activity are minimal, and provides a project-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 minimal adverse effects on the aquatic environment. 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 minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(3) 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) – (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)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) 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.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) 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 project 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 a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWP.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. 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 establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing 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 compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory 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.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of 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 effects of the project to the 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 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. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe 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)). 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 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 prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not 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.

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.”

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(Transferee)

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(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 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 work 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(1)(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 work and mitigation.

31. 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 information 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 information 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 in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may 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 (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. 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 project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; 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. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project 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);

(4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral 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 waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands 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 effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(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 project's adverse environmental effects to a minimal level.

(2) For 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, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, 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 (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), 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 telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse 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 the net adverse environmental effects to the aquatic environment of the proposed activity are 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.

(3) 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.

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

#### D. 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. For a linear project, this determination will include an evaluation of the individual crossings 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 authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to intermittent or ephemeral streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51 or 52, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in minimal adverse effects. When making minimal effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. 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 assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed activity are 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 effects on the aquatic environment are 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 no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

3. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (a) That the project 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 project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) that the project 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 effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period, with activity-specific

conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When 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.

### **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.

### **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.

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.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

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.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

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. 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 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. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. 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 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.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). 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 standing or

flowing 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: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

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 coarse 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 adjacent 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 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 wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. 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 channelward of the high tide line, which is defined at 33 CFR 328.3(d).

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 NWP, a waterbody is a jurisdictional water of the United States. If a jurisdictional wetland is adjacent – meaning bordering, contiguous, or neighboring – to a waterbody determined to be a water of the United States under 33 CFR 328.3(a)(1)-(6), that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of “waterbodies” include streams, rivers, lakes, ponds, and wetlands.

## **Final Regional Conditions 2012**

### ***NOTICE ABOUT WEB LINKS IN THIS DOCUMENT:***

*The web links (both internal to our District and any external links to collaborating agencies) in this document are valid at the time of publication. However, the Wilmington District Regulatory Program web page addresses, as with other agency web sites, may change over the timeframe of the five-year Nationwide Permit renewal cycle, in response to policy mandates or technology advances. While we will make every effort to check on the integrity of our web links and provide re-direct pages whenever possible, we ask that you report any broken links to us so we can keep the page information current and usable. We apologize in advanced for any broken links that you may encounter, and we ask that you navigate from the regulatory home page (wetlands and stream permits) of the Wilmington District Corps of Engineers, to the “Permits” section of our web site to find links for pages that cannot be found by clicking directly on the listed web link in this document.*

## **Final 2012 Regional Conditions for Nationwide Permits (NWP) in the Wilmington District**

### **1.0 Excluded Waters**

The Corps has identified waters that will be excluded from the use of all NWP’s during certain timeframes. These waters are:

#### **1.1 Anadromous Fish Spawning Areas**

Waters of the United States identified by either the North Carolina Division of Marine Fisheries (NCDMF) or the North Carolina Wildlife Resources Commission (NCWRC) as anadromous fish spawning areas are excluded during the period between February 15 and June 30, without prior written approval from NCDMF or NCWRC and the Corps.

#### **1.2 Trout Waters Moratorium**

Waters of the United States in the twenty-five designated trout counties of North Carolina are excluded during the period between October 15 and April 15 without prior written approval from the NCWRC. (See Section 2.7 for a list of the twenty-five trout counties).

#### **1.3 Sturgeon Spawning Areas as Designated by the National Marine Fisheries Service (NMFS)**

Waters of the United States designated as sturgeon spawning areas are excluded during the period between February 1 and June 30, without prior written approval from the NMFS.

## **2.0 Waters Requiring Additional Notification**

The Corps has identified waters that will be subject to additional notification requirements for activities authorized by all NWP's. These waters are:

### **2.1 Western NC Counties that Drain to Designated Critical Habitat**

For proposed activities within Waters of the U.S. that require a Pre-Construction Notification pursuant to General Condition 31 (PCN) and are located in the sixteen counties listed below, applicants must provide a copy of the PCN to the US Fish and Wildlife Service, 160 Zillicoa Street, Asheville, North Carolina 28801. This PCN must be sent concurrently to the US Fish and Wildlife Service and the Corps Asheville Regulatory Field Office. Please see General Condition 18 for specific notification requirements related to Federally Endangered Species and the following website for information on the location of designated critical habitat.

Counties with tributaries that drain to designated critical habitat that require notification to the Asheville US Fish and Wildlife Service: Avery, Cherokee, Forsyth, Graham, Haywood, Henderson, Jackson, Macon Mecklenburg, Mitchell, Stokes, Surry, Swain, Transylvania, Union and Yancey.

Website and office addresses for Endangered Species Act Information:

The Wilmington District has developed the following website for applicants which provides guidelines on how to review linked websites and maps in order to fulfill NWP general condition 18 requirements: <http://www.saw.usace.army.mil/wetlands/ESA>

Applicants who do not have internet access may contact the appropriate US Fish and Wildlife Service offices listed below or the US Army Corps of Engineers at (910) 251- 4633:

US Fish and Wildlife Service  
Asheville Field Office  
160 Zillicoa Street  
Asheville, NC 28801  
Telephone: (828) 258-3939

Asheville US Fish and Wildlife Service Office counties: All counties west of and including Anson, Stanly, Davidson, Forsyth and Stokes Counties

US Fish and Wildlife Service  
Raleigh Field Office  
Post Office Box 33726  
Raleigh, NC 27636-3726  
Telephone: (919) 856-4520

Raleigh US Fish and Wildlife Service Office counties: all counties east of and including Richmond, Montgomery, Randolph, Guilford, and Rockingham Counties.

## **2.2 Special Designation Waters**

Prior to the use of any NWP in any of the following identified waters and contiguous wetlands in North Carolina, applicants must comply with Nationwide Permit General Condition 31 (PCN). The North Carolina waters and contiguous wetlands that require additional notification requirements are:

“Outstanding Resource Waters” (ORW) or “High Quality Waters” (HQW) as designated by the North Carolina Environmental Management Commission; “Inland Primary Nursery Areas” (IPNA) as designated by the NCWRC; “Contiguous Wetlands” as defined by the North Carolina Environmental Management Commission; or “Primary Nursery Areas” (PNA) as designated by the North Carolina Marine Fisheries Commission.

## **2.3 Coastal Area Management Act (CAMA) Areas of Environmental Concern**

Non-federal applicants for any NWP in a designated “Area of Environmental Concern” (AEC) in the twenty (20) counties of Eastern North Carolina covered by the North Carolina Coastal Area Management Act (CAMA) must also obtain the required CAMA permit. Development activities for non-federal projects may not commence until a copy of the approved CAMA permit is furnished to the appropriate Wilmington District Regulatory Field Office (Wilmington Field Office – 69 Darlington Avenue, Wilmington, NC 28403 or Washington Field Office – 2407 West 5th Street, Washington, NC 27889).

## **2.4 Barrier Islands**

Prior to the use of any NWP on a barrier island of North Carolina, applicants must comply with Nationwide Permit General Condition 31 (PCN).

## **2.5 Mountain or Piedmont Bogs**

Prior to the use of any NWP in a Bog classified by the North Carolina Wetland Assessment Methodology (NCWAM), applicants shall comply with Nationwide Permit General Condition 31 (PCN). The latest version of NCWAM is located on the NC DWQ web site at: <http://portal.ncdenr.org/web/wq/swp/ws/pdu/ncwam> .

## **2.6 Animal Waste Facilities**

Prior to use of any NWP for construction of animal waste facilities in waters of the US, including wetlands, applicants shall comply with Nationwide Permit General Condition 31 (PCN).

## **2.7 Trout Waters**

Prior to any discharge of dredge or fill material into streams or waterbodies within the twenty-five (25) designated trout counties of North Carolina, the applicant shall comply with Nationwide Permit General Condition 31 (PCN). The applicant shall also provide a copy of the notification to the appropriate NCWRC office to facilitate the determination of any potential

impacts to designated Trout Waters. Notification to the Corps of Engineers will include a statement with the name of the NCWRC biologist contacted, the date of the notification, the location of work, a delineation of wetlands, a discussion of alternatives to working in the mountain trout waters, why alternatives were not selected, and a plan to provide compensatory mitigation for all unavoidable adverse impacts to mountain trout waters.

#### NCWRC and NC Trout Counties

Western Piedmont Region Coordinator	Alleghany	Caldwell	Watauga
20830 Great Smoky Mtn. Expressway	Ashe	Mitchell	Wilkes
Waynesville, NC 28786	Avery	Stokes	
Telephone: (828) 452-2546	Burke	Surry	

Mountain Region Coordinator	Buncombe	Henderson	Polk
20830 Great Smoky Mtn. Expressway	Cherokee	Jackson	Rutherford
Waynesville, NC 28786	Clay	Macon	Swain
Telephone: (828) 452-2546	Graham	Madison	Transylvania
Fax: (828) 452-7772	Haywood	McDowell	Yancey

### 3.0 List of Corps Regional Conditions for All Nationwide Permits

The following conditions apply to all Nationwide Permits in the Wilmington District:

#### 3.1 Limitation of Loss of Perennial Stream Bed

NWPs may not be used for activities that may result in the loss or degradation of greater than 300 total linear feet of perennial, intermittent or ephemeral stream, unless the District Commander has waived the 300 linear foot limit for ephemeral and intermittent streams on a case-by-case basis and he determines that the proposed activity will result in minimal individual and cumulative adverse impacts to the aquatic environment. Loss of stream includes the linear feet of stream bed that is filled, excavated, or flooded by the proposed activity. Waivers for the loss of ephemeral and intermittent streams must be in writing and documented by appropriate/accepted stream quality assessments\*. This waiver only applies to the 300 linear feet threshold for NWPs.

\*NOTE: Applicants should utilize the most current methodology prescribed by Wilmington District to assess stream function and quality. Information can be found at:

<http://www.saw.usace.army.mil/wetlands/permits/nwp/nwp2012> (see “Quick Links”)



### **3.2 Mitigation for Loss of Stream Bed**

For any NWP that results in a loss of more than 150 linear feet of perennial and/or ephemeral/intermittent stream, the applicant shall provide a mitigation proposal to compensate for more than minimal individual and cumulative adverse impacts to the aquatic environment. For stream losses less than 150 linear feet, that require a PCN, the District Commander may determine, on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effect on the aquatic environment.

### **3.3 Pre-construction Notification for Loss of Streambed Exceeding 150 Feet.**

Prior to use of any NWP for any activity which impacts more than 150 total linear feet of perennial stream or ephemeral/ intermittent stream, the applicant must comply with Nationwide Permit General Condition 31 (PCN). This applies to NWPs that do not have specific notification requirements. If a NWP has specific notification requirements, the requirements of the NWP should be followed.

### **3.4 Restriction on Use of Live Concrete**

For all NWPs which allow the use of concrete as a building material, live or fresh concrete, including bags of uncured concrete, may not come into contact with the water in or entering into waters of the US. Water inside coffer dams or casings that has been in contact with wet concrete shall only be returned to waters of the US when it is no longer poses a threat to aquatic organisms.

### **3.5 Requirements for Using Riprap for Bank Stabilization**

For all NWPs that allow for the use of riprap material for bank stabilization, the following measures shall be applied:

**3.5.1.** Filter cloth must be placed underneath the riprap as an additional requirement of its use in North Carolina waters.

**3.5.2.** The placement of riprap shall be limited to the areas depicted on submitted work plan drawings.

**3.5.3.** The riprap material shall be clean and free from loose dirt or any pollutant except in trace quantities that would not have an adverse environmental effect.

**3.5.4.** It shall be of a size sufficient to prevent its movement from the authorized alignment by natural forces under normal conditions.

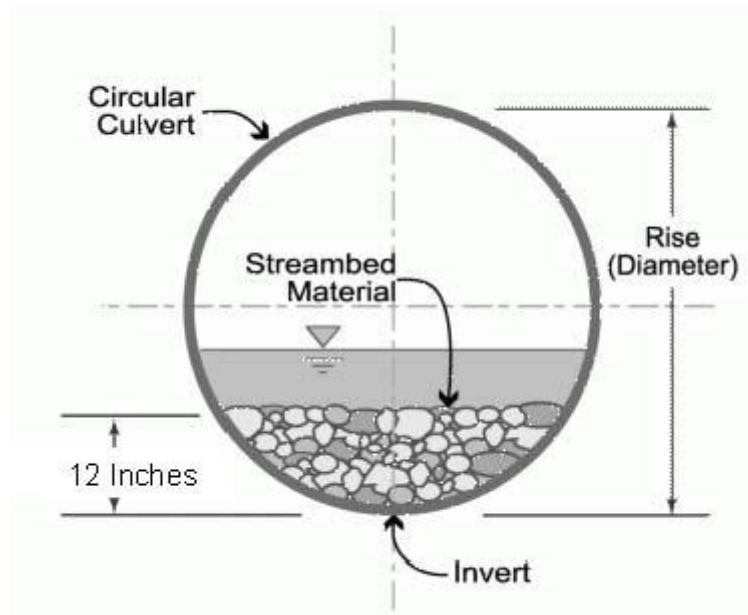
**3.5.5.** The riprap material shall consist of clean rock or masonry material such as, but not limited to, granite, marl, or broken concrete.

**3.5.6.** A waiver from the specifications in this Regional Condition may be requested in writing. The waiver will only be issued if it can be demonstrated that the impacts of complying with this Regional condition would result in greater adverse impacts to the aquatic environment.

### **3.6 Safe Passage Requirements for Culvert Placement**

For all NWP's that involve the construction/installation of culverts, measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed culvert should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gage data, if available. In the absence of such data, bankfull flow can be used as a comparable level.

In the twenty (20) counties of North Carolina designated as coastal counties by the Coastal Area Management Act (CAMA): All pipes/culverts must be sufficiently sized to allow for the burial of the bottom of the pipe/culvert at least one foot below normal bed elevation when they are placed within the Public Trust Area of Environmental Concern (AEC) and/or the Estuarine Waters AEC as designated by CAMA, and/or all streams appearing as blue lines on United States Geological Survey (USGS) 7.5-minute quadrangle maps.



In all other counties: Culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain the existing channel slope. The bottom of the culvert must be placed at a

depth below the natural stream bottom to provide for passage during drought or low flow conditions.

Culverts are to be designed and constructed in a manner that minimizes destabilization and head cutting. Destabilizing the channel and head cutting upstream should be considered and appropriate actions incorporated in the design and placement of the culvert.

A waiver from the depth specifications in this condition may be requested in writing. The waiver will be issued if it can be demonstrated that the proposal would result in the least impacts to the aquatic environment.

All counties: Culverts placed within riparian and/or riverine wetlands must be installed in a manner that does not restrict the flow and circulation patterns of waters of the United States. Culverts placed across wetland fills purely for the purposes of equalizing surface water do not have to be buried.

### **3.7 Notification to NCDENR Shellfish Sanitation Section**

Applicants shall notify the NCDENR Shellfish Sanitation Section prior to dredging in or removing sediment from an area closed to shell fishing where the effluent may be released to an area open for shell fishing or swimming in order to avoid contamination from the disposal area and cause a temporary shellfish closure to be made. Such notification shall also be provided to the appropriate Corps of Engineers Regulatory Field Office. Any disposal of sand to the ocean beach should occur between November 1 and April 30 when recreational usage is low. Only clean sand should be used and no dredged sand from closed shell fishing areas may be used. If beach disposal were to occur at times other than stated above or if sand from a closed shell fishing area is to be used, a swimming advisory shall be posted, and a press release shall be issued by the permittee.

### **3.8 Preservation of Submerged Aquatic Vegetation**

Adverse impacts to Submerged Aquatic Vegetation (SAV) are not authorized by any NWP within any of the twenty coastal counties defined by North Carolina's Coastal Area Management Act of 1974 (CAMA).

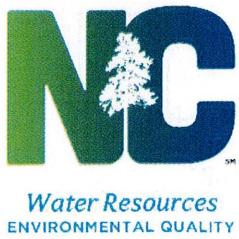
### **3.9 Sedimentation and Erosion Control Structures and Measures**

**3.9.1.** All PCNs will identify and describe sedimentation and erosion control structures and measures proposed for placement in waters of the US. The structures and measures should be depicted on maps, surveys or drawings showing location and impacts to jurisdictional wetlands and streams.

#### **4.0 Additional Regional Conditions for Specific Nationwide Permits**

##### **4.1 NWP #27 – Aquatic Habitat Restoration, Establishment, and Enhancement Activities.**

**4.1.1.** If you are under contract to the North Carolina Ecosystem Enhancement Program (NCEEP) and are supplying a PCN for impacts associated with a mitigation project that will be used to supply mitigation credits to NCEEP, the PCN must include a cover letter from the NCEEP stating that they have reviewed and approved your restoration plan.



PAT MCCRORY

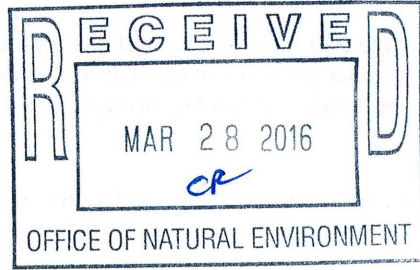
Governor

DONALD R. VAN DER VAART

Secretary

S. JAY ZIMMERMAN

Director



March 21, 2016
Dare County
NCDWR Project No. 20151222 v.2
TIP B-2500 Phase I

APPROVAL of 401 WATER QUALITY CERTIFICATION with ADDITIONAL CONDITIONS

Mr. Philip S. Harris, III, P.E., CPM
Natural Environment Section Head
Project Development and Environmental Analysis
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Dear Mr. Harris:

You have our approval, in accordance with the conditions listed below, for the following impacts for the purpose of constructing a 500 ft. long by 4.79 ft. high habitat enhancement structure in Pamlico Sound in Dare County:

Open Water Impacts in the Pasquotank River Basin

Table with 2 columns: Site, Open Water Fill (ac). Row 1: 1, 0.06

The project shall be constructed in accordance with your application dated received February 19, 2016. After reviewing your application, we have decided that these impacts are covered by General Water Quality Certification Number 3885. This certification corresponds to the Nationwide Permit 27 issued by the Corps of Engineers. In addition, you should acquire any other federal, state or local permits before you proceed with your project including (but not limited to) Sediment and Erosion Control, Non-Discharge and Water Supply Watershed regulations. This approval will expire with the accompanying 404 permit.

This approval is valid solely for the purpose and design described in your application (unless modified below). Should your project change, you must notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If total wetland fills for this project (now or in the future) exceed one acre, or of total impacts to streams (now or in the future) exceed 150 linear feet, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). Additional buffer impacts may require compensatory mitigation as described in 15A NCAC 2B.0259. For this approval to remain valid, you must adhere to the conditions listed in the attached certification and any additional conditions listed below.





PAT MCCRORY

Governor

DONALD R. VAN DER VAART

Secretary

S. JAY ZIMMERMAN

Director

NCDWR Project No.: \_\_\_\_\_ County: \_\_\_\_\_

Applicant: \_\_\_\_\_

Project Name: \_\_\_\_\_

Date of Issuance of 401 Water Quality Certification: \_\_\_\_\_

**Certificate of Completion**

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401 Transportation Permitting Unit, North Carolina Division of Water Resources, 1617 Mail Service Center, Raleigh, NC, 27699-1617. This form may be returned to NCDWR by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

**Applicant's Certification**

I, \_\_\_\_\_, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Agent's Certification**

I, \_\_\_\_\_, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Engineer's Certification**

\_\_\_\_\_ Partial \_\_\_\_\_ Final

I, \_\_\_\_\_, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature \_\_\_\_\_ Registration No. \_\_\_\_\_

Date \_\_\_\_\_

## Water Quality Certification No. 3885

**GENERAL CERTIFICATION FOR STREAM RESTORATION, ENHANCEMENT AND STABILIZATION PROJECTS AND WETLAND AND RIPARIAN RESTORATION AND CREATION ACTIVITIES INCLUDING THOSE ELIGIBLE FOR U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBERS 13 (BANK STABILIZATION) AND 27 (WETLAND AND RIPARIAN RESTORATION AND CREATION), AND REGIONAL PERMIT 197800080 (BULKHEADS AND RIPRAP) AND RIPARIAN AREA PROTECTION RULES (BUFFER RULES)**

Water Quality Certification Number 3885 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality Regulations in 15A NCAC 02H .0500 and 15A NCAC 02B .0200 for the discharge of fill material to waters as described in 33 CFR 330 Appendix A (B) (13 and 27) and Regional Permit 197800080 and for the Riparian Area Protection Rules (Buffer Rules) in 15A NCAC 02B .0200.

**The State of North Carolina certifies that the specified category of activity will not violate applicable portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.**

**Activities meeting any one (1) of the following thresholds or circumstances require *written approval* for a 401 Water Quality Certification from the Division of Water Quality (the "Division"):**

- a) All proposed fill or modification of wetlands and/or waters, including streams and streambanks, regardless of the purpose of the restoration, enhancement, stabilization, or creation activity, except for single and independent projects involving in-stream structures for the sole purpose of streambank stabilization, which are designed based on current natural channel techniques, and do not exceed a total of three structures within 100 feet or less of streambank; or
- b) Any stream relocation; or
- c) Bank Stabilization projects qualifying for Nationwide Permit 13 for erosion protection which utilize non-natural armoring such as riprap, gabion baskets, deflection walls etc of greater than 150 feet in streambank length; or
- d) Bank Stabilization projects qualifying for Nationwide Permit 13 for erosion protection which utilize natural streambank sloping, vegetation, and other natural channel protection techniques of greater than 500 feet of streambank length; or
- e) Any impact associated with a Notice of Violation or an enforcement action for violation(s) of DWQ Wetland Rules (15A NCAC 02H .0500), Isolated Wetland Rules (15A NCAC 02H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 02B .0200); or
- f) Any impacts to streams and/or buffers in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan or Goose Creek Watersheds (or any other basin or watershed with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless* the activities are listed as "EXEMPT" from these rules or a Buffer Authorization Certificate is issued through N.C. Division of Coastal Management (DCM) delegation for "ALLOWABLE" activities.

In accordance with North Carolina General Statute 143-215.3D(e), written approval for a 401 Water Quality General Certification must include the appropriate fee. If a project also requires a CAMA Permit, then one payment to both agencies shall be submitted and will be the higher of the two fees.



## Water Quality Certification No. 3885

**Activities included in this General Certification that do not meet one of the thresholds listed above do not require written approval from the Division as long as they comply with the Conditions of Certification listed below. If any of these Conditions cannot be met, then written approval from the Division is required.**

Conditions of Certification:

1. Activities shall meet the definitions, design, and monitoring protocols specified within the US Army Corps of Engineers Wilmington District *Regulatory Guidance Letter* (RGL02-02) and the *Stream Mitigation Guidelines* (April 2003) or any subsequent updates to these documents.
2. No Impacts Beyond those Authorized in the Written Approval or Beyond the Threshold of Use of this Certification

No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the Pre-Construction Notification, as authorized in the written approval from the Division or beyond the thresholds established for use of this Certification without written authorization, including incidental impacts. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices shall be performed so that no violations of state water quality standards, statutes, or rules occur. Approved plans and specifications for this project are incorporated by reference and are enforceable parts of this permit.

3. Standard Erosion and Sediment Control Practices

Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices and if applicable, comply with the specific conditions and requirements of the NPDES Construction Stormwater Permit issued to the site:

- a. Design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
- b. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
- c. Reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.
- d. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.
- e. If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-I, WS-II, High Quality (HQW), or Outstanding Resource (ORW) waters, then the sedimentation and erosion control designs must comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watersheds*.



## Water Quality Certification No. 3885

### 4. No Sediment and Erosion Control Measures in Wetlands or Waters

Sediment and erosion control measures shall not be placed in wetlands or waters. Exceptions to this condition require application submittal to and written approval by the Division. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, then design and placement of temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands, stream beds, or banks, adjacent to or upstream and downstream of the above structures. All sediment and erosion control devices shall be removed and the natural grade restored within two (2) months of the date that the Division of Land Resources (DLR) or locally delegated program has released the specific area within the project.

### 5. Construction Stormwater Permit NCG010000

An NPDES Construction Stormwater Permit is required for construction projects that disturb one (1) or more acres of land. This Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If your project is covered by this permit, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. A copy of the general permit (NCG010000), inspection log sheets, and other information may be found at <http://portal.ncdenr.org/web/wq/ws/su/npdessw#tab-w>.

The North Carolina Department of Transportation (NCDOT) shall be required to be in full compliance with the conditions related to construction activities within the most recent version of their individual NPDES (NCS000250) stormwater permit.

### 6. Construction Moratoriums and Coordination

If activities must occur during periods of high biological activity (i.e. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities.

All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) to lessen impacts on trout, anadromous fish, larval/post-larval fishes and crustaceans, or other aquatic species of concern shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium.

Work within the twenty-five (25) designated trout counties or identified state or federal endangered or threatened species habitat shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel.

### 7. Work in the Dry

All work in or adjacent to stream waters shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the NC Sediment and Erosion Control Manual, or the NC DOT Construction and Maintenance Activities Manual, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. Exceptions to this condition require application submittal to and written approval by the Division.

## Water Quality Certification No. 3885

### 8. Riparian Area Protection (Buffer) Rules

- Activities located in the protected riparian areas (whether jurisdictional wetlands or not), within the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan, or Goose Creek Watersheds (or any other basin or watershed with buffer rules) shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 02B .0233, .0259, .0243, .0250, .0267 and .0605, and shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices. All buffer rule requirements, including diffuse flow requirements, must be met.
9. If concrete is used during the construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state due to the potential for elevated pH and possible aquatic life/ fish kills.
  10. All temporary fill and culverts shall be removed and the impacted area returned to natural conditions within 60 days of the determination that the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross sectional dimensions, plan form pattern, and longitudinal bed and bed profile, and the various sites shall be stabilized with natural woody vegetation (except for the approved maintenance areas) and restored to prevent erosion.
  11. All temporary pipes/ culverts/ riprap pads etc, shall be installed in all streams as outlined in the most recent edition of the *North Carolina Sediment and Erosion Control Planning and Design Manual* or the *North Carolina Surface Mining Manual* so as not to restrict stream flow or cause dis-equilibrium during use of this General Certification.
  12. Any riprap required for proper culvert placement, stream stabilization, or restoration of temporarily disturbed areas shall be restricted to the area directly impacted by the approved construction activity. All rip-rap shall be buried and/or "keyed in" such that the original stream elevation and streambank contours are restored and maintained. Placement of rip-rap or other approved materials shall not result in de-stabilization of the stream bed or banks upstream or downstream of the area.
  13. Any rip-rap used for stream stabilization shall be of a size and density so as not to be able to be carried off by wave, current action, or stream flows and consist of clean rock or masonry material free of debris or toxic pollutants. Rip-rap shall not be installed in the streambed except in specific areas required for velocity control and to ensure structural integrity of bank stabilization measures.
  14. A one-time application of fertilizer to re-establish vegetation is allowed in disturbed areas including riparian buffers, but is restricted to no closer than 10 feet from top of bank of streams. Any fertilizer application must comply with all other Federal, State and Local regulations.
  15. Applications for riprap groins proposed in accordance with 15A NCAC 07H .1401 (NC Division of Coastal Management General Permit for construction of Wooden and Riprap Groins in Estuarine and Public Trust Waters) must meet all the specific conditions for design and construction specified in 15A NCAC 07H .1405.



## Water Quality Certification No. 3885

### 16. Compensatory Mitigation

In accordance with 15A NCAC 02H .0506 (h), compensatory mitigation may be required for losses of equal to or greater than 150 linear feet of streams (intermittent and perennial) and/or equal to or greater than one (1) acre of wetlands. For linear public transportation projects, impacts equal to or exceeding 150 linear feet per stream shall require mitigation.

Buffer mitigation may be required for any project with Buffer Rules in effect at the time of application for activities classified as "Allowable with Mitigation" or "Prohibited" within the Table of Uses.

A determination of buffer, wetland, and stream mitigation requirements shall be made for any General Water Quality Certification for this Nationwide and/or Regional General Permit. Design and monitoring protocols shall follow the US Army Corps of Engineers Wilmington District *Stream Mitigation Guidelines* (April 2003) or its subsequent updates. Compensatory mitigation plans shall be submitted to the Division for written approval as required in those protocols. The mitigation plan must be implemented and/or constructed before any impacts occur on site. Alternatively, the Division will accept payment into an in-lieu fee program or a mitigation bank. In these cases, proof of payment shall be provided to the Division before any impacts occur on site.

17. If an environmental document is required under the National or State Environmental Policy Act (NEPA or SEPA), then this General Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse.
18. In the twenty (20) coastal counties, the appropriate DWQ Regional Office must be contacted to determine if Coastal Stormwater Regulations will be required.
19. This General Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals.
20. The applicant/permittee and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. If the Division determines that such standards or laws are not being met, including failure to sustain a designated or achieved use, or that State or Federal law is being violated, or that further conditions are necessary to assure compliance, then the Division may reevaluate and modify this General Water Quality Certification.
21. When written authorization is required for use of this certification, upon completion of all permitted impacts included within the approval and any subsequent modifications, the applicant shall be required to return the certificate of completion attached to the approval. One copy of the certificate shall be sent to the DWQ Central Office in Raleigh at 1650 Mail Service Center, Raleigh, NC, 27699-1650.
22. Additional site-specific conditions, including monitoring and/or modeling requirements, may be added to the written approval letter for projects proposed under this Water Quality Certification in order to ensure compliance with all applicable water quality and effluent standards.
23. This certification grants permission to the director, an authorized representative of the Director, or DENR staff, upon the presentation of proper credentials, to enter the property during normal business hours.

## Water Quality Certification No. 3885

This General Certification shall expire on the same day as the expiration date of the corresponding Nationwide and/or Regional General Permit. The conditions in effect on the date of issuance of Certification for a specific project shall remain in effect for the life of the project, regardless of the expiration date of this Certification.

Non-compliance with or violation of the conditions herein set forth by a specific project may result in revocation of this General Certification for the project and may also result in criminal and/or civil penalties.

The Director of the North Carolina Division of Water Quality may require submission of a formal application for Individual Certification for any project in this category of activity if it is determined that the project is likely to have a significant adverse effect upon water quality, including state or federally listed endangered or threatened aquatic species, or degrade the waters so that existing uses of the wetland or downstream waters are precluded.

Public hearings may be held for specific applications or group of applications prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Quality.

Effective date: March 19, 2012

DIVISION OF WATER QUALITY

By

A handwritten signature in blue ink that reads "Matt Mauter for".

Charles Wakild, P.E.

Director

*History Note: Water Quality Certification (WQC) Number 3885 issued March 19, 2012 replaces WQC Number 3689 issued November 1, 2007; WQC Number 3626 issued March, 2007; WQC Number 3495 issued December 31, 2004; and WQC Number 3399 issued March 2003. This General Certification is rescinded when the Corps of Engineers reauthorizes any of the corresponding Nationwide and/or Regional General Permits and/or when deemed appropriate by the Director of the Division of Water Quality.*



Permit Class  
**MODIFICATION/MAJOR**

Permit Number  
**106-12**

STATE OF NORTH CAROLINA  
Department of Environmental Quality  
and  
Coastal Resources Commission

# Permit

for

- Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118
- Excavation and/or filling pursuant to NCGS 113-229

Issued to N.C. Department of Transportation, 1598 Mail Service Center, Raleigh, NC 27699-1598

Authorizing development in Dare County at Oregon Inlet, Herbert C. Bonner Bridge on NC Highway 12 as requested in the permittee's application dated 10/1/15, including the attached final STIP B-2500 Bonner Bridge Phase I SAV Mitigation Plan dated September 2015.

This permit, issued on December 15, 2015, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

### TIP No. B-2500, Phase I

- 1) Unless specifically altered herein, this Major Modification authorizes the final STIP B-2500 Bonner Bridge Phase I submerged aquatic vegetation (SAV) Mitigation Plan dated September 2015, and the revised workplan drawing Figure 2 dated 12/3/15 which replaces the previously submitted workplan drawing Figure 2. The authorized activities include the construction of a wavebreak structure that is approximately 500-foot long x 5 feet wide x 4 feet tall in Pamlico Sound approximately 3 miles southwest of Oregon Inlet.

**NOTE:** The specific development being permitted does not preclude the remainder of the B-2500 project being built in the Pamlico Sound provided that future development will be constructed in a way that avoids and minimizes impacts to AECs.

(See attached sheets for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

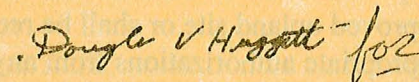
Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on

**No expiration date, pursuant to GS 136-44.7B**

In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DEQ and the Chairman of the Coastal Resources Commission.



Braxton C. Davis, Director  
Division of Coastal Management

This permit and its conditions are hereby accepted.



For RICHARD W. HANCOCK Signature of Permittee



ADDITIONAL CONDITIONS

- 2) The approved SAV mitigation plan shall not generate any excess mitigation credits.
- 3) In the event the structure does not perform as intended, after the 5<sup>th</sup> year of monitoring, or at final close-out, if requested by the N.C. Division of Coastal Management (DCM), in consultation with the U.S. Army Corps of Engineers (USACE), and N.C. Division of Water Resources (DWR), the permittee shall remove the structure.
- 4) The permittee and/or his contractor shall contact the DCM Transportation Project Field Representative in Elizabeth City at (252) 264-3901 to request a pre-construction conference prior to project initiation. DWR, USACE, and other appropriate resource agencies shall also be invited to attend. Discussion topics shall include verification of the approved orientation and placement of the wavebreak structure.
- 5) Placement of the wavebreak structure, wave energy pressure sensors, and bioturbation exclusion treatments shall be limited to the areas as depicted and/or described in the approved SAV mitigation plan. All material utilized shall be clean and free from loose dirt or any pollutant except in trace quantities. No permanent fill material shall be placed at any time outside of the alignment of the approved wavebreak structure without permit modification.
- 6) In accordance with the approved mitigation plan, the permittee shall transplant SAV's that are located in the footprint of the authorized breakwater structure into gaps among existing SAV's on the leeward side of the wavebreak structure to contribute to SAV coalescence and a higher percentage of SAV coverage.
- 7) Floating barges shall be used for construction and shall be removed immediately when they are no longer needed.
- 8) No excavation shall occur within waters or wetlands of the State, either by conventional methods or by prop wash "kicking", without permit modification.
- 9) Live concrete shall not be allowed to contact waters of the State or water that will enter waters of the State.
- 10) The permittee and/or his contractor shall provide for proper storage and handling of all oils, chemicals, etc., necessary to carry out the project.
- 11) Any waste materials and debris associated with construction or other activities shall be disposed of at an approved upland site or shall be recycled in an environmentally appropriate manner provided appropriate authorizations from any relevant state, federal, or local authorities are obtained.
- 12) The high ground construction staging area shall conform to all requirements of the N.C. Sedimentation Pollution Control Act and the N.C. Department of Transportation's (NCDOT's) Memorandum of Agreement with the N.C. Division of Energy, Mineral, and Land Resources.



## ADDITIONAL CONDITIONS

Monitoring

- 13) An as-built report for the wavebreak structure shall be submitted to DCM within 90 days after it has been constructed. The as-built report shall include an explanation about how the final orientation and site of the wavebreak structure was chosen, including site selection criteria, modeling methods, and pre-project bathymetric survey results. The as-built report shall also include an exact GPS location of the wavebreak structure.
- 14) Throughout the monitoring period, the permittee shall provide DCM with a location map, planview, and cross-section drawing of the permanent and temporary locations of the pressure sensors, bioturbation exclusion treatments and control plots, and quadrats to monitor epibiota on the wavebreak structure, immediately after they are installed and/or relocated. These figures shall be updated as appropriate.
- 15) Annual monitoring reports for the SAV mitigation plan shall be provided to DCM and other appropriate resource agencies for a minimum of five years after mitigation site construction. Progress reports shall also be provided upon request. Annual monitoring reports shall include an update on the parameters of the plan that are contributing to or detracting from the overall goals of the plan in terms of SAV establishment, coalescence of existing patches, and overall persistence. This shall include, but not necessarily be limited to, monitoring of the following parameters cited in the permittee's application: wave energy (wave characteristics, water level, tide documentation, wave energy distribution), seagrass (gap closure, change in seagrass cover, biological disturbance), structure/hard surface (epibiota coverage), and sediment elevation (digital elevation models).
- 16) The annual monitoring reports shall include photographs and a written report, including a detailed description of the monitoring methodology. The annual monitoring reports shall include an analysis of the baseline vegetation site(s) that were established prior to construction, performance of the relocated seagrass, and the figures as required by this Major Modification. The annual monitoring reports shall include seagrass coverage persistence after construction, control sites, methodology for selecting bioturbation monitoring patch locations, and definition of patch coalescence.
- 17) There shall be no permanent impacts within the construction access corridor without permit modification.
- 18) Any temporary impacts to SAV's or waters of the State that occur during implementation of the approved SAV mitigation plan shall be monitored and documented in the annual monitoring reports.
- 19) In accordance with the approved SAV mitigation plan, the wavebreak structure shall be inspected for damage annually during the five year monitoring period. If monitoring data indicate that damage to the structure is having a negative effect on SAV coverage, then a remediation plan shall be developed in coordination with DCM.
- 20) During project implementation, if it appears as though the SAV acreage is not increasing as expected, the permittee shall coordinate with DCM and other appropriate agencies to determine whether any changes to the site are needed to stimulate SAV propagation.



**ADDITIONAL CONDITIONS**

- 21) The permittee shall conduct an annual meeting with DCM and other appropriate resource agencies to discuss and review the annual monitoring reports and monitoring methodology for a minimum of five years after mitigation site construction.
- 22) Predator excluder mesh (i.e. bioturbation exclusion treatment) and pressure sensors shall be completely removed immediately after they are no longer needed, or upon written notice of DCM, whichever occurs sooner.

**General**

- 23) If it is determined that additional impacts or project modifications are necessary that are not described in the approved SAV mitigation plan, a permit modification and/or additional authorization from DCM shall be required. The permittee shall contact a representative of DCM prior to commencement of any such activity for this determination and any permit modification.
- 24) This permit authorizes only the structures that are expressly and specifically set forth in the permit application and shown on the approved SAV mitigation plan. No other structures, whether floating or stationary, may become a permanent part of this project without additional authorization from DCM. No non-water dependent uses of structures may be conducted on, in, or over public trust waters without permit modification.
- 25) The permittee shall maintain the authorized work in good condition and in conformance with the terms and conditions of this permit for the life of the permitted wavebreak structure. The permittee is not relieved of this requirement if he abandons the project without having the permit transferred to a third party.
- 26) Unless otherwise approved by DCM, in consultation with USACE and DWR, the approved SAV wavebreak structure, required signage and markings shall be inspected annually and shall be maintained in perpetuity and owned by the permittee or its approved designee.
- 27) During implementation of the mitigation plan, the permittee shall make every attempt to maintain the same navigation that is currently possible in the project area of Pamlico Sound. If this is not possible, then adequate notice shall be provided to the public that navigation will be limited during construction. The notice shall include an estimate of the amount of time that the limited navigation will occur.
- 28) No attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the authorized work following completion of construction.
- 29) The permittee shall install and maintain, at his expense, any signal lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, on authorized structures. This includes the wavebreak structure and the pressure sensors. At a minimum, permanent reflectors shall be attached to the wavebreak structure in order to make it more visible during hours of darkness or inclement weather.



**ADDITIONAL CONDITIONS**

- 30) This permit shall not be assigned, transferred, sold, or otherwise disposed of to a third party without the written approval of DCM.
- 31) The permittee shall coordinate with the U.S. Army Corps of Engineers (USACE) and the N.C. Division of Water Resources (DWR) regarding the project. The permittee shall provide any permits issued by USACE and DWR to DCM.

**NOTE:** The N.C. Division of Water Resources has assigned the proposed project DWR Project No. 20151222.

**NOTE:** This Major Modification does not eliminate the need to obtain any additional state, federal or local permits, approvals or authorizations that may be required.

32) This Major Modification shall be attached to the original of Permit No. 106-12, which was issued on 9/19/12, as well as all subsequent modifications, and copies of all documents shall be readily available on site when a Division representative inspects the project for compliance.

33) All conditions and stipulations of the active permit remain in force under this Major Modification unless specifically altered herein.

**NOTE:** An application processing fee of \$475 was received by DCM for this project.



**PRIVATE AIDS TO NAVIGATION APPLICATION**

(See attached instructions and copy of Code of Federal Regulations, Title 33, Chap. 1, Part 66)

NO PRIVATE AID TO NAVIGATION MAY BE AUTHORIZED UNLESS A COMPLETED APPLICATION FORM HAS BEEN RECEIVED (14 U.S.C. 83; 33 CFR. 66. 01-5).

1. ACTION REQUESTED FOR PRIVATE AIDS TO NAVIGATION:	<input checked="" type="checkbox"/> A. ESTABLISH AND MAINTAIN	<input type="checkbox"/> B. DISCONTINUE	<input type="checkbox"/> C. CHANGE	<input type="checkbox"/> D. TRANSFER OWNERSHIP	2. DATE ACTION TO START: 09/26/2016
3. AIDS WILL BE OPERATED:	<input checked="" type="checkbox"/> A. YEAR-ROUND	<input type="checkbox"/> B. TEMPORARILY UNTIL	<input type="checkbox"/> C. SEASONAL FROM _____ TO _____		
4. NECESSITY FOR AID (Continue in Block B) Establishment of Wave Break for SAV Mitigation	5. GENERAL LOCALITY -1.2 mi W of Oregon Inlet		6. AUTHORIZING PERMIT FOR THIS STRUCTURE OR BUOY USACE <input checked="" type="checkbox"/> PERMIT AND/OR STATE <input type="checkbox"/> PERMIT (Valid Permit Number) _____		

FOR DISTRICT COMMANDERS ONLY			7. APPLICANT WILL FILL IN APPLICABLE REMAINING COLUMNS								
LIGHT LIST NUMBER	NAME OF AID	NO. OR LTR (7a)	LIGHT			POSITION (7e)	DEPTH OF WATER (7f)	CANDELA (7g)	FOCAL PLANE HEIGHT (7h)	STRUCTURE	REMARKS (See instructions) (7j)
			FLASH PERIOD (7b)	FLASH LENGTH (7c)	COLOR (7d)					TYPE, COLOR, AND HEIGHT ABOVE GROUND (7i)	
	Old House Channel Warning Light	A	2.5s	0.5s	White	35°45'17.305"N 75°35'13.696"W	3'		9'	single pile on structure	2' "Danger" diamond dayboard. white regulatory
	Old House Channel Warning Light	B	2.5s	0.5s	White	35°45'17.852"N 75°35'10.741"W	3'		9'	single pile on structure	2' "Danger" diamond dayboard. white regulatory
	Old House Channel Warning Light	C	2.5s	0.5s	White	35°45'17.129"N 75°35'7.839"W	3'		9'	single pile on structure	2' "Danger" diamond dayboard. white regulatory

8. ADDITIONAL COMMENTS

9a. NAME AND ADDRESS OF PERSON IN DIRECT CHARGE OF THE AID(S) Pablo Hernandez, NCDOT Res. Eng. 349 Water Plant Rd. Unit B Manteo NC	10a. NAME AND ADDRESS OF PERSON OR CORPORATION AT WHOSE EXPENSE THE AID(S) WILL BE MAINTAINED North Carolina Dept. of Transportation 1 South Wilmington St Raleigh NC 27699	10b. THE APPLICANT AGREES TO SAVE THE COAST GUARD HARMLESS WITH RESPECT TO ANY CLAIM OR CLAIMS THAT MAY RESULT ARISING FROM THE ALLEGED NEGLIGENCE OF THE MAINTENANCE OR OPERATION OF THE APPROVED AID(S).
9b. TELEPHONE NO. 252-473-3637		10c. DATE 8/24/16
9c. E-MAIL ADDRESS phernandez@ncdot.gov		10d. SIGNATURE AND TITLE OF OFFICIAL SIGNING <i>Philip S. Harris, III</i> for Philip S. Harris, III, P.E. NCDOT Natural Environment Sect. Head

FOR USE BY DISTRICT COMMANDER		RECD	DATE APPROVED	SIGNATURE (By direction)
SERIAL NO.	CLASSIFICATION OF AIDS(S)	CHART	13 Sept 16	<i>[Signature]</i>
		LNM		

**STIP B-2500**

**BONNER BRIDGE**

**PHASE I SAV MITIGATION PLAN**

**PAMLICO SOUND, OREGON INLET**

**DARE COUNTY**

**NORTH CAROLINA**



**September 2015**

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- Figure 3. Percent Change in Seagrass Cover for Representative Wave Energy Difference of 10% or Greater
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- Exhibit 1. Reefmaker “Ecosystem” Units Design – Front Elevation View
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- Exhibit 3. Reefmaker “Ecosystem” Units Design – Plan View

## 1.0 INTRODUCTION & BACKGROUND

The Herbert C. Bonner Bridge is reaching the end of its service life and needs to be replaced. The Bonner Bridge provides the only highway connection for Hatteras Island to the mainland in Dare County, North Carolina via NC 12 and US 64 (**Appendix A, Figure 1**). The Bonner Bridge will be replaced with a new bridge that will provide access to Hatteras Island across Oregon Inlet. The bridge replacement project is known as State Transportation Improvement Project (STIP) B-2500, replace bridge 270011 (Herbert C. Bonner Bridge) over Oregon Inlet, NC Improvements. In 2012 CSA Ocean Sciences, Inc. was contracted by the North Carolina Department of Transportation (NCDOT) to conduct seagrass mitigation to compensate for losses anticipated to occur during the replacement of the Bonner Bridge over Oregon Inlet (Fonseca, 2015). This project is part of a larger long-term effort to determine the best strategy and methodology for seagrass or submerged aquatic vegetation (SAV) restoration and mitigation in North Carolina.

Submerged aquatic vegetation helps stabilize coastal shorelines through rhizome binding of sediment in shallow nearshore regions, suspended sediment trapping, and wave and current attenuation. SAV distribution is driven by water depth, light penetration, nutrient loading, salinity, exposure to waves and currents, biological disturbance and fishing practices, and in particular, vulnerability to extreme storm events. Because SAV have stabilizing effects on the coastlines around the areas they inhabit, substantive changes in the SAV community will strongly shape the physical integrity of the coastline. Also, because SAV provides critically important food and shelter for fisheries, changes in SAV will affect the fisheries of the future (NCCOS, 2012).

Replacement of the Bonner Bridge will permanently impact approximately 2.66 acres of SAV areas for which mitigation will be required. Mitigation measures will include removal of the existing bridge that will unshade 1.38 acres of suitable habitat, and the remaining 1.28 acres will be mitigated near the project area at the SAV mitigation site described in this plan. This 17-acre mitigation site will generate 1.3 acres of lift in SAV cover coupled with an additional 0.3 acres of hard surface habitat suitable for colonization by algae, oysters and other sessile communities.

### 1.1 PROJECT OBJECTIVE

The objective of this mitigation project is to reduce the amount of wave energy within the project site to allow for a more continuous cover of SAV (specifically the seagrasses *Halodule wrightii* and *Zostera marina*) to expand, providing increased seagrass acreage and associated ecosystem services. These services include water quality improvement, aquatic habitat creation, reduced sediment movement and plant community establishment. The wave break proposed in this mitigation plan will also create new linkages between intertidal and aquatic environments.

### 1.2 EXISTING CONDITIONS

The mitigation site (Site S2) is located immediately west of the existing Bonner Bridge (**Appendix A, Figure 2**), and was selected as the preferred site following an April 28, 2015 field verification. It is located on a stable shoal that has supported patchy seagrass cover since at least 1998. During the April 28, 2015 field verification, a point-intercept survey was conducted at sites S2, S2A and S4 to determine the beginning and end point of seagrass along each transect and ultimately the SAV percent cover. Site S2 demonstrated a modest seasonal fluctuation in seagrass cover, increasing 15 percent since the previous survey conducted in 2012, but only to 26 percent cumulative cover (**Table 1**). Site S2A was rejected because of an emerging clay lens observed in the potential planting area (SAV does not grow well in clay). Site S2 was selected

over Site S4 because of the potential for more change in seagrass cover with gap closure among the existing patches.

**Table 1. Seagrass and elevation survey results**

Site	Percent Cover (2015)	Percent Cover (2012)	Average Patch Size (2015) (ft <sup>2</sup> )	Seafloor Elevation (ht. above MSL in ft)
Site S2	26	11	26.9	-1.48
Site S2A	3	7	31.2	-2.66
Site S4	54	53	84.6	-2.89

The proposed site will be staked and signed to demarcate the proposed structure location during the public notice period; additional signage will be posted at Oregon Inlet Fishing Center.

## 2.0 PROPOSED MITIGATION PLAN

This project is intended for mitigation for SAV impacts associated with Phase I of B-2500, the Bonner Bridge replacement project. A unique and proven engineered structure is proposed to attenuate wave energies and provide a suitable wave climate to promote SAV coverage. The wavebreak will be a permanent, 'living' structure.

The proposed structure is a 500-foot long wavebreak. The length was determined by iteratively adjusting the wall length and running wave and seagrass forecasting models (see below) on each successive wall length until an increase in seagrass cover meeting the mitigation acreage of 1.28 acres was achieved.

The nearest portion of the structure is approximately 900 feet east of the closest existing tidal channel and approximately 2,200 feet from the deepest portions of that channel. Given this distance and the observed stability of the shoal over time (Google Earth imagery; 2004, 2006, 2008, 2009, 2011, 2014 and recent NCDOT high resolution imagery 2012, 2015), this distance is judged to be adequate to avoid any influence of the channel.

The proposed design involves installing a continuous series of innovative wave attenuation structures, termed "EcoSystem Units", by Reefmaker (<http://www.reefmaker.com/marine-ecosystems>). Each wave attenuator "unit" is comprised of a stack of concrete molded trays set with natural rock material such as granite. These systems are designed to fully attenuate wave energy while still allowing for the exchange of water and the passage of organisms through and around the structure's individual components. Moreover, they are designed for use in high energy wave environments and to survive the passage of large storms such as hurricanes. The proposed structures are comprised of individual units that are four feet tall and approximately five feet wide (**Appendix B, Exhibits 1, 2, and 3**). The benefits of this system include its ability to decrease the wave energy in the target location and to increase hard surface area serving as epibiota habitat while reducing the benthic footprint compared to other techniques.

The Reefmaker systems have a much smaller benthic footprint (25 square feet per unit) to reach the desired height and have less impact upon installation than a traditional rock wavebreak. A traditional rock wavebreak of similar size with 2:1 slopes would have a 10,000 square foot benthic footprint. The proposed, 500-foot long Reefmaker structure, is estimated to have a 2,500 square foot benthic footprint. The design of the Reefmaker “EcoSystem Units” also provides considerable surface area for oyster settlement and other biofauna (**Table 2**). Based on preliminary design it is anticipated that approximately two units will be submerged below the normal high water level.

**Table 2. 500-foot Reefmaker structure surface area calculations**

Wave Attenuator Units (vertical)	Surface Areas (sq. ft (ac))	Total Pilings/Units
2	11,413 (0.26)	101
2.5	14,696 (0.34)	101
3	17,978 (0.41)	101

The design and location of the wavebreak was developed by forecasting the wave conditions (Malhotra and Fonseca, 2007) and the associated change in seagrass cover that was expected to occur with the presence of the structure. The relationship of wave energy to predicted percent seagrass cover of the seafloor (Fonseca and Bell, 1998; re-fit with a yet more conservative regression model) was utilized to predict the percent seagrass cover of the seafloor with and without the wavebreak structure present. Change in seagrass cover by creation of the 500-foot wavebreak was based on the area of wave energy reduction ranging from 10 to 20 percent of ambient/normal wave energy. This range was judged to provide a conservative estimate of wave energy reduction over which to forecast seagrass cover while ensuring the target area (1.28 acres) would be met. **Figure 3 (Appendix A)** shows the forecast for wave energy reduction to 10 percent of the ambient/normal wave energy, creating a wave shadow of approximately 57.3 acres. The forecast increase in seagrass acreage for the 10 percent assessment in this shadow area is approximately 0.91 acres. **Figure 4 (Appendix A)** shows the forecast for wave energy reduction to 20 percent of the ambient/normal wave energy, creating a wave shadow of approximately 17.3 acres. The forecast increase in seagrass acreage for the 20 percent assessment in this shadow area is approximately 1.65 acres. The midpoint of the forecast change in seagrass cover in this 10 to 20 percent range of wave energy reduction is a net addition of 1.3 acres.

Construction of the wavebreak structure will impact some existing seagrass patches. These seagrass patches will be relocated to gaps among patches on the lee side of the wavebreak structure to potentially accelerate the anticipated gap closure among the seagrass patches. The effect of the relocation will be tracked as part of the monitoring survey. Specifically, prior to installation of the wavebreak, a point-intercept survey will be conducted within the footprint of the wall and construction access corridor (e.g., construction barge). Three parallel lines running the entire length of the structure and corridor will be surveyed by this method and the percent cover of seagrass computed to document the amount of seagrass moved. The performance of the relocated seagrass will be monitored separately from other surveys, but will employ the same methods.

In addition, the SAV environment within the vicinity of the existing Bonner Bridge will improve upon the bridge’s removal in that shading to these habitats will be eliminated. The SAV habitat within the existing bridge location and the area of new bridge construction will be monitored as outlined in Section 4.0.



### 3.0 CONSTRUCTION IMPLEMENTATION AND METHODOLOGY

The construction of the Bonner Bridge seagrass mitigation wavebreak structure involves the following construction phases:

#### *Phase 1 – Reefmaker Casting*

- Setting up the casting molds
- Pouring concrete and creating the Reefmaker units at the land base staging site (**Figure 5 [Appendix A]**) - 301 Harbor Road Wanchese, N.C. 27981)
- Concrete pouring and setting activities will remain in upland staging area

#### *Phase 2 – Material Transport*

- Materials including pilings, Reefmakers and hardware will be loaded onto the shallow draft barges and transferred to the site location from the land based staging area (**Table 3**)

**Table 3. Types of vessels used during construction to minimize bottom disturbance**

Vessel	Number of Each Vessel Type	Size (Ft.)	Draft (In.)	Specialized Equipment
Landing Craft Barge	1	42 X 13	8.0	<ul style="list-style-type: none"> <li>• 360°sonar</li> <li>• Internal Bilge</li> <li>• Drill Hole</li> <li>• Lifting Device</li> </ul>
Shallow Draft Barge	2	20 X 40	12.0	<ul style="list-style-type: none"> <li>• Manual Positioning</li> </ul>
Shallow Draft Barge	1	24 X 45	12.0	<ul style="list-style-type: none"> <li>• Customized Mini Excavator with 42' Extension Arm</li> </ul>
Skiff	3	22 X 10	8.0	<ul style="list-style-type: none"> <li>• Custom Jack Plates</li> <li>• Marine Tug Push Knee</li> </ul>
Standard Jetfloat Platform	1	4 X 4	1.0 – 6.0	<ul style="list-style-type: none"> <li>• Expandable Units</li> </ul>

#### *Phase 3 – Structure Installation*

The 24 X 45 shallow draft barge with a 42-foot custom mini excavator will be used in conjunction with specialized 8.0-inch spuds to minimize benthic impacts (**Photos 1 and 2**). A separate expandable standard jetfloat platform will be erected and attached to the working shallow draft barge. Pilings will be jetted and vibrated to depths of 20 to 30 feet. The units will be systematically assembled using the mini excavator 42-foot arm. The Reefmaker unit hardware will be installed following placement. Due to the dynamics of Oregon Inlet, potential entanglement of aquatic species and issues concerning worker safety, turbidity curtains will not be used during construction.



Photo 1. Shallow Draft Barge



Photo 2. Customized Mini Excavator



NCDOT will install and maintain any signal lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, on authorized facilities. NCDOT will submit a *Private Aids to Navigation Application* to the U.S. Coast Guard. The construction schedule is dependent on receipt of permits, procurement of contractors, and appropriate weather conditions.

SAV and Benthic Habitat minimization and avoidance measures

During material transport and construction extra caution will be taken not to disturb the bottom habitat. A specialized landing craft barge will be used during transport and construction phases to assist with supplies and emergency response (**Photo 3**). The barge will be equipped with 360° sonar and an internal bilge system that will be used to monitor water level depths to avoid any impact to existing SAV during construction.

Photo 3. Landing Craft Barge



### Threatened and Endangered Species Protection

During construction all precautions will be taken and activities monitored not to impact Threatened and Endangered Species. Threatened and Endangered Species Protection measures are addressed in the original CAMA permit additional conditions sections 35 and 36. These conditions specify:

35) In accordance with commitments made by the permittee, the discretionary measures for the piping plover and three species of sea turtles that are described in the permit application that include the terms and conditions outlined in the July 10, 2008 United States Fish and Wildlife Service (USFWS) Biological and Conference Opinions shall be implemented.

36) In accordance with commitments made by the permittee, all conditions outlined in the USFWS Guidelines for Avoiding the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters shall be implemented.

## **4.0 MONITORING**

Various aspects of the proposed project will be monitored solely for purposes of identifying contributing factors affecting success of the SAV establishment, coalescence of existing patches, and overall persistence. These variables will be monitored through statistically robust design and sampling and documented in order to advance the science and improve the future of SAV mitigation success in North Carolina.

### SAV Mitigation Site Monitoring

Mitigation site monitoring will be conducted for up to five years after installation of the wavebreak structure. The methodology for SAV restoration monitoring includes the following:

- *Wave Energy*: Pressure sensors will be deployed 25 meters in front of and 25 meters behind the wavebreak to validate wave simulation models. Sensors are cylindrical (approximately two inches in diameter by 10 inches long) and will be mounted horizontally on the seafloor approximately six inches above the substrate on an embedded (into the seafloor) solid base. These sensors will record wave characteristics. They will be set to record bursts of pressure data every 30 minutes at a sampling rate of 4 Hz for 128 seconds. These data will also provide water level and tide documentation. During times of onsite seagrass surveys, these sensors will be systematically but temporarily relocated across the site to provide a spatially articulated assessment of wave energy distribution with regard to prevailing conditions. These wave energy maps of the area around each wavebreak will be used to inform the seagrass survey and determine the onsite relationships between wave energy distribution and seagrass coverage response.
- *Seagrass*: Gap closure among seagrass patches and change in seagrass cover will be evaluated across wave energy regimes (to include at least 57 acres). Four wave energy regimes (treatments) will be defined by a required re-analysis of the wave energy distribution of the final wavebreak design and validation. The wave energy regimes will represent ambient (reference; < 10 percent forecast reduction), low reduction (10 to 33 percent forecast reduction), moderate reduction (34 to 66 percent forecast reduction) and high wave energy reduction (> 66 percent forecast reduction). The percent reduction regimes will be defined from a cumulative frequency analysis of the area covered by the

modeling effort where greater than 10 percent energy reduction was forecast to occur as the result of the wavebreak structure.

The effect of biological disturbance on seagrass, specifically gap closure will also be tested. Two bioturbation exclusion treatments will be utilized, one with and one without exclusionary wire mesh (removed after patch coalescence has occurred). Large gap (four to six inch) metal mesh will be laid flush on the seafloor and anchored with approximately one to two-foot long J-shaped rebar stakes. Seagrass shoots would extend through the large gaps allowing their continued growth and expansion (vis a vis “TERF” method <http://seagrant.mit.edu/eelgrass/background/transplanting.html>; F. Short, UNH). Flush deployment on the seafloor plus anchoring is performed to prevent entanglement by sea life, such as diving birds.

Randomly selected seagrass patches will constitute the individual (replicate) test units. To choose individual test units, a location will be randomly chosen in each forecast wave energy treatment area. The nearest seagrass patch to that location meeting two criteria will be selected as a test unit. The individual seagrass patch must first approximately match the average site patch size (+/- 1 standard deviation). The seagrass patch must also be separated from the next nearest patch by a minimum of the site average gap distance. Ten patches will be selected per wave energy treatment; five will be protected with wire mesh and five will be un-protected. The statistical approach for this experiment on the effect of waves and biological disturbance on patch expansion is a repeated measures two-way analysis of variance with wave energy and patch protection as main effects. The survey will end when patch coalescence begins; at this point the mesh and stakes will be removed and disposed of appropriately.

- *Structure/Hard Surface:* Epibiota on the structure will be monitored through the establishment of randomly-placed, permanent quadrats, stratified by either side of the wavebreak (exposed versus sheltered side) and by elevation on the structure (near seafloor, mid-tide, high-tide) for a total of six monitoring strata. Ten quadrats would be assigned per strata for a total of 60 quadrats. Epibiotic coverage will be evaluated annually using a repeated measures design. The quantification will be determined based on the epibiota that recruit, but is anticipated to include percent cover by community type visually identified to the lowest practicable taxonomy.
- *Sediment Elevation:* Digital elevation models will be created encompassing the full forecast extent of wave attenuation out to and including adjacent reference areas unaffected by the wavebreak to relate seagrass response not only to changes in wave climate but also to quantify any changes in sediment elevation. Sediment accumulation or loss can strongly affect seagrass coverage and thus is needed to provide explanatory capacity for seagrass performance. Because the wavebreak structure will be installed on a flat sand surface, little change in seafloor elevation is anticipated around the structure as the result of changes in wave energy. Wave refraction should be limited (i.e., no change in seafloor elevations) and effects should be limited primarily to wave diffraction. Any changes arising from the structure are anticipated to be minor and immediately adjacent to the wavebreak itself. The wavebreak is also installed at the seafloor surface to prevent sand scour under the structure.

The information obtained through the monitoring of this project will substantially increase the state of seagrass mitigation science by both quantifying the relationship between seagrass cover and

wave energy and by understanding the difference in the expansion rate of patches among armored and unarmored patches. Improving the quantification of wave and seagrass landscape cover will specifically inform future seagrass mitigation efforts using wave attenuation approaches. Similarly, understanding the relative impact of bioturbation versus waves on maintenance of seagrass landscapes will inform future mitigation efforts as to the degree (if any) of bioturbation exclusion needed to effect persistent coverage. Both aspects (waves and bioturbation) address important information gaps for North Carolina (and elsewhere) regarding the relative influence of waves and bioturbation on seagrass patchiness and have high intrinsic value.

Temporary SAV Impact Monitoring

NCDOT will provide an annual update on the SAV areas temporarily impacted by the bridge construction. This annual update will consist of photographs and a written report on the progress of the temporarily impacted areas in re-attaining their pre-project abundance. Within three years after project completion, NCDOT will hold an agency field meeting with DCM to assess if the SAV areas temporarily impacted by this project have re-attained pre-project abundance (distribution or coverage).

Existing Bridge SAV Habitat Monitoring

In addition to the proposed mitigation site, the aquatic area in the vicinity of the existing Bonner Bridge will be monitored upon removal of the bridge to assess whether and/or to what extent the effects of removing shade will be to SAV and their habitat.

**5.0 REMEDIATION AND LONG-TERM MANAGEMENT**

The wavebreak will be inspected for damage annually during the five year monitoring period. If monitoring data indicate that damage to the structure is having a negative effect on SAV coverage, then a remediation plan will be developed in coordination with DCM. In addition, the annual inspection will verify that the required signage and markings are present and visible.

**6.0 MITIGATION SUMMARY**

The implementation of this plan is proposed as mitigation for approximately 2.66 acres of impact from the B-2500 Bonner Bridge replacement project to existing SAV by creating and affecting the local marine environment in the vicinity of the bridge, as an attempt to make it more conducive to the establishment and enhancement of SAV. Table 4 includes a summary of the proposed mitigation and the estimated acreages of each component.

**Table 4. Mitigation summary**

Unshaded Area From Existing Bridge (ac)	SAV Increase (Uplift) Due to Wave Attenuation of 10 to 20% (ac)	Hard Surface Habitat Area (sq. ft (ac))	Wavebreak Shadow (ac)	Increase in Seagrass (lift in ac)
1.38	0.91 - 1.65	11,413 (0.3)	17 to 57	1.3

## 7.0 REFERENCES

Fonseca, Mark and Susan S. Bell. 1998. "Influence of Physical Setting on Seagrass Landscapes near Beaufort, North Carolina, USA." *Marine Ecology-Progress Series*. 171: 109-121.

Fonseca. 2015. Memo on 9 June, 2015 from Mark Fonseca to Kathy Herring at NCDOT RE: Bonner Bridge Seagrass Mitigation Project (State Project 32635.1.3; TIP B-2500) Task B (Site Verification) Letter Report.

Google Earth Imagery, 2004, 2006, 2008, 2009, 2011, 2014

Malhotra, A. and M.S. Fonseca. 2007. WEMo (Wave Exposure Model): Formulation, Procedures and Validation. NOAA Technical Memorandum NOS NCCOS #65. 28 pp. [http://www.ccfhr.noaa.gov/docs/NOS\\_NCCOS\\_65.pdf](http://www.ccfhr.noaa.gov/docs/NOS_NCCOS_65.pdf)

NCCOS. 2012. Habitats of coastal North Carolina.

NCDOT. 2012. High Resolution Aerial Photography.

NCDOT. 2015. High Resolution Aerial Photography.

NCDWQ 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for the Proposed Replacement of the Herbert C. Bonner Bridge over Oregon Inlet in Dare County, Federal Aid Project No. BRNHF-0012(48), TIP B-2500 (Phase I). NCDWQ Project No. 20120629. September 7, 2012.

## Appendices

## **Appendix A: Figures**

**Figure 1. Project Vicinity**

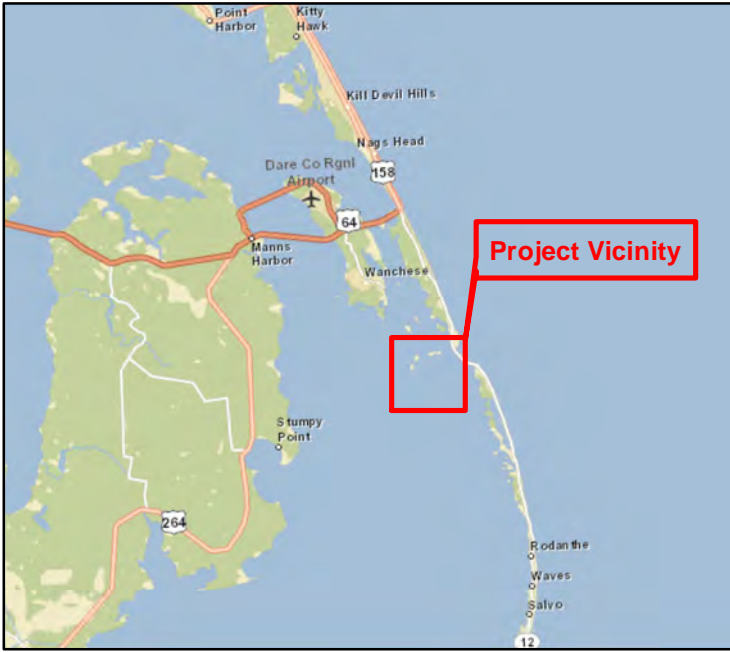
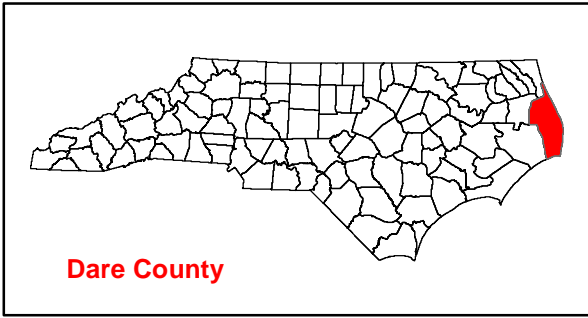
**Figure 2. Project Location**

**Figure 3. Percent Change in Seagrass Cover for Representative Wave Energy  
Difference of 10% or Greater**

**Figure 4: Percent Change in Seagrass Cover for Representative Wave Energy  
Difference of 20% or Greater**

**Figure 5: Project Construction and Staging**



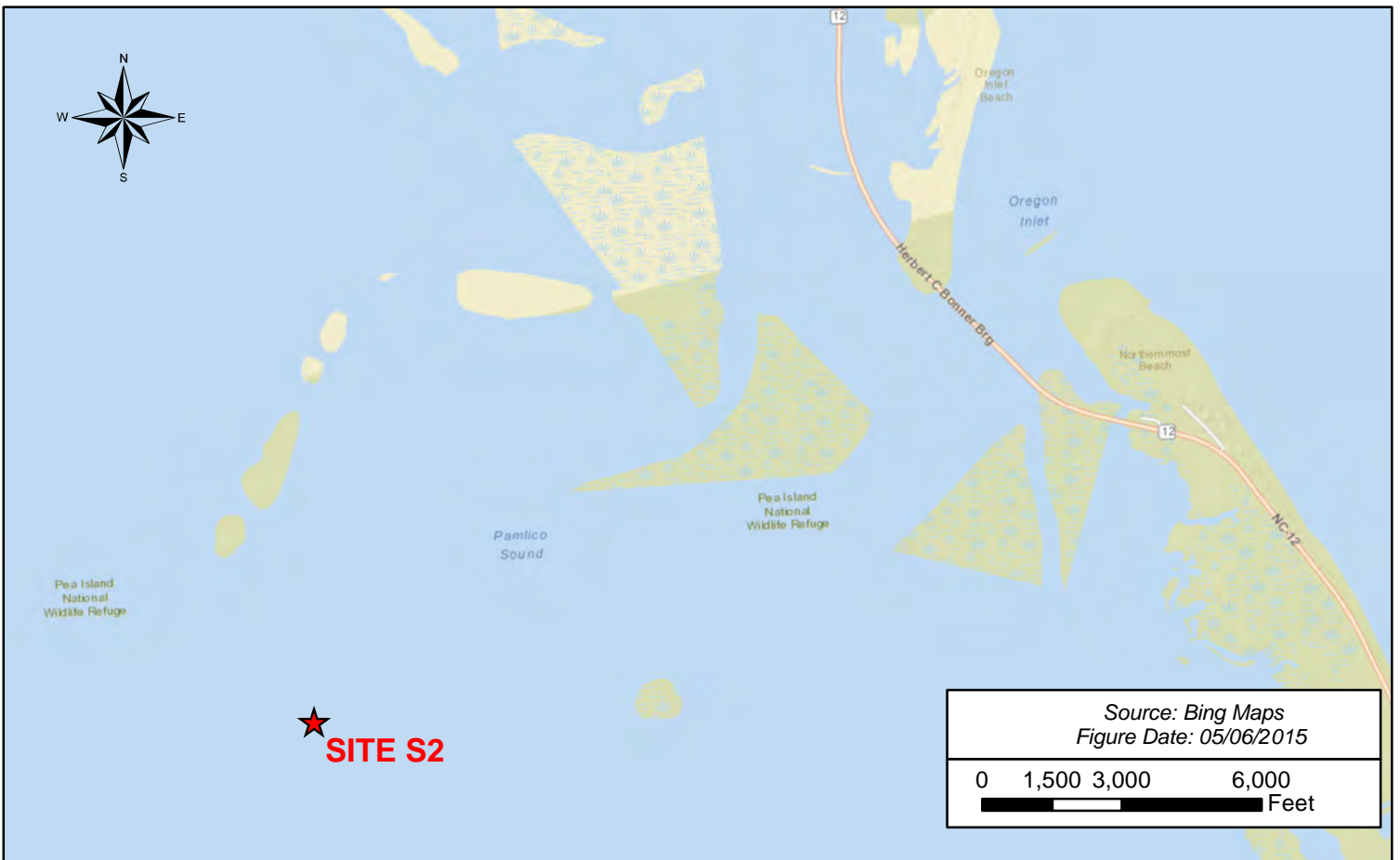


# Figure 1: Project Vicinity

## STIP B-2500 BONNER BRIDGE SAV MITIGATION PLAN

DARE COUNTY - NORTH CAROLINA

SEPTEMBER 2015





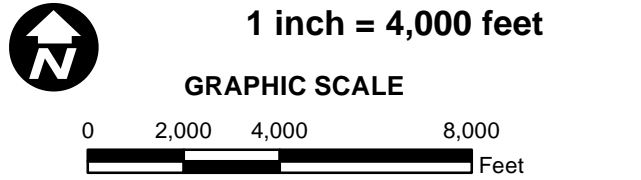
**Legend**

- ★ Primary Site S2
- ★ Secondary Site S2A
- ★ Distant Site 4



This Exhibit is for planning purposes only and shown herein does not meet NC 47-30 Requirements and therefore is not for design, construction, or recording or transfer of title. The Exhibit was compiled from available information obtained from the sources listed below.


Sources:  
 ESRI Base Mapping, September 2015

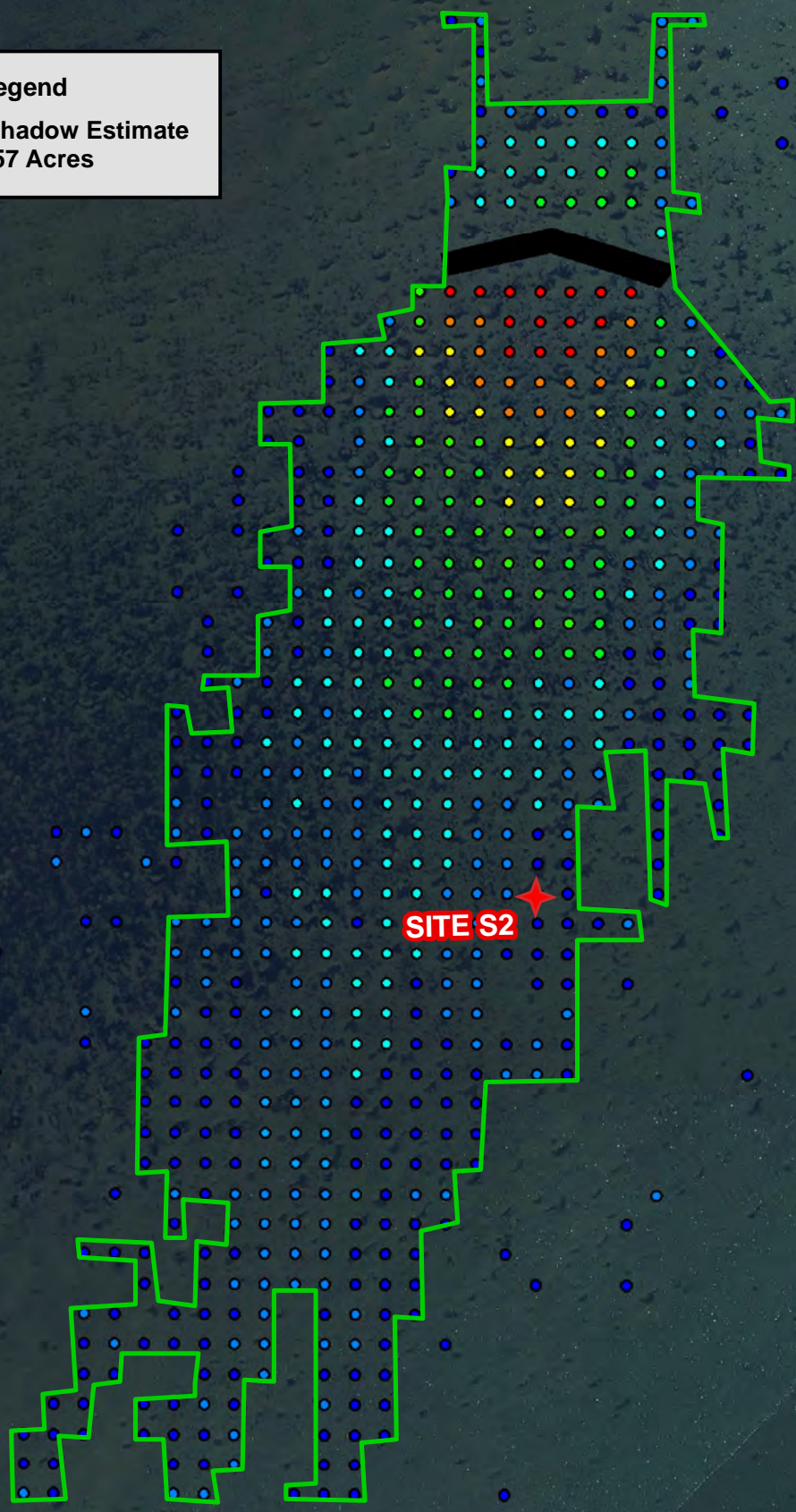


**Figure 2: Project Location**  
**STIP B-2500 BONNER BRIDGE**  
**SAV MITIGATION PLAN**














**Legend**  
 Wave Shadow Estimate  
 10% - 57 Acres



**Legend**  
**Change in Seagrass Cover**

-  1.3% - 1.71%
-  1.72% - 2.21%
-  2.22% - 2.95%
-  2.96% - 3.99%
-  4% - 5.34%
-  5.35% - 7.98%
-  7.99% - 11.62%
-  11.63% - 19.22%
-  500' wall

**Figure 3: Percent Change in Seagrass Cover for Representative Wave Energy Difference of 10% or Greater**




**STIP B-2500 BONNER BRIDGE  
 SAV MITIGATION PLAN**

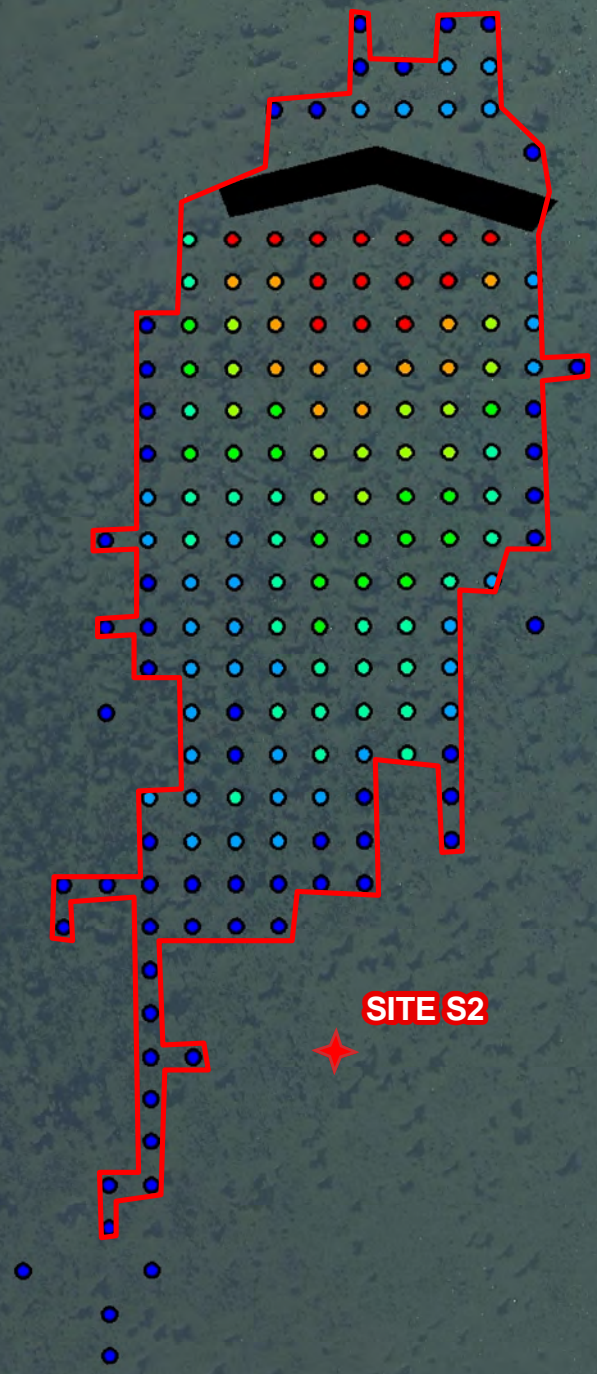


1 inch = 390 feet








**Legend**  
 Wave Shadow Estimate  
 20% - 17 Acres



**Legend**  
 Change in Seagrass Cover

-  2.48% - 3%
-  3.01% - 3.6%
-  3.61% - 4.67%
-  4.68% - 6.12%
-  6.13% - 8.61%
-  8.62% - 11.62%
-  11.83% - 19.22%
-  500' wall

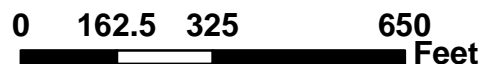
**Figure 4: Percent Change in Seagrass Cover for Representative Wave Energy Difference of 20% or Greater**



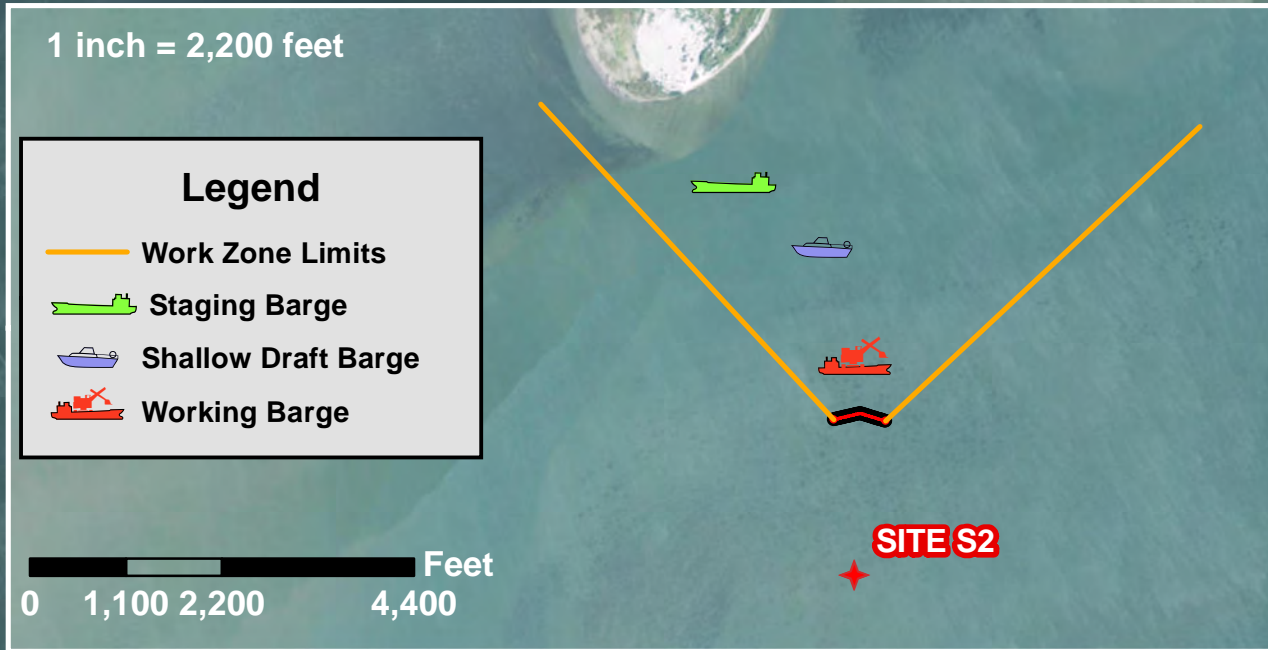
**STIP B-2500 BONNER BRIDGE  
 SAV MITIGATION PLAN**



1 inch = 325 feet

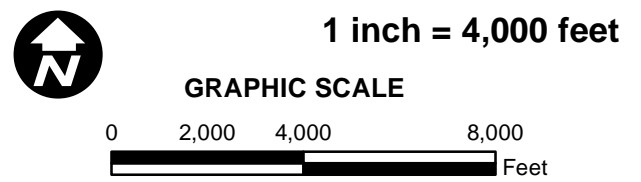






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Sources:  
 Aerial and Topographic Mapping



**Figure 5: Project Construction and Staging**  
**STIP B-2500 BONNER BRIDGE**  
**SAV MITIGATION PLAN**





## **Appendix B: Exhibits**

**Exhibit 1. Reefmaker “Ecosystem” Units Design – Front Elevation View**

**Exhibit 2. Reefmaker “Ecosystem” Units Design – Profile View**

**Exhibit 3. Reefmaker “Ecosystem” Units Design – Plan View**

Exhibit 1. Reefmaker "Ecosystem" Units Design - Front Elevation View

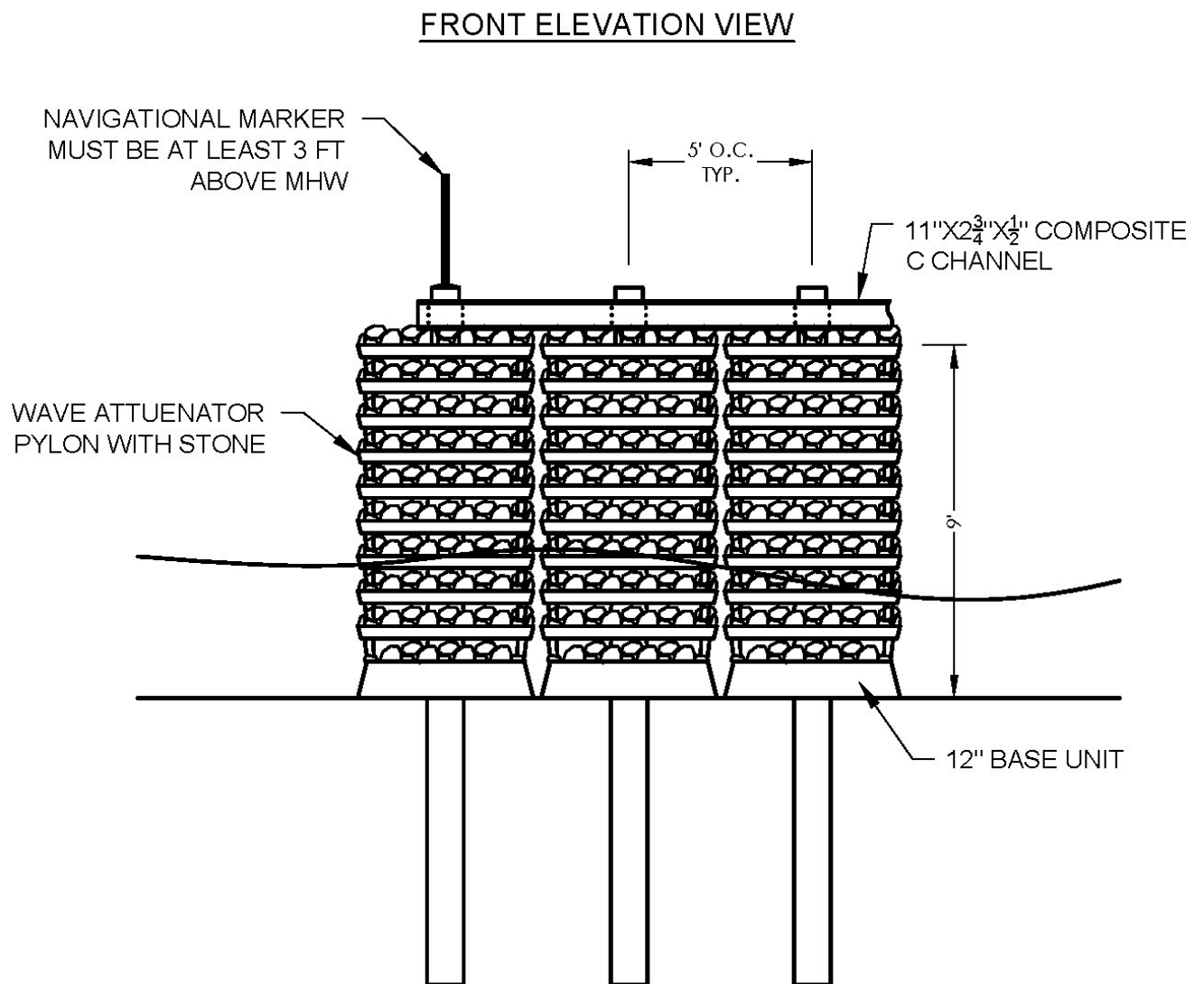






Exhibit 3. Reefmaker "Ecosystem" Units Design - Plan View

