STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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SUBJECT: NCDOT implementation of the Disaster Specific Guidance (DSG) on the Repair/Replacement of Publicly Owned Roads and Bridges in Special Flood Hazard Areas (SFHAs) for the Ongoing Tropical Storm Helene Recovery (FEMA Disaster Relief 4827).

The Federal Emergency Management Agency (FEMA) issued Disaster Specific Guidance (DSG) on the Repair/Replacement of Publicly Owned Roads and Bridges in Special Flood Hazard Areas (SFHAs) for the Ongoing Tropical Storm Helene Recovery (FEMA Disaster Relief 4827).

The DSG applies to roads or facilities (e.g., bridges, culverts, etc.) that are constructed, modified, or removed within Special Flood Hazard Areas or floodplains outside of SFHA.

Pursuant to this guidance, NCDOT is not required to obtain, review, or approve a hydrologic or hydraulic analysis demonstrating no cumulative increase of the water surface elevation more than a designated height, in accordance with 44 CFR 60.3(d)(3), prior to the repair or replacement of the NCDOT Road and/or Facility.

For repair/replacement work related to Tropical Storm Helene Recovery (FEMA Disaster Relief 4827), the following shall apply:

- Designs should align with guidance established by the Compliance and Coordination Plan (CCP) and the NCDOT Guidelines for Drainage Studies and Hydraulic Design.
- National Flood Insurance Program (NFIP) compliance for culverts as defined in Section 15.3.1 of the NCDOT Guidelines for Drainage Studies and Hydraulic Design will follow section 15.7 that includes the post-construction hydrologic and hydraulic analyses.
- NFIP compliance for roads or facilities shall be achieved by following the CCP and the Disaster Specific Guidance - NCDOT Highway NFIP/Floodplain Requirements matrices below.
- The Highway Floodplain Program (HFP) will provide and coordinate with North Carolina Emergency Management (NCEM) on post-construction hydrologic and hydraulic analyses and other data to facilitate the re-study and mapping of post-construction conditions.

This guidance will be incorporated into the next update of the Coordination and Compliance Plan.

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Disaster Specific Guidance - NCDOT Highway NFIP/Floodplain Requirements – Spot and localized damaged locations.	
Modeling Approach	NCDOT Highway Floodplain Program (HFP) will coordinate with NCEM on Hydrologic and Hydraulic Modeling Requirements
Compliance Approval	Provide HFP with images and boundary maps
After Construction	Provide HFP with Certified As-Built plans

Disaster Specific Guidance - NCDOT Highway NFIP/Floodplain Requirements – Bridges* and River and Road Corridors	
Modeling Approach	Create a Duplicate Effective, Corrected Effective (and Pre/Post-Storm Existing Condition if warranted) plans. Use the best available data when modeling topography, bridges, culverts and roadways for the Pre-Storm Condition. Create a Revised plan based on updated/proposed topography and proposed design.
Compliance Approval	Follow CCP except as noted in the amendment table below and obtain SFC type DSG.
After Construction	Within six months of construction completion, provide NCDOT Highway Floodplain Program group: • Certified As-Built plans that follow the Guide for Preparing As-Built Plans for FEMA Compliance. • A post-construction SFC package to facilitate the re-study and mapping of post-construction conditions unless waived by Highway Floodplain Program.

CCP Amendments	
Section	
3.2	**SFC Type DSG** classification applies to repair/replacement work related to Tropical Storm Helene Recovery (FEMA Disaster Relief 4827)
3.3 Item 1	The initial SFC submittal is not required prior to commencement of project construction.
3.3 Item 3	**Plan Types** Existing Conditions will be based on Pre-Storm Existing Condition. Note: Such changes may be included in the Corrected Effective model without the need for a Pre-Storm Existing Condition plan. However, some situations may warrant the inclusion of a Pre-Storm Existing Conditions model for clarity.
3.3 Item 8	The Area of Influence (Upstream and Downstream Tie-Ins) shall not be extended past the limits of the post-disaster survey.**
3.3 Item 10	"No Impacts to Structures" criteria shall account for structures impacted by the disaster unless it is documented that the structures will not be repaired/replaced or demonstrated that BFE increases on structures are due to floodplain changes made by Tropical Storm Helene.
3.3 Item 11	Do not highlight maximum increase or decrease in base flood elevation.
3.6	SFC package deliverable modifications: • Include design plan sheets within SFHA, certified (sealed, signed, and dated) by a Professional Engineer licensed in the State of North Carolina as required. • On the BSR/CSR modifications: o In the State Floodplain Compliance Type Field specify that this design is subject to **FEMA's DSG Publicly Owned Roads and Bridges**. o Do not include the FEMA Performance table

Disaster Specific Guidance - NCDOT Highway Non-SFHA Floodplains - Bridges* and River and Road Corridors.	
Modeling Approach	Create an Existing** plan based on Pre-storm conditions, using the best available data when modeling topography, bridges, culverts and roadways. Create a Post-Storm Existing Condition if warranted. Create a Revised plan based on updated/ proposed topography and proposed design
Compliance Approval	Follow the NCDOT Guidelines for Drainage Studies and Hydraulic Design except as noted below o On the BSR/CSR: In the State Floodplain Compliance Type Field specify that this design is subject to **FEMA's DSG Publicly Owned Roads and Bridges**. o "No Impacts to Structures" criteria shall account for structures impacted by the disaster unless it is documented that the structures will not be repaired/replaced or demonstrated that BFE increases on structures are due to floodplain changes made by Tropical Storm Helene.

*Includes culverts that have a hydraulically effective total waterway opening of thirty square feet or more, excluding any area of the culvert that is buried below the streambed.

** In addition to the four cross-sections required to correctly model a bridge or culvert (as defined in Figure 5-1 (see also Figure 2) of the HEC-RAS Hydraulic Reference Manual (USACE 2021)) there must be a minimum of two additional cross-sections, at least one upstream of the approach cross-section and one downstream of the exit cross-section. If starting with Manning's Normal Depth as the downstream boundary condition of a subcritical hydraulic water surface profile computation model, the location of the downstream boundary cross-section should be far enough downstream of the study reach to allow the computed water surface profile to converge to a consistent answer by the time the computations reach the exit cross-section, to prevent errors within the study reach from being introduced. Additional sections may be needed depending on site-specific hydraulic controls and constraints upstream and downstream of the study reach.