

**Duke Energy Dan River Plant
Section 404 Individual Permit Modification Support
Dan River Plant Stormwater Diversion Project
Ash Basin Closure
Permit Support**

USACE Action ID SAW-2015-01381
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Dan River Plant
Eden, North Carolina

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EXECUTIVE SUMMARY

As permitted by the U.S. Army Corps of Engineers (USACE) (Individual Permit SAW-2015-01381), the Stormwater Diversion Project and Associated Projects comprised five individual projects at the Dan River Plant, Rockingham County. The five projects included the following: Stormwater Diversion Project, 36-inch Pipe Closure Project, 48-inch Pipe Closure Project, Dan River 134 Project, and Dan River 131 Project. To be in compliance with the Coal Ash Management Act (CAMA), Duke Energy has transported coal ash from the station to an existing lined landfill in Jetersville, Virginia, and is in the process of excavating and transporting the remaining coal ash to the on-site Dan River Landfill. The excavation and disposal of coal combustion residual (CCR) materials entailed the diversion of stormwater to facilitate these actions. The Stormwater Diversion Project was vital to comply with state and federal regulations, included the separation of contact and non-contact water, and improved site safety. The Stormwater Diversion Project required stream and wetland impacts by necessity.

This information, with additional content, was originally presented in the April 28, 2017, Wetland Master Plan (WMP) prepared by Wood Environment & Infrastructure Solutions, Inc. as supporting documentation for the USACE Individual Permit (IP) application package for the Stormwater Diversion Project and Associated Projects. The USACE issued the IP (SAW-2015-01381) on October 12, 2017, to authorize the proposed impacts to jurisdictional wetlands and streams. The DWR issued Individual 401 Water Quality Certification on October 9, 2017 (WQC004126).

Following permit issuance, it became necessary to develop and implement modifications to the Stormwater Diversion Project and Associated Projects. No substantial changes to the following project-related resources (affected environment) will occur under the proposed activities for the IP modification: land use, geology, soils, groundwater, protected species, cultural resources, environmental justice, noise, and air quality. Changes to topography and floodplains will occur under the proposed activities for the IP modification. No changes to the DR 134 Project or the DR 131 Project are anticipated under the proposed activities for the IP modification; therefore, neither project is discussed in this Addendum report. No action alternatives are presented in the Addendum for the proposed activities with the IP modification, as no substantial change in the overall purpose and need will occur. The proposed activities for the IP modification are necessary to meet the requirements set forth under CAMA. Furthermore, the No-Build Alternative is not feasible with regard to CAMA compliance.

Under the proposed IP modification, the stormwater divider berm and five pipe lines will be removed upon completion of CCR unit closure. The footprint of the stormwater divider berm and WSA-1 (Water Supply Area) will be regraded to promote gravity drainage to an existing reinforced concrete pipe (RCP) which is located at the southern edge of WSA-1. The RCP will convey flow from the historical WSA-1 area to the historical ash basin footprint. For the 36-inch

Pipe Closure Project, the area impounded by the pipe closure area is also defined as WSA-2 in the Stormwater Diversion Project. During CCR unit closure, the WSA-2 footprint will be re-graded to remove accumulated CCR material (if any) and to promote drainage to the existing pipe. The pipe plug will be removed to restore flow from the historical WSA-2 area to the historical ash basin footprint. For the 48-inch Pipe Closure Project, the pipe closure area will be re-graded during CCR unit closure to promote drainage to a proposed pipe. The proposed pipe will convey flow from the historical 48-inch pipe closure area to the historical ash basin footprint. The Ash Basin Closure action will entail the closure and grading of the PAB and SAB. The decommissioning of these two ash basins is necessary for compliance with CAMA. Ash will be removed from the PAB and SAB. The existing embankment features that extend along the southern boundary of the two basins will be removed. After the removal of ash, the two basins will be graded and planted with a grass seed mix. Four gabions, constructed of woven steel wire mesh and filled with rocks, will be established along the northern bank of the Dan River during this action. The gabions, by their design, will reduce erosion at these four outfall locations along the Dan River. Stormwater will be routed (i.e., concentrated flow) across the historical footprint of the PAB and SAB via piping and rip-rap lined channels, with outfall at the four gabion locations.

Under the proposed activities for the IP modification, a change in topography will occur with the removal of the existing embankment that extends along the southern boundary of the two ash basins. However, the embankment is an artificial feature, historically constructed from the placement of fill material. Grading in the floodplain and the removal of the embankment will result in an impact to the 100-year floodplain. The proposed action will not increase flood heights and a “no-rise” scenario is presumed. The project will be reviewed by the City of Eden (Floodplain Administrator) and the required certification(s) will be obtained prior to the initiation of construction activities. The removal of the embankment and the residual ash deposits will improve flood storage capacity.

No changes in impacts to jurisdictional wetlands and streams for the Stormwater Diversion Project are proposed under the IP modification. Specifically, the re-grading of the stormwater divider berm and WSA-1 (dredge basin) will not extend beyond the footprint of these features, as inclusive of the jurisdictional waters that encompass the features and the associated previously permitted impacts. No changes in impact size/extent to jurisdictional wetlands and streams for the proposed action are proposed under the IP modification. The regrading of the project areas will not extend beyond the footprint of these features, as inclusive of the jurisdictional waters that encompass the features and the associated, previously permitted, permanent impacts. The only change will be in the type of impact; i.e., from impoundment of the jurisdictional areas to regrading of the jurisdictional areas. The Ash Basin Closure action will result in a total of 0.025 acre of permanent impacts to open waters (i.e., Dan River) from the establishment of the four gabion structures. These open water impacts were calculated to the Ordinary High Water Mark elevation and not the 100-year floodplain elevation. The 0.025-acre total impact is presumed to be less than substantial, as the impact area associated with the



construction (footprint) of each gabion will be limited to a very small work area. A total of 0.125 acre of temporary impacts to open waters will occur from the construction corridor established at the gabion locations. All work activities to be completed under the proposed IP modification will be conducted in a manner to minimize the potential for erosion and sedimentation and will conform to Erosion & Sediment Control Plan details.

As no changes in impacts to jurisdictional wetlands and streams are proposed under the IP modification for the proposed actions, no adjustments in compensatory mitigation are necessary as originally permitted.

A records search to identify documented federally protected species (threatened or endangered) which have elemental occurrences in Rockingham County reported no element occurrences of federally listed species within a one-mile radius of the station. It is presumed that the proposed action would have no effect on the James spiny mussel and its habitat.

1.0 INTRODUCTION

As permitted by the U.S. Army Corps of Engineers (USACE) (Individual Permit [IP] SAW-2015-01381), the Stormwater Diversion Project and Associated Projects comprised five individual projects at the Dan River Plant, located near the southeastern side of the City of Eden in northern Rockingham County. The five projects are identified below:

- Stormwater Diversion Project
- 36-inch Pipe Closure Project
- 48-inch Pipe Closure Project
- Dan River 134 Project
- Dan River 131 Project

Among these five projects, the principal project was the Stormwater Diversion Project.

On August 20, 2014, the North Carolina General Assembly passed S 729, the Coal Ash Management Act of 2014 (CAMA), requiring Duke Energy to phase out wet ash handling. At the Dan River Plant, Duke Energy transported some of the coal ash from the station to an existing lined landfill in Jetersville, Virginia. The remaining on-site coal ash is currently in the process of being excavated and disposed of in the on-site Dan River Landfill.

The excavation and disposal of coal combustion residual (CCR) materials has entailed the diversion of stormwater to facilitate these actions. Specifically, the stormwater diversion activities as permitted and implemented, included the removal of ash from an existing dredge basin, the construction of a soil divider berm, and the construction of five pipelines to transport water. The method for implementing stormwater diversion incorporated a pump-around operation. The stormwater diversion measures will remain in place during excavation and disposal of CCR materials, which is estimated to occur over a period of three to five years. Stormwater diversion measures will be removed, and gravity flow will be restored following completion of CCR excavation and disposal activities.

The aforementioned information, with additional content, was originally presented in the April 28, 2017 Wetland Master Plan (WMP) prepared by Wood Environment & Infrastructure Solutions, Inc. (Wood) (formerly Amec Foster Wheeler Environment & Infrastructure, Inc.), as supporting documentation for the U.S. Army Corps of Engineers (USACE) Individual Permit (IP) application package for the Stormwater Diversion Project and Associated Projects at the Dan River Plant. The IP application package was submitted by Duke Energy to the USACE. During the IP application review process, which included a 30-day Public Notice period (May 12, 2017 advertisement), a Request for Additional Information (RAI) was issued by the USACE (July 12, 2017) and the North Carolina Department of Environmental Quality (NCDEQ) Division of Water



Resources (DWR) (June 1, 2017). Responses to the RAIs were provided to both agencies by Duke Energy. After further review by both agencies, the USACE issued the IP (SAW-2015-01381) on October 12, 2017 to authorize the proposed impacts to jurisdictional wetlands and streams and the DWR issued Individual 401 Water Quality Certification on October 9, 2017 (WQC004126).

Following the issuance of the IP by the USACE and Water Quality Certification by the DWR, it has become necessary to develop and implement modifications to the Stormwater Diversion Project and Associated Projects. Separate from the project, but included in this Addendum report, is the Ash Basin Closure action. The Ash Basin Closure action will entail the closure and grading of the PAB and SAB. This Addendum report for the Stormwater Diversion Project and Associated Projects presents information on the newly proposed activities at the Dan River Plant, as including project development, proposed impacts to jurisdictional wetlands and streams, and compensatory mitigation, and as necessary to address the proposed modification of the issued USACE IP (SAW-2015-01381) and DWR Water Quality Certification (WQC004126). Figure 1 presents the general location of the Ash Basin Closure action area and associated projects. Certain information for the Stormwater Diversion Project and Associated Projects, as originally permitted, was previously presented in the April 2017 WMP, and is not repeated herein.

No substantial changes to the following project-related resources (affected environment) will occur under the proposed activities for the IP modification: land use, geology, soils, groundwater, protected species, cultural resources, environmental justice, noise, and air quality. Certain figures, tables, and/or appendices related to the topics of discussion are not included herein but can be found in the April 2017 WMP. Changes to topography and floodplains will occur under the proposed activities for the IP modification. These changes are discussed in Section 2.4 herein (Ash Basin Closure Action). Finally, no changes to the DR 134 Project or the DR 131 Project are anticipated under the proposed activities for the IP modification; therefore, neither project is discussed in this Addendum report for the Stormwater Diversion Project and Associated Projects. Please refer to the April 28, 2017 WMP for additional information on the Stormwater Diversion Project and Associated Projects.

2.0 PROJECT PURPOSE AND NEED

The purpose of the Stormwater Diversion Project was to divert stormwater to facilitate the excavation and disposal of CCR materials from areas of ash fill within the Dan River Plant. This purpose was based on the following needs:

- Address North Carolina regulatory requirements related to diverting stormwater away from the Primary Ash Basin (PAB) and Secondary Ash Basin (SAB), and disposal of CCR materials
- Provide separation between water that has contacted CCR material (contact water) and water that has not contacted CCR material (non-contact water)
- Increase safety by improving site access

The Stormwater Diversion Project was vital to comply with state and federal regulations, included the separation of contact and non-contact water, and improved site safety. The project required stream and wetland impacts by necessity. Additional information on the purpose and need for the Stormwater Diversion Project and Associated Projects, as originally permitted, was previously presented in the April 2017 WMP, and is not repeated herein.

The principal action that has accelerated the excavation and removal of CCR materials from coal ash storage ponds (ash basins) at Duke Energy power generating plants with coal-fired facilities is the promulgation of CAMA. The bill, enacted on August 20, 2014, requires Duke Energy to phase out wet ash handling. In conjunction with CAMA, the NCDEQ has amassed comprehensive data about coal ash facilities statewide. The information has been essential in NCDEQ's prioritization of closure plans for all 14 facilities with coal ash storage ponds. The Dan River Plant was identified as one of these 14 facilities with coal ash storage ponds. The Ash Basin Closure action, as identified in this IP modification, will address North Carolina regulatory requirements as related to the redirection of process water away from the ash basin and to help facilitate the closure activities of CCR materials at the steam station. In conclusion, the project purpose is to close the PAB and SAB. This action will include the excavation of ash from the basins and the subsequent grading and seeding of these areas. The proposed activities for the IP modification are necessary (project need) to meet the requirements set forth under CAMA.

3.0 PROJECT DEVELOPMENT

This chapter of the Addendum Report presents information on the newly proposed activities at the Dan River Plant for the Stormwater Diversion Project, the 36-inch Pipe Closure Project, and the 48-inch Pipe Closure Project, as originally presented in the April 2017 WMP and permitted by the USACE and DWR, and as developed under the proposed IP modification. Information on the Ash Basin Closure action is also presented in this chapter. Figure 2 presents the location of the proposed work areas for the Ash Basin Closure action and associated project components.

3.1 STORM WATER DIVERSION PROJECT

Project as Permitted by USACE and DWR

The Stormwater Diversion Project components included the following: divider berm; upland flow area (UFA); three water storage areas (WSA), including WSA-1, WSA-2, and WSA-3; and five Pipe Lines, including Pipe Lines 1, 2, 3, 4 and 5. The Project must adhere to federal and state water quality standards during the diversion of stormwater. Therefore, the Project was designed to provide separation between water that has contacted CCR material (contact water) and water that has not contacted CCR material (non-contact water). Specifically, a divider berm was constructed to provide separation of contact and non-contact water during CCR removal activities. The stormwater diversion activities entailed the removal of ash from an existing dredge basin (located between the current footprints of Ash Fill 1 and Ash Fill 2), the construction of a soil divider berm, and the construction of five pipelines. The diversion of stormwater was a significant element of the overall process to excavate and remove CCR materials from the Dan River Plant.

The diversion of stormwater entailed a pump-around method, at a capacity of 400 gallons per minute (gpm). The wetland impact associated with the development of WSA-2 (0.11 acre) was previously permitted by the USACE. The wetland impact associated with the development of WSA-3 (0.19 acre) was authorized by the issued USACE IP. In addition, the impact to the dredge basin (1.89 acres) associated with the development of WSA-1 was authorized by the issued USACE IP. For the remaining Project component, the UFA, the impacts due to the overflowing of this area included 0.22 acre of wetlands and 393 linear feet of stream. All permanent impacts to jurisdictional wetlands, streams, and the dredge basin under the pump-around method were authorized by the issued USACE IP.

Project under the Proposed IP Modification

The stormwater divider berm and five pipe lines will be removed upon completion of CCR unit closure. The footprint of the stormwater divider berm and WSA-1 will be re-graded to promote gravity drainage to an existing reinforced concrete pipe (RCP) which is located at the southern

edge of WSA-1. The RCP will convey flow from the historical WSA-1 area to the historical ash basin footprint.

With regard to Wetland A (WSA-3), which was previously included in the Stormwater Diversion Project, gravity drainage will be restored by removing the temporary pipe cap. The work may also require re-grading to a depth of 18 inches or less below existing grade to remove accumulated CCR material (if any) and to promote drainage, and/or headwall.

3.2 36-INCH PIPE CLOSURE PROJECT

Project as Permitted by USACE

The 36-Inch Pipe Closure Project is a previously permitted project at the Dan River Plant. The USACE issued Action ID SAW-2014-01477 on September 29, 2014, for Nationwide Permit (NWP) 18. The issued NWP 18 (Minor Discharges) authorized wetland and stream impacts (permanent) resulting from overflowing. The project activities entailed closing (grouting) a 36-inch corrugated metal pipe that transported flow under the PAB. The impacts to jurisdictional waters also included the establishment of a cofferdam for the grout installation. Pumped flows were discharged to the Dan River through the outfall structure at National Pollutant Discharge Elimination System (NPDES) outfall 002. Although the project was previously permitted under NWP, the proposed action will not be completed prior to the close out of the ash basins and the expiration of the issued NWP; therefore, the impacts to the jurisdictional waters (i.e., Wetland H and Stream 4) were included in the 2017 USACE IP application and, as such, included in the issued USACE IP (SAW-2015-01381). Compensatory mitigation for the wetland and stream impacts were also included in the 2017 USACE IP application. Please refer to the April 28, 2017 WMP for information on this permitted project. The project purpose entailed the closing (grouting) of the 36-inch corrugated metal pipe that transported flow under the PAB. The proposed action was necessary to accomplish the clean-up of ash.

Project under the Proposed IP Modification

The area impounded by the 36-inch pipe closure area is also defined as WSA-2 in the Stormwater Diversion Project. During CCR unit closure, the WSA-2 footprint will be re-graded to a depth of 18 inches or less below existing grade to remove accumulated CCR material (if any) and to promote drainage to the existing pipe. The pipe plug will be removed to restore flow from the historical WSA-2 area to the historical ash basin footprint.

3.3 48-INCH PIPE CLOSURE PROJECT

Project as Permitted by USACE

The 48-Inch Pipe Closure Project is a previously permitted project at the Dan River Plant. The USACE issued Action ID SAW-2015-01670 on July 31, 2015, for NWP 18. The issued NWP 18 authorized wetland and stream impacts (permanent) resulting from overflowing. The project activities entailed the clean-up of ash and the impoundment of stormwater at the grouted 48-inch reinforced concrete pipe. Pumped flows were discharged to the Service Water Settling Pond by way of existing piping to a new storm water outfall. Although the project was previously permitted under NWP, the proposed action will not be completed prior to the close out of the ash basins and the expiration of the issued NWP; therefore, the impacts to the jurisdictional waters (i.e., two wetlands and three streams) were included in the 2017 USACE IP application and, as such, included in the issued USACE IP (SAW-2015-01381). Compensatory mitigation for the wetland and stream impacts were also included in the 2017 USACE IP application. Please refer to the April 28, 2017 WMP for information on this permitted project. The project purpose entailed the closing (grouting) of a 48-inch reinforced concrete pipe. The proposed action was necessary to accomplish the clean-up of ash.

Project under the Proposed IP Modification

During CCR unit closure, the 48-inch pipe closure area will be re-graded to a depth of 18 inches or less below existing grade to remove accumulated CCR material (if any) and to promote drainage to a proposed pipe. The proposed pipe will convey flow from the historical 48-inch pipe closure area to the historical ash basin footprint.

3.4 ASH BASIN CLOSURE ACTION

The Ash Basin Closure action will entail the closure and grading of the PAB and SAB. The decommissioning of these two ash basins is necessary for compliance with CAMA. Ash will be removed from the PAB and SAB. The existing embankment features that extend along the southern boundary of the two basins will be removed. After the removal of ash, the two basins will be graded and planted with a grass seed mix.

Four gabions will be established along the northern bank of the Dan River during the Ash Basin Closure action. Specifically, Gabions 1 and 2 will occur along the PAB southern boundary, Gabion 3 at the intersection of the PAB and SAB southern boundaries, and Gabion 4 at the SAB southern boundary. The locations of the four gabions are presented on the Plan View drawing. The gabions will be constructed of woven steel wire mesh and filled with rocks. These features are generally used to form low-height retaining structures or revetment protection works. The gabions, by their design, will reduce erosion at these four outfall locations along the Dan River.



Stormwater will be routed (i.e., concentrated flow) across the historical footprint of the PAB and SAB via piping and rip-rap lined channels, with outfall at the four gabion locations. Permanent and temporary impacts to jurisdictional open waters (i.e., Dan River) from the construction of each gabion are discussed in Section 3.4 (Ash Basin Closure Action) of this Addendum report.

A change in topography will occur with the removal of the existing embankment that extends along the southern boundary of the two ash basins. The change in topography will be approximately 20 feet, from an approximate elevation of 520 feet to 500 feet post-construction. However, the embankment is an artificial feature, historically constructed from the placement of fill material. The change in topography will be limited to the embankment feature regarding the magnitude of all topographic impacts under the proposed activities for the IP modification within the steam station.

Based on FEMA FIRM mapping, the embankment occurs within the 100-year floodplain. The floodplain elevation near the embankment is approximately 510 feet. Under the proposed activities for the IP modification, grading in the floodplain and the removal of the embankment, to an elevation of 500 feet post-construction, will result in an impact to the floodplain. The proposed action, however, will not increase flood heights and a “no-rise” scenario is presumed. The project will be reviewed by the City of Eden (Floodplain Administrator) and the required certification(s) will be obtained prior to the initiation of construction activities. Finally, the removal of the embankment and the residual ash deposits will improve flood storage capacity.

The 500-foot elevation mark (i.e., the elevation along the southern boundary of the historic ash basin footprint following the removal of the embankment) occurs below the floodplain elevation of 510 feet but above the elevation of the Ordinary High Water Mark (OHWM) (486 feet) near the four gabion (outfall) locations. The impacts to jurisdictional waters (Dan River) from the installation of the four gabions were calculated to the OHWM elevation and not the 100-year floodplain elevation. These open water impacts are discussed in Section 3.4 (Ash Basin Closure Action) of this Addendum report.

4.0 ALTERNATIVES ANALYSIS

The April 2017 WMP and the response to the July 12, 2017 USACE RAI presented and addressed the alternatives analysis requirements for the Stormwater Diversion Project and Associated Projects. As such, information on regulatory authority and alternatives analysis for the Stormwater Diversion Project and Associated Projects, as originally permitted, is not repeated herein. Please refer to the WMP for all action alternatives for these permitted projects.

The redirection of process water is a significant element of the overall process to ensure the long-term integrity of CCR materials and facilitate ash basin closure activities at the Dan River Plant. The excavation and removal of CCR materials is a function of the promulgation of CAMA. Therefore, the impetus for the alternatives analysis is linked to this process. The Ash Basin Closure action is the principal project component under the proposed IP modification. Other than the No-Build Alternative, no action alternatives are presented herein for the proposed activities under the IP modification, as no substantial change in the overall purpose and need will occur. The proposed activities for the IP modification are necessary to meet the requirements set forth under CAMA. Furthermore, the No-Build Alternative is not feasible regarding CAMA compliance. If the Ash Basin Closure action is not completed, compliance with CAMA would not be met.

5.0 WATERS OF THE U.S. IMPACTS

This section presents information on the impacts to waters of the U.S. at the Dan River Plant for the Stormwater Diversion Project, the 36-inch Pipe Closure Project, and the 48-inch Pipe Closure Project, as originally presented in the April 2017 WMP and permitted by the USACE and DWR, and as developed under the proposed IP modification. Some of the content on jurisdictional waters impacts, as originally presented in the WMP, is not included herein; therefore, reference should be made to the April 2017 WMP. Information on impacts associated with the Ash Basin Closure action is also presented in this chapter. Information on impacts to jurisdictional waters for the DR 131 Project and the DR 134 Project is not discussed herein, as no changes to these two projects are anticipated under the proposed activities for the IP modification.

5.1 STORM WATER DIVERSION PROJECT

Project as Permitted by USACE and DWR

Wetlands A, D, F, and H, Stream 1, and the dredge basin occurred within the Project area (inclusive of various Project components) and were affected by the implementation of the pump-around stormwater diversion operations. Although Wetlands B, C, E, G and J, Streams 2 and 6, and Pond AA occurred in the general vicinity of the Project components, these waters of the U.S. were not affected by the stormwater diversion operations. Prior work activities conducted at WSA-2, as affecting Wetland H, were previously permitted by USACE NWP 18 (Action ID SAW-2014-01477, issued on September 29, 2014). The issued NWP 18 authorized impacts (permanent) to Wetland H resulting from overflowing.

All impacts to waters of the U.S. from the implementation of the stormwater diversion operations were classified as permanent, as based on prior conversations in 2016 with Mr. David Bailey of the USACE, Raleigh Regulatory Field Office. The impacts to Wetlands A, D and F, Wetland H (impacts previously permitted), and Stream 1 were due to overflowing. The construction of the Project component WSA-1 entailed the removal of vegetation, CCR removal, and regrading to promote drainage within the existing dredge basin area. Specifically, the cumulative impacts to the dredge basin area footprint included dredging, cut/fill, and overflowing. The initial impact to the dredge basin was dredging; i.e., the removal of hydrophytic vegetation, primarily phragmites, and the excavation of CCR material. The stormwater diversion measures will be in place during the excavation and disposal of CCR materials, which is estimated to occur over a period of three to five years. Table 1 presents acreage and linear foot values of the impacts to jurisdictional wetlands and streams within the respective Project components, as authorized (i.e., previously permitted) under the issued USACE IP (SAW-2015-01381) and NWP 18 (SAW-2014-01477 and SAW-2015-01670). The Plan View drawing of the Project components and the cross-section drawings of Wetlands A, D and F, Stream 1, and the dredge basin were originally



presented in the April 2017 WMP and are not included herein. Reference should be made to the April 2017 WMP for these drawings.

Table 1. Previously Permitted impacts to jurisdictional wetlands, streams, and dredge basin for the Stormwater Diversion Project, 36-Inch Pipe Closure Project, and 48-Inch Pipe Closure Project, Dan River Plant, Rockingham County, North Carolina.

Resource Type	Project Component	Permitted Impacts	
		Wetlands (acres)	Streams (linear feet)
Stormwater Diversion Project (permitted under SAW-2015-01381; IP)			
Wetland A	WSA-3	0.19	-
Wetland D	UFA	0.16	-
Wetland F	UFA	0.06	-
Stream 1	UFA	-	393
Dredge Basin	WSA-1	1.89	-
Total		2.30	393
36-Inch Pipe Closure Project (previously permitted under SAW-2014-01477; NWP 18)			
Wetland H	Pipe Closure with Flooding (includes fill for cofferdam)	0.098	-
Stream 4	Pipe Closure with Flooding	-	65
48-Inch Pipe Closure Project (previously permitted under SAW-2015-01670; NWP 18)			
Wetlands	Pipe Closure with Flooding	0.407	-
Streams	Pipe Closure with Flooding	-	448

Project under the Proposed IP Modification

No changes in impacts to jurisdictional wetlands and streams for the Stormwater Diversion Project are proposed under the IP modification. Specifically, the re-grading of the stormwater divider berm and WSA-1 (dredge basin) will not extend beyond the footprint of these features, as inclusive of the jurisdictional waters that encompass the features and the associated previously permitted impacts.

5.2 36-INCH PIPE CLOSURE PROJECT

Project as Permitted by USACE

Action ID SAW-2014-01477, issued by the USACE for the 36-Inch Pipe Closure Project, provided the following description of the project area and activity: “The proposed project includes a permanent discharge of fill material into 0.001 acre of wetlands and 4 linear feet (8 square feet) of streams, resulting in the permanent conversion of 0.097 acre of wetlands and 61 linear feet (0.003 acre) of stream to open waters in order to close a 36-inch corrugated metal pipe that flows under an existing coal ash basin.” The total amount of wetland impact was 0.098 acre and encompassed Wetland H. The total amount of stream impact was 65 linear feet and encompassed Stream 4. These impacts to jurisdictional waters are included in Table 1.

Project under the Proposed IP Modification

No changes in impact size/extent to jurisdictional wetlands and streams for the 36-Inch Pipe Closure Project are proposed under the IP modification. Specifically, the regrading of WSA-2 will not extend beyond the footprint of this feature, as inclusive of the jurisdictional waters (Wetland H and Stream 4) that encompass the feature and the associated, previously permitted, permanent impacts. The only change will be in the type of impact; i.e., from impoundment of the jurisdictional area to regrading of the jurisdictional area.

5.3 48-INCH PIPE CLOSURE PROJECT

Project as Permitted by USACE

Action ID SAW-2015-01670, issued by the USACE for the 48-Inch Pipe Closure Project, provided the following description of the project area and activity: “The proposed project includes the permanent conversion of 0.407 acre of wetlands and 448 linear feet of stream to open waters in order to close a 48-inch corrugated metal pipe that flows under an existing coal ash basin.” The jurisdictional limits of the two impacted wetlands and the three impacted streams were based on the land survey of these areas by LDSI in July of 2105. The impacted wetlands and streams were assigned feature identifiers that were specific to the permitting of the 48-Inch Pipe Closure Project. As such, they were not included in the set of jurisdictional waters that comprised the Stormwater Diversion Project. The wetland and stream impacts for the 48-Inch Pipe Closure Project are included in Table 1.



Project under the Proposed IP Modification

No changes in impact size/extent to jurisdictional wetlands and streams for the 48-Inch Pipe Closure Project are proposed under the IP modification. Specifically, the re-grading of the pipe closure area will not extend beyond the footprint of this area, as inclusive of the jurisdictional waters that encompass the area and the associated, previously permitted, permanent impacts. The only change will be in the type of impact; i.e., from impoundment of the jurisdictional area to regrading of the jurisdictional area.

5.4 ASH BASIN CLOSURE ACTION

The Ash Basin Closure action will result in a total of 0.025 acre of permanent impacts to open waters (i.e., Dan River) from the establishment of the four gabion structures. These open water impacts were calculated to the OHWM elevation and not the 100-year floodplain elevation. The 0.025-acre total impact is presumed to be less than substantial, as the impact area associated with the construction (footprint) of each gabion will be limited to a very small work area. A total of 0.125 acre of temporary impacts to open waters will occur from the construction corridor established at the gabion locations. Table 2 presents the proposed impacts to jurisdictional waters for the Ash Basin Closure action.

Table 2. Proposed impacts to jurisdictional open waters (Dan River), Ash Basin Closure Action, Dan River Plant, Rockingham County, North Carolina.

Permanent Impacts					
Gabion ID	Gabion Top Width (feet)	Assumed Riverbank Sideslope (ZH:1V)	Approximate Gabion Length Below OHWM (feet)	Approximate Gabion Area Below OHWM (square feet)	Proposed Impacts (acre)
G-1	12	2	22.8	273.1	0.0062
G-2	12	2	22.8	273.1	0.0062
G-3	12	2	22.8	273.1	0.0062
G-4	12	2	23.2	278.9	0.0064
Totals			1,098		0.025
Temporary Impacts					
Gabion ID	Assumed Additional Width for Construction (feet)	Approximate Gabion Length Below OHWM (feet)	Impact Below OHWM (square feet)	Impact Below OHWM (acre)	
G-1	60	22.8	1,368.0	0.031	



G-2	60	22.8	1,368.0	0.031
G-3	60	22.8	1,368.0	0.031
G-4	60	23.2	1,392.0	0.032
Totals			5,496.0	0.125

5.5 BEST MANAGEMENT PRACTICES

All development projects in North Carolina that disturb an acre or greater of land require an approved Erosion & Sediment Control (E&SC) Plan. E&SC Plans must be produced in accordance with the *North Carolina Erosion and Sediment Control Planning and Design Manual*, dated May 2013. This manual includes best management practices (BMPs) for reducing erosion and sedimentation during construction. This requires proper site preparation techniques, surface stabilization, runoff control measures, diffuse flow through the riparian buffer, inlet and outlet protection, and stream protection. Rockingham County uses this manual when directing developers during new development or redevelopment that exceeds one acre. As Rockingham County is not NPDES Phase II nor is the watershed in a regulated community, it has no post-construction soil and erosion or stormwater control obligations. Rockingham County relies upon the NCDEQ Winston-Salem Regional Office to oversee and enforce their federal soil and erosion control requirements for new construction. All work activities to be completed under the proposed IP modification as described herein will be conducted in a manner to minimize the potential for erosion and sedimentation.

5.6 NPDES PROJECTS AT DAN RIVER PLANT

During the December 17, 2018 Pre-application meeting with David Bailey of the USACE and representatives of Duke Energy and Wood, Mr. Bailey requested a list of the current/active NPDES projects at the Dan River Plant. Specifically, Mr. Bailey requested a list of the wetlands and streams that fall under the existing NPDES Permit at the stream station..

There are no additional wetlands within a current or former NPDES permit that need to be addressed with this IP modification. The only wetland that was within a NPDES permit was the dredge pool (dredge basin) designated as WSA1 in the IP. The dredge pool collected water from the Dry Stacks for discharge to the secondary basin. There are no wetlands associated with the active NPDES Wastewater Permit NC0003468. The 48-inch pipe closure area receives stormwater from the combined cycle plant which is currently pumped to the Settling Pond under Stormwater Permit NCS000572 and former NWP.

6.0 COMPENSATORY MITIGATION

This chapter of the Addendum report presents information on the compensatory mitigation for impacts to waters of the U.S. at the Dan River Plant for the Stormwater Diversion Project, the 36-inch Pipe Closure Project, and the 48-inch Pipe Closure Project, as originally presented in the April 2017 WMP and permitted by the USACE and DWR, and as developed under the proposed IP modification. Some of the content on compensatory mitigation, as originally presented in the WMP, is not included herein; therefore, reference should be made to the April 2017 WMP. Information on compensatory mitigation associated with the Ash Basin Closure action is also presented in this chapter. Finally, it is noted that information on compensatory mitigation for impacts to jurisdictional waters for the DR 131 Project and the DR 134 Project is not presented herein, as no changes to these two projects are anticipated under the proposed activities for the IP modification.

6.1 STORMWATER DIVERSION PROJECT

Project as Permitted by USACE and DWR

Compensatory mitigation for the Stormwater Diversion Project entailed advance credit purchase through the North Carolina Division of Mitigation Services (NCDMS) In-Lieu Fee Program. Table 3 presents the NCDMS mitigation costs for impacts to jurisdictional riparian wetlands, non-riparian wetlands, cool water streams, and the dredge basin under the issued USACE IP. Table 3 reflects changes in the mitigation cost analysis as requested by the USACE in the July 12, 2017 USACE RAI. Specifically, the USACE requested that the classification of Wetland A and the Dredge Basin wetland be changed from Hardwood Flat to Headwater Forest. Forthwith, the USACE requested that the wetland mitigation credit classification be changed from Non-Riparian wetland to Riparian, Non-Riverine wetland for Wetland A and the Dredge Basin wetland. No mitigation was offered for impacts to Wetland H, as the authorized impacts for overflowing (permanent) to this wetland were previously permitted by the USACE via issuance of NWP 18 (Action ID SAW-2014-01477, issued on September 29, 2014). As the Dan River Plant does not occur within any watershed in the state where Riparian Buffer Rules are administered by the State of North Carolina, no mitigation was included in Table 3 for impacts to riparian buffers.



Table 3. Mitigation costs for impacts to waters of the U.S., Stormwater Diversion Project, 36-Inch Pipe Closure Project, and 48-Inch Pipe Closure Project, Dan River Plant, Rockingham County, North Carolina.

Fee Category	Features	Impacts
Stormwater Diversion Project		
Riparian Wetland	Wetland D - NC WAM Medium Rating	0.16 acre
	Wetland F - NC WAM Low Rating	0.06 acre
Riparian Wetland (Non-Riverine)	Wetland A - NC WAM Medium Rating	0.19 acre
Riparian Wetland (Non-Riverine)	Dredge Basin - NC WAM Low Rating	1.89 acres
Perennial Stream	Stream 1 - NC SAM High Rating	393 linear feet
36-Inch Pipe Closure Project		
Riparian Wetland	Wetland H - Pipe Closure with Flooding	0.098 acre
Perennial Stream	Stream 4 - Pipe Closure with Flooding	65 linear feet
48-Inch Pipe Closure Project		
Non-riparian Wetland	Pipe Closure with Flooding	0.407 acre
Perennial Stream	Pipe Closure with Flooding	448 linear feet
All Projects Combined		
Fee Category	Total Impacts (NCDMS Calculations)	Cost
Riparian Wetland	2.398 acres (2.50 acre increment X 2 mitigation ratio X \$40,580 per unit cost)	\$202,900
Non-riparian Wetland	0.407 acre (0.50 acre increment X 2 mitigation ratio X \$26,631 per unit cost)	\$26,631
Perennial Stream	1094 linear feet (1,094 linear feet X 2 mitigation ratio X \$300 per unit cost)	\$656,400
Sum of All Costs		\$885,931

Project under the Proposed IP Modification

As no changes in impacts to jurisdictional wetlands and streams for the Stormwater Diversion Project are proposed under the IP modification, no adjustments in compensatory mitigation are necessary.

6.2 36-INCH PIPE CLOSURE PROJECT

Project as Permitted by USACE

Compensatory mitigation for the 36-Inch Pipe Closure Project entailed advance credit purchase through the North Carolina Division of Mitigation Services (NCDMS) In-Lieu Fee Program. A mitigation ratio of 2:1 was applied for the wetland and stream impacts. Table 2 presents the NCDMS mitigation costs for the project impacts under the issued USACE IP.

Project under the Proposed IP Modification

As no changes in impacts to jurisdictional wetlands and streams for the 36-Inch Pipe Closure Project are proposed under the IP modification, no adjustments in compensatory mitigation are necessary.

6.3 48-INCH PIPE CLOSURE PROJECT

Project as Permitted by USACE

Compensatory mitigation for the 48-Inch Pipe Closure Project entailed advance credit purchase through the North Carolina Division of Mitigation Services (NCDMS) In-Lieu Fee Program. A mitigation ratio of 2:1 was applied for the wetland and stream impacts. Table 2 presents the NCDMS mitigation costs for these impacts under the issued USACE IP.

Project under the Proposed IP Modification

As no changes in impacts to jurisdictional wetlands and streams for the 48-Inch Pipe Closure Project are proposed under the IP modification, no adjustments in compensatory mitigation are necessary.

6.4 ASH BASIN CLOSURE ACTION

No compensatory mitigation is proposed for the 0.025 acre of permanent impacts and 0.125 acre of temporary impacts to open waters (Dan River) under the Ash Basin Closure action, as specifically occurring from the construction of the four gabion structures.

7.0 PROTECTED SPECIES

7.1 BACKGROUND

Certain plant and animal species are protected by the Federal Endangered Species Act (ESA) of 1973 (16 USC 1531-1544, December 28, 1973, as amended 1976–1982, 1984, and 1988), which is administered and enforced by the U.S. Fish and Wildlife Service (USFWS), Region 4. USACE IP and Nationwide Permit General Condition 11 require that projects authorized by the USACE do not adversely affect federally protected species. Should a finding of adverse effect be presumed by the USACE, coordination with the USFWS is typically required to avoid impacts or minimize impacts to the practicable extent (Section 7 Consultation).

Certain information regarding protected plant and animal species for the Stormwater Diversion Project and Associated Projects, as originally permitted, was previously presented in the April 2017 WMP, and is not repeated herein. This chapter presents information on protected species under the proposed activities for the IP modification, and specifically for the Ash Basin Closure action.

7.2 AFFECTED ENVIRONMENT

Figure 1 presents the general location of the Ash Basin Closure Action area and associated projects; i.e., the affected environment as related to protected species. Wood conducted a record search to identify documented federally protected species (threatened or endangered) which have elemental occurrences in Rockingham County. As specifically related to the North Carolina Natural Heritage Program (NCNHP) database search, the query of element occurrences encompassed a one-mile radius of the Dan River Plant. The NCNHP database query results reported no element occurrences of federally listed species within the Dan River Plant or within a one-mile radius of the station. The results of the January 7, 2019 NCNHP database search query are included in Appendix B.

The James spiny mussel (*Pleurobema collina*), a federally endangered mussel species, occurs in the James River drainage and the Dan/Mayo River systems within the Roanoke River drainage in Virginia, North Carolina, and West Virginia. The species requires free flowing streams with a variety of flow regimes, typically small, headwater tributaries. In addition, it is found in a variety of substrates that are free from silt. Based on previous site visits, Wood presumed that potentially suitable habitat for the James spiny mussel was not present within the project area landward of the Dan River; i.e., within the streams associated with the overall work activities described in this Addendum report. Regarding the establishment of the four gabion structures within the Dan River, as including the open water habitat and abutting sandy shoreline, the proposed permanent and temporary impacts (total of 0.150 acre) are very small and essentially insubstantial. In addition, the Dan River at the steam station is not suitable habitat for the species; i.e., small, headwater



tributaries. Therefore, it is presumed that the Ash Basin Closure action, as specifically related to work conducted in the Dan River, would have no effect on the James spiny mussel and its habitat.

The Roanoke logperch (*Percina rex*) (federally endangered) is known from portions of the Chowan and Roanoke River basins within the Ridge and Valley, Piedmont, and Upper Coastal Plain Physiographic Regions, including recent collections in the Dan River, Mayo River and Smith River watersheds in North Carolina. The species is found in medium to large sized warm, clear streams and small rivers of moderate to low gradient. Adults usually occupy riffles, runs, and pools containing sand, gravel, or boulders that are free of silt. Based on previous site visits, Wood presumed that potentially suitable habitat for the Roanoke logperch was not present within the project area landward of the Dan River; i.e., within the streams associated with the overall work activities described in this Addendum report. Regarding the establishment of the four gabion structures within the Dan River (open water habitat), the proposed permanent and temporary impacts (0.150 acre) are very small and insubstantial. Therefore, it is presumed that the Ash Basin Closure action, as specifically related to work conducted in the Dan River, would have no effect on the Roanoke logperch and its habitat.

8.0 CULTURAL RESOURCES

8.1 BACKGROUND

Section 404 of the Clean Water Act requires that projects authorized by the USACE do not adversely affect historical properties which are listed or eligible for listing on the National Register of Historic Places (NRHP). Cultural resources are protected by Section 106 of the National Historic Preservation Act (NHPA). The Section 106 process consists of consultation with state and federal agencies, consultation with Native American tribes by the lead federal agency, and the identification and evaluation of cultural resources for inclusion in the NRHP.

For the IP submittal, Wood conducted a cultural resource screening to assess the presence/absence of known cultural resources and NRHP-listed resources within a half-mile search radius of the Dan River Plant. The research included a review of archaeological files at the North Carolina State Historic Preservation Office (NCSHPO) and the online NCSHPO Web GIS Service. The investigation did not include field efforts to identify or verify cultural resources, and no formal coordination with the NCSHPO office was included in the review. Certain information (including report figure) regarding cultural resources for the Stormwater Diversion Project and Associated Projects, as originally permitted, was previously presented in the April 2017 WMP, and is not repeated herein. This chapter presents information on cultural resources under the proposed activities for the IP modification, and specifically for the Ash Basin Closure action.

8.2 AFFECTED ENVIRONMENT

Figure 1 presents the general location of the Ash Basin Closure Action area and associated projects; i.e., the affected environment as related to cultural resources. No structures or Districts were listed on the NRHP within the affected environment or within a half-mile radius. According to the North Carolina Office of State Archaeology records, the 36-Inch Pipe Closure Project and 48-Inch Pipe Closure Project occur near a portion of the steam station that has been surveyed for archaeological resources (Surveys ER 92-8133 and ER 05-2334). No archaeological remains were discovered during the surveys identified above. In 2014, Wood (formerly Amec Foster Wheeler) conducted a Phase I archaeological survey on a 129-acre tract next to the Dan River Plant. Two archaeological sites were identified, sites 31RK210 and 31RK12. Site 31RK210 is a mid-19th to early 20th century site, while 31RK12 is a Late Prehistoric site. Regarding NRHP status, site 31RK210 is not eligible and 31RK12 is eligible. Three additional sites were identified near or abutting the southern shoreline of the Dan River and directly opposite of the PAB and SAB: 31RK61, 31RK5 and 31RK1. Regarding NRHP status, site 31RK61 is unassessed and further work is recommended for 31RK5. Site 31RK1 is listed on the NRHP. None of these three sites, however, occur within the affected environment and, specifically, within the footprint of the Ash Basin Closure action area. Table 4 presents the identified sites and their NRHP status.



Table 4. Identified archaeological sites within a half-mile radius or vicinity of the Dan River Plant, Rockingham County, North Carolina.

Site Number	Description	NRHP Status
Sites within Half-mile Radius of Steam Station		
31RK61	Prehistoric Burials	Unassessed
31RK5	Prehistoric Woodland	Further work recommended
31RK1	Lower Sauratown Site	Listed on NRHP
Sites in Vicinity of Steam Station		
31RK210	Mid 19 th - early 20 th century	Not eligible
31RK12	Late Prehistoric	Eligible

The implementation of proposed activities for the IP modification, and specifically for the Ash Basin Closure action, is not expected to influence these five identified cultural resources due to the footprint of the affected environment and its distance to these resources. As a part of the permit process, required and routine consultation with the NCSHPO under Section 106 of the CWA will be undertaken by the USACE Wilmington District.



APPENDIX B

NCNHP DATABASE SEARCH QUERY



NCNHDE-7871

January 7, 2019

Laura Meyer
Wood Environment & Infrastructure Solutions, Inc.
4021 Stirrup Creek Drive
Durham, NC 27703
RE: Duke Energy Dan River Steam Station; 7810150290.13

Dear Laura Meyer:

The North Carolina Natural Heritage Program (NCNHP) appreciates the opportunity to provide information about natural heritage resources for the project referenced above.

A query of the NCNHP database indicates that there are records for rare species, important natural communities, natural areas, and/or conservation/managed areas within the proposed project boundary. These results are presented in the attached 'Documented Occurrences' tables and map.

The attached 'Potential Occurrences' table summarizes rare species and natural communities that have been documented within a one-mile radius of the property boundary. The proximity of these records suggests that these natural heritage elements may potentially be present in the project area if suitable habitat exists. Tables of natural areas and conservation/managed areas within a one-mile radius of the project area, if any, are also included in this report.

If a Federally-listed species is documented within the project area or indicated within a one-mile radius of the project area, the NCNHP recommends contacting the US Fish and Wildlife Service (USFWS) for guidance. Contact information for USFWS offices in North Carolina is found here: <https://www.fws.gov/offices/Directory/ListOffices.cfm?statecode=37>.

Please note that natural heritage element data are maintained for the purposes of conservation planning, project review, and scientific research, and are not intended for use as the primary criteria for regulatory decisions. Information provided by the NCNHP database may not be published without prior written notification to the NCNHP, and the NCNHP must be credited as an information source in these publications. Maps of NCNHP data may not be redistributed without permission.

Also please note that the NC Natural Heritage Program may follow this letter with additional correspondence if a Dedicated Nature Preserve, Registered Heritage Area, Clean Water Management Trust Fund easement, or an occurrence of a Federally-listed species is documented near the project area.

If you have questions regarding the information provided in this letter or need additional assistance, please contact Rodney A. Butler at rodney.butler@ncdcr.gov or 919-707-8603.

Sincerely,
NC Natural Heritage Program

Natural Heritage Element Occurrences, Natural Areas, and Managed Areas Intersecting the Project Area
 Duke Energy Dan River Steam Station
 Project No. 7810150290.13
 January 7, 2019
 NCNHDE-7871

Element Occurrences Documented Within Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Freshwater Bivalve	3622	Lasmigona subviridis	Green Floater	2017-10-03	E	3-Medium	---	Endangered	G3	S2
Freshwater Fish	11787	Moxostoma ariommum	Bigeye Jumprock	2008-08-18	E	3-Medium	---	Threatened	G4	S2

Natural Areas Documented Within Project Area

Site Name	Representational Rating	Collective Rating
ROA/Dan River Aquatic Habitat	R1 (Exceptional)	C1 (Exceptional)

No Managed Areas Documented within the Project Area

Definitions and an explanation of status designations and codes can be found at <https://ncnhde.natureserve.org/content/help>. Data query generated on January 7, 2019; source: NCNHP, Q4 Oct 2018. Please resubmit your information request if more than one year elapses before project initiation as new information is continually added to the NCNHP database.

Natural Heritage Element Occurrences, Natural Areas, and Managed Areas Within a One-mile Radius of the Project Area
 Duke Energy Dan River Steam Station
 Project No. 7810150290.13
 January 7, 2019
 NCNHDE-7871

Element Occurrences Documented Within a One-mile Radius of the Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Dragonfly or Damselfly	33770	<i>Somatochlora georgiana</i>	Coppery Emerald	2004-Pre	H?	5-Very Low	---	Significantly Rare	G3G4	S2?
Freshwater Bivalve	35335	<i>Lampsilis cariosa</i>	Yellow Lampmussel	2016-11-17	E	3-Medium	---	Endangered	G3G4	S3
Freshwater Bivalve	3622	<i>Lasmigona subviridis</i>	Green Floater	2017-10-03	E	3-Medium	---	Endangered	G3	S2
Freshwater Fish	27492	<i>Carpoides cyprinus</i>	Quillback	2009-01-21	E	3-Medium	---	Significantly Rare	G5	S2
Freshwater Fish	11787	<i>Moxostoma ariommum</i>	Bigeye Jumprock	2008-08-18	E	3-Medium	---	Threatened	G4	S2
Vascular Plant	5086	<i>Parthenium auriculatum</i>	Glade Wild Quinine	1956-07-07	H	3-Medium	---	Significantly Rare Throughout	G3G4	S3
Vascular Plant	22121	<i>Polemonium reptans</i> var. <i>reptans</i>	Jacob's Ladder	1956-05	H	3-Medium	---	Threatened	G5T5	S1

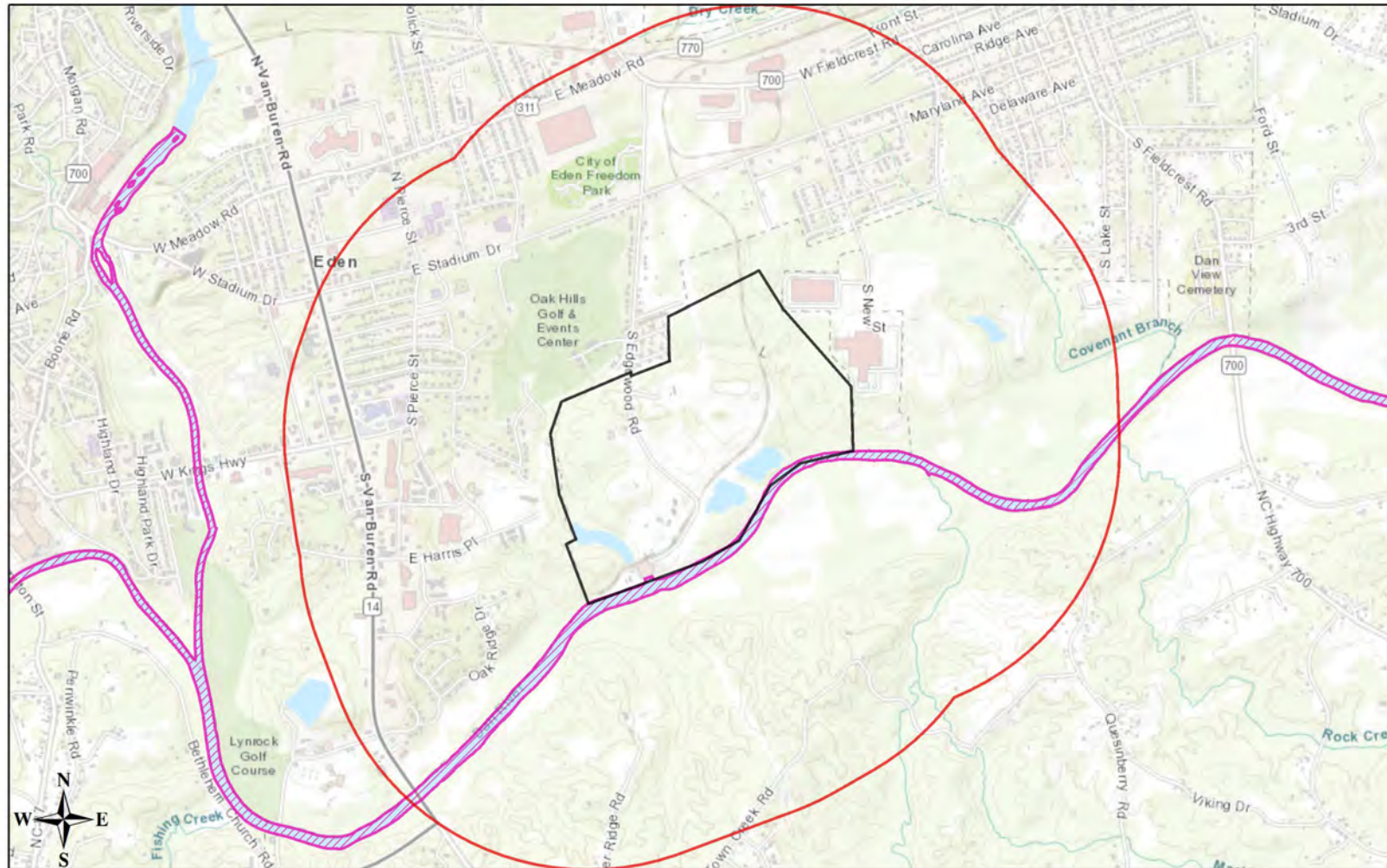
Natural Areas Documented Within a One-mile Radius of the Project Area

Site Name	Representational Rating	Collective Rating
ROA/Dan River Aquatic Habitat	R1 (Exceptional)	C1 (Exceptional)

No Managed Areas are Documented Within a One-mile Radius of the Project Area

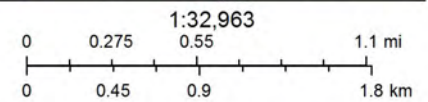
Definitions and an explanation of status designations and codes can be found at <https://ncnhde.natureserve.org/content/help>. Data query generated on January 7, 2019; source: NCNHP, Q4 Oct 2018. Please resubmit your information request if more than one year elapses before project initiation as new information is continually added to the NCNHP database.

NCNHDE-7871: Duke Energy Dan River Steam Station



January 7, 2019

- Project Boundary
- Buffered Project Boundary
- NHP Natural Area (NHNA)



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community