ROY COOPER
Governor
DIONNE DELLI-GATTI
Secretary
BRIAN WRENN
Director

NORTH CAROLINA
Environmental Quality

Certificate of Final Approval

May 26, 2021

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
70141200000134338250

Thomas Murray, PE
WR Dickson
720 Corporate Center Drive
Raleigh, NC 27607
High Hazard Dam

RE: Approval to relocate utility lines
Devonwood Lower Dam
State ID: CUMBE-088
High Hazard Dam

Dear Mr. Murray:

This letter refers to your request for utility line relocation for the Devonwood Lower Dam project (CUMBE-088). As identified in the approved design drawings, there are existing cable and fiber lines on the shoulder of the embankment. The lines will be temporarily relocated during construction. The utility owners (Spectrum and Century link) have requested to reinstall the lines in the same location after construction is complete on the downstream shoulder. In your attached letter dated May 25, 2021, you have agreed to contain the utility lines in a concrete encasement which will be above the 100-year water level and will check for buoyancy in the event of complete submergence. You have indicated that locating the lines outside the dam will be cost prohibitive. The lines would be parallel to the road and would not extend through the dam.

Your proposal to relocate the lines has been approved. Should the utility ever need to conduct maintenance/repair activities, you will need to coordinate with Dam Safety at a minimum and possibly be required to submit a repair plan for a permit depending on the nature and extent of the repairs.

Please proceed with the modification. You will be required to submit as-built drawing on completion of the construction with engineer's certification and a final check for construction cost fees.

Sincerely,

George Eller, PE

State Dam Safety Engineer

GLE/saw/as

CC. Tim LaBounty, Regional Engineer, Fayetteville, NC

File name: CUMBE-088_05262021_COAM_Devonwood Lower Dam

WK DICKSON
community infrastructure consultants

May 25, 2021

Sue White
North Carolina Department of Environmental Quality
Energy Mineral and Land Resources
512 North Salisbury Street
Raleigh, NC 27699-1612

Dear Ms. White

The City of Fayetteville, WK Dickson, general contractor, and private utility owners have reviewed the letter dated April 27, 2021 received from the Division of Energy, Mineral, and Land Resources with respect to the Devonwood Lower Dam project (CUMBE-088). All parties have investigated the potential for relocating the existing utility lines outside of the dam footprint as requested. The findings related to the existing utilities are as follows:

- Six utilities were located in the dam under pre-project conditions including PWC water, Duke/PNG gas, City of Fayetteville storm drainage, Duke electric, Charter cable, and Century Link fiber optic.
- The Duke/PNG gas line has been abandoned in advance of this project.
- The PWC waterline will be abandoned and rerouted as part of the approved plans
- The City of Fayetteville storm drainage will be removed and replaced per the approved plans.
- The Duke underground electric line is currently located on the west side of the dam embankment approximately 3 feet deep. As shown in the attached deed Duke (formerly CP&L) has had access to this location for electric utilities since 1967. Duke has investigated the potential for abandoning the line, but the line must be kept live to service the neighborhood. The only option for rerouting the electric line outside of the dam would be to reroute the line east of McFadyen Drive to the toe of the dam. The electric line would then need to be installed via directional bore along the toe of the dam before connecting back to the McFadyen Drive right-of-way outside of the dam footprint. A portion of the proposed line would be located within jurisdictional wetlands and the 100-year floodplain of Persimmon Creek. Based on the location of the overhead transmission line along Persimmon Creek, the rerouted underground electric line may need to be installed below the stilling basin at the downstream end of the emergency spillway. Duke Energy estimates the total cost of the rerouted line including permitting, design, and construction is approximately $500,000. Please note this is a preliminary order of magnitude estimate and

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assumes all land easements would be provided by the City of Fayetteville at no cost to Duke Energy. The required electric line would include approximately 1,050 linear feet of twin 6"-conduits installed via direct boring techniques and 2-manholes/junction boxes.

Due to the excessive cost associated with this alternative and future maintenance concerns, Duke Energy would like to pursue other alternatives.

- The Charter cable line is currently located on the east side of the dam within the roadway shoulder approximately 2-3 feet deep. The only option for rerouting the spectrum line would be to install a new line from Morganton Road, approximately 0.5 mile in length to provide service to the north end of the neighborhood. The expected cost for this realignment would be $60,000.

  Due to the excessive cost associated with this alternative and future maintenance concerns, Charter would like to pursue other alternatives.

- The CenturyLink fiber optic line is currently located on the east side of the dam within the roadway shoulder approximately 2-3 feet deep. The only option for rerouting the spectrum line would be to back-feed a new line from Offing Drive, approximately 0.8 mile in length to provide service to the south end of the neighborhood. The expected cost for this realignment would be $45,000.

  Due to the excessive cost associated with this alternative and future maintenance concerns, CenturyLink would like to pursue other alternatives.

In addition to the costs associated with the relocation of the utilities (estimated at $605,000), the City of Fayetteville would incur significant additional costs due to the anticipated 6-9 month delay associated with the utility relocation. Due to the documented scarcity of supplies and labor, construction costs continue to escalate and the general contractor would not be able to hold prices currently under contract through a prolonged delay period. Furthermore, the timing of construction would occur during the winter months which would make the construction of the project more difficult due to the seasonal high water table. Finally, the City of Fayetteville does have a reimbursement agreement with FEMA for a portion of the work, however a significant delay in construction would require an extension of that agreement, which could potentially put the funding at risk.

The City of Fayetteville would sincerely appreciate the opportunity to consider other alternatives that are less impactful and less costly while at the same time improving the safety and resiliency of the Devonwood Lower Dam.

Please consider the following alternative for protection of the existing utilities as shown conceptually in the attached plan sheet:

- Reroute the Charter and Century Link lines to the west side of the dam in the approximate location of the existing Duke electric line. Cross McFadyen Road on the north and south ends outside of the existing dam footprint.
- Install the Charter, CenturyLink, and Duke electric lines in 3, 6-inch conduits on the west side of the dam as shown in the attached plan sheet. Encase the conduits with concrete. Approximate dimensions of the concrete encasement are 36" wide by 18" high. The length of the proposed concrete encasement is approximately 500 linear feet. The encasement will be located along the shoulder of the road with minimal cover to allow the encasement to be located as high as possible. The top elevation of the encasement will range from elevation 196 to 196.5 with an invert elevation ranging from 194.5 to 195.
- Installing the concrete encasement will balance the need to provide utility service without excessive relocation costs while maintaining the safety of the dam. The rectangular shape of the encasement will allow for proper compaction of the dam embankment fill material per the approved specification.
- The 100-year peak water surface elevation is 193.62 which is below the invert of the concrete encasement. The 1/3 PMP peak elevation is 196.98. Model results indicate the length of time the water surface would be higher than the concrete encasement during the 1/3 PMP storm is approximately 180 minutes since the size of the emergency spillway will quickly pass the peak flows during the 1/3 PMP event.
- Protections have been added to the downstream embankment of the dam including a filter diaphragm for the box culvert and a chimney drain along the length of the dam in addition to the emergency spillway. Furthermore, moving the utilities to the upstream embankment reduces the risk of any damage occurring to the utilities as a result of an overtopping event.

If you have any questions, we would like to meet with you to determine acceptable options for avoiding significant relocation of the remaining utilities in the dam. This is a critical infrastructure improvement project for the City of Fayetteville. The City has invested significant time and resources to provide upgrades to the dam to improve spillway capacity and adding protective measures to increase the long-term resiliency of the dam. Final design documents will be provided

if conditional approval of the concept is granted. We look forward to your review. Please feel free to contact me at 919-610-9434 with any questions.

Sincerely,

W.K. Dickson & Co., Inc.
Tom Murray, PE
Project Manager

cc: Jason Miles, City of Fayetteville
Abha Dwivedy, City of Fayetteville
Tim LaBounty, NCDEQ
Art Sengupta, NCDEQ

WK DICKSON