



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Ecological Services
6669 Short Lane
Gloucester, Virginia 23061

December 10, 2013

Ms. Irene Rico
Federal Highway Administration
400 North 8th Street, Suite 750
Richmond, VA 23219-4825

Attn: Mack Frost, Environmental Specialist

Mr. William T. Walker
Chief, Regulatory Branch
Norfolk District, Corps of Engineers
803 Front Street
Norfolk, VA 23510-1096

Attn: Alice Allen-Grimes, Regulatory Branch

Re: Route 712 Waqua Creek, Brunswick
County, VA, VDOT Project # 0712-
012-277, B637, C501, PE101,
RW201: UPC 77053

Dear Ms. Rico and Mr. Walker:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the referenced project and its effects on the federally listed endangered Roanoke logperch (*Percina rex*) in accordance with section 7 of the Endangered Species Act (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA). The July 8, 2013 request for formal consultation from the Federal Highway Administration (FHWA) was received on July 9, 2013.

This biological opinion is based on information provided in the July 8, 2013 FHWA biological assessment and project proposal, telephone conversations, field investigations, and other sources of information. A complete administrative record of this consultation is on file in this office.

CONSULTATION HISTORY

- 07-12-12 Virginia Cooperative Fish and Wildlife Research Unit at Virginia Tech conducted a survey of fishes in Waqua Creek at the Route 712 bridge crossing.
- 03-05-13 The Service received an online review package from the Virginia Department of Transportation (VDOT) for the referenced project. No instream work was proposed.
- 05-09-13 The Service received a revised scope/project description from VDOT. Revised scope/project description included instream work.
- 06-24-13 The Service sent a letter to FHWA and the U.S. Army Corps of Engineers (Corps) and copied VDOT recommending that FHWA initiate formal consultation.
- 07-09-13 The Service received the request to initiate formal consultation from FHWA.
- 08-06-13 The Service sent a letter to FHWA with a copy to the Corps acknowledging the initiation of formal consultation.
- 09-12-13 to 09-24-13 The Service requested and received clarification from VDOT on the project description.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

The proposed action is the expenditure of FHWA funds and issuance of a Corps permit to replace the Route 712 bridge over Waqua Creek in Brunswick County, VA (Figures 1 and 2). The existing 85 feet (ft) long by 25 ft wide, three-span concrete bridge was built in 1970 and has one central pier in the water. The bridge is being replaced due to its deterioration and a tight curve that is causing vehicle rollovers. The new curve alignment will be designed to minimize the potential for vehicle rollover and will provide an improved hydraulic opening for the stream.

Schedule

Project is currently scheduled to be advertised in August 2014. Construction activities will begin in November 2014 and continue until early spring 2016. The project has a target completion date of May 2016.

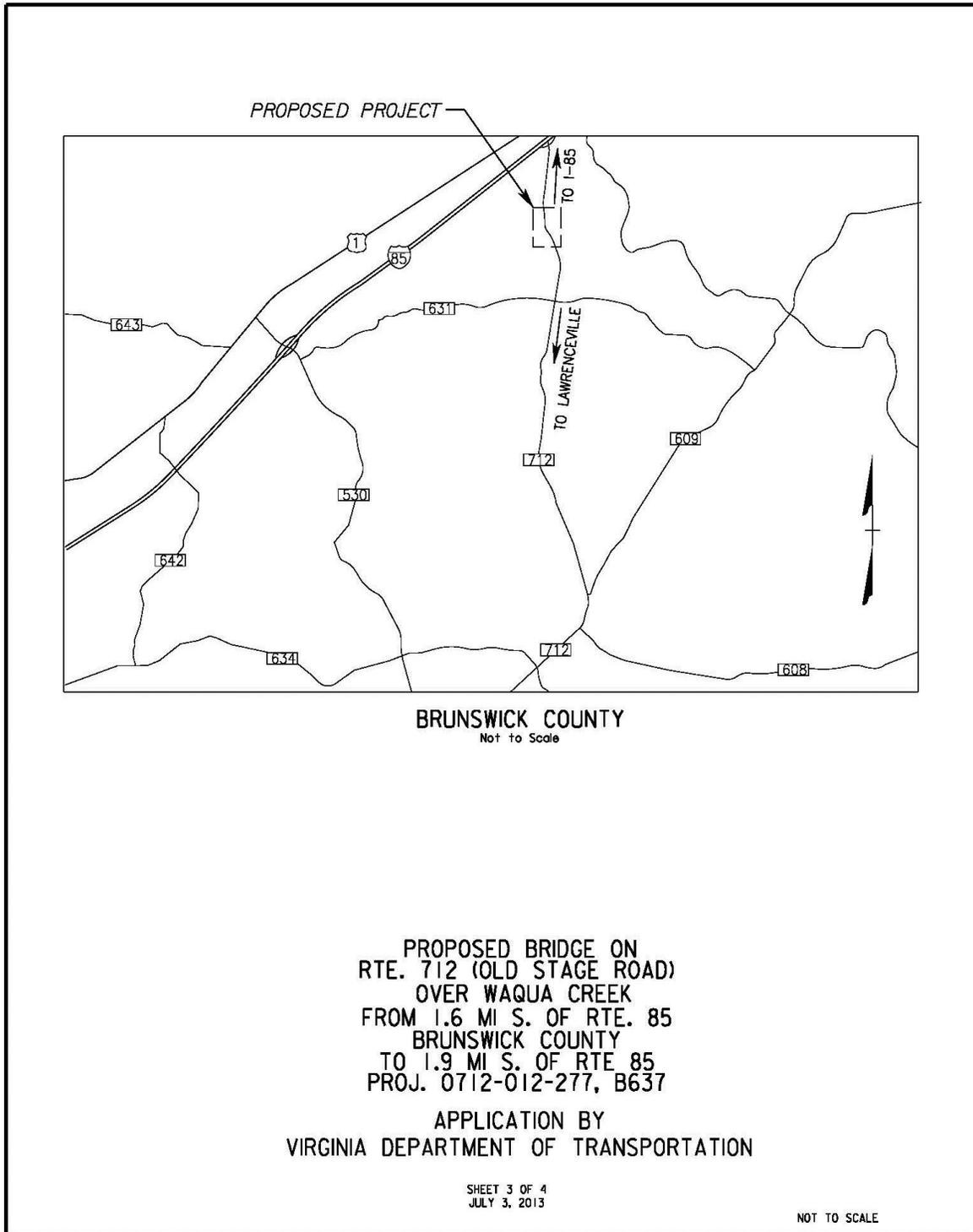


Figure 1. Project vicinity.

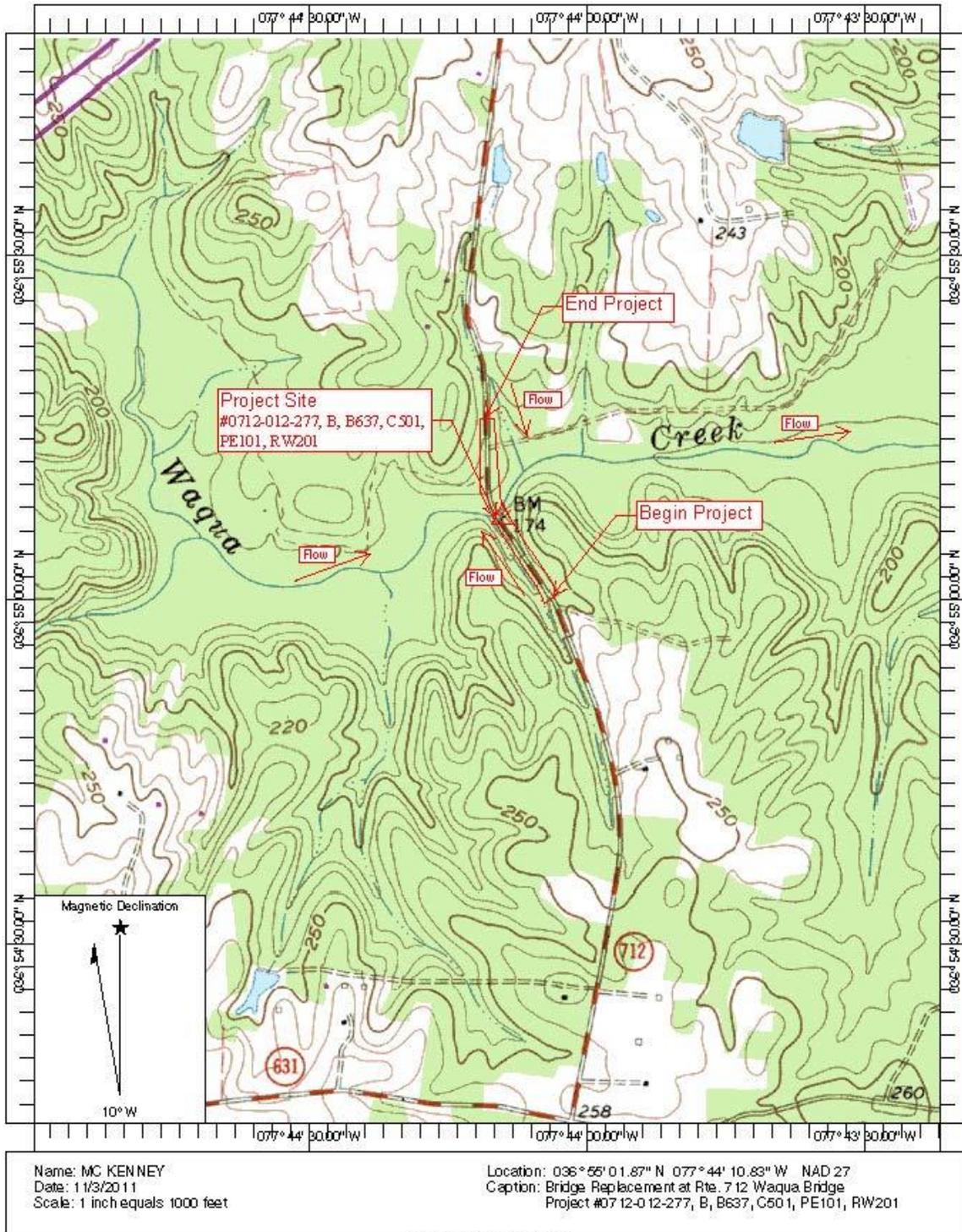


Figure 2. Project location.

Sequence of Construction Events

1. Excavate as required for construction of abutment and pier footing.
2. Construct footing.
3. Complete construction of pier and abutments.
4. Restore embankment to original profile.
5. Place and compact backfill at both abutments.
6. Place riprap slope protection at both abutments.
7. Construct superstructure of the bridge.
8. Move traffic from the existing bridge to new bridge.
9. Remove existing bridge superstructure, north abutment, and portions of south abutment.
10. Install cofferdams as required for removal of existing bridge piers.
11. Remove existing piers to mud line elevation.
12. Remove cofferdams.

Bridge Construction

The installation of the two bridge abutments, riprap abutment armoring, pier, and guardrails will be conducted above the ordinary high water (OHW) line. Additionally, existing pavement demolition, grading, and filling for the new roadway and approach will be conducted above OHW. Stormwater vegetated swales and associated energy dissipater structures will be constructed above OHW (Figure 4) and above the existing and proposed 100-year floodplain elevation. Impacts include 100 ft² of excavation, 100 ft² of permanent fill, and 400 ft² of temporary fill. The swales on the northern approaches (Swale 1) of the bridge will be placed on a flat floodplain and therefore tie back into the grade gently. The swale on the southeast approach (Swale 2) will have an energy dissipater structure at the bottom of the slope since it will be constructed on a steeper bank. There are no utilities associated with this project. Table 1 provides the impact areas for each component of the project.

Demolition of Existing Bridge

A portion of the existing roadway embankment, including the existing north abutment, will be removed to allow for increased hydraulic efficiency during high water events. The south abutment will be removed to 2 ft below final grade. All work on both abutments is above the OHW.

Demolition work below OHW will be conducted from the banks and new bridge structure. The two existing piers will be cut down to the mudline and all work will occur within a cofferdam. The non-erodible cofferdam for the southern (instream) pier will temporarily fill 380 ft². The cofferdam for the northern pier is at the edge of the stream and will temporarily fill 160 ft² (Figure 3). The cofferdams could be built out of a variety of materials including sheet piles, sand bags, plastic, jersey barriers, etc. The contractor will determine cofferdam materials.

All water pumped from within cofferdams will be filtered/settled prior to reentry into Waqua Creek. This is typically accomplished with a pump around diversion with a filter bag but contractor will determine method. The contractor will likely use a track hoe, concrete wire/cable

saw, or something similar to demolish the piers. The contractor will access the work area from the bank and will not enter the waterway. Estimated time for demolition is approximately 2 weeks per pier.

Cofferdams will be installed to avoid the spawning period of the Roanoke logperch, either prior to March 15, 2015 or after June 30, 2015 depending on the project schedule. Work may occur within the cofferdam from March 15-June 30. Removal of the cofferdam will occur outside the March 15-June 30 timeframe. All cofferdams will be removed in their entirety once they are no longer required for demolition activities.

Table 1. Summary of impacts.

| Location/Activity | Impacts above OHW | | Impacts below OHW | |
|-----------------------------|-------------------|-----------------|-------------------|-----------------|
| | Acres | Ft ² | Acres | Ft ² |
| Abutment A removal | 0.002 | 87 | 0 | 0 |
| Pier removal | 0.004 | 174 | 0.0030* | 131.9* |
| Abutment B removal | 0.014 | 610 | 0 | 0 |
| Roadway removal | 0.924 | 40,249 | 0 | 0 |
| Abutment A construction | 0.024 | 1045 | 0 | 0 |
| Pier construction | 0.010 | 436 | 0 | 0 |
| Abutment B construction | 0.020 | 871 | 0 | 0 |
| Roadway construction | 2.702 | 117,699 | 0 | 0 |
| Stormwater swales | 0.014 | 610 | 0 | 0 |
| Cofferdam for northern pier | 0 | 0 | 0.0036 | 160 |
| Cofferdam for southern pier | 0 | 0 | 0.0087 | 380 |

*No instream excavation will take place; however, 61.9 ft² and 70 ft² of concrete will be removed below OHW to the mudline at the southern and northern pier, respectively.

The location of the construction staging and borrow/disposal areas will be the responsibility of the contractor and reviewed by the area construction engineer prior to construction. An erosion and sediment control (ESC) plan will be prepared for this project. ESC measures will be installed and maintained throughout the life of the project. Measures will be taken to ensure that no debris falls in stream. Temporary stabilization (seeding, mulching, etc.) will be applied, as needed, to the areas that are not at final grade. Disturbed areas adjacent to the stream will be stabilized immediately after work is completed or temporarily stabilized as needed. Any areas in or near the waterway that are disturbed by construction activities will be restored to original conditions and stabilized.

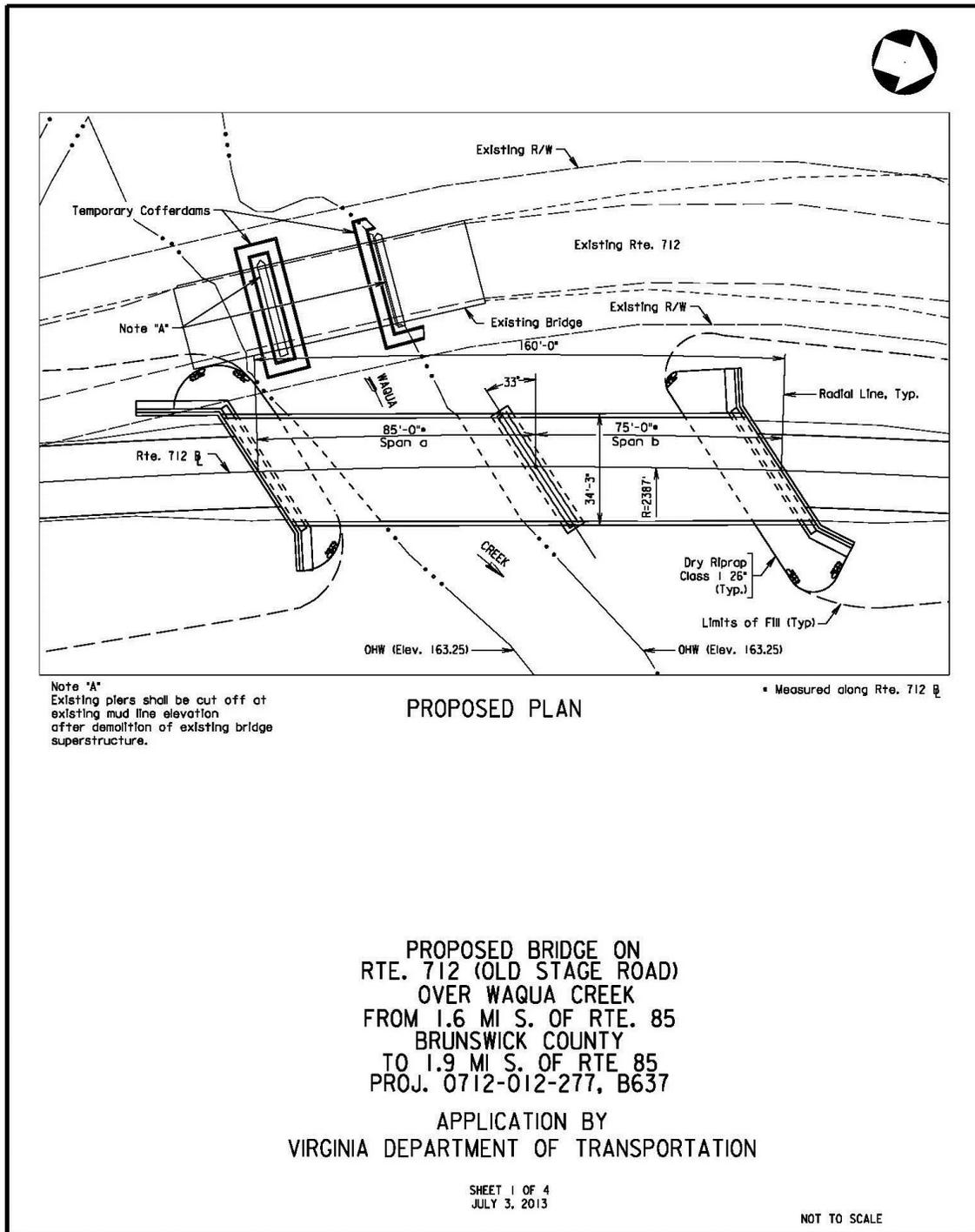


Figure 3. Proposed bridge plan.

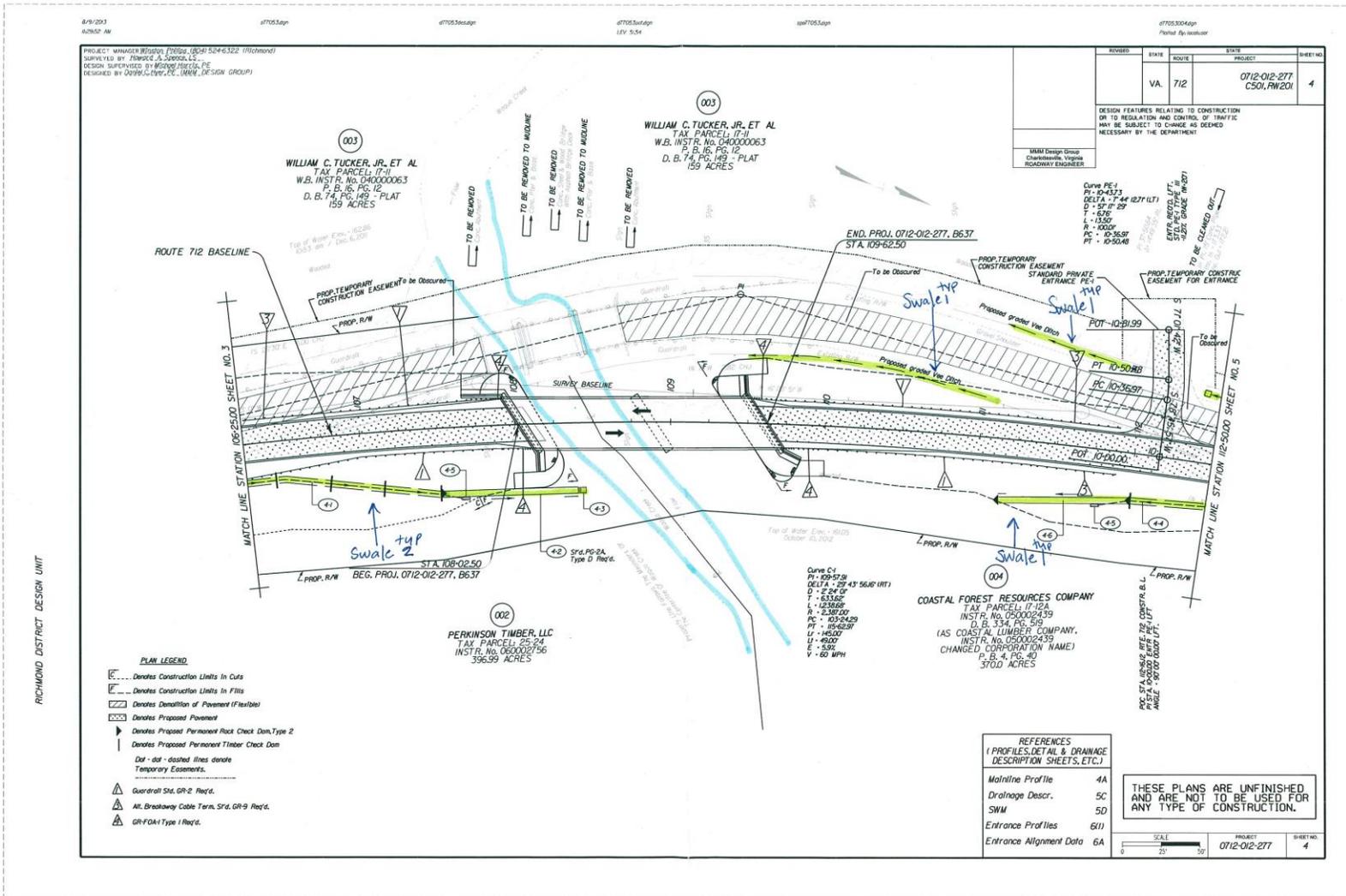


Figure 4. Proposed bridge plan with swales.

Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. The Service has determined that the action area for this project consists of:

1. That portion of Waqua Creek 656 ft upstream to 2,625 ft downstream of the existing bridge for a total stream length of 3,281 ft. The action area below OHW is approximately 82,025 ft² (25 ft x 3,281 ft) based on the estimated stream width of 25 ft reported in Roberts and Angermeier (2012).
2. The Route 712 bridge that will be demolished over Waqua Creek (Figures 3 and 4).
3. The 3.7 acre (161,172 ft²) upland area that will be disturbed for construction access and staging areas, installation of the piers and abutments, riprap abutment armoring, grading and filling for new roadway and approach, guardrail installation, installation of the improved drainage structures, the existing pavement demolition, and demolition of abutments and piers. The location of the construction staging and borrow/disposal area has yet to be determined.

STATUS OF THE SPECIES AND CRITICAL HABITAT RANGEWIDE

This section presents biological and ecological information relevant to formulating the opinion including information on species' life history, habitat, distribution, etc. Note that when designated/proposed critical habitat is affected information on critical habitat is also provided.

The species description, life history, population dynamics, status, and distribution and critical habitat description, if applicable, are at: Burkhead 1983; Simonson and Neves 1986; Burkhead and Jenkins 1991; Service 1992; Jenkins and Burkhead 1994; Rosenberger 2002, 2007; Rosenberger and Angermeier 2002, 2003; George and Mayden 2003; Mattingly et al. 2003; Roberts et al. 2009; and Roberts and Angermeier 2010.

ENVIRONMENTAL BASELINE

Status of the Species/Critical Habitat Within the Action Area - The Roanoke logperch was documented in Waqua Creek in 1998 (Virginia Fish and Wildlife Information Service. 2013) and in 2012 (Roberts and Angermeier 2012). Both the 1998 and the 2012 surveys documented one adult logperch, although the survey length for the 1998 survey was half the length of the 2012 survey. The 2012 survey captured one logperch approximately 1,969 ft downstream of the existing bridge within a survey length of 3,281 ft. The logperch was captured in a 1.5 ft gravel run. The stream width at the surveyed site was approximately 25 ft (Roberts and Angermeier 2012).

Roberts and Angermeier (2012) indicate that the logperch likely inhabits this creek throughout the year. A large logperch population occurs downstream of the project site in the Nottoway River. Because suitable habitat is found in Waqua Creek, we are assuming that adult logperch use the action area for feeding, cover, and spawning and therefore young logperch are likely to occur in the action area.

We used the results of the Roberts and Angermeier (2012) survey to estimate the number of logperch that may be present in the action area. We added a correction factor to our estimated number since mark-recapture data indicates that only about 10% of the logperch are actually detected during surveys (P. Angermeier, U.S. Geological Survey Virginia Cooperative Fish and Wildlife Research Unit, pers. comm. 2012). To incorporate the detectability correction factor we multiplied by 10 and estimate that approximately 10 logperch occur within the action area.

The remainder of the action area (bridge crossing Waqua Creek and 3.7 acre construction access/staging area) is above OHW and therefore the logperch is not present.

Factors Affecting Species Environment Within the Action Area – We have limited information on the action area; however, according to the 2010 Assessed Waters Report available at: <http://www.epa.gov/waters/ir/index.html>, the water quality in this section of Waqua Creek is good. Aerial photographs of the project vicinity indicate that this area is dominated by agriculture and forestry practices.

EFFECTS OF THE ACTION

Direct and Indirect Effects – Direct effects are direct or immediate effects of the project on the species, its habitat, or designated critical habitat. Indirect effects are defined as those that are caused by the proposed action and are later in time, but still are reasonably certain to occur (50 CFR 402.02).

Upland Construction Activities: A 3.7 acre (161,172 ft²) area will be disturbed for construction access and staging areas, installation of the piers and abutments, riprap abutment armoring, grading and filling new roadway and approach, guardrail installation, installation of improved drainage structures, existing pavement demolition, and demolition of abutments and piers. Clearing this area for these activities will expose upland soils adjacent to the stream. Any sediment entering the stream is expected to be minimal due to implementation of the ESC plan. Any sediment entering the stream may temporarily reduce habitat suitability for logperch causing them to cease breeding, feeding, and other behaviors and move to clearer water until sediment levels return to background levels.

Placement and Removal of Cofferdams: Any logperch that occur in the immediate vicinity of the project site could be injured or killed during placement of cofferdams. This activity is expected to disturb the streambed and cause sedimentation that may temporarily impair the ability of logperch to feed and engage in other routine behaviors.

Following construction, all components of the cofferdams will be removed from the stream. The largest sedimentation events are expected following removal of cofferdams, as the disturbed streambed and banks equilibrate to flows, and sediment loosened by construction activity is washed downstream. The siltation effects are expected to be plumes of short duration and low intensity. In response to any sediment plume that occurs, logperch may cease feeding and move to clearer water until sediment levels return to background levels. Some of the suspended sediment will settle within the action area, likely be resuspended during subsequent periods of high flow, and transported beyond the action area over time. This sediment will temporarily reduce the suitability of the habitat within the action area, and logperch may avoid affected areas until sediments have been transported further downstream.

Sump Area/Dewatering Cofferdams: All water within the cofferdams will be pumped into dewatering structures. Any logperch that remain within the cofferdams are likely to be injured or killed during cofferdam dewatering. Effluent from the dewatering structures may result in sediment plumes as the water is returned to the creek. We expect pumping will be continuous, with the largest volume of water being pumped at initiation of cofferdam dewatering and volume decreasing as the water is removed. Sedimentation resulting from dewatering of the cofferdams is expected to temporarily impair the ability of logperch to breed, feed, and engage in other routine behaviors.

Pier Demolition: Because piers will be cutoff at the mudline within cofferdams and no excavation will occur, sedimentation is not expected to increase during demolition beyond small quantities of sediment that may leak through the cofferdams or that are suspended by placement and movement of hoses and other minor streambed disturbance. Sedimentation resulting from work within the cofferdams is expected to be minor and may temporarily impair the logperch during breeding, feeding, and other routine behaviors.

Upstream and downstream scour and modification of the flow path, flow velocity, and streambed configuration may result after construction is complete, due to the changes in stream and bank profile. The removal of the instream pier may increase stability of the stream channel. These changes may temporarily affect the amount of silt and composition of the streambed, and consequently habitat suitability for the logperch. As a result, during siltation events logperch may temporarily cease feeding and move to less turbid areas. Beyond this affected area, the siltation and stream condition should be relatively unaltered.

The effects on the logperch and its habitat are anticipated to end within 6 months following construction. By 6 months post-construction, upland soils and the stream substrate likely will have stabilized to the point that siltation is negligible and stream equilibration will have occurred.

Interrelated and Interdependent Actions – An interrelated activity is an activity that is part of the proposed action and depends on the proposed action for its justification. An interdependent activity is an activity that has no independent utility apart from the action under consultation. The

Service is not aware of activities interrelated to or interdependent with the proposed action at this time.

Beneficial Effects – The removal of the existing instream pier may increase the stability of the creek in this location, and potentially improve habitat for the Roanoke logperch. Reducing the vehicle rollover risk at this bridge may reduce the likelihood of future hazardous spills into Waqua Creek, reducing the likelihood of spills impacting the logperch.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. The Service is not aware of any future State, tribal, local, or private actions within the action area at this time.

CONCLUSION

While a small amount of habitat degradation may occur, the overall magnitude and severity of effects to the logperch from the proposed action are anticipated to be minor since the majority of effects are short-term and temporary, no permanent habitat loss is expected, and the area affected by the project represents a small fraction of the logperch's entire range.

After reviewing the current status of the Roanoke logperch, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that expenditure of FHWA funds and issuance of a Corps permit to replace the Route 712 bridge over Waqua Creek, as proposed, is not likely to jeopardize the continued existence of the Roanoke logperch. No critical habitat has been designated for this species; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not

intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are nondiscretionary, and must be undertaken by FHWA and Corps so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in action 7(o)(2) to apply. FHWA and the Corps have a continuing duty to regulate the activity covered by this incidental take statement. If FHWA and the Corps (1) fail to assume and implement the terms and conditions or (2) fail to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, FHWA and the Corps must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement.

AMOUNT OR EXTENT OF TAKE ANTICIPATED

The Service anticipates incidental take of logperch will be difficult to detect for the following reasons: the logperch is relatively small, finding a dead or impaired specimen during or following project implementation is unlikely, and most incidental take will be non-lethal and undetectable.

The temporary impacts from cofferdam placement and pier removal below OHW comprise approximately 0.8 % $[(671.9 \text{ ft}^2/82,025 \text{ ft}^2)(100)]$ of the action area below OHW. The Service anticipates incidental take of 1 logperch (0.008 x 10) during cofferdam placement and removal and pier removal. This take will be in the form of injury and death. Incidental take of an additional 9 logperch is anticipated to result from sedimentation and subsequent habitat alteration throughout the action area caused by cofferdam dewatering and upland construction activities. This take will be in the form of harm and harassment.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of the Roanoke logperch:

- Ensure that construction is conducted in a manner that minimizes disturbance to Roanoke logperch.

- Ensure that construction is conducted in a manner to allow for spawning of Roanoke logperch.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the ESA, the FHWA and Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are nondiscretionary.

1. No instream construction below OHW and outside of cofferdams from March 15 through June 30 of any year.
2. Do not operate vehicles or construction equipment below OHW in Waqua Creek, except within cofferdams.
3. Build cofferdams to a height, strength, and configuration to resist normal peak daily flows. Report any overtopping or failure of cofferdams to this office within 24 hours at the contact number/email provided below.
4. Fill any sandbags used in cofferdams with clean sand and no other materials. All sandbags must be new with no prior use.
5. Filter cofferdam discharge water by use of a filter bag or dewatering basin prior to release into Waqua Creek. Place the filtering device in a location so the discharge will pass through a well-vegetated or otherwise stabilized area. Inspect the discharge site daily and repair or relocate immediately if erosion or instability is occurring.
6. Inspect Erosion and Sediment Control devices at least weekly, and daily during rain events in excess of 1 inch during any 24-hour period. Repair damaged or compromised Erosion and Sediment Control structures within 24 hours.
7. Minimize pre-construction clearing and grading where possible.
8. Erect silt fencing between all disturbed uplands and Waqua Creek and waterbodies that drain into Waqua Creek.
9. Stabilize areas with erosion control matting if weather prevents vegetation establishment. Any water needed for seed germination or survival of plantings may not be obtained from Waqua Creek or any other waterway inhabited by logperch.
10. Fuel, oil, and hydraulic fluids will not be stored within 100 ft of any waterbody or wetland. Refueling of mobile equipment/vehicles will not occur within 100 ft of any

waterbody or wetland. On-site personnel will select appropriate sites for these activities and subsequently use best management practices, secondary containment measures, or other standard spill prevention and countermeasures to manage the activity to prevent these fluids from entering Waqua Creek.

11. Any small gasoline powered equipment, such as pumps and generators, and fuel tanks must be entirely enclosed or placed within a secondary containment structure that is large enough to completely contain all materials should a spill, leak, or overflow occur. Any spills of motor oil, hydraulic fluid, coolant, or similar fluids, not contained before entry into the action area, must be reported to this office at the contact number/email provided below and to the National Response Center (800-424-8802) immediately.
12. Notify the Service 1 week before initiation of construction and no more than 1 week after project completion at the contact number/email provided below.
13. Take photos of the project site including cofferdams, the stream channel, and the full extent of the construction area at least once during construction of the new bridge and during demolition of old piers. Comparable photos, and photos of the vegetation planting zone, must be taken within 2 weeks after completion. All photos must be submitted to the Service in digital format at the contact email provided below, within 7 calendar days following the site visit.
14. Care must be taken in handling any dead specimens of proposed or listed species to preserve biological material in the best possible state. In conjunction with the preservation of any dead specimens, the finder has the responsibility to ensure that evidence intrinsic to determining the cause of death of the specimen is not unnecessarily disturbed. The finding of dead specimens does not imply enforcement proceedings pursuant to the ESA. The reporting of dead specimens is required to enable the Service to determine if take is reached or exceeded and to ensure that the terms and conditions are appropriate and effective. Upon locating a dead specimen, notify the Service's Virginia Law Enforcement Office at 804-771-2883 and the Service's Virginia Field Office at 804-693-6694.

The Service believes that no more than 10 Roanoke logperch will be incidentally taken as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

- We recommend that the FHWA and Corps assist us with implementing riparian and stream restoration efforts throughout the logperch range to limit siltation and nutrient releases into receiving waterways.
- We recommend that the FHWA and Corps fund or support the development of road culvert design standards to improve fish passage in watersheds that contain federally listed aquatic species.

For the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in this request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions, please contact Kimberly Smith of this office at (804) 693-6694, extension 124, or via email at Kimberly_Smith@fws.gov.

Sincerely,

Cindy Schulz
Field Supervisor
Virginia Ecological Services

Ms. Rico and Mr. Walker

Page 17

cc: VDCR, DNH, Richmond, VA (Attn: René Hypes)
VDGIF, Blacksburg, VA (Attn: Mike Pinder)
VDGIF, Richmond, VA (Attn: Amy Ewing)

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