Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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VWP Individual Permit Number 06-1574
Effective Date: February 11, 2008
Minor Modification No. 1 Date: March 20, 2009
Major Modification No. 1 Date: December 20, 2011
Minor Modification No. 2: December 21, 2020
Expiration Date: February 11, 2023

VIRGINIA WATER PROTECTION PERMIT
MODIFIED PURSUANT TO THE STATE WATER CONTROL LAW
AND SECTION 401 OF THE CLEAN WATER ACT

Based upon an examination of the information submitted by the owner, and in compliance with § 401 of the Clean Water Act as amended (33 USC 1341) and the State Water Control Law and regulations adopted pursuant thereto, the State Water Control Board (board) has determined that there is a reasonable assurance that the activity authorized by this permit, if conducted in accordance with the conditions set forth herein, will protect instream beneficial uses and will not violate applicable water quality standards. The board finds that the effect of the impact, together with other existing or proposed impacts to surface waters, will not cause or contribute to a significant impairment to state waters or fish and wildlife resources.

Permittee: Rivanna Water and Sewer Authority

Address: 695 Moores Creek Lane Charlottesville, VA 22902-9016

Activity Locations: Ragged Mountain Reservoir and South Fork Rivanna River Reservoir in Albemarle County, Virginia and a pipeline between the two reservoirs in Albemarle County and Charlottesville Virginia

Activity Description: The expansion of Ragged Mountain Reservoir for public water supply, including permanent and temporary flooding, excavation, or filling of 13,085 linear feet of stream bed, 2.68 acres of wetlands, and 0.06 of an acre open water; the construction of a pipeline between the two reservoirs; and the construction of intake structures on South Fork Rivanna River Reservoir and Ragged Mountain Reservoir and the withdrawal of water from the two reservoirs.

The permitted activity shall be in accordance with this Permit Cover Page, Part I - Special Conditions and Attachment A, and Part II - General Conditions.

Director, Office of Water Supply

12/21/2020
Date

A. *Authorized Activities*

This permit authorizes the following impacts, as described in: the Joint Permit Application and Permit Support Document dated June 30, 2006, received by DEQ on July 5, 2006, and deemed complete by DEQ on May 18, 2007; additional information submitted via correspondence dated 2006 through May 2007; the request for a permit modification dated March 22, 2011, received by DEQ on March 24, 2011; and additional information submitted via correspondence dated July 25 and July 28, 2011.

1. The permanent inundation and fill of 2.63 acres of non-tidal wetlands, including 0.81 acres of palustrine forested wetlands, 0.08 acres of palustrine scrub-shrub wetlands, and 1.73 acres of palustrine emergent wetlands for the construction of reservoir structures and filling of the Ragged Mountain Reservoir to a normal pool elevation of up to 683 feet above mean sea level (msl).

2. The permanent inundation of up to 11,511 linear feet, or approximately 2.2 miles, of stream bed, including unnamed tributaries of Moores Creek, to raise the normal reservoir pool elevation up to 683 feet above mean sea level (msl) and for the installation of culvert extensions and riprap aprons on both sides of Interstate 64.

3. The permanent fill of 881 linear feet (7,048 square feet) of stream bed on an unnamed tributary of Moores Creek with approximately 500 cubic yards of material for the construction of the new Ragged Mountain Reservoir dam.

4. The permanent fill of 0.06 acres of open water in the South Fork Rivanna Reservoir for installation of concrete support piles and piers, raw water intake tower, and raw water pumping station.

5. The permanent excavation below the existing reservoir normal pool elevation to generate fill material to be used in construction of the earthen dam and remove or breach two existing dams (upper and lower) in the Ragged Mountain Reservoir.

6. The temporary excavation of 0.05 acres of emergent wetlands and 693 linear feet of stream bed for the placement of temporary coffer dams and utility trenches for installation of the raw water pipelines, provided all work complies with Special Conditions Part I.C.5, -C.7, -C.8, -C.15, -H.1, and -H.2.

7. The temporary use of mechanical equipment in surface waters when conducted according to the permit Special and General Conditions.

8. The withdrawal of surface water from the South Fork Rivanna River Reservoir, not to exceed a maximum *daily* withdrawal volume of 48.0 million gallons. Authorization of this withdrawal shall also be subject to the conditions in Part I.F below.

9. Surface water impacts resulting from the compensation site creation or restoration activities shall be authorized under this permit, provided that no in-stream work occurs in tributaries within the Buck Mountain Creek compensation site from May 15th through July 31st of any year. The exception for coffer dam installation in Part I.C.8 shall apply. The permittee shall include a detailed summary of the temporary and permanent impacts, including but not limited to the type and amount of impacts, and shall provide proposed compensation for the permanent impacts in the final compensation plan. Any impacts to state waters resulting from the proposed compensation site construction activities shall be compensated for and approved by DEQ prior to construction.

B. *Permit Term*

This permit is valid for 15 years from the date of issuance. If the permittee desires to continue the water withdrawal activities authorized by this permit after it expires, a new application must be submitted to DEQ at least 180 days prior to the expiration of this permit. The application will be evaluated by DEQ based on the regulations and laws in effect at that time.

C. *Conditions Applicable to All Project Construction and Compensatory Mitigation Activities*

1. The activities authorized by this permit shall be executed in such a manner that any impacts to stream beneficial uses are minimized. As defined in § 62.1-10(b) of the Code, "beneficial use" means both instream and offstream uses. Instream beneficial uses include, but are not limited to, the protection of fish and wildlife habitat, maintenance of waste assimilation, recreation, navigation, and cultural and aesthetic values. Offstream beneficial uses include, but are not limited to, domestic (including public water supply), agricultural, electric power generation, commercial, and industrial uses. Public water supply uses for human consumption shall be considered the highest priority.

2. No activity shall substantially disrupt the movement of aquatic life indigenous to the water body, including those species that normally migrate through the area, unless the primary purpose of the activity is to impound water.

3. At crossings of streams, pipes and culverts less than 24 inches in diameter shall be countersunk a minimum of three inches, and pipes and culverts greater than 24 inches in diameter shall be countersunk a minimum of six inches to provide for the re-establishment of a natural stream bottom and to maintain a low flow channel. For multiple-celled culverts, only the bottoms of those cells situated below the limits of ordinary high water shall be countersunk. To the greatest extent practicable, other cells, pipes, or culverts shall

be elevated to provide a natural distribution of flood flows. The requirement to countersink shall not apply to extensions or maintenance of existing culverts that are not countersunk, to floodplain culverts being placed above ordinary high water, to culverts being placed on bedrock, or to culverts required to be placed on slopes 5% or greater.

4. Flows downstream of the project area shall be maintained to protect all beneficial uses as specified in this permit.

5. Excepting the construction of the dam, no activity shall cause more than minimal adverse effect on navigation, and no activity shall block more than half of the width of a stream or water body at any given time.

6. The activity shall not impede the passage of normal or expected high flows, and any associated structure shall withstand expected high flows.

7. Temporary in-stream construction features such as cofferdams shall be made of non-erodible materials.

8. No in-stream work shall occur from May 15th through July 31st of any year on any perennial or intermittent stream being disturbed for installation or relocation of utility lines, including water transport pipelines. This restriction does not apply to utility line crossings installed via directional drilling where the stream bottom is not disturbed. An exception will be made for the *installation* of cofferdams, which may occur during these restricted time periods, provided that all practicable procedures are followed to prevent or reduce the likelihood of events that would cause the coffer dam to lose isolation from free flowing channels. Instream work does not include work that is performed *behind* a cofferdam or in a secured area isolated from a free flowing channel.

   This restriction may be lifted if further mussel surveys performed on perennial or intermittent stream crossings (except those being directionally drilled), or further consultation with the Virginia Department of Game and Inland Fisheries and United States Fish and Wildlife Service, concludes that suitable mussel habitat is not present.

   Once exact pipeline crossings of perennial streams are determined, the permittee shall consult with the Department of Game and Inland Fisheries on the need to perform mussel surveys on perennial tributaries to Ivy Creek. Surveys for freshwater mussels requested by the Department of Game and Inland Fisheries shall be conducted 100 meters upstream through 400 meters downstream of impact areas. Surveys should be performed by a qualified biologist, preferably no more than six months prior to the start of construction. All mussels encountered within the impact area should be relocated upstream into suitable habitat and any listed species should be tagged for future monitoring. Relocation should

occur within 30 days of the start of construction to avoid or minimize the chance that mussels will recolonize the work area.

9. Surveys for Indiana bats shall be re-conducted if tree-clearing activities in forested areas do not occur within three years of July 26, 2011. Any surveys conducted as a result of this permit condition shall be performed by a qualified biologist in accordance with standard survey protocols acceptable to the Virginia Department of Game and Inland Fisheries (DGIF) and the United States Fish and Wildlife Service (USFWS). If surveys are necessary, the permittee shall submit a survey plan to DEQ at least 45 days prior to commencing tree-clearing activities, and no tree-clearing activities shall commence until DEQ receives written concurrence from DGIF and USFWS that the activities are not likely to adversely affect this species.

10. All excavation, dredging, or filling in surface waters shall be accomplished in a manner that minimizes bottom disturbance and turbidity. Turbidity levels downstream of any in-stream construction sites shall be minimized to the greatest extent practicable at all times.

11. Erosion and sedimentation controls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992, or the most recent version in effect at the time of construction. These controls shall be placed prior to clearing and grading activities and shall be maintained in good working order, to minimize impacts to surface waters. These controls shall remain in place only until clearing and grading activities cease and these areas have been stabilized.

12. All construction, construction access, and demolition activities associated with this project shall be accomplished in a manner that minimizes construction materials or waste materials from entering surface waters. Wet, excess, or waste concrete shall be prohibited from entering surface waters. Measures shall be employed at all times to prevent and contain spills of fuels, lubricants, or other pollutants into surface waters. Any fish kills, or spills of fuels or oils, shall be reported to DEQ immediately upon discovery at (540) 574-7800. If DEQ cannot be reached, the spill shall be reported to the Virginia Department of Emergency Management (DEM) at 1-800-468-8892 or the National Response Center (NRC) at 1-800-424-8802. DEQ shall be notified in writing *within 24 hours or as soon as possible on the next business day* when potential environmentally threatening conditions are encountered which require debris removal or involve potentially toxic substances. Measures to remove the debris or potentially toxic substance, or to change the location of any structure, are prohibited until approved by DEQ, except to the extent that emergency measures are required to protect against imminent threats to public health and safety. In such instances DEQ shall be notified within 24 hours of taking the emergency action. Virginia Water Quality Standards shall not be violated in any surface waters as a result of the project activities.

13. All authorized fill material placed in surface waters shall be clean and free of contaminants in toxic concentrations or amounts in accordance with all applicable laws and regulations.

14. All non-impacted wetlands, streams, open water, and designated upland buffers that are located within fifty feet of any project activities shall be clearly marked or flagged for the life of the construction activity within that area. *The permittee shall notify all contractors and subcontractors that no activities are to occur in these marked areas*.

15. Machinery or heavy equipment used in temporarily impacted wetlands shall be placed on mats or geotextile fabric, or other suitable means shall be implemented, to minimize soil disturbance to the maximum extent practical. Mats, fabrics, or other measures shall be removed as soon as the work is complete in the temporarily impacted wetland.

16. Temporary disturbances to wetlands, stream channels, and/or stream banks during project construction activities shall be avoided and minimized to the maximum extent practicable.

17. All materials (including fill, construction debris, excavated materials, and woody materials) that are temporarily placed in wetlands, in stream channels, or on stream banks shall be placed on mats or geotextile fabric, and shall be immediately stabilized to prevent the materials, or leachate associated with the materials, from entering surface waters. The materials shall be entirely removed within 30 calendar days following completion of that construction activity. After removal, disturbed areas shall be restored to pre-existing conditions (except for mature woody vegetation) in accordance with Part I.H.

18. All required notifications and submittals shall be submitted to the DEQ office stated below, to the attention of the VWP permit manager, unless directed in writing by DEQ subsequent to the issuance of this permit:

    Virginia Dept. of Environmental Quality
    Office of Wetlands and Water Protection
    P. O. Box 1105
    Richmond, Virginia 23218

19. All reports required by this permit and other information requested by DEQ shall be signed by the permittee or a person acting in the permittee's behalf, with the authority to bind the permittee. A person is a duly authorized representative only if *both* criteria below are met. If a representative authorization is no longer valid because of a change in responsibility for the overall operation of the facility, a new authorization shall be immediately submitted to DEQ.

    a. The authorization is made in writing by the permittee.

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

20. All submittals shall contain the following signed certification statement:
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

21. The permittee shall notify the DEQ of any additional impacts to surface waters, including wetlands, and of any change to the type of surface water impacts associated with this project. The permittee shall also notify the DEQ of any substantial or material modifications to the design or configuration of the dam, culverts, in-stream armoring, concrete support piles and piers, intake structure, raw water intake tower, raw water pumping station, existing dam removals, or raw water pipeline installation. Any additional impacts, modifications, or changes affecting surface waters shall be subject to individual permit review and/or modification of this permit. Compensation may be required.

22. The permittee shall provide the public with access to Ragged Mountain Reservoir.

D. *Stream Modifications, Including Intake/Outfall Structures*

1. Any exposed slopes or stream banks shall be stabilized immediately upon completion of work in each impact area. Methods and materials for stabilization shall be in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992, or the most recent version in effect at the time of construction.

2. Redistribution of existing stream substrate for erosion control purposes is prohibited, unless otherwise authorized for compensatory mitigation purposes.

3. Material removed from the stream bottom shall not be deposited into surface waters unless otherwise authorized as fill material in this permit.

4. Outlet protection for all outfalls and piped channel sections shall be designed in accordance with Virginia Erosion and Sediment Control Handbook, Third Edition, 1992, or the most

recent version in effect at the time of construction. Alternative energy dissipation measures may be installed with prior approval by DEQ.

5. For stream bank protection activities, structures and backfill shall be placed as close to the stream bank as practical, while still avoiding and minimizing impacts to vegetated wetlands to the maximum extent practical. No material shall be placed in excess of the minimum necessary for erosion protection.

6. Asphalt and materials containing asphalt or other toxic substances shall not be used in the construction of submerged sills, breakwaters, dams, or weirs.

7. If stream channelization or relocation is required, all work in surface waters shall be done in the dry, unless authorized by this permit, and all flows shall be diverted around the channelization or relocation area until the new channel is stabilized. The diversion shall be accomplished by leaving a plug at the inlet and outlet ends of the new channel during excavation. Once the new channel has been stabilized, flow shall be routed into the new channel by first removing the downstream plug and then the upstream plug. The new stream channel shall be constructed following the typical sections submitted with the final design plans and should incorporate natural stream channel design principles to the greatest extent practicable. A low flow channel shall be constructed within the channelized or relocated area. The centerline of the channel shall meander, to the extent possible, to mimic natural stream morphology. The rerouted stream flow shall be fully established before construction activities in the old streambed can begin.

E. *Utilities*

1. All utility line work in surface waters shall be performed in a manner that minimizes disturbance in each area. Temporarily disturbed surface waters shall be restored in accordance with the applicable conditions of Part I.H.1 and I.H.2, unless otherwise authorized by this permit.

2. Material resulting from trench excavation may be temporarily sidecast into wetlands not to exceed a total of 90 calendar days, provided the material is not placed in a manner such that it is dispersed by currents or other forces.

3. The trench for a utility line cannot be constructed in a manner that drains wetlands (e.g., backfilling with extensive gravel layers creating a French drain effect).

F. *Water Withdrawal and Instream Flow Conditions*

1. Definitions:

"Natural inflow," when used with respect to South Fork Rivanna Reservoir, is the daily mean discharge rate listed by the United States Geological Survey for the Mechums River near White Hall, Virginia (USGS stream gage 02031000), multiplied by the factor of 2.71 (to compensate for the difference in drainage area), and converted from cubic feet per second to millions of gallons per day by multiplying by a factor of 0.65. Currently, the USGS mean discharge rates are available online at http://waterdata.usgs.gov.

"Natural inflow," when used with respect to Sugar Hollow Reservoir, uses the gage at the Moormans River near Free Union (USGS gage #02032250) and is calculated as follows: $[17.43* ((Q_{gage}-Q_{SHR})*0.65)]/(77.0-17.43)$, where:

- 17.43 mi^2 is the Sugar Hollow Drainage area
- 77.0 mi^2 is the Moorman's gage drainage area
- Q_{gage} is the previous day's provisional mean daily flow at the Moorman's gage, in cubic feet per second (cfs)
- Q_{SHR} is the previous day's flow from SHR, in cfs, to include any discharge or spillage from the dam or reservoir.
- 0.65 is the conversion factor from cfs to millions of gallons per day (Mgal/day)

Currently, the USGS mean discharge rates are available online at http://waterdata.usgs.gov.

"Initial fill," with respect to an Expanded Ragged Mountain Reservoir, refers to the period of time beginning when the facility becomes operational (as defined below), and ending when either (a) the water level at the facility for the first time reaches the normal pool elevation, or (b) a permanent operation and maintenance certificate is issued for the facility by the Virginia Department of Conservation and Recreation, whichever is later.

"Operational," with respect to a new water supply facility, means that it has been completely constructed, can be operated as intended, and is in active service. With respect to an Expanded Ragged Mountain Reservoir, the facility shall be deemed "operational" upon issuance of a temporary operation and maintenance certificate by the Virginia Department of Conservation and Recreation, even though the Reservoir may not fill with water to its full normal pool elevation until some time thereafter.

"Total downstream flow" is the rate at which all water in a stream is moving past a defined point and flowing downstream during a given interval of time. Total downstream flow is expressed in millions of gallons per day and includes, but is not limited to, all water traveling over a dam spillway, water seeping through, around, or under a dam or spillway,

water conveyed through a pipeline from a reservoir to the downstream, or water conveyed through a hydroelectric plant from a reservoir to the downstream during the defined interval.

"Urban Water System" is the system of water supply reservoirs, intakes, pipelines, and water treatment facilities that provide potable drinking water to the citizens of the City of Charlottesville and areas of the County of Albemarle surrounding the City as defined by the Board of Supervisors. Water storage for the Urban Water System includes the Sugar Hollow Reservoir, the Ragged Mountain Reservoir, and South Fork Rivanna Reservoir.

"Useable storage" is the volume of water in a reservoir at a particular time that is available for routine withdrawal and use for water supply purposes. It consists of all that volume of water within a reservoir located above the dead storage pool (or sediment pool) up to the water surface elevation. The volume of useable storage at a particular reservoir at a given time depends upon the water surface elevation (which shall be determined by observation), and upon the then-current contour of the reservoir bottom and elevation of the dead storage pool (which shall be determined from the most recent stage-storage curves prepared by the Rivanna Water & Sewer Authority under the seal of a professional engineer on the basis of periodic bathymetric surveys).

"Total useable storage" is the sum of the Useable Storage in each of the storage reservoirs in the Urban Water System at a given time.

2. Where provisions applicable to a fully-Expanded Ragged Mountain Reservoir (Total Useable Storage of 2.189 billion gallons, normal pool elevation of 683 feet) differ from those applicable to an intermediate-Expanded Ragged Mountain Reservoir (Total Useable Storage of 1.549 billion gallons, normal pool elevation of 671 feet), the provisions shown in brackets shall apply to an intermediate-Expanded Ragged Mountain Reservoir.

3. Total downstream flow Provisions before an Expanded Ragged Mountain Reservoir is Operational.

   a. From South Fork Rivanna Reservoir:

      i. When the water level at South Fork Rivanna Reservoir is at or above the spillway elevation of 382 feet, South Fork Rivanna Reservoir will be spilling water on a daily basis and no additional total downstream flow is required.

      ii. When the water level at South Fork Rivanna Reservoir is below the spillway elevation of 382 feet total downstream flow will be at least 8 mgd or natural inflow, whichever is less.

b. From Sugar Hollow Reservoir:

i. When the water level at Sugar Hollow Reservoir is at or above the spillway elevation of 975 feet, Sugar Hollow Reservoir will be spilling water on a daily basis and no additional total downstream flow is required.

ii. When the water level at Sugar Hollow Reservoir is below the spillway elevation of 975 feet, total downstream flow past the dam will be at least 0.4 mgd or natural inflow, whichever is less.

c. From Ragged Mountain Reservoir: there are no new requirements.

4. Total downstream flow Provisions After an Expanded Ragged Mountain Reservoir is Operational, But Before the Pipeline from South Fork Rivanna Reservoir to Ragged Mountain Reservoir is Operational.

a. From South Fork Rivanna Reservoir:

i. If total useable storage available to the Urban Water System is equal to or greater than 2.36 billion gallons [1.6 billion gallons], total downstream flow past South Fork Rivanna Reservoir must be at least 70% of the natural inflow or 1.3 mgd, whichever is greater, subject to the following exceptions:

(a) No total downstream flows in excess of 20 mgd shall be required.

(b) If useable storage in South Fork Rivanna Reservoir has been exhausted (e.g., the water level is at or below the lowest operable water supply intake), then total downstream flow past South Fork Rivanna Reservoir shall be whatever volume of water enters that intake unless or until the total downstream flow past South Fork Rivanna Reservoir equals or exceeds 1.3 mgd.

ii. If total useable storage available to the Urban Water System is equal to or greater than 1.36 billion gallons [0.75 billion gallons] but less than 2.36 billion gallons [1.6 billion gallons], total downstream flow past South Fork Rivanna Reservoir must be at least 50% of the natural inflow or 1.3 mgd, whichever is greater, subject to the following exceptions:

(a) No total downstream flows in excess of 20 mgd shall be required.

(b) If useable storage in South Fork Rivanna Reservoir has been exhausted (i.e., the water level is at or below the lowest operable water supply intake), then total downstream flow past South Fork Rivanna Reservoir shall be whatever volume

of water enters that intake unless or until the total downstream flow past South Fork Rivanna Reservoir equals or exceeds 1.3 mgd.

iii. If total useable storage available to the Urban Water System is less than 1.36 billion gallons [0.75 billion gallons], total downstream flow past South Fork Rivanna Reservoir must be at least 30% of the natural inflow or 1.3 mgd, whichever is greater, subject to the following exceptions:

(a) No total downstream flows in excess of 20 mgd shall be required.

(b) If useable storage in South Fork Rivanna Reservoir has been exhausted (i.e., the water level is at or below the lowest operable water supply intake), then total downstream flow past South Fork Rivanna Reservoir shall be whatever volume of water enters that intake unless or until the total downstream flow past South Fork Rivanna Reservoir equals or exceeds 1.3 mgd.

b. From Sugar Hollow Reservoir, when the water level in Sugar Hollow Reservoir is above the lowest operable water intake and an Expanded Ragged Mountain Reservoir has not completed its initial fill.

i. If the useable storage in Ragged Mountain Reservoir is equal to or greater than 1.53 billion gallons [1.08 billion gallons], total downstream flow past Sugar Hollow Reservoir must be at least 100% of the natural inflow to Sugar Hollow Reservoir; or 10 mgd, whichever is less.

ii. If the useable storage in Ragged Mountain Reservoir is equal to or greater than 1.1 billion gallons [0.8 billion gallons] but less than 1.53 billion gallons [1.08 billion gallons], total downstream flow past Sugar Hollow Reservoir must be at least 100% of the natural inflow to Sugar Hollow Reservoir; or 2 mgd, whichever is less.

iii. If the useable storage in Ragged Mountain Reservoir is equal to or greater than 0.66 billion gallons [0.45 billion gallons] but less than 1.1 billion gallons [0.8 billion gallons], total downstream flow past Sugar Hollow Reservoir must be at least 100% of the natural inflow to Sugar Hollow Reservoir; or 1 mgd, whichever is less.

iv. If the useable storage in Ragged Mountain Reservoir is less than 0.66 billion gallons [0.45 billion gallons], total downstream flow past Sugar Hollow Reservoir must be at least 100% of the natural inflow to Sugar Hollow Reservoir; or 0.4 mgd, whichever is less.

c. From Sugar Hollow Reservoir when the water level in Sugar Hollow Reservoir is above the lowest operable water intake and an Expanded Ragged Mountain Reservoir has

completed its initial fill.

i. If the useable storage in Ragged Mountain Reservoir is equal to or greater than 1.53 billion gallons [1.08 billion gallons], total downstream flow past Sugar Hollow Reservoir must be at least 100% of the natural inflow to Sugar Hollow Reservoir; or 10 mgd, whichever is less.

ii. If the useable storage in Ragged Mountain Reservoir is less than 1.53 billion gallons [1.08 billion gallons], then total downstream flow must be at least 100% of the natural inflow to Sugar Hollow, or 2 mgd, whichever is less.

iii. When the water level in Sugar Hollow Reservoir is at or below the lowest operable water intake, RWSA must fully open the total downstream flow control device supplied from the lowest operable water intake and leave it in the fully open position until the water level in Sugar Hollow Reservoir is again higher than the lowest water intake.

d. From Ragged Mountain Reservoir: the permittee must provide a total downstream flow past the dam of at least 23,800 gallons per day.

5. Total downstream flow provisions After Both an Expanded Ragged Mountain Reservoir and the Pipeline from South Fork Rivanna Reservoir to Ragged Mountain Reservoir are Operational.

a. From South Fork Rivanna Reservoir:

i. If total useable storage available to the Urban Water System is equal to or greater than 2.36 billion gallons [1.8 billion gallons], total downstream flow past South Fork Rivanna Reservoir must be at least 70% of the natural inflow or 1.3 mgd, whichever is greater, subject to the following exceptions:

(a) No total downstream flows in excess of 20 mgd shall be required.

(b) If useable storage in South Fork Rivanna Reservoir has been exhausted (i.e., the water level is at or below the lowest operable water supply intake), then total downstream flow past South Fork Rivanna Reservoir shall be whatever volume of water enters that intake unless or until the total downstream flow past South Fork Rivanna Reservoir equals or exceeds 1.3 mgd.

ii. If total useable storage available to the Urban Water System is equal to or greater than 1.36 billion gallons [1.0 billion gallons] but less than 2.36 billion gallons [1.8 billion gallons], total downstream flow past South Fork Rivanna Reservoir must be

at least 50% of the natural inflow or 1.3 mgd, whichever is greater, subject to the following exceptions:

(a) No total downstream flows in excess of 20 mgd shall be required.

(b) If useable storage in South Fork Rivanna Reservoir has been exhausted (i.e., the water level is at or below the lowest operable water supply intake), then total downstream flow past South Fork Rivanna Reservoir shall be whatever volume of water enters that intake unless or until the total downstream flow past South Fork Rivanna Reservoir equals or exceeds 1.3 mgd.

iii. If total useable storage available to the Urban Water System is less than 1.36 billion gallons [1.0 billion gallons], total downstream flow past South Fork Rivanna Reservoir must be at least 30% of the natural inflow or 1.3 mgd, whichever is greater, subject to the following exceptions:

(a) No total downstream flows in excess of 20 mgd shall be required.

(b) If useable storage in South Fork Rivanna Reservoir has been exhausted (i.e., the water level is at or below the lowest operable water supply intake), then total downstream flow past South Fork Rivanna Reservoir shall be whatever volume of water enters that intake unless or until the total downstream flow past South Fork Rivanna Reservoir equals or exceeds 1.3 mgd.

b. From Sugar Hollow Reservoir:

i. When the water level at Sugar Hollow Reservoir is at or above the spillway elevation of 975 feet, Sugar Hollow Reservoir will be spilling water on a daily basis and no additional total downstream flow is required.

ii. When the water level at Sugar Hollow Reservoir is below the spillway elevation of 975 feet.

(a) If the water level in Sugar Hollow Reservoir is above the lowest operable water intake total downstream flow past Sugar Hollow Reservoir must be at least 90% of the natural inflow to Sugar Hollow Reservoir; or 10 mgd, whichever is less.

(b) If the water level in Sugar Hollow Reservoir is not above the lowest operable water intake, RWSA must fully open the total downstream flow control device supplied from the lowest operable water intake and leave it in the fully open position until the water level in Sugar Hollow Reservoir is again higher than the lowest water intake.

c. From Ragged Mountain Reservoir: the permittee must provide a total downstream flow past the dam of at least 23,800 gallons per day.

6. Monitoring and Reporting of instream flows:

Within eight months of permit issuance, after opportunity for public input, the permittee will provide for DEQ approval, a Flow Measurement Design Plan and Operations Manual. The manual will describe the methods and procedures and any planned improvements for monitoring inflows and releases from Sugar Hollow and South Fork Rivanna River Reservoirs. The manual will describe the procedures that will be made and the frequency and conditions with which they will be made to adjust releases so the total downstream flow requirements of this permit will be met.

The Flow Measurement Design and Operations Plan will determine the suitability of the existing release equipment to meet the special conditions of Section F. In the event that existing release equipment cannot release water so that the total downstream flow past Sugar Hollow or Ragged Mountain Reservoirs is within 10% of the required total downstream flow required by Section F, then the Flow Measurement Design Plan and Operations Manual will include a schedule for the installation of equipment capable of releasing water to satisfy that requirement and a description of the equipment. In no case shall the necessary equipment be installed later than two years after permit issuance. The plan will describe procedures to be used to calibrate and verify releases from the reservoirs and a include schedule for periodic recalibration and verification of the release equipment.

The Flow Measurement Design Plan and Operations Manual will identify the measurements and formulas to calculate natural inflow to Sugar Hollow and South Fork Rivanna reservoirs. The Flow Measurement Design Plan and Operations Manual will specify the frequency of measurements and specify what data will be used and how that data will be compiled to compute natural inflow to the reservoirs. The Flow Measurement Design Plan and Operations Manual will describe the permittee's records retention policy with regard to data collection and instrument calibration and verification records. The Flow Measurement Design Plan and Operations Manual will describe what contingency procedures, gages and formulas will be used in case the primary gage used to estimate inflow is out of service.

The Flow Measurement Design Plan and Operations Manual will include a schedule for updating useable storage values for each of the three reservoirs through bathymetric studies. The first update will not be required until an expanded Ragged Mountain Reservoir becomes operational.

The Flow Measurement Design Plan and Operations Manual will include the development of a reporting form(s) to be submitted to DEQ annually. The form will be designed to evaluate the permittee's compliance with the special conditions of Section F. A reporting table designed to check compliance with Special Condition I.F.3 shall be submitted within at least eight months of permit issuance. For each reporting period the table shall record the date, the natural inflow to Sugar Hollow Reservoir and to South Fork Rivanna River Reservoir, whether the reservoirs are at full pond, and the required and actual total downstream flow past Sugar Hollow Reservoir and South Fork Rivanna River Reservoirs.

At least 6 months prior to the date when an expanded Ragged Mountain Reservoir becomes operational, proposed revisions to the Flow Measurement Design Plan and Operations Manual, including a revised Reporting Form shall be submitted to DEQ to comply with Special Condition I.F.4.

At least 6 months prior to the date when both an expanded Ragged Mountain Reservoir and the pipeline from the South Fork Reservoir to the Ragged Mountain Reservoir become operational, proposed revisions to the Flow Measurement Design Plan and Operations Manual, including a revised Reporting Form shall be submitted to DEQ to comply with Special Condition I.F.5.

The required rates of total downstream flow past South Fork Rivanna Reservoir and Sugar Hollow Reservoir shall be determined and the rates of total downstream flow shall be adjusted as necessary twice per week. When the required rate of total downstream flow depends upon the natural inflow to the reservoir, the total downstream flow shall be calculated by determining the average of the natural inflows for the three most recent days for which data are available. No adjustment to the rate of total downstream flow shall be required unless the current calculation of total downstream flow differs from the previously calculated total downstream flow by more than ten percent.

A monitoring report shall be prepared and submitted by January 31st of each year documenting the daily withdrawals, natural inflow, and required and actual total downstream flow in the previous calendar year.

7. Water Conveyance Between facilities:

   a. Except as set forth below, the Rivanna Water & Sewer Authority may convey water between and among its reservoirs and/or water treatment plants at rates up to the capacities of the conveyances involved.

   b. After both an Expanded Ragged Mountain Reservoir and the pipeline from South Fork Rivanna Reservoir to Ragged Mountain Reservoir are Operational.

i. There shall be no conveyance of water from Sugar Hollow Reservoir to Ragged Mountain Reservoir or Observatory Water Treatment Plant via the existing pipeline.

ii. There shall be no conveyance of water from South Fork Rivanna Reservoir into Ragged Mountain Reservoir when the water level at the Expanded Ragged Mountain Reservoir is at or above the spillway elevation.

iii. When the water level at South Fork Rivanna Reservoir is below its spillway elevation and water is released from Sugar Hollow Reservoir to the Moormans River at a rate substantially in excess of the applicable total downstream flow specified herein for the purpose of conveying water into South Fork Rivanna Reservoir for water supply, the Rivanna Water & Sewer Authority will reduce the rate of flow released through the flow control device at Sugar Hollow Reservoir by no more than fifty percent (50 %) per day until the applicable total downstream flow specified herein is achieved.

iv. The maximum withdrawal from South Fork Rivanna Reservoir shall not exceed 48 million gallons per day and the maximum refill of Ragged Mountain Reservoir from South Fork Rivanna Reservoir shall not exceed 25 million gallons per day.

8. Prior to impacting any surface waters as authorized by this permit, the applicant shall submit any existing regional or local water supply conservation plans that apply to the service areas being supplied by the water withdrawn under this permit.

9. The permittee must issue a call for voluntary conservation, prior to reducing flowby to the South Fork Rivanna River to 50% of natural inflow or 1.3 mgd, whichever is greater, under the provisions of Special Conditions I.F.4.a.ii or I.F.5.a.ii; and the retail customers must be practicing mandatory conservation prior to reducing flowby to the South Fork Rivanna River to 30% of natural inflow or 1.3 mgd, whichever is greater, under the provisions of Special Conditions I.F.4.a.iii or I.F.5.a.iii.

10. In the event that the Governor or the Virginia Drought Coordinator declares a drought emergency in the Drought evaluation Region, which includes Albemarle County and the City of Charlottesville, the permittee shall implement the mandatory conservation measures, as detailed in Attachment A of this permit. The permittee shall be responsible for determining when drought emergencies are declared. DEQ may require documentation that mandatory conservation measures were implemented during declared drought emergencies.

11. Water withdrawal monitoring and reporting activities shall comply with this section, with Part I.C, and with Part II. All records and information that result from the monitoring and

reporting activities required by this permit, including any records of maintenance activities to the withdrawal system, shall be retained for the life of the permit. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or as requested by the State Water Control Board.

12. *For all permittees whose average daily withdrawal during any single month exceeds 10,000 gallons per day,* the water withdrawals shall be reported to DEQ by January 31st of the next year, as required under State Water Control Board (SWCB) Water Withdrawal Reporting Regulation (9 VAC 25-200 et seq.). The annual monitoring report shall contain the following information: the permittee's name and address, the sources and locations of water withdrawal, the cumulative volume of water withdrawn each month of the calendar year, the maximum day withdrawal and the month in which it occurred, and the method of withdrawal measurement. *For permittees subject to the Virginia Department of Health (VDH) Waterworks Regulations*, the annual reports to DEQ may include, as an alternative, the source and location of water withdrawals, the type of use for the water withdrawn, and reference to the reports filed with VDH that contain the monthly withdrawal data.

G. *Project Construction Monitoring and Submittals for Project Surface Water Impact Sites*

Project Pre-Construction Monitoring and Submittals

1. Final construction plans for the project activities authorized by this permit shall be submitted at least 30 calendar days prior to initiating any land disturbance or construction in permitted impact areas. Construction activities shall not be initiated until DEQ has reviewed and commented on the plans, or until 30 calendar days have passed without DEQ comments being received by the permittee. If DEQ submits comments regarding activities authorized by this permit, construction shall not proceed until comments are resolved to DEQ's satisfaction. Final construction plans shall include, at a minimum but not limited to, the location of all photographic monitoring stations, as described in Part I.G.3 below. Plan revision(s) in permitted areas shall be submitted to DEQ for approval immediately upon determination that a change is necessary. DEQ approval shall be required prior to implementing the revision(s).

2. At least ten calendar days prior to the initiation of any land disturbance or construction activities in permitted areas, the permittee shall submit written notification to DEQ, including a projected schedule for initiating and completing work at each permitted impact area.

3. The permittee shall conduct photographic monitoring of pre-construction conditions in permitted, temporary or permanent impact areas covered by this permit. The photos shall be of sufficient quantity to thoroughly document the environmental conditions at the

permitted impact areas prior to disturbance. Photographic monitoring shall be conducted by the following method:

Enumerated photo stations shall be established at each permitted impact area and shall be consistent for the duration of construction activities. Photo stations may be established via water craft or temporary floating structures. Photos will be taken from the same directional orientation during each monitoring event. Each photograph taken shall be labeled with the photo station number, the permitted impact location, the photograph orientation, the date and time of the photograph, the name of the person taking the photograph, and a brief description of the activities being conducted at the time of the photograph. If necessary, this information may be provided on (a) separate sheet(s) of paper attached to the photographs.

Photos shall be submitted with the notification (Part I.G.2) to DEQ that land disturbing or construction activities are planned to begin.

4. Final wetlands and stream compensation plans (final plans) shall be prepared in accordance with the Virginia Water Protection Permit Program Regulation (9 VAC 25-210-10 et. seq.) in effect at the time of plan submittal, and shall be based on the most recent mitigation guidance, if any, posted on DEQ's wetlands web page.

   The final plans shall be approved by DEQ *prior to any construction activity in permitted impact areas*. DEQ shall have 60 calendar days to review and either provide written comments on the final plans or approve the final plans. The final plans as approved by DEQ shall be an enforceable requirement of this permit. Any change to the approved final plans must be submitted to DEQ for approval prior to implementing the change.

   a. The final wetland compensation plan shall include complete information on all components of the conceptual compensatory mitigation plan, as detailed in the Virginia Water Protection Permit Program Regulation (9 VAC 25-210-10 et. seq.) in effect at the time of final plan submittal, including but not limited to, compensation amounts, ratios, wetland types, and locations. In addition, the plan shall include: a summary of the type and acreage of wetland impacts anticipated during the construction of the compensation site and the proposed compensation for these impacts; a site access plan; a monitoring plan, including the proposed success criteria, the monitoring goals, the monitoring schedule, the location of photo stations, monitoring wells, vegetation sampling points, and reference wetlands (if available), and the monitoring provisions contained in this permit; an abatement and control plan for undesirable plant species; an erosion and sedimentation control plan; a construction schedule; and the mechanism for protection in perpetuity of the compensation site(s), including all surface waters and buffer areas within its boundaries.

The mechanism for protection shall be in place within 180 days of final compensation plan approval. The mechanism for protection shall state that no activity will be performed on the property in any area designated as a compensation area, with the exception of maintenance or corrective action measures authorized by the board. The mechanism of protection applies to ditching, land clearing, or discharge of dredge or fill material, unless these activities are specifically authorized by the board through the issuance of a VWP individual or general permit, or waiver thereof. Such mechanism of protection shall contain the specific phrase "ditching, land clearing, or discharge of dredge or fill material" in the limitations placed on the use of these areas. The mechanism of protection, or an equivalent mechanism for government-owned lands, shall be recorded in the chain of title to the property, and proof of recordation shall be submitted to DEQ within 180 days of final compensation plan approval.

Hydrology analyses should include: For riverine or stream-driven systems, a water budget (for nontidal sites only) based on expected monthly inputs and outputs which will project water level elevations for a typical year, a dry year, and a wet year; For groundwater- and precipitation-driven sites in non-riverine systems, historic groundwater elevation data, if available, or the proposed location of groundwater monitoring wells to collect these data; and For overbank flood-driven systems, gaging station data and a floodplain analysis, including a minimum 10-year continuous simulation which will account for variability in inputs and outputs under varying conditions.

b. The final stream compensation plan shall include complete information on all components of the conceptual compensatory mitigation plan, as detailed in the Virginia Water Protection Permit Program Regulation (9 VAC 25-210-10 et. seq.) in effect at the time of final plan submittal, including but not limited to, compensation amounts, credits and/or credit ratios, condition assessment types, and locations. In addition, the plan shall include: a summary of the type and linear feet of stream bed impacts anticipated during the construction of the compensation site and the proposed compensation for these impacts; a site access plan; an erosion and sedimentation control plan, if appropriate; an abatement and control plan for undesirable plant species; a monitoring plan, including the proposed success criteria, the monitoring goals, the monitoring schedule, and the location of photo stations, vegetation sampling points, survey points, bank pins, scour chains, and reference streams (if available), and the monitoring provisions contained in this permit; a plan view sketch depicting the pattern and all compensation measures being employed; a profile sketch; cross-sectional sketches of the proposed compensation stream; and the mechanism for protection in perpetuity of the compensation site(s), including all surface waters and buffer areas within its boundaries.

The mechanism for protection shall be in place within one year of final compensation plan approval. The mechanism for protection shall state that no activity will be performed on the property in any area designated as a compensation area, with the exception of maintenance or corrective action measures authorized by the board. The mechanism of protection applies to ditching, land clearing, or discharge of dredge or fill material, unless these activities are specifically authorized by the board through the issuance of a VWP individual or general permit, or waiver thereof. Such mechanism of protection shall contain the specific phrase "ditching, land clearing, or discharge of dredge or fill material" in the limitations placed on the use of these areas. The mechanism of protection, or an equivalent mechanism for government-owned lands, shall be recorded in the chain of title to the property, and proof of recordation shall be submitted to DEQ within one year of final compensation plan approval.

c. Any compensation plan proposing the purchase or use of mitigation banking credits shall include: (i) the name of the proposed mitigation bank and the HUC in which it is located; (ii) the number of credits proposed to be purchased or used; and (iii) certification from the bank owner of the availability of credits.

d. Any compensation plan proposing to include contributions to an in-lieu fee fund shall include proof of the willingness of the entity to accept the donation and documentation of how the amount of the contribution was calculated.

Monitoring and Submittals Required During Project Construction

5. Monitoring of water quality parameters shall be conducted as described below during relocation of any flowing stream through a new channel. Corrective measures and additional monitoring may be required if Virginia Water Quality Standards, as detailed in the most recent version of Regulation 9 VAC 25-260-10 et. seq., are not met. The permittee shall report violations of Virginia Water Quality Standards to DEQ within 24 hours of monitoring. All monitoring data shall be submitted to DEQ within seven calendar days of the monitoring event.

   a. One sampling station shall be located upstream of the relocated channel, and one sampling station shall be located immediately downstream of the relocated channel.

   b. At the *upstream* sampling station, temperature, pH, and dissolved oxygen (D.O.) measurements shall be taken immediately *before* opening a new channel, and every 30 minutes thereafter for at least *two* hours.

   c. At the *downstream* sampling station, temperature, pH, and dissolved oxygen (D.O.) measurements shall be taken immediately *after* opening a new channel, and every 30

minutes thereafter until the measurements indicate that the site has stabilized (a minimum of *three* hours).

6. The permittee shall conduct photographic monitoring of sufficient quantity and frequency to thoroughly document all temporary and permanent construction activities in permitted impact areas. Photos shall also document any non-compliant events or problems encountered during the construction activities. For work being conducted in phases, or only in certain areas at the same time, monitoring may begin upon initiating work in those specific permitted impact areas.

   The established, enumerated photo stations in each permitted impact area shall be used for photo monitoring. Photos will be taken from the same directional orientation during each monitoring event. Each photograph taken shall be labeled with the photo station number, the permitted impact location, the photograph orientation, the date and time of the photograph, the name of the person taking the photograph, and a brief description of the activities being conducted at the time of the photograph. If necessary, this information may be provided on (a) separate sheet(s) of paper attached to the photographs.

   Photos shall be submitted as part of the construction monitoring reports detailed in Part I.G.7.

7. Construction monitoring reports shall be submitted to DEQ monthly, due by the 15th of the following month (for example, the report for January is due by February 15th). The reports shall include the following, as applicable:

   a. A written narrative stating whether or not work was performed in each permitted impact area, including installation and maintenance of erosion and sediment controls, during the monitoring period. If work was performed, the narrative shall include a description of the major work items performed, when those items were initiated, when those items are expected to be completed, and any non-compliant events or problems encountered.

   b. A written summary of any corrective actions taken and any subsequent notifications to DEQ regarding non-compliant events or problems encountered during construction activities in permitted impact areas.

   c. A summary of anticipated work to be completed during the next monitoring period in all permitted impact areas.

   d. A labeled site map showing each permitted impact area where work activities occurred during the monitoring period and the photo stations used to document activities.

   e. The photos taken during the monitoring period.

Project Post-Construction Monitoring and Submittals

8. The permittee shall submit written notification within 30 calendar days after the completion of activities in each permitted impact area(s) authorized under this permit. The notification may be included with monthly construction monitoring reports or may be submitted separately. In either case, notification shall include the post-construction photos of disturbances in the particular permitted impact area(s), as described in Part I.G.9.

9. The permittee shall conduct photographic monitoring of sufficient quantity to thoroughly document that all construction activities were completed in permitted impact areas. The established, enumerated photo stations shall be used for photo monitoring. Each photograph taken shall be labeled with the photo station number, the permitted impact location, the photograph orientation, the date and time of the photograph, the name of the person taking the photograph, and the date that activities were completed. If necessary, this information may be provided on (a) separate sheet(s) of paper attached to the photographs.

   For temporary disturbances to surface waters, the permittee shall conduct photographic monitoring immediately after restoration, then once annually in August or September for *two consecutive years*. If restoration is not completed by June 30th of a given year, the monitoring should not begin until August or September of the *following* year in order to allow one growing season to pass. If post-restoration conditions are not equivalent to pre-construction conditions after two years (except for mature woody vegetation), DEQ may require corrective action and continued annual monitoring until the temporary impacts are restored.

   For permanent disturbances, the permittee shall conduct photographic monitoring of all authorized, permanent-impact areas once at the time of completion of construction and stabilization of the area.

   Photos shall be submitted with the post-construction notification detailed in Part I.G.8.

10. Final As-Built plans shall be submitted to DEQ prior to filling the reservoir for all structures completed to that date. These may include, but are not limited to, the dams, access roads, intake structures, water transfer pipelines, pump station, etc. Final As-Built plans for the remaining portions of the project authorized by this permit, such as, but not limited to relocation of utility lines, shall be submitted to DEQ within 90 calendar days after the completion of construction. A licensed land surveyor or a licensed professional engineer shall certify the plans. The plans shall include a narrative comparing the As-Built plans with the design plans. DEQ shall have 30 calendar days to review the plans and provide comments to the permittee.

H. *Compensatory Mitigation*

1. All temporarily disturbed wetland areas shall be restored to preconstruction conditions within 30 calendar days of completing work in the areas, which shall include re-establishing pre-construction contours, and planting or seeding with appropriate wetland vegetation according to cover type (emergent, scrub/shrub, or forested), except for invasive species identified on DCR's Invasive Alien Plant Species of Virginia list. The permittee shall take all appropriate measures to promote and maintain the revegetation of temporarily disturbed wetlands for a minimum of two years after the area is restored.

2. All temporarily impacted streams and stream banks shall be restored to their original elevations and contours within 30 calendar days following the construction at that stream segment, and the banks shall be seeded or planted with the same vegetative cover type originally present along the banks, including supplemental erosion control grasses if necessary but not including invasive species identified on DCR's Invasive Alien Plant Species of Virginia list. The permittee shall take all appropriate measures to promote and maintain the revegetation of temporarily disturbed streams and stream banks for a minimum of two years after the area is restored.

3. Final compensation for wetland impacts shall be based on the conceptual compensation plans submitted as part of the complete application for this project. The permittee shall provide off-site compensation for 2.61 acres of wetland impacts at the Moores Creek compensation site in Albemarle County, Virginia, as detailed in the final wetland compensation plan approved by DEQ. The compensation site shall be preserved in perpetuity, as described in the final wetlands compensation plan and Part I.G.4.

4. Final compensation for stream impacts shall be based on the conceptual compensation plans submitted as part of the complete application for this project. The permittee shall provide off-site compensation for 13,163 linear feet of stream impacts through a combination of stream restoration, stream riparian buffer restoration and enhancement, and preservation of stream and riparian buffer, a minimum of 100 feet but no more than 300 feet on each bank, at the Buck Mountain Creek compensation site, as detailed in the final stream compensation plan approved by DEQ. Compensation will occur along Buck Mountain Creek and its tributaries. The compensation areas shall be preserved in perpetuity, as described in the final stream compensation plan and Part I.G.4.

5. Compensation for any additional permanent impacts based on the final project and compensation designs will be provided at appropriate ratios, as detailed in the final wetlands and stream compensation plans approved by DEQ.

6. Any change to the compensation options noted in Part I.H.1 through I.H.5 above shall be approved by DEQ prior to initiating any construction activities in surface waters.

I. *Conditions Applicable to Compensatory Mitigation Activities*

1. The permittee is responsible for meeting all of the components of the compensatory mitigation requirements associated with this permit. This responsibility can only be transferred if and when the permit is transferred to another party and then only to the new permit recipient.

2. Compensation site construction shall commence *within 180 calendar days (approximately six months) of beginning project construction activities in <u>any</u> permitted impact area*. Work in the permitted impact areas shall cease until compensation site construction begins, unless otherwise authorized to continue by DEQ.

3. All vegetation removal for control purposes shall be done by manual means, unless authorized by DEQ in advance. Herbicides or algacides shall not be used in or immediately adjacent to compensation areas without prior authorization by DEQ.

4. Vegetation shall be native species common to the area and shall be suitable for growth in local wetland and/or riparian conditions. Seeds used for compensation site activities shall conform to the Virginia Seed Law (Sections 3.1-262 Code of Virginia) and Virginia Seed Regulations (2 VAC 5-290-10 et. seq.). Planting of woody plants shall occur when vegetation is normally dormant unless otherwise approved in the final compensation plan.

5. Point sources of stormwater runoff shall be prohibited from entering any compensation site prior to treatment by appropriate best management practices (BMPs) that are designed, installed, and maintained as described in the Virginia Erosion and Sediment Control Handbook (Third Edition, 1992, or the most recent version in effect at the time of construction) and the Virginia Stormwater Management Handbook (First Edition, 1999, or the most recent version in effect at the time of construction), or for any compensation site within state forest boundaries, the Forestry Best Management Practices for Water Quality in Virginia Technical Guide (Fourth Edition, July 2002). Appropriate best management practices may include sediment traps, grassed waterways, vegetated filter strips, debris screens, oil and grease separators, and forebays. Installation of alternative practices not described in these references shall be submitted to DEQ for approval prior to beginning construction.

J. *Compensation Site Construction Tasks, Monitoring, and Submittals*

Pre-Construction Tasks, Monitoring, and Submittals for the Compensation Sites

1. At least ten calendar days prior to the initiation of any land disturbance or construction activities at the Moores Creek and Buck Mountain Creek compensation sites (compensation sites), the permittee shall submit written notification to DEQ, including a projected schedule for initiating and completing work at each wetland cell and each stream restoration reach, and the pre-construction photographs described in Part I.J.4.

2. For compensation sites involving land disturbance, a site stabilization plan shall be implemented prior to compensatory mitigation construction activities.

3. All non-impacted wetlands, streams, open water, and designated buffers that are located within the compensation site limits, or that are located within fifty feet of any compensation site construction activities, shall be clearly marked or flagged for the life of the construction activity within that area. *The permittee shall notify all contractors and subcontractors that no activities are to occur in these marked areas*.

4. The permittee shall conduct photographic documentation of pre-construction conditions in each cell of wetlands to be created and in each reach of stream restoration or enhancement at the compensation sites. The photos shall be of sufficient quantity to thoroughly document the environmental conditions prior to disturbance. Photographic documentation shall be conducted by the following method:

   For wetland creation areas and stream restoration areas, enumerated photo stations shall be established in each wetland cell or stream restoration reach of the compensation sites. These locations will be consistent for the duration of compensation site construction activities. Photo stations may be established via water craft or temporary floating structures. Photos will be taken from the same directional orientation during each monitoring event, except for stream restoration reaches, where photographs shall be taken from the center of the stream, facing downstream, so that the entire length of the restoration reach is captured. Each photograph taken shall be labeled with the photo station number, the cell number and wetland type, the stream reach identification number or name, the photograph orientation, the date and time of the photograph, and the name of the person taking the photograph. If necessary, this information may be provided on (a) separate sheet(s) of paper attached to the photographs.

   For preservation areas only, representative photos shall be taken once while marking the non-impact areas noted in Part I.J.3, or once prior to commencing any construction activities at the compensation sites. Each photograph taken shall be labeled with the stream reach identification number or name, the photograph orientation, the date and time of the photograph, and the name of the person taking the photograph. If necessary, this information may be provided on (a) separate sheet(s) of paper attached to the photographs. In lieu of individual photos in large preservation reaches, an aerial photograph shall be submitted provided that the photo contains sufficient detail to identify pre-construction

conditions. Each aerial photograph shall be labeled with the stream reach identification numbers or names, the photograph elevation, the date and time of the photograph, and the name of the person or firm taking the photograph.

Photos shall be submitted with the notification (Part I.J.1) to DEQ that land disturbing or construction activities are planned to begin.

Short-Term Monitoring and Submittals during Compensation Site Construction

5. Monitoring of water quality parameters shall be conducted during relocation of any flowing stream through a new channel. Corrective measures and additional monitoring may be required if water quality standards are not met. The permittee shall report violations of water quality standards to DEQ within 24 hours of monitoring. All monitoring data shall be submitted to DEQ within seven calendar days of the monitoring event. The method for monitoring water quality parameters shall be as follows:

   a. One sampling station shall be located upstream of the relocated channel, and one sampling station shall be located immediately downstream of the relocated channel.

   b. At the *upstream* sampling station, temperature, pH, and dissolved oxygen (D.O.) measurements shall be taken immediately *before* opening a new channel, and every 30 minutes thereafter for at least *two* hours.

   c. At the *downstream* sampling station, temperature, pH, and dissolved oxygen (D.O.) measurements shall be taken immediately *after* opening a new channel, and every 30 minutes thereafter until the measurements indicate that the site has stabilized (minimum of *three* hours).

6. The permittee shall conduct photographic monitoring of sufficient quantity and frequency to thoroughly document all construction activities in each wetland cell and stream restoration or enhancement reach at the compensation sites, such as, but not limited to, clearing, grading, installation of water control structures, erosion and sediment control structures, access roads, stream relocations, etc. Photos shall also document any non-compliant events or problems encountered during the construction activities. No photos are necessary in preservation-only areas. For work being conducted in phases, or only in certain areas at the same time, monitoring may begin upon initiating work in those specific areas.

   The established, enumerated photo stations in each wetland cell or stream restoration or enhancement reach shall be used for photo monitoring. Photos will be taken from the same directional orientation during each monitoring event, except for stream restoration reaches, where photographs shall be taken from the center of the stream, facing downstream, so that

the entire length of the restoration reach is captured. Each photograph taken shall be labeled with the photo station number, the cell number and wetland type, the stream reach identification number or name, the photograph orientation, the date and time of the photograph, the name of the person taking the photograph, and a brief description of the activities being conducted at the time of the photograph. If necessary, this information may be provided on (a) separate sheet(s) of paper attached to the photographs.

Photos shall be submitted as part of the compensation site construction monitoring reports detailed in Part I.J.7.

7. Compensation site construction monitoring reports shall be submitted to DEQ monthly, due by the 15th of the following month (for example, the report for January is due by February 15th). The reports shall include the following, as applicable:

   a. A written narrative including a description of the major work items performed, when those items were initiated, when those items are expected to be completed, and the details of any non-compliant events or problems that were encountered.

   b. A written summary of any corrective actions taken and any subsequent notifications to DEQ regarding non-compliant events or problems encountered during construction activities.

   c. A summary of anticipated work to be completed during the next monitoring period.

   d. A labeled site map showing where work activities occurred during the monitoring period and the photo stations used to document activities.

   e. The photos taken during the monitoring period.

8. After each cell of the wetland compensation site reaches final grades, but prior to planting the cell, the permittee shall submit a post-grading survey to DEQ. The survey shall be conducted by a licensed land surveyor and certified by a licensed surveyor, licensed professional engineer, or licensed landscape architect. The survey shall document spot elevations (in feet above mean sea level) that are within +/- 0.2 feet (1.2 inches) of the elevations indicated in the site construction grading plan that was approved as part of the final compensation plan. Post-grading elevations for the compensation site shall be sufficient to ensure that wetland hydrology will be achieved on the site to support the goals and objectives of the approved final compensation plan. DEQ shall have 30 calendar days to review the survey and provide comments to the permittee.

Submittals after Compensation Site Construction

9. The permittee shall submit written notification within 30 calendar days after the completion of activities in each wetland cell and each stream restoration or enhancement reach at the compensation sites. The notification may be included with monthly compensation site construction monitoring reports or may be submitted separately. In either case, notification shall include the post-construction photos of the wetland cell or stream reach, using the established, enumerated photo stations.

10. Final As-Built plans of the entire Moores Creek site, and the areas of the Buck Mountain Creek compensation site where stream restoration or enhancement occurred, shall be submitted to DEQ within 90 calendar days of completing construction at each site. A licensed land surveyor or a licensed professional engineer shall certify the plans. The plans shall include a narrative comparing the As-Built plans with the design plans or reference reach information. DEQ shall have 30 calendar days to review the plans and provide comments to the permittee.

Long-Term Monitoring for Success after Compensation Site Construction and in Preservation Areas

11. Success monitoring at all compensation sites shall be conducted in accordance with the current Virginia Water Protection Permit Program Regulation 9 VAC 25-210-10 et. seq. in effect at the time that monitoring begins, with the most recent mitigation guidance found on DEQ's wetlands web page, with the approved final compensatory mitigation plans, and with this permit.

12. Success monitoring at constructed or restored sites shall be conducted on the frequency and duration stipulated in the approved final compensation plans. Success monitoring shall begin at the first full growing season (monitoring year one) following compensation site construction. If construction ends before the beginning of the growing season in a particular year, then *that* year shall be considered as monitoring year one for purposes of success monitoring. If construction ends during or after the growing season in a particular year, the *following* growing season shall be considered as monitoring year one for purposes of success monitoring. The growing season for the area in which the compensation is located is defined by the local U.S.D.A Natural Resources Conservation Service or Soil Conservation Service office.

13. If all success criteria have not been met by November 30th of the last monitoring year specified in the approved final compensation plan, or if visual observations conclude that the site has not met the overall restoration goals, corrective actions shall be implemented in accordance with the DEQ-approved corrective action plan. Annual monitoring shall continue until two sequential, annual reports indicate that all criteria have been successfully satisfied (e.g., that corrective actions were successful) and the compensation sites have met the overall restoration goals. The permittee shall be solely responsible for ensuring that all

necessary corrective actions are implemented so that the compensation sites meet the success criteria, as detailed in the final compensation plans. Should any significant changes to the compensation sites be necessary, the first full growing season after the changes are complete shall become the new monitoring year one. Monitoring shall continue in accordance with the DEQ-approved corrective action plan.

14. Photographic documentation during success monitoring shall be conducted in accordance with the final compensation plans approved by DEQ.

15. Hydrology monitoring at a *nontidal* wetland compensation sites shall be conducted in accordance with the final compensation plans approved by DEQ.

16. Wetland vegetation monitoring shall be conducted in accordance with the final compensation plans approved by DEQ. Undesirable plant species shall be identified and controlled as described in the monitoring and control plan for undesirable plant species, such that they are not dominant species or do not change the desired community structure.

17. Monitoring for the presence of hydric soils or soils under hydric conditions shall be conducted in accordance with the final compensation plans approved by DEQ.

18. Wildlife data collection shall be conducted in accordance with the final compensation plans approved by DEQ.

19. All bank pins and scour chains used to monitor bank and channel stability shall be monitored and measured each monitoring year on the frequency detailed in the DEQ-approved final compensation plans. Maintenance on bank pins and scour chains shall be conducted within 30 days of each inspection.

20. All preserved stream and riparian buffer areas provided as compensation for this project shall be monitored by aerial photography once every five years for the effective term of this permit, beginning upon DEQ's approval of the final stream compensation plan. Aerial photographs shall be of sufficient number to capture all preservation areas and shall be of sufficient scale and elevation to discern changes in vegetation density and coverage in the preservation areas.

Submittals for Success Monitoring at the Compensation Sites

21. Compensation site monitoring reports shall be submitted by December 31st of the years in which a monitoring is required, including the final monitoring year, as identified in the approved final compensation plans. The reports shall include the following, at a minimum:

a. A general description of the compensation site including a site location map identifying wetland, open water, and stream compensation areas, photo stations, vegetative and soil monitoring stations, monitoring wells (if applicable), wetland zones, survey points, bank pins, and scour chains;

b. Summary of activities completed during the monitoring year;

c. Description of monitoring methods;

d. An analysis of all hydrology information, including monitoring well data, precipitation data, and gauging data from streams, or other open water areas, as detailed in the final compensation plans;

e. Evaluation of hydric soils or soils under hydric conditions;

f. Discussion of the stream geomorphologic parameters measured, including channel dimension, pattern, profile, and materials within defined stream type, as they relate to channel or stream bank stability;

g. An analysis of all vegetative community information, including woody and herbaceous species, both planted and volunteers, set forth in the final compensation plans;

h. Discussion of wildlife or signs of wildlife observed at the compensation sites;

i. Discussion of macroinvertebrate sampling data;

j. Evaluation of instream structures;

k. Discussion of observed success of livestock access limiting measures;

l. Discussion of alterations, maintenance, and/or major storm events resulting in significant change in stream profile or cross section;

m. Comparison of site conditions from the previous monitoring year, or comparison of site conditions to the reference site;

n. A calculation of the acreage of each wetland type based upon that monitoring year's soils, vegetation, and hydrology data, shown on the site location map;

o. Stream restoration reach survey, certified by a licensed land surveyor or a licensed professional engineer, including at a minimum, the stream classification, the required stream cross-sections, a longitudinal profile (including Thalweg, bankfull, and top of

bank measurements), a pebble count, all instream structures, and other required information as detailed in the approved final compensation plans;

p. A corrective action plan, if necessary, which includes any proposed actions or maintenance activities, a schedule, and a monitoring plan (e.g., the control of undesirable species, the repair of a damaged water control device, the replacement of damaged, planted vegetation, etc.); and

q. Properly labeled photographs.

22. Within 90 calendar days of the final monitoring event in the final monitoring year, a wetland boundary survey shall be conducted by a licensed land surveyor or a licensed professional engineer, and shall be based upon the results of monitoring data for soils, vegetation, and hydrology. A calculation shall be made of the total acreage of each wetland type. The boundary and acreage per wetland type shall be shown on the most recent version of the compensation site design plan sheet(s). The so-noted compensation design plan sheets shall be submitted to DEQ as part of the final monitoring report or as a separate document.

23. Aerial photographs of preservation areas taken in accordance with Part I.J.20 shall be submitted to DEQ within 30 days of the flight date. Each aerial photograph shall be labeled with the stream reach identification numbers or names, the photograph elevation, the date and time of the photograph, and the name of the person or firm taking the photograph.

Attachment A- Water Conservation

Mandatory Non-essential Water Use Restrictions

The following non-essential water uses will be prohibited during periods of declared drought emergencies. Please note the exceptions that follow each prohibited use. These prohibitions and exceptions will apply to uses from all sources of water and will only be effective when the Governor of Virginia or the Virginia Drought coordinator declares a Drought Emergency. Water use restrictions shall not apply to the agricultural production of food or fiber, the maintenance of livestock including poultry, nor the commercial production of plant materials so long as best management practices are applied to assure the minimum amount of water is utilized.

Unrestricted irrigation of lawns is prohibited.

- Newly sodded and seeded areas may be irrigated to establish cover on bare ground at the minimum rate necessary for no more than a period of 60 days. . Irrigation rates may not exceed one inch of applied water in any 7-day period.
- Gardens, bedding plants, trees, shrubs and other landscape materials may be watered with hand held containers, hand held hoses equipped with an automatic shutoff device, sprinklers or other automated watering devices at the minimum rate necessary but in no case more frequently than twice per week. Irrigation should not occur during the heat of the day.
- All allowed lawn irrigation must be applied in a manner to assure that no runoff, puddling or excessive watering occurs.
- Irrigation systems may be tested after installation, routine maintenance or repair for no more than ten minutes per zone.

Unrestricted irrigation of golf courses is prohibited.

- Tees and greens may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. at the minimum rate necessary.
- Localized dry areas may be irrigated with a hand held container or hand held hose equipped with an automatic shutoff device at the minimum rate necessary.
- Greens may be cooled by syringing or by the application of water with a hand held hose equipped with an automatic shutoff device at the minimum rate necessary.
- Fairways may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. at the minimum rate necessary not to exceed one inch of applied water in any ten-day period.
- Fairways, tees and greens may be irrigated during necessary overseeding or resodding operations in September and October at the minimum rate necessary. Irrigation rates during this restoration period may not exceed one inch of applied water in any seven-day period.

- Newly constructed fairways, tees and greens and areas that are re-established by sprigging or sodding may be irrigated at the minimum rate necessary not to exceed one inch of applied water in any seven-day period for a total period that does not exceed 60 days.
- Fairways, tees and greens may be irrigated without regard to the restrictions listed above so long as:
    - The only water sources utilized are water features whose primary purpose is stormwater management;
    - Any water features utilized do not impound permanent streams;
    - During declared Drought Emergencies these water features receive no recharge from other water sources such as ground water wells, surface water intakes, or sources of public water supply; and,
    - All irrigation occurs between 9:00 p.m. and 10:00 a.m.
- All allowed golf course irrigation must be applied in a manner to assure that no runoff, puddling or excessive watering occurs.
- Rough areas may not be irrigated.

Unrestricted irrigation of athletic fields is prohibited.

- Athletic fields may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. at a rate not to exceed one inch per application or more than a total of one inch in multiple applications during any ten-day period. All irrigation water must fall on playing surfaces with no outlying areas receiving irrigation water directly from irrigation heads.
- Localized dry areas that show signs of drought stress and wilt (curled leaves, foot-printing, purpling) may be syringed by the application of water for a cumulative time not to exceed fifteen minutes during any twenty four hour period. Syringing may be accomplished with an automated irrigation system or with a hand held hose equipped with an automatic shutoff device at the minimum rate necessary.
- Athletic fields may be irrigated between the hours of 9:00 p.m. and 10:00 a.m. during necessary overseeding, sprigging or resodding operations at the minimum rate necessary for a period that does not exceed 60 days. Irrigation rates during this restoration period may not exceed one inch of applied water in any seven-day period. Syringing is permitted during signs of drought stress and wilt (curled leaves, foot-printing, purpling).
- All allowed athletic field irrigation must be applied in a manner to assure that no runoff, puddling or excessive watering occurs.
- Irrigation is prohibited on athletic fields that are not scheduled for use within the next 120-day period.
- Water may be used for the daily maintenance of pitching mounds, home plate areas and base areas with the use of hand held containers or hand held hoses equipped with an automatic shutoff device at the minimum rate necessary.

- Skinned infield areas may utilize water to control dust and improve playing surface conditions utilizing hand held containers or hand held hoses equipped with an automatic shutoff device at the minimum rate necessary no earlier than two hours prior to official game time.

Washing paved surfaces such as streets, roads, sidewalks, driveways, garages, parking areas, tennis courts, and patios is prohibited.

- Driveways and roadways may be pre-washed in preparation for recoating and sealing.
- Tennis courts composed of clay or similar materials may be wetted by means of a hand-held hose equipped with an automatic shutoff device at the minimum rate necessary for maintenance. Automatic wetting systems may be used between the hours of 9:00 p.m. and 10:00 a.m. at the minimum rate necessary.
- Public eating and drinking areas may be washed using the minimum amount of water required to assure sanitation and public health.
- Water may be used at the minimum rate necessary to maintain effective dust control during the construction of highways and roads.

Use of water for washing or cleaning of mobile equipment including automobiles, trucks, trailers and boats is prohibited.

- Mobile equipment may be washed using hand held containers or hand held hoses equipped with automatic shutoff devices provided that no mobile equipment is washed more than once per calendar month and the minimum amount of water is utilized.
- Construction, emergency or public transportation vehicles may be washed as necessary to preserve the proper functioning and safe operation of the vehicle.
- Mobile equipment may be washed at car washes that utilize reclaimed water as part of the wash process or reduce water consumption by at least 10% when compared to a similar period when water use restrictions were not in effect.
- Automobile dealers may wash cars that are in inventory no more than once per week utilizing hand held containers and hoses equipped with automatic shutoff devices, automated equipment that utilizes reclaimed water as part of the wash process, or automated equipment where water consumption is reduced by at least 10% when compared to a similar period when water use restrictions were not in effect.
- Automobile rental agencies may wash cars no more than once per week utilizing hand held containers and hoses equipped with automatic shutoff devices, automated equipment that utilizes reclaimed water as part of the wash process, or automated equipment where water consumption is reduced by at least 10% when compared to a similar period when water use restrictions were not in effect.
- Marine engines may be flushed with water for a period that does not exceed 5 minutes after each use.

Use of water for the operation of ornamental fountains, artificial waterfalls, misting machines, and reflecting pools is prohibited.

- Fountains and other means of aeration necessary to support aquatic life are permitted.

Use of water to fill and top off outdoor swimming pools is prohibited.

- Newly built or repaired pools may be filled to protect their structural integrity.
- Outdoor pools operated by commercial ventures, community associations, recreation associations, and similar institutions open to the public may be refilled as long as:
    - Levels are maintained at mid-skimmer depth or lower,
    - Any visible leaks are immediately repaired,
    - Backwashing occurs only when necessary to assure proper filter operation,
    - Deck areas are washed no more than once per calendar month (except where chemical spills or other health hazards occur),
    - All water features (other than slides) that increase losses due to evaporation are eliminated, and
    - Slides are turned off when the pool is not in operation.
- Swimming pools operated by health care facilities used in relation to patient care and rehabilitation may be filled or topped off.
- Indoor pools may be filled or topped off.
- Residential swimming pools may be filled only to protect structural integrity, public welfare, safety and health and may not be filled to allow the continued operation of such pools.

Water may be served in restaurants, clubs, or eating-places only at the request of customers.