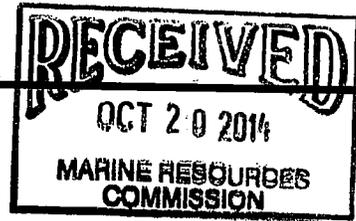


ADDITIONAL INFO  
REVISION

Howell, Beth (MRC)



**From:** Marsala, Sarah (DEQ)  
**Sent:** Monday, October 20, 2014 9:04 AM  
**To:** Howell, Beth (MRC)  
**Cc:** Worrell, Justin (MRC)  
**Subject:** RE: JRWA JPA No. 14-0343 - coordination of documents

Sorry about that...guess VITASHARE didn't like using a previous upload. Use the updated link below.



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Sender's Name: Sarah Marsala

File Download Link -> <https://vitashare.virginia.gov/fcweb/GET/8YTEW1TXHLKRQRLT>  
Transaction# 8YTEW1TXHLKRQRLT

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- Files Sent with Package:
- 14-0343\_app\_JPA\_2014-03-14.pdf
  - 14-0343\_app\_Response to DEQ July 8 2014 Request for Add'l Info\_2014-09-12.msg
  - 14-0343\_cor\_Add Info Request\_2014-07-08.msg
  - 14-0343\_cor\_Additional Information Request\_2014-09-26.msg
  - 14-0343\_cor\_Additional Information Request\_2014-09-30.msg
  - 14-0343\_cor\_JRWA Add Info\_2014-07-08.pdf
  - 14-0343\_app\_AddInfoResposne\_2014-06-11.msg
  - Fluvanna Regional Water Supply Plan - 2010 small.pdf
  - JRWA - Water Demand Summary20140610.pdf
  - JRWA JPA Response letter 20140610.pdf
  - Louisa WaterSupplyPlan June 2011.pdf
  - Proposed Attachment A - Water Conservation.pdf
  - 14-0343\_cor\_JamesSummersComments\_2014-04-09.pdf
  - 14-0343\_cor\_FredHardyInquiryComment-DEQResponse\_2014-10-07.msg

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Sarah K. Marsala

Surface Water Withdrawal Project Manager  
Office of Water Supply  
VA Dept. of Environmental Quality  
13901 Crown Court, Woodbridge, VA 22193  
703-583-3898 (direct)  
703-583-3821 (fax)  
[sarah.marsala@deg.virginia.gov](mailto:sarah.marsala@deg.virginia.gov)  
[www.deg.virginia.gov](http://www.deg.virginia.gov)

**ADDITIONAL INFO  
REVISION**

PREPARED ON BEHALF OF:  
JAMES RIVER WATER AUTHORITY  
132 MAIN STREET, P.O. BOX 540  
PALMYRA, VA, 22963



## JAMES RIVER WATER SUPPLY PROJECT

### JOINT PERMIT APPLICATION

ADDITIONAL INFO  
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MARCH 12, 2014



PREPARED BY:  
**TIMMONS GROUP**   
YOUR VISION ACHIEVED THROUGH OURS.

1001 BOULDERS PARKWAY, SUITE 300  
RICHMOND, VIRGINIA 23225  
PHONE: 804.200.6500  
FAX: 804.560.1648  
WWW.TIMMONS.COM  
TIMMONS GROUP PROJECT NO. 34967

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# **SECTION 1**

## **Executive Summary and Project Information Sheet**

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## EXECUTIVE SUMMARY

The James River Water Authority submits this Joint Permit Application Package for a new water withdrawal to be located near the Town of Columbia. This withdrawal permit will replace the existing VWP Individual Permit Number 04-0805, dated June 12, 2006 for a withdrawal at Breemo Bluff.

The proposed point of withdrawal is located in Fluvanna County on the north bank of the James River, just upstream of the confluence with the Rivanna River. The primary objective of the new raw water intake is to meet the water demands associated with the Counties of Fluvanna and Louisa as outlined in their adopted water supply plans dated April 2010 and June 2011 respectively.

Generally, the new infrastructure associated with this project will include an intake structure, pump station, raw water transmission piping and electrical/control building.

## PROJECT INFORMATION SHEET

### General

Project Name: James River Water Supply Project

State: Virginia

County: Fluvanna

### Applicant

Name: James River Water Authority

Address: c/o Fluvanna County Administrator  
132 Main Street, P.O. Box 540, Palmyra, VA, 22963

Contacts: Goodman B. Duke, Chairman of JRWA  
Email: Bbd304@comcast.net  
Phone: (540) 894-7982

Steven M. Nichols, County Administrator, Fluvanna County  
Email: snichols@fluvannacounty.org  
Phone: (434) 591-1910

Robert Dubé, County Administrator, Louisa County  
Email: RDube@louisa.org  
Phone: (540) 967-3400

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Consultant/Agent

Name: Timmons Group

Address: 1001 Boulders Parkway, Suite 300, Richmond, VA 23225

Contact: David J. Saunders, PE  
Email: David.Saunders@timmons.com  
Phone: (804) 200-6388

Joseph C. Hines, PE  
Email: Joe.Hines@timmons.com  
Phone: (804) 200-6380

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# **SECTION 2**

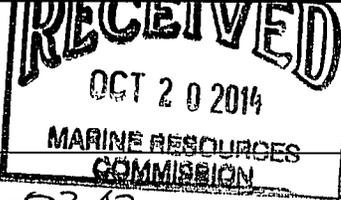
## **Joint Permit Application**

ADDITIONAL INFO  
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PLEASE PRINT OR TYPE ALL ANSWERS. If a question does not apply to your project, please print N/A (not applicable) in the space provided. If additional space is needed, attach extra 8 1/2 x 11 inch sheets of paper.

<b>CHECK ONE, if applicable:</b>	Pre-Construction Notification (PCN) <input checked="" type="checkbox"/> (For Nationwide Permits ONLY)	SPGP <input type="checkbox"/>
----------------------------------	--	-------------------------------

<b>1. PROJECT LOCATION INFORMATION</b> (Attach a copy of a detailed map, such as a USGS topographic map or street map showing the site location and project boundary, so that it may be located for inspection. Include an arrow indicating the north direction.)	
Street Address See Vicinity Map (Appendix A)	City/County/Zipcode Fluvanna County
Subdivision N/A	Lot/Block/Parcel # 53-A-62C
Name of water body(ies) within project boundaries and drainage area (acres or square miles) James River. Drainage area: approx. 10,236 square miles (overall); approx. 5,076 square miles (at proposed point of withdrawal)	
Tributary(ies) to: <u>Chesapeake Bay</u> Basin: <u>James River</u> Subbasin: <u>Upper Middle James River</u> (Example: Basin: <u>James River</u> Subbasin: <u>Middle James River</u> )	
Special Standards (based on DEQ Water Quality Standards 9VAC25-260 et seq.): <u>N/A</u>	
Project type (check one) <input type="checkbox"/> Single user (private, non-commercial, residential) <input checked="" type="checkbox"/> Multi-user (community, commercial, industrial, government)	
Latitude and longitude at center of project site: <u>37</u> - <u>44</u> - <u>58</u> / <u>78</u> - <u>10</u> - <u>13</u>	
USGS topographic map name: <u>Columbia and Lakeside Village USGS maps</u>	
8- digit USGS Hydrologic Unit Code (HUC) for your project site (See <a href="http://cfpub.epa.gov/surf/locate/index.cfm">http://cfpub.epa.gov/surf/locate/index.cfm</a> ): <u>02080203</u> If known, indicate the 10-digit and 12-digit USGS HUCs (see <a href="http://dswcapps.dcr.virginia.gov/htdocs/maps/HUExplorer.htm">http://dswcapps.dcr.virginia.gov/htdocs/maps/HUExplorer.htm</a> ): <u>0208020315</u> <u>020802031502</u>	
Name of your project (Example: <i>Water Creek driveway crossing</i> ) <u>The James River Water Supply Project</u>	
Is there an access road to the project? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No. If yes, check all that apply: <input type="checkbox"/> public <input checked="" type="checkbox"/> private <input type="checkbox"/> improved <input checked="" type="checkbox"/> unimproved	
Provide driving directions to your site, giving distances from the best and nearest visible landmarks or major intersections: See Directions to Project Site (Appendix B)	
Does your project site cross boundaries of two or more localities (i.e. cities/counties/towns)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If so, name those localities:	

<b>FOR AGENCY USE ONLY</b>	
	Notes:
JPA# <u>14-0343</u>	<b>ADDITIONAL INFO REVISION</b>

**2. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR INFORMATION**

The applicant(s) is/are the legal entity to which the permit may be issued. The applicant(s) can either be the property owner(s) or the person/people/company(ies) that intend(s) to undertake the activity. The agent is the person or company that is representing the applicant(s). If a company, please use the company name that is registered with the State Corporation Commission (SCC), or indicate no registration with the SCC.

Applicant(s) (For a company, use SCC-registered name) <b>James River Water Authority</b>			Agent (if applicable) (For a company, use SCC-registered name) <b>David Saunders, P.E.</b>		
Mailing address <b>c/o Steven Nichols, Fluvanna County Administrator</b>			Mailing address <b>Timmons Group, 1001 Boulders Parkway, Suite 300</b>		
City <b>Palmyra</b>	State <b>VA</b>	Zip Code <b>22963</b>	City <b>Richmond</b>	State <b>VA</b>	Zip Code <b>23225</b>
Phone number w/area code <b>(434) 591-1910</b>	Fax <b>(434) 591-1911</b>		Phone number w/area code <b>(804) 200-6388</b>	Fax <b>(804) 560-1438</b>	
Mobile/pager <b>434-825-7589</b>	E-mail <b>snichols@fluvannacounty.org</b>		Mobile/pager <b>(804) 592-8271</b>	E-mail <b>David.Saunders@timmons.com</b>	
State Corporation Commission ID number (if applicable) <b>07083447</b>			State Corporation Commission ID number (if applicable) <b>02640431 (Timmons Group)</b>		

*Certain permits or permit authorizations may be provided via electronic mail. If the applicant wishes to receive their permit via electronic mail, please provide an e-mail address here: N/A*

Property owner(s), if different from applicant (For a company, use SCC-registered name) <b>Point of Fork Farm, LP</b>			Contractor, if known (For a company, use SCC-registered name) <b>N/A</b>		
Mailing address <b>P.O. BOX 847; Attn: Barbara S. Gillam, POF Development Corp.</b>			Mailing address <b>N/A</b>		
City <b>Columbia</b>	State <b>VA</b>	Zip code <b>23038</b>	City <b>N/A</b>	State <b>N/A</b>	Zip code <b>N/A</b>
Phone number w/area code <b>N/A</b>	Fax <b>N/A</b>		Phone number w/area code <b>N/A</b>	Fax <b>N/A</b>	
Mobile/pager <b>N/A</b>	E-mail <b>N/A</b>		Mobile/pager <b>N/A</b>	E-mail <b>N/A</b>	
State Corporation Commission ID number (if applicable) <b>L0113136</b>			State Corporation Commission ID number (if applicable) <b>N/A</b>		

**3. PROVIDE A DESCRIPTION OF THE PROJECT, PROJECT PRIMARY AND SECONDARY PURPOSES, PROJECT NEED, INTENDED USE, AND ALTERNATIVES CONSIDERED (Attach additional sheets if necessary)**

- The purpose must include any new development or expansion of an existing land use and/or proposed future use of residual land
- Describe the physical alteration of surface waters
- Include a description of alternatives considered to avoid or minimize impacts to surface waters, including wetlands, to the maximum extent practicable. Include factors such as, but not limited to, alternative construction technologies, alternative project layout and design, alternative locations, local land use regulations, and existing infrastructure
- For utility crossings, include both alternative routes and alternative construction methodologies considered
- For major surface water withdrawals, public surface water supply withdrawals, or projects that will alter in-stream flows, include the water supply issues that form the basis of the proposed project.

See the Joint Permit Application Narrative (Appendix C)

ADDITIONAL INFO  
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**3. PROVIDE A DESCRIPTION OF THE PROJECT (Continued)**

Date of proposed commencement of work (MM/DD/YYYY) Spring 2015 _____	Date of proposed completion of work (MM/DD/YYYY) Spring 2016 _____
---	---

Are you submitting this application at the direction of any State, local, or Federal agency? \_\_\_\_ Yes  No

Has any work commenced or has any portion of the project for which you are seeking a permit been completed? \_\_\_\_ Yes  No

If you answered "yes" to either question above, give details stating when the work was completed and/or when it commenced, who performed the work, and which agency (if any) directed you to submit this application. In addition, you will need to clearly differentiate between completed work and proposed work on your project drawings.

N/A

Are you aware of any unresolved violations of environmental law or litigation involving the property? \_\_\_\_ Yes  No  
(If yes, please explain)

N/A

**4. PREVIOUS SITE VISITS AND/OR PERMITS RELATED TO THE PROPOSED WORK (Include all Federal, State, and Local pre-application coordination or previous permits)**

Agency	Activity	Permit/Project number, and explanation of non-reporting Nationwide permits previously used	Action taken ** and Date of Action	If denied, give reason for denial
N/A				

\*\* Issued, denied, site visit

**5. PROJECT COSTS**

Approximate cost of the entire project, including materials and labor: \$ 5.9 Million

Approximate cost of only the portion of the project affecting State waters (below mean low water in tidal areas and below ordinary high water mark in nontidal areas): \$ 250,000

**6. PUBLIC NOTIFICATION (Attach additional sheets if necessary)**

- Complete information for all property owners adjacent to the project site and across the waterway, if the waterway is less than 500 feet in width. If your project is located within a cove, you will need to provide names and mailing addresses for all property owners within the cove.
- If you own the adjacent lot, provide the requested information for the first adjacent parcel beyond your property line.

Property owner's name	Mailing address	City	State	Zip code
See the Joint Permit Application Narrative (Appendix C)	See Public Notice Information and Adjacent Property Owner Acknowledgment (Appendix D)			

Name of newspaper having general circulation in the area of the project: The Daily Progress  
 Address and phone number (including area code) of newspaper 685 West Rio Rd, Charlottesville, VA, 22901; Main: 434-978-7200

Have adjacent property owners been notified with forms in Appendix A?  Yes  No (attach copies of distributed forms)

**7. THREATENED AND ENDANGERED SPECIES INFORMATION**

Please provide any information concerning the potential for your project to impact state and/or federally threatened and endangered species (listed or proposed). Attach correspondence from agencies and/or reference materials that address potential impacts, such as database search results or your Corps' waters and wetlands delineation confirmation. Contact information for the Virginia Department of Game and Inland Fisheries and the Virginia Department of Conservation and Recreation, Division of Natural Heritage can be found on page 4 of this package. **See Threatened and Endangered Species Information (Appendix E)**

**8. HISTORIC RESOURCES INFORMATION**

*Note: Historic properties include but are not limited to archeological sites, battlefields, Civil War earthworks, graveyards, buildings, bridges, canals, etc. Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant.*

Are any historic properties located within or adjacent to the project site?  Yes  No  Uncertain  
 If Yes, please provide a map showing the location of the historic property within or adjacent to the project site.

Are there any buildings or structures 50 years old or older located on the project site?  Yes  No  Uncertain  
 If Yes, please provide a map showing the location of these buildings or structures on the project site.

Is your project located within a historic district?  Yes  No  Uncertain  
 If Yes, please indicate which district: Rivanna Canal District

See Historic Resource Information (Appendix F)

ADDITIONAL INFO  
 REVISION

**8. HISTORIC RESOURCES INFORMATION (Continued)**

Has a survey to locate archeological sites and/or historic structures been carried out on the property?  
 Yes  No  Uncertain

If Yes, please provide the following information: Date of Survey: See the Joint Permit Application Narrative (Appendix C)  
 Name of firm: \_\_\_\_\_

Is there a report on file with the Virginia Department of Historic Resources?  Yes  No  Uncertain

Title of Cultural Resources Management (CRM) report: See the Joint Permit Application Narrative (Appendix C)

Was any historic property located?  Yes  No  Uncertain

**9. WETLANDS, WATERS, AND DUNES/BEACHES IMPACT INFORMATION**

**Report each impact site in a separate column. If needed, attach additional sheets using a similar table format. Please ensure that the associated project drawings clearly depict the location and footprint of each numbered impact site. For dredging, mining, and excavating projects, use Section 18.**

	Impact site number 1	Impact site number 2	Impact site number 3
Impact description (use all that apply): F=fill EX=excavation S=Structure T=tidal NT=non-tidal TE=temporary PE=permanent PR=perennial IN=intermittent SB=subaqueous bottom DB=dune/beach IS=hydrologically isolated V=vegetated NV=non-vegetated MC=Mechanized Clearing of PFO (Example: F, NT, PE, V)	Riverine Open Water/ Coffer Dam  NT, TE, PR, SB, NV	Riverine Open Water Intake Structure  S, NT, PE, PR, SB, NV	
Wetland/waters impact area (square feet)	3,200	415	
Dune/beach impact area (square feet)	N/A	N/A	
Stream dimensions at impact site (length and average width in linear feet, and area in square feet)	James River ~ 150' Wide	James River ~ 150' Wide	
Volume of fill below Mean High Water or Ordinary High Water (cubic yards)	TBD	TBD	
Cowardin classification of impacted wetland/water or geomorphological classification of stream <i>Example wetland: PFO;</i> <i>Example stream: wide; bank eroding;</i> <i>braided channel;</i> <i>Example stream: 'C' channel</i>	Riverine Open Water (ROW)	Riverine Open Water (ROW) Sub-aqueous Bottom	
Average stream flow at site (flow rate under normal rainfall conditions in cubic feet per second)	5,905	5,905	
Contributing drainage area (acres or square miles)	5,076 square miles	5,076 square miles	

**9. WETLANDS/WATERS IMPACT INFORMATION (Continued)**

DEQ classification of impacted resource(s): Estuarine Class II Non-tidal waters Class III Mountainous zone waters Class IV Stockable trout waters Class V Natural trout waters Class VI Wetlands Class VII	Non-Tidal waters Class III		
--	----------------------------	--	--

For DEQ permitting purposes, also submit as part of this section a wetland and waters boundary delineation map<sup>(4)</sup> - see the Footnotes section in the form instructions.

See Wetland Information (Appendix G)

For DEQ permitting purposes, also submit as part of this section a written disclosure of all wetlands, open water, or streams that are located within the proposed project or compensation areas that are also under a deed restriction, conservation easement, restrictive covenant, or other land-use protective instrument.

See Wetland Information (Appendix G)

**10. APPLICANT, AGENT, OWNER, AND CONTRACTOR CERTIFICATIONS**

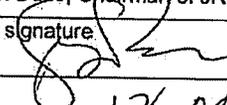
If the Applicant(s), Agent(s), Owner(s), or Contractor(s) is/are a company, please use the company name(s) that is/are registered with the State Corporation Commission (SCC).

**PRIVACY ACT STATEMENT:** The Department of the Army permit program is authorized by Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and Section 103 of the Marine Protection Research and Sanctuaries Act of 1972. These laws require that individuals obtain permits that authorize structures and work in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters prior to undertaking the activity. Information provided in the Joint Permit Application will be used in the permit review process and is a matter of public record once the application is filed. Disclosure of the requested information is voluntary, but it may not be possible to evaluate the permit application or to issue a permit if the information requested is not provided.

**CERTIFICATION:** I am hereby applying for permits typically issued by the DEQ, VMRC, U.S. Army Corps of Engineers, and/or Local Wetlands Boards for the activities I have described herein. I agree to allow the duly authorized representatives of any regulatory or advisory agency to enter upon the premises of the project site at reasonable times to inspect and photograph site conditions, both in reviewing a proposal to issue a permit and after permit issuance to determine compliance with the permit.

In addition, 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.

Is/Are the Applicant(s) and Owner(s) the same? \_\_\_ Yes  No

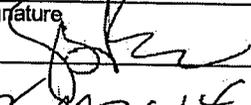
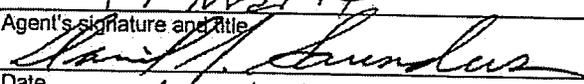
Applicant's name & title (printed or typed) Goodman B. Duke, Chairman of JRWA	Second applicant's name & title, if applicable (printed or typed) N/A
Applicant's signature 	Second applicant's signature N/A
Date 12 Mar 14	Date N/A
(Required for VMRC permit actions only) Property owner's name, if different from Applicant Point of Fork Farm (Attn: Barbara S. Gillam)	(Required for VMRC permit actions only) Second property owner's name, if applicable N/A
Owner's signature, if different from Applicant	Second owner's signature
Date	Date

**10. APPLICANT, AGENT, OWNER, AND CONTRACTOR CERTIFICATIONS (Continued)**

If the Applicant(s), Agent(s), Owner(s), or Contractor(s) is/are a company, please use the company name(s) that is/are registered with the State Corporation Commission (SCC).

I (we), Goodman B. Duke (and) N/A  
**APPLICANT'S NAME(S) – complete the second blank if more than one Applicant**  
 hereby certify that I (we) have authorized David J. Saunders (and) N/A  
**AGENT'S NAME(S) – complete the second blank if more than one Agent**

to act on my (our) behalf and take all actions necessary to the processing, issuance, and acceptance of this permit and any and all standard and special conditions attached. I (we) hereby certify that the information submitted in this application is true and accurate to the best of my (our) knowledge.

Applicant's signature 	Second applicant's signature, if applicable N/A
Date <u>12 Mar 14</u>	Date
Agent's signature and title 	Second agent's signature and title, if applicable
Date <u>3/12/14</u>	Date

**CONTRACTOR'S ACKNOWLEDGEMENT (IF APPLICABLE)**

I (we), N/A (and) N/A  
**APPLICANT'S NAME(S) – complete the second blank if more than one Applicant**  
 have contracted N/A (and) N/A  
**CONTRACTOR'S NAME(S) – complete the second blank if more than one Contractor**

to perform the work described in this Joint Permit Application, signed and dated N/A

I (we) will read and abide by all conditions as set forth in all Federal, State, and Local permits as required for this project. I (we) understand that failure to follow the conditions of the permits may constitute a violation of applicable Federal, State, and Local statutes and that we will be liable for any civil and/or criminal penalties imposed by these statutes.

In addition, I (we) agree to make available a copy of any permit to any regulatory representative visiting the project site to ensure permit compliance. If I (we) fail to provide the applicable permit upon request, I (we) understand that the representative will have the option of stopping our operation until it has been determined that we have a properly signed and executed permit and are in full compliance with all of the terms and conditions.

Contractor's name or name of firm (printed/typed)	Contractor's or firm's mailing address	
Contractor's signature and title	Contractor's license number	Date
Applicant's signature	Second applicant's signature, if applicable	
Date	Date	

**Note: Joint Permit Application Sections 11 - 25 do not apply to this project and are not included in this application.**



**END OF GENERAL INFORMATION**

The following sections are activity-specific. Fill out only the sections that apply to your particular project.

**ADDITIONAL INFO  
REVISION**

**25. OUTFALLS NOT ASSOCIATED WITH PROPOSED WATER WITHDRAWAL ACTIVITIES**

Type and size of pipe(s): \_\_\_\_\_ N/A  
 Daily rate of discharge: \_\_\_\_\_ mgd  
 If the discharge will be thermally-altered, provide the maximum temperature: \_\_\_\_\_  
 Contributing drainage area: \_\_\_\_\_ square miles  
 Average daily stream flow at site: \_\_\_\_\_ cfs

Have you received a Virginia Discharge Elimination System (VPDES) permit for the proposed project? \_\_\_ Yes \_\_\_ No.  
 If yes, please provide the VPDES permit number: \_\_\_\_\_  
 If no, is there a permit action pending? \_\_\_ Yes \_\_\_ No. If pending, what is the facility name? \_\_\_\_\_

*The following sections are typically related to surface water withdrawal activities; Federal Energy Regulatory Commission license projects; or impacts likely to require instream flow limits. Examples of such projects include, but are not limited to, reservoirs, irrigation projects, power generation facilities, and public water supply facilities that may or may not have associated features, such as dams, intake pipes, outfall structures, berms, etc.*

*If completing these sections, enter "N/A" in any section that does not apply to the project.*

**26. INTAKES, OUTFALLS, AND WATER CONTROL STRUCTURES (INCLUDING ALL PROPOSED WATER WITHDRAWAL ACTIVITIES)**

<p><b>For intakes:</b>                  Type and size of pipe(s): <u>Ductile iron pipe; 36" to 42"</u>                  Type and size of pump(s): <u>Vertical Turbine; 5.7 MGD (total)</u>                  Daily rate of withdrawal: <u>Avg: 3.06 MGD; Pk: 5.7 MGD mgd</u>                  Velocity of withdrawal: <u>less than 0.5 fps</u> fps                  Screen mesh size: <u>0.04</u> inches / <u>1</u> mm                  If other sizing units, please specify: _____ N/A                  Contributing drainage area at withdrawal point(s):  <u>5,076</u> square miles                  Average daily stream flow at withdrawal point(s):  <u>5,914</u> cfs                  Average annual stream flow at withdrawal point(s):  <u>5,899</u> cfs                  Latitude and longitude of withdrawal point(s) (degrees, minutes, seconds): <u>37°44'58"N; 78°10'13"W</u></p>	<p><b>For outfalls:</b>                  Type and size of pipe(s): _____ N/A                  Daily rate of discharge: _____ N/A mgd                  If the discharge will be thermally-altered, provide the maximum temperature: _____ N/A                  Contributing drainage area at discharge point(s):                  _____ N/A square miles                  Average daily stream flow at discharge point(s):                  _____ N/A cfs                  Latitude and longitude of discharge point(s) (degrees, minutes, seconds): _____ N/A</p>
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For intakes and dams, use the table below to provide the median monthly stream flows in cubic feet per second (cfs) at the water intake or dam site (not at the stream gage; if there is not a gage at the intake or dam site, you will need to interpolate flows to the intake or dam site based upon the most closely related watershed in which there is an operational stream gage monitored by the United States Geologic Survey (USGS)). Median flow is the value at which half of the measurements are above and half of the measurements are below. Median is also sometimes referred to as the '50% exceedence flow'. The median flow generally must be calculated from USGS historical data. Please do not provide mean (average) flow.

Month	Median flow (cfs)	Month	Median flow (cfs)
January	5,022	July	2,090
February	5,840	August	1,685
March	7,250	September	1,418
April	6,124	October	1,588
May	5,512	November	2,730
June	3,232	December	4,378

**26. INTAKES, OUTFALLS, AND WATER CONTROL STRUCTURES (Continued)**

For interbasin transfer of water resources proposed from either the Chowan River, New River, Potomac River, Roanoke River, Big Sandy River, or Tennessee River basins to another river basin, provide the following information:

For the destination location (discharge point) of the transfer:

8- digit USGS Hydrologic Unit Code (HUC) (See <http://cfpub.epa.gov/surf/locate/index.cfm>): N/A  
If known, indicate the 10-digit and 12-digit USGS HUCs (see <http://dswcapps.dcr.virginia.gov/htdocs/maps/HUExplorer.htm>):  
N/A N/A

Latitude and Longitude:      -      -      /      -      -     

Describe the stream flow gages used, the type of calculations used (such as drainage area correction factors), and the period of record that was used to calculate the median flows provided in the table above. Generally, the period of record should span a minimum of 30 years.

See the Joint Permit Application Narrative (Appendix C)

Provide any available historical low-flows at the intake or dam site.

See the Joint Permit Application Narrative (Appendix C)

Describe how the proposed withdrawal at the intake or dam site will impact stream flows in terms of rates, volumes, frequency, etc. (i.e. percent of the flow to be withdrawn, percent of withdrawal returned to the original source, etc.).

See the Joint Permit Application Narrative (Appendix C)

Describe how the withdrawal of water will vary over time. For example, will the withdrawal vary by the time of year, by the time of day, or by the time of week? Examples of projects that should describe variable withdrawals include, but are not limited to: power plant cooling withdrawals that increase and decrease seasonally; golf course irrigation; municipal water supply; nurseries; ski resorts that use water for snowmaking; and resorts with weekend or seasonal variations.

See the Joint Permit Application Narrative (Appendix C)

Provide the amount of water that will be lost due to consumptive use. For the purpose of this application, consumptive use means the withdrawal of surface waters without recycling of said waters to their source or basin of origin. Examples of consumptive uses are water that is evaporated in cooling towers or by other means in power plants; irrigation water (all types); residential water use that takes place outside of the home; and residential water use both inside and outside of homes for residences served by septic systems. Projects that propose a transfer of water from one river basin to another and/or localities that sell water to other jurisdictions, should document the portion of the withdrawal that is not returned to the originating watershed.

Proposed monthly consumptive volume: \_\_\_\_\_

See the Joint Permit Application Narrative (Appendix C)

Attach a map showing the location of the withdrawal and the location of the return of flow.

See the Louisa County Water Return Map (Appendix H)

**26. INTAKES, OUTFALLS, AND WATER CONTROL STRUCTURES (Continued)**

For withdrawals proposed on an impoundment, provide a description of flow or release control structures. Include type of structure, size, capacity, and the mechanism used to control release. Provide a description of available water storage facilities. Include the volume, depth, normal pool elevation, unusable storage volume and dimensions. If applicable, stage-storage relationship at the impounding structure and volume or rate of withdrawals from the storage facility.

N/A

For withdrawals proposed on an impoundment, provide a description of flow or release control structures. Include type of structure, size, capacity, and the mechanism used to control release.

N/A

**27. WATER WITHDRAWAL USE, NEED, AND ALTERNATIVES**

Describe the proposed use of the water withdrawal.

See the Joint Permit Application Narrative (Appendix C)

Provide the following information at the water intake or dam site. Specify the units of measurement (i.e. million gallons per day, gallons per minute, cubic feet per second, etc.).

Proposed maximum instantaneous withdrawal 8.55 MGD (5.7 MGD \* 24 hr/16 hr duty cycle)  
Proposed average daily withdrawal 3.06 MGD  
Proposed maximum daily withdrawal 5.7 MGD (average daily withdrawal multiplied by peaking factor of 1.85)  
Proposed maximum monthly withdrawal 170 million gallons (3.06 MGD \* 1.85 peak factor \* 30 days/month)  
Proposed maximum annual withdrawal 1,117 million gallons (average daily withdrawal \* 365 days/year)

Describe how the above withdrawals were calculated, including the relevant assumptions made in that calculation and the documentation or resources used to support the calculations, such as population projections, population growth rates, per-capita use, new uses, changes to service areas, and if applicable, evapotranspiration data and irrigation data.

See the Joint Permit Application Narrative (Appendix C)

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**27. WATER WITHDRAWAL USE, NEED AND ALTERNATIVES (Continued)**

For major surface water withdrawals, public water supply withdrawals, and projects that will alter instream flows, provide information to establish the local water supply need:

Existing supply sources, yields, and demands: \_\_\_\_\_

Peak day withdrawal: \_\_\_\_\_  
Average daily withdrawal: \_\_\_\_\_  
Safe yield: \_\_\_\_\_  
Lowest daily flow of record: \_\_\_\_\_  
Types of water uses: \_\_\_\_\_

See the Joint Permit Application  
Narrative (Appendix C)

Existing water conservation measures and drought response plan, including what conditions trigger implementation:  
\_\_\_\_\_

Projected demands over a minimum 30-year planning period:  
\_\_\_\_\_

Projected demands in local or regional water supply plan (9 VAC 25-780 et seq.) or demand for the project service area, if that is smaller in area:

Statistical population (growth) trends: \_\_\_\_\_  
Projected demands by use type: \_\_\_\_\_  
Projected demands without water conservation measures: \_\_\_\_\_  
Projected demands with long-term water conservation measures: \_\_\_\_\_

For surface water withdrawals other than public water supply, provide information or documentation that demonstrates alternate sources of water are available for the proposed project during times of reduced instream flow.

N/A

Provide information from the water supply plan that covers the area in which the proposed water withdrawal project is located. Include information from the plan that pertains to projected demand, analysis of alternatives, and water conservation measures. Discuss any discrepancies between the water supply plan and the proposed project. For projects that propose a transfer of water resources from the Chowan River, New River, Potomac River, Roanoke River, Big Sandy River, or Tennessee River basins to another river basin, information should be provided from the water supply plans for both the source and receiving basins. See the Joint Permit Application Narrative (Appendix C)

Provide an alternatives analysis for the proposed water withdrawal project, including the required range of alternatives to be analyzed; a narrative outlining the opportunities and status of regional efforts undertaken; and the criteria used to evaluate each alternative. The analysis must address all of the criteria contained in 9 VAC 25-210-115 C 2 and 9 VAC 25-210-115 C 3. See the Joint Permit Application Narrative (Appendix C)

## 27. WATER WITHDRAWAL USE, NEED AND ALTERNATIVES (Continued)

Describe any existing, flow-dependent beneficial uses along the affected stream reach. Include both instream and offstream uses. Describe the stream flow necessary to protect existing beneficial uses, how the proposed withdrawal will impact existing beneficial uses, and any measures proposed to mitigate any adverse impacts that may arise. For projects that propose a transfer of water resources from the Chowan River, New River, Potomac River, Roanoke River, Big Sandy River, or Tennessee River basins to another river basin, this analysis should include both the source and receiving basins. For the purposes of this application, beneficial instream 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); agriculture; electric power generation; commercial; and industrial.

See the Joint Permit Application Narrative (Appendix C)

Describe the aquatic life known to be present along the affected stream reach. Describe aquatic life that may be impacted by the proposed water withdrawal. Include the species' habitat requirements. For projects that propose a transfer of water resources from either the Chowan River, New River, Potomac River, Roanoke River, Big Sandy River, or Tennessee River basins to another river basin, this analysis should include both the source and receiving basins.

See the Joint Permit Application Narrative (Appendix C)

## 28. PUBLIC COMMENTS/ISSUES FOR MAJOR WATER WITHDRAWALS OR INTERBASIN TRANSFERS

For new or expanded major surface water supply projects, use separate sheets of paper to summarize the steps taken to seek public input per 9 VAC 25-210-75, and identify the issues raised during the public information process.

For interbasin transfer of water resources proposed from either the Chowan River, New River, Potomac River, Roanoke River, Big Sandy River, or Tennessee River basins to another river basin, if public input was not required per 9 VAC 25-210-75, summarize on separate sheets of paper any coordination and/or notice provided to the public, local/state government, and interested parties in the affected river basins and identify any issues raised.

See the Joint Permit Application Narrative (Appendix C)

Note: This project is not located within Tidewater Virginia.  
Therefore, the requirements of the Bay Act Regulations do not apply.

# APPENDIX A

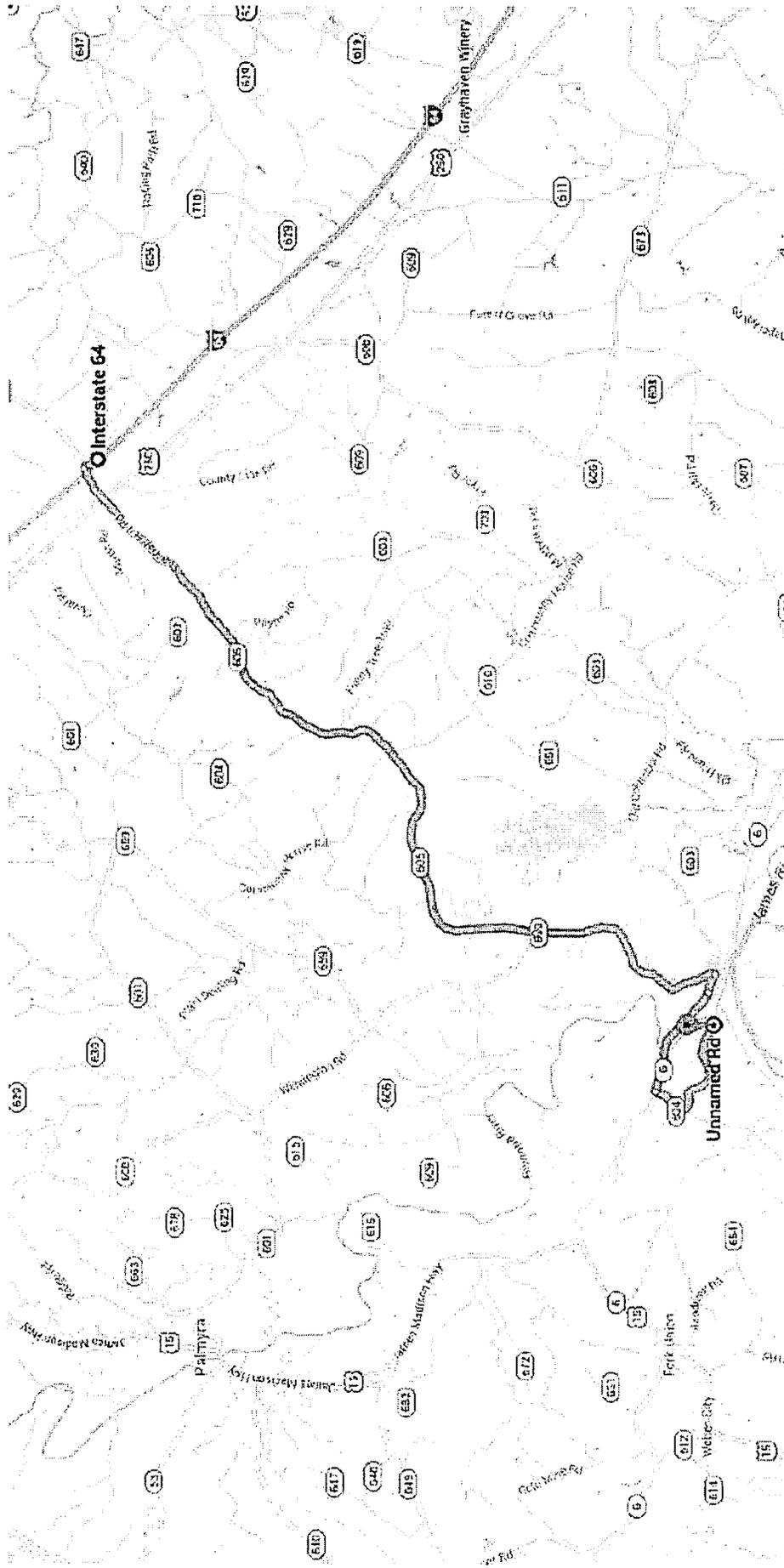
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# Appendix B

Google

Directions from Interstate 64 to Unnamed Rd



○ Interstate 64  
 Louisa, VA 23093

1. Head north on Exit 148 toward State Rte 605/Shannon Hill Rd



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0.2 mi

Appendix B1

- 2. Turn left onto State Rte 605/Shannon Hill Rd 10.7 mi
- 3. Turn left onto State Rte 659/Stage Junction Rd 3.1 mi
- 4. Turn right onto St James St 0.3 mi
- 5. Continue onto VA-6 W/E River Rd 1.7 mi
  - ① Continue to follow VA-6 W
- 6. Turn left onto State Rte 656 0.4 mi
- 7. Slight left onto State Rte 624 1.6 mi
- 8. Continue along gravel road, across rail road tracks 0.5 mi
- 9. Slight right to continue on gravel road 0.2 mi
- 10. Arrive at destination

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# APPENDIX C

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**JOINT PERMIT APPLICATION NARRATIVE****1. Project Location Information**

Narrative information unnecessary. See Joint Permit Application.

**2. Applicant, Agent, Property Owner, and Contractor Information**

Narrative information unnecessary. See Joint Permit Application.

**3. Provide A Description of the Project****a. Project Primary and Secondary Proposes, Project Need, Intended Use, and Alternatives Considered**

The James River Water Authority submits this Joint Permit Application Package for a new water withdrawal to be located near the Town of Columbia. This withdrawal permit will replace the existing VWP Individual Permit Number 04-0805, dated June 12, 2006 for a withdrawal at Brems Bluff. The existing permitted withdrawal location is at the end of Route 657 off Route 15, on Tax Parcel # 58-A-10, within Fluvanna County.

The proposed point of withdrawal is located in Fluvanna County on the north bank of the James River, just upstream of the confluence with the Rivanna River at the end of Route 624 on tax parcel 53-A-62C.

The primary objective of the new raw water intake is to meet the water demands associated with the Counties of Fluvanna and Louisa as outlined in their adopted water supply plans dated April 2010 and June 2011 respectively. While there are no specific industrial or commercial users identified at this time, usage characteristics may change in the future as development occurs within the Counties.

Generally, the new infrastructure associated with this project will include an intake structure, pump station, raw water transmission piping and electrical/control building. This infrastructure will be owned by James River Water Authority member Counties.

Generally, the following infrastructure components are included in the proposed raw water supply project:

- cylindrical stainless steel wedge wire screen
- air burst cleaning manifold and blower assembly (for preventing debris buildup on the screen)
- intake structure
- pipe to convey "screened" raw water to the pump station wet well
- pump station wet well to receive "screened" raw water
- pump station
- raw water piping

- 
- electrical and control building

Measures will be taken during construction to minimize adverse environmental/ecological impacts to the maximum extent practicable, including, but not limited to:

- utilizing a general contractor that has significant experience constructing raw water intake structures (with minimal impacts to surrounding environment)
- utilizing construction techniques specifically designed to minimize adverse impacts
- utilizing the wetland delineation (and other environmental analyses) as a guide during the construction process
- maintaining coordination with the engineer and the local government to reduce the likelihood for rework/reconstruction

Three total locations were evaluated for the proposed withdrawal location relocation in consideration of reducing or avoiding potentially negative development ramifications, including:

- 1) upstream of the confluence of the James and Rivanna Rivers on tax parcel 53-A-62C
- 2) downstream of the confluence of the James and Rivanna Rivers and the Town of Columbia
- 3) upstream of the confluence of the James and Rivanna Rivers at the Colonial Pipeline crossing

The three alternatives were ranked based on criteria including (in no specific order):

- proximity to a maintained all weather road
- proximity to power source
- proximity to gas utilities (in case of need for blasting)
- contributing area to watershed
- level of security
- potential for impact to river health (stream bottom, stream bank, etc.)
- potential for disruption to railroad operations
- potential for disruption to agricultural activities
- potential for wetland impact
- willingness of political entity to support construction of the facility

Based on an evaluation utilizing this set of criteria, the location upstream of the confluence of the James and Rivanna Rivers on tax parcel 53-A-62C was selected as the most optimal withdrawal relocation candidate.

For decades, the implementation of a surface water withdrawal on the James River has been identified as a means to provide a sustainable raw water supply to meet the needs of

the Counties of Fluvanna and Louisa. This surface water withdrawal will decrease the dependency on ground water resources that the Counties currently rely on.

**4. Previous Site Visits**

Narrative information unnecessary. See Joint Permit Application.

**5. Project Costs**

Narrative information unnecessary. See Joint Permit Application.

**6. Public Notification**

**a. Property Owner Information**

The following table presents contact information for the property owners adjacent to the proposed project site.

Property location	Property owners name	Mailing address	City	State	Zip code
Fluvanna County	Point of Forks Farm LP (Attn: Barbara S. Gillam)	POF Development Corp. P.O. BOX 847	Columbia	VA	23038
Fluvanna County	David S. Haney, Sr. et al	615 Tepee Town Rd	Bremo Bluff	VA	23022
Cumberland County	R. Franklin Hardy	417 Park Street	Charlottesville	VA	22902

The Applicant submitted Adjacent Property Owner’s Acknowledgement Forms to adjacent property owners (see Appendix D).

**7. Threatened and Endangered Species Information**

A query of available on-line threatened and endangered species information was performed to gain insight regarding the presence of sensitive flora and fauna in association with the proposed project. Searches of the Department of Game and Inland Fisheries (DGIF) database of the Virginia Fish and Wildlife Information Service and the U.S. Fish and Wildlife Services (FWS) Information, Planning and Conservation System (IPaC) database were performed to identify known threatened and endangered species within a 2-mile radius of the project area. A species list report was generated and is attached for your review. The DGIF list identified six species: the state endangered brook floater (*Alasmidonta varicosa*); state threatened upland sandpiper (*Bartramia longicauda*), loggerhead shrike (*Lanius ludovicianus*), green floater (*Lasmigona subviridis*), Atlantic pigtoe (*Fusconia masoni*), and migrant loggerhead shrike (*Lanius ludovicianus migrans*). The brook floater, green floater, and Atlantic pigtoe have all previously been confirmed within the vicinity of the project area.

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The IPaC database search for the project area identified the potential for the federally endangered James spiny mussel (*Pleurobema collina*) to exist in the geographic location of the James River.

No additional threatened or endangered species were confirmed in the vicinity of the project by the VaFWIS or IPaC database queries. The results of these database queries are included as Appendix E. Based on the results of the database searches for this project a survey for Freshwater Mussel Habitat will be conducted to determine the presence of any habitat for protected freshwater mussel species.

## 8. Historic Resources information

A query of the Virginia Department of Historic Resources (DHR) V-Cris database was performed for the Project area and the vicinity (0.25 miles from Project boundaries) to determine the effect, if any, that the Project would have on cultural resources. The following sites are located near or within the proposed project corridor.

### Site 44FV0022

Site 44FV0022 is a Late Woodland hamlet. Laurence W. Lindberg first identified the site in 1980 during a Phase I survey. He noted that no subsurface testing was conducted and that the site contained approximately 84 artifacts found on the surface. He did not make any recommendations as to the site's eligibility for listing on the National Register of Historic Places. According to the VDHR V-CRIS form, to date no further survey work has occurred on the site.

### Site 44FV0024

Site 44FV0024 is a Native American camp. Laurence W. Lindberg first identified the site in 1980 during a Phase I survey. He noted that no subsurface testing was conducted and that the site contained approximately 12 artifacts found in backfill material. He also noted that the site was partially destroyed by construction of a pipeline. He did not make any recommendations as to the site's eligibility for listing on the National Register of Historic Places. According to the VDHR V-CRIS form, to date no further survey work has occurred on the site.

### Site 44FV0025

Site 44FV0025 is a Native American camp and lithic quarry. Laurence W. Lindberg first identified the site in 1980 during a Phase I survey. He noted that no subsurface testing was conducted and that the site contained approximately five artifacts found on the surface. He did not make any recommendations as to the site's eligibility for listing on the National Register of Historic Places. In 1997, the William and Mary Center for Archaeological Research (WMCAR) noted that the site had been extremely disturbed by construction of a pipeline, although it is unclear if they conducted a Phase I survey of the site, or just a walkover of the site. They also did not make any recommendations as to the site's eligibility for listing on the National Register of Historic Places. According to the VDHR V-CRIS form, to date no further survey work has occurred on the site.

**Site 44FV0032**

Site 44FV0032 is a 19<sup>th</sup> century canal lock. In 1981, Martha McCartney map projected the site from an historic map. At that time, she did not make any recommendations as to the site's eligibility for listing on the National Register of Historic Places. The site has never been field verified and according to the VDHR V-CRIS form, to date no further survey work has occurred on the site.

**Site 44FV0033**

Site 44FV0033 is an aqueduct. In 1981, Martha McCartney map projected the site from an historic map. At that time, she did not make any recommendations as to the site's eligibility for listing on the National Register of Historic Places. The site has never been field verified and according to the VDHR V-CRIS form, to date no further survey work has occurred on the site.

**Site 44FV0036**

Site 44FV0036 is a 19<sup>th</sup> century aqueduct. In 1981, Martha McCartney map projected the site from an historic map. At that time, she did not make any recommendations as to the site's eligibility for listing on the National Register of Historic Places. The site has never been field verified and according to the VDHR V-CRIS form, to date no further survey work has occurred on the site.

**Site 44FV0065**

Site 44FV0065 is a 19<sup>th</sup> century canal bridge. VDHR noted that W. E. Trout made them aware of the site in 1984. At that time, he did not make any recommendations as to the site's eligibility for listing on the National Register of Historic Places. The site has never been field verified and according to the VDHR V-CRIS form, to date no further survey work has occurred on the site.

**Site 44FV0067**

Site 44FV0067 is a 19<sup>th</sup> century dam. VDHR noted that W. E. Trout made them aware of the site in 1984. At that time, he did not make any recommendations as to the site's eligibility for listing on the National Register of Historic Places. The site has never been field verified and according to the VDHR V-CRIS form, to date no further survey work has occurred on the site.

**Site 032-0024**

Site 032-0024 is the circa 1820 Point of Fork Plantation. E. B. Gale first identified the site in 1958 and conducted a Historic American Building Survey (HABS) of the site. The site was listed on the Virginia Landmark Register (VLR) in 1974 and on the National Register of Historic Places that same year. In June 2011, Cultural Resources Inc. (CRI) conducted a Phase I survey for a proposed Route 6 bridge replacement over the Rivanna River and re-surveyed the site. They noted that the site encompassed approximately 265 acres and included one house, one smokehouse, one office, and one slave quarters/kitchen. They further noted that the house and outbuildings have been maintained and preserved in their original setting with a high degree of architectural integrity.

**Site 032-0036**

Site 032-0036 is the circa 1854 Rivanna Canal Navigation Historic District. The site encompasses the approximately four-and-a-half-mile canal along with houses, canal locks, and dams. W. E. Trout first identified the site in 1973 during the course of a Phase I survey. Two years later, in 1975, Professor Ben Howland re-surveyed the site during an exploratory survey of the Rivanna River. Ten years later, in 1985, Lindsay Nolting conducted a survey of the Gum Creek Aqueduct within the district. Land and Community Associates, Inc. also conducted a Phase I survey of the site in 1993 and in 1996 the Fluvanna County Historical Society drafted a Preliminary Information Form (PIF) for the district. In June 2011, CRI conducted a Phase I survey for a proposed Route 6 bridge replacement over the Rivanna River and re-surveyed the site. VDHR determined that the site was eligible for listing on the National Register of Historic Places in 1974 and 1994 and CRI suggested that the site was still eligible for listing in 2011.

The results of the database search indicate the project area has having a high probability to contain Native American and historic resources based on what has been located in the past. Due to the potential for these resources to exist a Phase I survey will be performed. The results of the V-Cris search are provided in Appendix F.

**9. Wetlands, Waters, and Dunes/Beaches Impact Information**

On behalf of the applicant, Timmons Group is submitting this Pre-Construction Notification (PCN) for unavoidable temporary and permanent riverine, open water impacts associated with the construction of a raw water intake within the James River. These impacts are proposed to be authorized under the requirements of a Nationwide Permit (NWP) 12 from the U.S. Army Corps of Engineers and a sub-aqueous bottom permit from the Virginia Marine Resources Commission (VMRC). This permit application is being submitted only for the water intake structure, as the final design plans for the associated water transfer lines have not been completed. Any additional wetland impacts associated with the water transfer lines will be avoided, or permitted at a future date if they are unavoidable.

The project area was delineated based upon the methodology outlined in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual; the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, and subsequently issued COE regulatory guidance letters regarding the identification of jurisdictional stream channels through the recognition of field indicators of an ordinary high water mark within drainage features. During the delineation of the Site, approximately 1.62 acres (70,757 sq. ft.) of riverine open-water (ROW), 6,135 linear feet (L.F.) of perennial stream, 253 L.F. of intermittent stream, 0.49 acres (21,528 sq. ft.), of palustrine forested (PFO) wetlands, 0.02 acres (846 sq. ft.) of palustrine scrub-shrub (PSS) wetlands, 0.30 acres (12,917 sq. ft.) of palustrine emergent (PEM) wetlands, and 0.10 acres (4,568 sq. ft.) of palustrine open water (POW) wetlands were identified onsite. A jurisdictional determination request has been submitted to the U.S. Army Corps of Engineers and is currently waiting on Corps Confirmation. Additional

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wetland delineation information is provided in Appendix G. The wetland confirmation letter will be provided, once received.

Jurisdictional impacts associated with the construction of the raw water intake will result in temporary impacts to 3,200 sq. feet of riverine open water as a result of construction activities installing the structure. Permanent sub-aqueous bottom impacts to 415 square feet of riverine open water will result from the physical placement of the intake structure over the bottom of the river. Mitigation is not proposed, as permanent impacts are less than 1/10<sup>th</sup> of an acre. Wetland impact detail drawings are provided in Appendix G. The permanent intake structure shall consist of a cylindrical stainless steel wedge wire screen, air burst cleaning manifold and blower assembly, intake structure, 36" pipe to convey "screened" raw water to the pump station wet well and a concrete debris diversion wall. The intake structure and length of ductile iron transfer pipe have been positioned as close as possible to the bank to of the James River to minimize encroachments over state owned sub-aqueous bottom and reduce recreational and ecological impacts to river to the maximum extent practicable. The proposed raw water intake is not anticipated to have adverse effects to existing aquatic life. A wedgewire screen with a slot size of 1 mm and designed to prevent impact to aquatic life will cover the proposed raw water intake pipe. Furthermore, the intake flow velocity of the proposed intake is expected to be less than 0.5 fps. A habitat survey for the presence of protected mussels will be conducted to clear the area of potential effect prior to any Site disturbance.

A general contractor with significant experience will be selected to construct the raw water intake structure as an additional protection measure to minimize disturbance within the river. Construction techniques specifically designed to minimize impacts to the river will be utilized. Additional stabilization measures and extreme care will be taken when working in proximity to the bank of the river to prevent any sloughing off of the banks and sedimentation to the River. A turbidity curtain will be used for construction of a cofferdam. The cofferdam will allow the intake structure to be constructed in the dry and avoid additional turbidity in the river. In accordance with State and County erosion and sediment control law, erosion and sediment control measures will be utilized in order to prevent sediment releases from the project area. These measures are being implemented to aid in the minimization of any secondary impacts that could result from the Project.

#### **10. Applicant, Agent, Owner, and Contractor Certifications**

Narrative information unnecessary. See Joint Permit Application.

**\*\*\*Sections 11 through 25 do not apply to this project\*\*\***

#### **26. Intakes, Outfalls, and Water Control Structures**

- a. Describe the stream flow gages used, the type of calculation used, and the period of record that was used to calculate the median flows provided in the table of median flows.

Gauge number 02035000 (James River at Cartersville, VA) was used for analysis during completion of this application.

Certain values reported in this application (for example stream flow and drainage area at the proposed point of withdrawal) were developed through analysis of the flow gauge data, the watershed at the flow gauge, and the watershed at the proposed point of withdrawal. The ratio of the watershed area at the proposed point of withdrawal (5,076 square miles) to the watershed area at the flow gauge (6,252 square miles) served as the gauge data correction factor (0.81). In order to estimate certain flow characteristics associated with the proposed point of withdrawal (e.g. median monthly flows, average annual stream flows, etc.), the correction factor was applied to gauge data. For the median flow table provided in the Joint Permit Application, a 44 year period of record was used during analysis (1970 – 2013).

**b. Provide any available historical low flows at the intake or dam site**

Low Flow Parameter	Gauge Flow (cfs)	Corrected Flow (cfs)	Corrected Flow (gpm)	Corrected Flow (MGD)
1 Q 10	581	472	211,745	305
1 Q 20	484	393	176,394	254
1 Q 30	440	357	160,263	231
1 Q 50	392	318	142,864	206

Note: See above for a description of the calculation method.

**c. Describe how the proposed withdrawal at the intake or dam site will impact stream flows in terms of rates, volumes, frequency, etc.**

Generally, the additional impact of the new intake is expected to be minimal. The requested raw water withdrawal rates described in this application for intake relocation are based on the current water withdrawal permit #04-805, dated June 9, 2006, for the existing withdrawal located 2,000' downstream of US Route 15 on the James River at Brems Bluff. This permit was issued to Fluvanna County, but ultimately transferred to the James River Water Authority. Because this withdrawal rate will essentially transfer from the existing withdrawal location to the proposed/relocated intake (once it is constructed and operable), the additional impact of the new intake is expected to be minimal.

Numerically (and specifically at the proposed intake location), the approximate average daily stream flow is 5,914 cfs (3,822 MGD), and the estimated average daily withdrawal is 3.06 MGD. Therefore, the remaining average daily stream flow at the proposed intake location after accounting for the new withdrawal is about 3,819 MGD, a difference of about 0.07%. As stated above, however, because this withdrawal rate would essentially transfer from the existing intake to the proposed/relocated intake (once it is constructed and operable), the additional impact of the new intake is expected to be minimal.

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**d. Describe how the withdrawal of water will vary over time**

During normal operation, the expected average daily withdrawal is 3.06 MGD. Generally, a slight increase in municipal demand and withdrawal is expected in warmer months. More specifically, the peak daily flow may reach 5.7 MGD. Two pumps operating concurrently (with one pump on standby) will be required to meet this demand.

Under extreme and rare circumstances (e.g. a water line failure that severely diminishes the available water supply), the expected peak flow of 5.7 MGD may be exceeded as three pumps may be required to meet the emergency demand.

**e. Provide the amount of water that will be lost due to a consumptive use**

Water withdrawn from the proposed intake will be utilized by both Fluvanna and Louisa Counties. Small portions of Louisa County are within the Rivanna Watershed and the Middle James-Willis Watershed, which may return flow to the James River. Most of Louisa County is within the Pamunkey Watershed. The South Anna River and North Anna Rivers, the Pamunkey River, and the York River (and ultimately the Chesapeake Bay) will receive water utilized in this portion of Louisa County. Additionally, there is potential for future growth in the North Anna River service area; water consumed in this region will likely be returned to the North Anna River.

Fluvanna County has three different watersheds: the Middle James-Buffalo Watershed, the Middle James-Willis Watershed, and the Rivanna Watershed. All three watersheds return flow to the James River.

At this time, neither County has identified an industrial or commercial customer whose activities will result in consumptive uses beyond that normally experienced by a typical public water supply customer.

**27. Water Withdrawal Use, Need, and Alternatives**

**a. Describe the proposed use of the water withdrawal**

See Section 3-a above.

**b. Describe how the above withdrawals were calculated, including the relevant assumptions made in that calculation and the documentation or resources used to support the calculations**

The withdrawal information is based on information contained in the water supply plans for both Fluvanna and Louisa Counties (e.g. population and water usage projections). See Appendix I for pertinent flow information from the two water supply plans used to estimate withdrawal associated with this project.

- 
- c. For major surface water withdrawals, public supply withdrawals, and projects that will alter in-stream flows, provide information to establish the local water supply need.**

The local water supply need is based on information contained in the water supply plans for both Fluvanna and Louisa Counties (e.g. population and water usage projections). See Section 27-b above.

- d. For surface water withdrawals other than public water supply, provide information that demonstrates alternate sources of water are available for the proposed project during times of reduced in-stream flow.**

See Appendix I for pertinent flow information from the two water supply plans used to estimate withdrawal associated with this project.

- e. Provide information from the water supply plan that covers the area in which the proposed project is located. Include information from the plan that pertains to projected demand, analysis of alternatives, and water conservation measures. Discuss any discrepancies between the water supply plan and the proposed project.**

See Appendix I for pertinent flow information from the two water supply plans.

- f. Provide an alternatives analysis for the proposed water withdrawal project, including the required range of alternative to be analyzed; a narrative outlining the opportunities and status of regional efforts undertaken; and the criteria used to evaluate each alternative.**

A full analysis of alternatives can be found in the water supply plans for both Fluvanna and Louisa Counties. Generally, the three principal options to address long term water supply needs include ground water withdrawal, surface water withdrawal, and a tie-in to an existing water supply. According to the studies, both ground water withdrawal and a tie-in to an existing water supply are expected to be unsustainable given the future growth expected in the Counties. Furthermore, the studies indicated that implementing a surface water withdrawal is the most prudent option.

- g. Describe any existing, flow dependent beneficial uses along the affected stream reach. Include both in-stream and off-stream uses.**

In-stream beneficial uses include: recreational boating, fishing, and serving as marine habitat. Off-stream beneficial used include: utilization at power plant cooling towers, domestic supply, commercial uses, and industrial uses.

Due to the immense volume of water contained in the James River at any given time, the relatively minimal volume requested for withdrawal as a part of this application, and the

---

fact that this proposed withdrawal will replace an existing permitted withdrawal, adverse impact to the previously mentioned beneficial uses not expected.

- h. Describe any aquatic life known to be present along the affected stream reach. Describe aquatic life that maybe impacted by the proposed withdrawal. Include species' habitat requirements.**

Based on the project scope of work it is not anticipated that this project will have an effect on anadromous fish reaches. Fresh water mussels are likely to be present.

Minimal impact on existing aquatic life due to the proposed raw water intake is expected. A wedgewire screen with a slot size of 1 mm and designed to prevent impact to aquatic life will cover the proposed raw water intake pipe. Furthermore, the intake flow velocity of the proposed intake is expected to be less than 0.5 fps.

## **28. Public Comments/Issues for Major Water Withdrawals**

- a. Summarize steps taken to seek public input**

Staff from Louisa County, Fluvanna County, and Timmons Group met with Virginia DEQ staff (Scott Kudlas, Director of the Office of Surface and Ground Water Supply Planning) during an informal meeting held on December 18, 2013. The purpose of the meeting was to seek guidance from DEQ staff regarding the intake relocation project. *Note: this meeting did not serve as a pre-application meeting.*

In order to seek public input regarding the proposed project, the Applicant placed public notice information in The Daily Progress newspaper for the following dates: 1/13/2014 through 1/19/2014 (See Appendix D).

Additionally, on February 4, 2014, the Applicant hosted a Public Comment Meeting regarding the proposed project. During this meeting, the Applicant's representatives gave a presentation (see Appendix J) regarding the proposed project and requested written comments (to be received during the seven days following the meeting). No comments were received by the Applicant during that meeting or during the following seven days.

# APPENDIX D

ADDITIONAL INFO  
REVISION

Central Virginia Newspapers Review Order Confirmation for Ad #0003198297-01

Client COUNTY OF LOUISIA Payor Customer COUNTY OF LOUISIA Acct. Exec  
 Client Phone 540-967-0401 Payor Phone 540-967-0401 skey  
 Account# 3309338 Payor Account 3309338  
 Address PO BOX 160 Ordered By  
 LOUISA VA 23093 USA LOUISA VA 23093 April Lowe  
 Fax  
 Email alowe@louisia.org

Total Amount \$301.45 Status Materials  
 Payment Amt \$0.00 Tear Sheets Proofs Affidavits PO Number Blind Box  
 Amount Due \$301.45 1 0 1

Payment Method

Text:

Order Notes:

Ad Number 0003198297-01 Ad Type CLP Legal Liner Color <NONE> Production Color  
 Pick Up Number Ad Size 1.0 X 67 Li Production Method AdBooker (liner) Production Notes  
 Product Placement/Class Position # Inserts  
 Run Schedule Invoice Text  
 Run Dates  
 Tag Line

CVL Daily Prog CLP: \_Legal Ads - CLP \_Legal Notices-Legal-CLP 1  
 PUBLIC NOTICE The James River Water Authority (JRWA) intends to apply for reissuance of a Virginia Water Protection Permit pursuant to 1/13/2014  
 PUBLICNOTICETHEJAMESRIVERWATERAUTHORITYJRWAINTENDSTOAPPLYFORREISSUANCEOFVIRGINIAWATERPROTECTIONF 7  
 CVL dailypro CLP.com:Onl Any: \_Legal Ads - CLP \_Legal Notices-Legal-CLP  
 PUBLIC NOTICE The James River Water Authority (JRWA) intends to apply for reissuance of a Virginia Water Protection Permit pursuant to 1/13/2014, 1/14/2014, 1/15/2014, 1/16/2014, 1/17/2014, 1/18/2014, 1/19/2014  
 PUBLICNOTICETHEJAMESRIVERWATERAUTHORITYJRWAINTENDSTOAPPLYFORREISSUANCEOFVIRGINIAWATERPROTECTIONF

ADDITIONAL INFO  
 REVISION

Central Virginia Newspapers Review Order Confirmation for Ad #0003198297-01

Ad Content Proof Actual Size

PUBLIC NOTICE

The James River Water Authority (JRWA) intends to apply for reissuance of a Virginia Water Protection Permit pursuant to 9 VAC 25-210 in order to relocate its proposed intake structure on the James River under existing VWP Permit #04-0895. The location of the proposed intake structure under the existing permit is just downstream of State Route 15 in the vicinity of Breemo Bluff. JRWA intends to relocate the proposed intake structure further downstream in the general vicinity of Columbia on the north side of the James River just upstream of the State Route 690 bridge in Fluvanna County, Virginia.

In addition to the proposed intake structure, the proposed project will consist of a raw water pump station and a raw water pipeline to be constructed from the intake structure in the general vicinity of an existing Colonial Pipeline easement to a location just north of State Route 6. This project is intended to be a primary source of water for both Fluvanna and Louisa Counties to serve their designated growth areas as outlined in the current Water Supply Plans developed and approved by each County.

The JRWA will hold a public information meeting on February 4, 2014, at 10:30 a.m. in the meeting room at the Spring Creek Sports Club, 181 Clubhouse Way, Zion Crossroads, Virginia. An overview of the project will be provided at this meeting as well as an opportunity for the public to provide comments.

Interested parties seeking additional information or wishing to submit written comments may contact or submit such comments to:

Steve Nichols, Fluvanna County Administrator  
132 Main Street  
P.O. Box 540  
Palmyra, VA 22963  
Phone: (434) 591-1910  
e-mail: snichols@colfluvanna.va.us

or

Robert Dube, Louisa County Administrator  
1 Wolfolk Avenue  
P.O. Box 160  
Louisa, VA 23093  
Phone: (540) 967-4400  
e-mail: rdube@louisa.org

Comments related to the project made during the public information meeting and written comments received within seven (7) days following the public information meeting will be evaluated by the JRWA and considered during the application process.

ADDITIONAL INFO  
REVISION

ADDITIONAL INFO  
REVISION



**TIMMONS GROUP**  
YOUR VISION ACHIEVED THROUGH OURS.

ADDITIONAL INFO  
REVISION

March 12, 2014

Point of Fork Farm  
Attention: Barbara S. Gillam  
POF Development Corp.  
P.O. Box 847  
Columbia, VA 23038

**RE: James River Water Supply Project – Raw Water Intake and Pump Station**

Dear Ms. Gillam:

On behalf of the James River Water Authority, we respectfully submit conceptual drawings pertaining to the proposed raw water intake and pump station associated with the James River Water Supply Project.

This proposed withdrawal, located in Fluvanna County on the north bank of the James River, just upstream of the confluence with the Rivanna River, will replace the existing withdrawal associated with VWP Individual Permit Number 04-0805, dated June 12, 2006 for a withdrawal at Bremono Bluff. The primary objective of the new raw water intake is to meet the water demands associated with the Counties of Fluvanna and Louisa as outlined in their adopted water supply plans dated April, 2010 and June, 2011 respectively.

The objective of the notification is to inform the property owner (Point of Fork Farm) of the proposed infrastructure (see exhibits EX-1, EX-2, and EX-3) per the requirements of the Joint Permit Application. We request that the Point of Fork Farm property owner review the Adjacent Property Owner's Acknowledgment Form (see Appendix A), complete as directed, and return back to Timmons Group in the enclosed envelope.

If you have any questions feel free to contact us.

Respectfully submitted,

Timmons Group

David J. Saunders, P.E.  
Principal

Enclosures (4): Adjacent Property Owner's Acknowledgement Form  
Raw Water Intake and Pump Station – conceptual plan view drawing  
Raw Water Intake and Pump Station – conceptual section view drawing  
Raw Water Intake and Pump Station – conceptual site plan drawing

APPENDIX A

Adjacent Property Owner's Acknowledgement Form

I, Point of Fork Farm LP, own land next to/ across the water from/ in the same cove  
(print adjacent property owner's name)

as the land of the James River Water Authority Project  
(print applicant's name)

I have reviewed the applicant's project drawings dated February, 2014 to be submitted for all  
(date of drawings)

necessary Federal, State, and Local permits.

I have no comment regarding the proposal

I do not object to the proposal

I object to the proposal

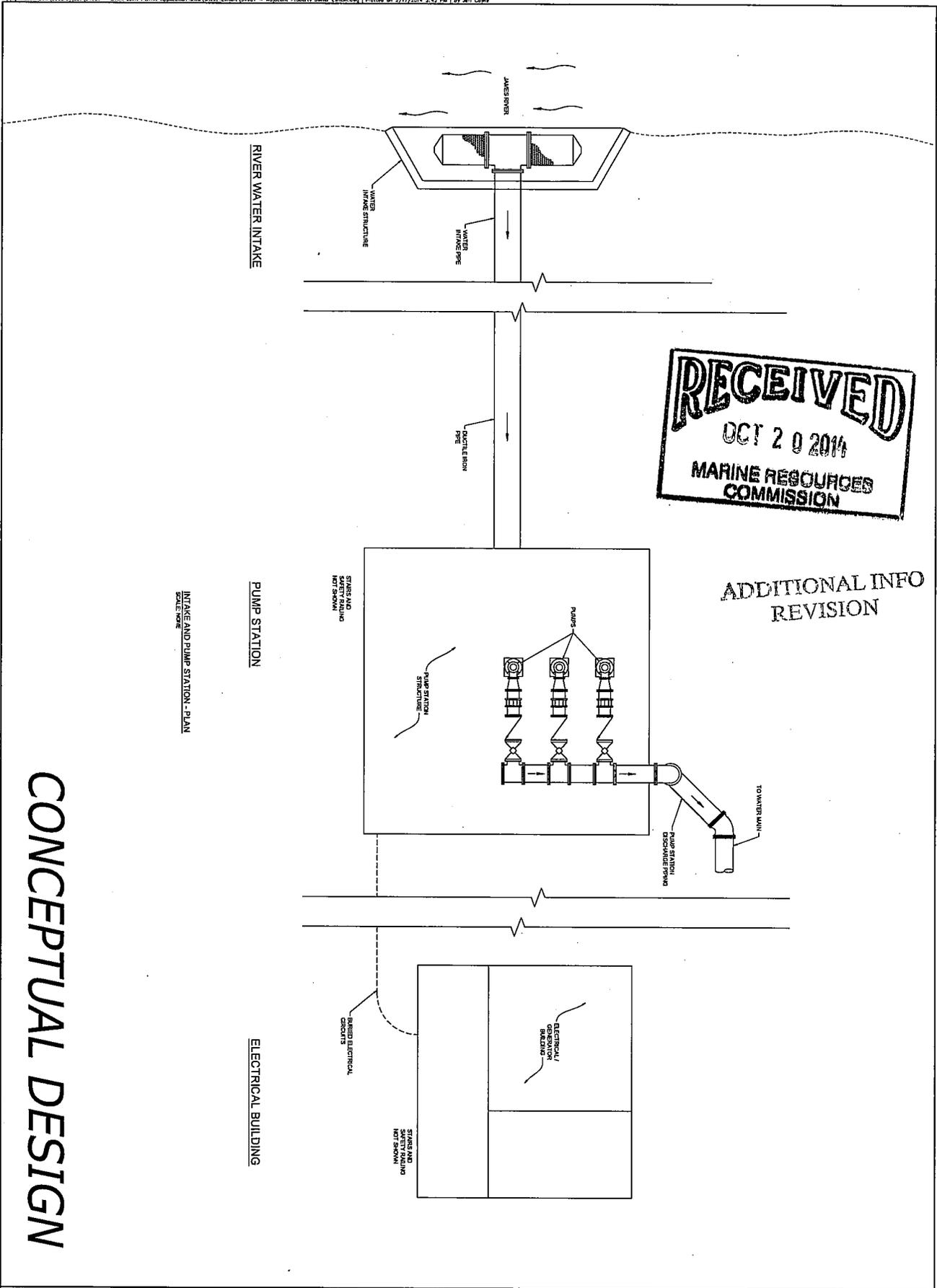
***The applicant has agreed to contact me for additional comments if the proposal changes prior to construction of the project.***

(Before signing this form, please be sure that you have checked the appropriate option above)

\_\_\_\_\_  
Adjacent property owner's signature

\_\_\_\_\_  
Date

**NOTE: IF YOU OBJECT TO THE PROPOSAL, THE REASON(S) YOU OPPOSE THE PROJECT MUST BE SUBMITTED TO VMRC IN WRITING. AN OBJECTION WILL NOT NECESSARILY RESULT IN A DENIAL OF A PERMIT FOR THE PROPOSED WORK. HOWEVER, VALID COMPLAINTS WILL BE GIVEN FULL CONSIDERATION DURING THE PERMIT REVIEW PROCESS.**



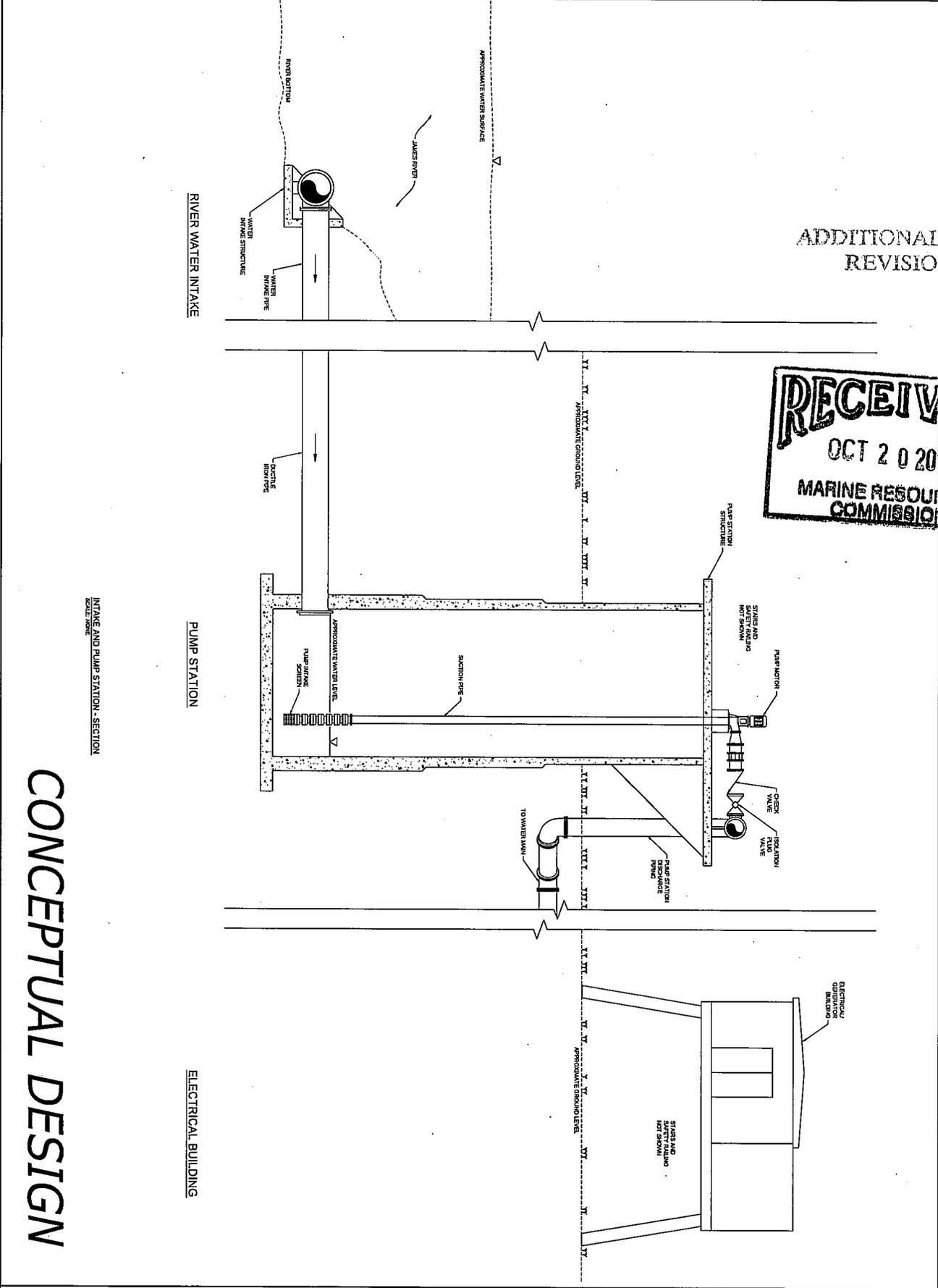
**RECEIVED**  
 OCT 20 2014  
 MARINE RESOURCES  
 COMMISSION

ADDITIONAL INFO  
 REVISION

**CONCEPTUAL DESIGN**

<p><b>TIMMONS GROUP</b></p>		<p>YOUR VISION ACHIEVED THROUGH OURS.</p>		<p>THIS DRAWING PREPARED AT THE                  CORPORATE OFFICE                  1201 BUCKLEBARK PARKWAY, SUITE 300, RICHMOND, VA 23223                  TEL: 804-203-2500 FAX: 804-566-1216 www.timmons.com</p>		<p>NOT FOR                  CONSTRUCTION</p>															
<p><b>JAMES RIVER WATER PROJECT</b>                  JAMES RIVER WATER AUTHORITY  <b>RAW WATER INTAKE AND PUMP STATION</b></p>			<p>REVISION DESCRIPTION</p> <table border="1"> <tr><th>NO.</th><th>DATE</th><th>DESCRIPTION</th></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>		NO.		DATE	DESCRIPTION										<p>DATE</p> <table border="1"> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> </table>			
NO.	DATE	DESCRIPTION																			
<p>SCALE</p> <p>AS SHOWN</p>	<p>DATE</p> <p>REVISION 2/14</p> <p>DESIGNED BY</p> <p>CHECKED BY</p> <p>SCALE</p> <p>AS SHOWN</p>	<p>DATE</p> <p>REVISION 2/14</p> <p>DESIGNED BY</p> <p>CHECKED BY</p> <p>SCALE</p> <p>AS SHOWN</p>	<p>DATE</p> <p>REVISION 2/14</p> <p>DESIGNED BY</p> <p>CHECKED BY</p> <p>SCALE</p> <p>AS SHOWN</p>	<p>DATE</p> <p>REVISION 2/14</p> <p>DESIGNED BY</p> <p>CHECKED BY</p> <p>SCALE</p> <p>AS SHOWN</p>	<p>DATE</p> <p>REVISION 2/14</p> <p>DESIGNED BY</p> <p>CHECKED BY</p> <p>SCALE</p> <p>AS SHOWN</p>	<p>DATE</p> <p>REVISION 2/14</p> <p>DESIGNED BY</p> <p>CHECKED BY</p> <p>SCALE</p> <p>AS SHOWN</p>															

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ADDITIONAL IN REVISION

**RECEIVED**  
OCT 20 2014  
MARINE RESOURCES COMMISSION

CONCEPTUAL DESIGN

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<p><b>JAMES RIVER WATER PROJECT</b> JAMES RIVER WATER AUTHORITY RAW WATER INTAKE AND PUMP STATION</p>				<p>REVISION DESCRIPTION</p>		<p>DATE</p>	
<p>DESIGNED BY: D. SALMONDES CHECKED BY: D. SALMONDES SCALE: NONE</p>				<p>DATE: _____</p>		<p>DATE: _____</p>	
<p>DATE: _____</p>				<p>DATE: _____</p>		<p>DATE: _____</p>	

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## TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

March 12, 2014

David S. Haney Sr.  
615 Tepee Town Road  
Bremo Bluff, VA 23022

ADDITIONAL INFO  
REVISION

**RE: James River Water Supply Project – Raw Water Intake and Pump Station**

Dear Mr. Haney:

On behalf of the James River Water Authority, we respectfully submit conceptual drawings pertaining to the proposed raw water intake and pump station associated with the James River Water Supply Project.

This proposed withdrawal, located in Fluvanna County on the north bank of the James River, just upstream of the confluence with the Rivanna River, will replace the existing withdrawal associated with VWP Individual Permit Number 04-0805, dated June 12, 2006 for a withdrawal at Bremo Bluff. The primary objective of the new raw water intake is to meet the water demands associated with the Counties of Fluvanna and Louisa as outlined in their adopted water supply plans dated April, 2010 and June, 2011 respectively.

The objective of the notification is to inform the property owner (David S. Haney) of the proposed infrastructure (see exhibits EX-1, EX-2, and EX-3). We request that you review the Adjacent Property Owner's Acknowledgment Form (see Appendix A), complete as directed, and return back to Timmons Group in the enclosed envelope.

If you have any questions feel free to contact us.

Respectfully submitted,

Timmons Group

David J. Saunders, P.E.  
Principal

Enclosures (4): Adjacent Property Owner's Acknowledgement Form  
Raw Water Intake and Pump Station – conceptual plan view drawing  
Raw Water Intake and Pump Station – conceptual section view drawing  
Raw Water Intake and Pump Station – conceptual site plan drawing

APPENDIX A

Adjacent Property Owner's Acknowledgement Form

I, David S. Haney Sr., own land next to/ across the water from/ in the same cove  
(print adjacent property owner's name)

as the land of the James River Water Authority Project  
(print applicant's name)

I have reviewed the applicant's project drawings dated February, 2014 to be submitted for all  
(date of drawings)

necessary Federal, State, and Local permits.

I have no comment regarding the proposal

I do not object to the proposal

I object to the proposal

***The applicant has agreed to contact me for additional comments if the proposal changes prior to construction of the project.***

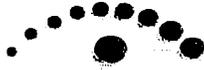
(Before signing this form, please be sure that you have checked the appropriate option above)

ADDITIONAL INFO  
REVISION

\_\_\_\_\_  
Adjacent property owner's signature

\_\_\_\_\_  
Date

**NOTE: IF YOU OBJECT TO THE PROPOSAL, THE REASON(S) YOU OPPOSE THE PROJECT MUST BE SUBMITTED TO VMRC IN WRITING. AN OBJECTION WILL NOT NECESSARILY RESULT IN A DENIAL OF A PERMIT FOR THE PROPOSED WORK. HOWEVER, VALID COMPLAINTS WILL BE GIVEN FULL CONSIDERATION DURING THE PERMIT REVIEW PROCESS.**



## TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

March 12, 2014

R. Franklin Hardy  
417 Park Street  
Charlottesville, VA 22902

**RE: James River Water Supply Project – Raw Water Intake and Pump Station**

Dear. R. Franklin Hardy:

On behalf of the James River Water Authority, we respectfully submit conceptual drawings pertaining to the proposed raw water intake and pump station associated with the James River Water Supply Project.

This proposed withdrawal, located in Fluvanna County on the north bank of the James River, just upstream of the confluence with the Rivanna River, will replace the existing withdrawal associated with VWP Individual Permit Number 04-0805, dated June 12, 2006 for a withdrawal at Bremono Bluff. The primary objective of the new raw water intake is to meet the water demands associated with the Counties of Fluvanna and Louisa as outlined in their adopted water supply plans dated April, 2010 and June, 2011 respectively.

The objective of the notification is to inform the property owner (R. Franklin Hardy) of the proposed infrastructure (see exhibits EX-1, EX-2, and EX-3). We request that you review the Adjacent Property Owner's Acknowledgment Form (see Appendix A), complete as directed, and return back to Timmons Group in the enclosed envelope.

If you have any questions feel free to contact us.

Respectfully submitted,

Timmons Group

David J. Saunders, P.E.  
Principal

ADDITIONAL INFO  
REVISION

Enclosures (4): Adjacent Property Owner's Acknowledgement Form  
Raw Water Intake and Pump Station – conceptual plan view drawing  
Raw Water Intake and Pump Station – conceptual section view drawing  
Raw Water Intake and Pump Station – conceptual site plan drawing

APPENDIX A

Adjacent Property Owner's Acknowledgement Form

I, R. Franklin Hardy, own land next to/ across the water from/ in the same cove  
(print adjacent property owner's name)

as the land of the James River Water Authority Project  
(print applicant's name)

I have reviewed the applicant's project drawings dated February, 2014 to be submitted for all  
(date of drawings)

necessary Federal, State, and Local permits.

I have no comment regarding the proposal

I do not object to the proposal

I object to the proposal

***The applicant has agreed to contact me for additional comments if the proposal changes prior to construction of the project.***

(Before signing this form, please be sure that you have checked the appropriate option above)

\_\_\_\_\_  
Adjacent property owner's signature

\_\_\_\_\_  
Date

**NOTE: IF YOU OBJECT TO THE PROPOSAL, THE REASON(S) YOU OPPOSE THE PROJECT MUST BE SUBMITTED TO VMRC IN WRITING. AN OBJECTION WILL NOT NECESSARILY RESULT IN A DENIAL OF A PERMIT FOR THE PROPOSED WORK. HOWEVER, VALID COMPLAINTS WILL BE GIVEN FULL CONSIDERATION DURING THE PERMIT REVIEW PROCESS.**

ADDITIONAL INFO  
REVISION

# APPENDIX E

ADDITIONAL INFO  
REVISION

### Anadromous Fish Use Streams

37,45,06.6 -78,10,02.4  
is the Search Point

#### Show Position Rings

Yes  No  
1 mile and 1/4 mile at the Search Point

#### Show Search Area

Yes  No  
2 Search distance miles radius

Search Point is at map center

#### Base Map Choices

Topography

#### Map Overlay Choices

Current List: Position, Search, Anadromous

#### Map Overlay Legend

##### Anadromous Fish Reach

Confirmed

Potential

Impediment

Position Rings  
1 mile and 1/4 mile at the Search Point

2 mile radius Search Area



Refresh Browser Page

Map Click

Pan In M

Map Scale

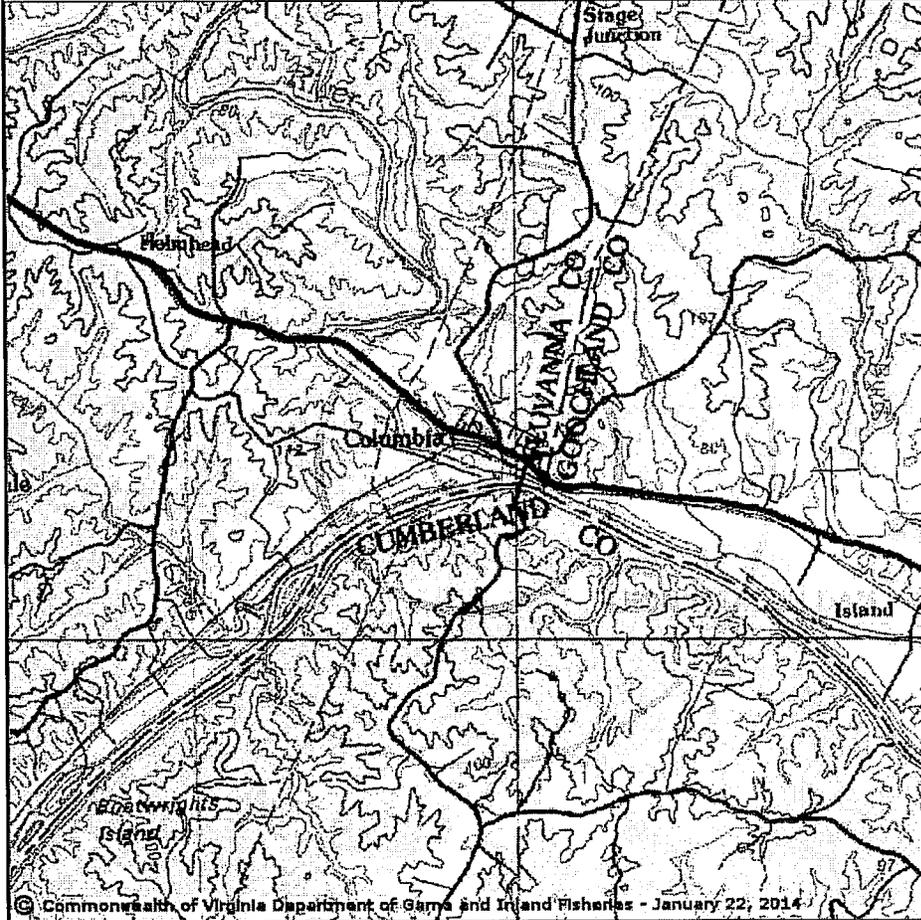
In zoom Out

Screen Size

Small Size

Big

Help



© Commonwealth of Virginia Department of Game and Inland Fisheries - January 22, 2014



Point of Search 37,45,06.6 -78,10,02.4

Map Location 37,45,06.6 -78,10,02.4

- Select Coordinate System:
- Degrees, Minutes, Seconds Latitude - Longitude
  - Decimal Degrees Latitude - Longitude
  - Meters UTM NAD83 East North Zone
  - Meters UTM NAD27 East North Zone

Base Map source: USGS 1:100,000 topographic maps (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 744762 and top 4186860. Pixel size is 16 meters. Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixels. The map display represents 9600 meters east to west by 9600 meters north to south for a total of 92.1 square kilometers. The map display represents 21501 feet east to west by 21501 feet north to south for a total of 25.5 square miles.

ADDITIONAL INFO  
REVISION

1/22/2014

VaFWS Map

represents 31501 feet east to west by 31501 feet north to south for a total of 55.5 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic  
<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2014-01-22 09:38:11 (qa/qc December 5, 2012 8:04 - tn=516475.0

dist=3218.688 I )

\$poi=37.7518333 -78.1673333

| [DGIF](#) | [Credits](#) | [Disclaimer](#) | Contact [shirl.dressler@dgif.virginia.gov](mailto:shirl.dressler@dgif.virginia.gov) | Please view our [privacy policy](#) |  
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ADDITIONAL INFO  
REVISION

### 2 Bald Eagle Nests

37,45,06.6 -78,10,02.4  
is the Search Point

#### Show Position Rings

Yes  No

1 mile and 1/4 mile at the Search Point

#### Show Search Area

Yes  No

2 Search distance miles radius

Search Point is at map center

#### Base Map Choices

Topography

#### Map Overlay Choices

Current List: Position, Search, BAEANests

#### Map Overlay Legend

 Position Rings  
1 mile and 1/4 mile at the Search Point

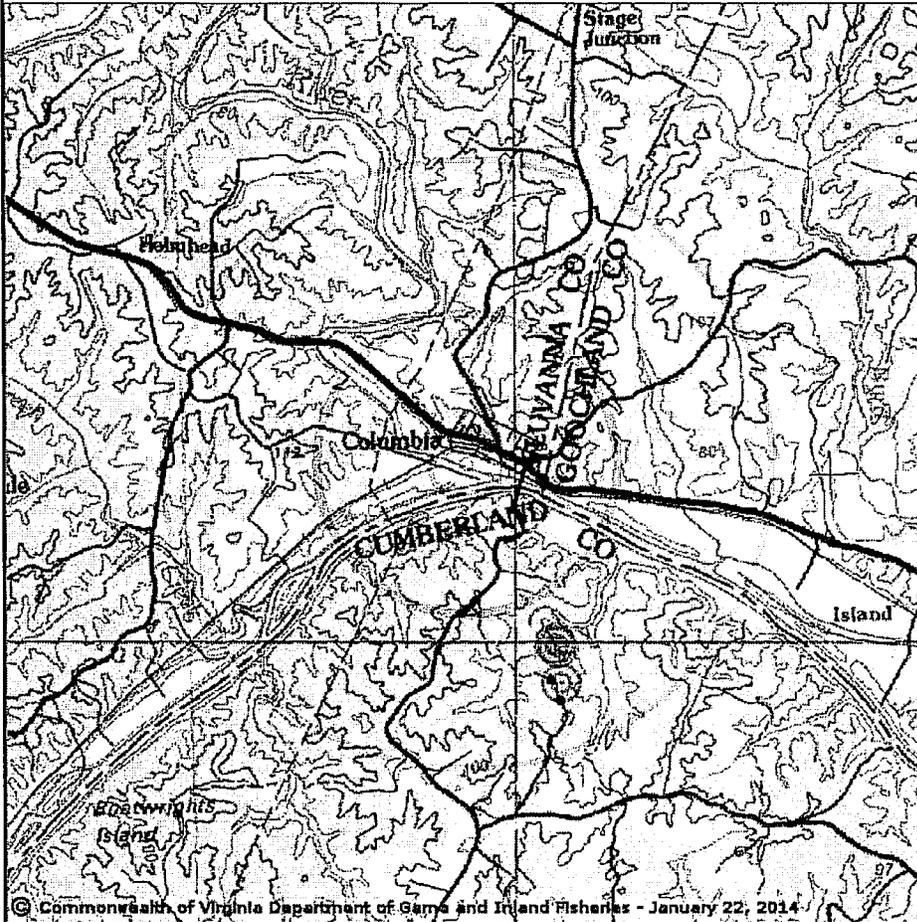
 2 mile radius Search Area

 Bald Eagle nests  
660 and 330 foot management zones

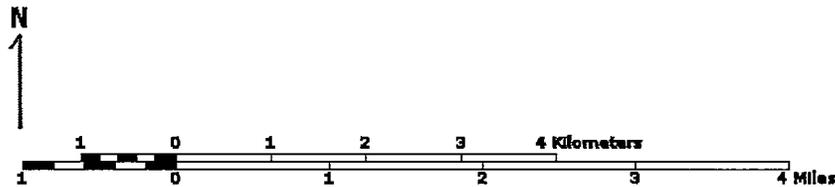


[Refresh Browser Page](#)

Map Click **Pan** **Id** **M** Map Scale **In** **Zoom** **Out** Screen Size **Small** **Size** **Big** [Help](#)



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Point of Search 37,45,06.6 -78,10,02.4

Map Location 37,45,06.6 -78,10,02.4

- Select Coordinate System:
- Degrees, Minutes, Seconds Latitude - Longitude
  - Decimal Degrees Latitude - Longitude
  - Meters UTM NAD83 East North Zone
  - Meters UTM NAD27 East North Zone

Base Map source: USGS 1:100,000 topographic maps (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 744762 and top 4186860. Pixel size is 16 meters. Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixels. The map display represents 9600 meters east to west by 9600 meters north to south for a total of 92.1 square kilometers. The map display represents 31501 feet east to west by 31501 feet north to south for a total of 25.5 square miles.

ADDITIONAL REVISION

VaFWS Map

represents 31501 feet east to west by 31501 feet north to south for a total of 55.5 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic <http://www.nationalgeographic.com/topo> All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2014-01-22 09:37:14 (qa/qc December 5, 2012 8:04 - tn=516475.0  
dist=3218.688 I )  
\$poi=37.7518333 -78.1673333

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ADDITIONAL INFO  
A REGION

**VaFWIS Search Report** Compiled on 1/22/2014, 9:31:08 AM[Help](#)

Known or likely to occur within a 2 mile radius around point 37,45,06.6 -78,10,02.4  
in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA

[View Map of  
Site Location](#)

439 Known or Likely Species ordered by Status Concern for Conservation  
(displaying first 20) (18 species with Status\* or Tier I\*\* or Tier II\*\* )

<u>BOVA Code</u>	<u>Status*</u>	<u>Tier**</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Confirmed</u>	<u>Database(s)</u>
060006	SE	II	<u>Floater, brook</u>	Alasmidonta varicosa	<u>Yes</u>	TEWaters,Habitat
040129	ST	I	<u>Sandpiper, upland</u>	Bartramia longicauda		BOVA
040293	ST	I	<u>Shrike, loggerhead</u>	Lanius ludovicianus		BOVA
060081	ST	II	<u>Floater, green</u>	Lasmigona subviridis	<u>Yes</u>	TEWaters,Habitat,HU6
060173	FSST	II	<u>Pigtoe, Atlantic</u>	Fusconaia masoni	<u>Yes</u>	BOVA,TEWaters,Habitat,SppObs,HU6
040292	ST		<u>Shrike, migrant loggerhead</u>	Lanius ludovicianus migrans		BOVA
040093	FS	II	<u>Eagle, bald</u>	Haliaeetus leucocephalus	<u>Yes</u>	BOVA,BAEANests,HU6
060029	FS	III	<u>Lance, yellow</u>	Elliptio lanceolata	<u>Yes</u>	BOVA,SppObs,HU6
030063	CC	III	<u>Turtle, spotted</u>	Clemmys guttata		BOVA,HU6
030012	CC	IV	<u>Rattlesnake, timber</u>	Crotalus horridus		BOVA,HU6
040225		I	<u>Sapsucker, yellow- bellied</u>	Sphyrapicus varius		BOVA
040319		I	<u>Warbler, black- throated green</u>	Dendroica virens		BOVA

060084	I	<u>Pigtoe, Virginia</u>	Lexingtonia subplana		BOVA
040052	II	<u>Duck, American black</u>	Anas rubripes		BOVA,HU6
040029	II	<u>Heron, little blue</u>	Egretta caerulea caerulea		BOVA
040105	II	<u>Rail king</u>	Rallus elegans		BOVA
040320	II	<u>Warbler, cerulean</u>	Dendroica cerulea		BOVA,HU6
040266	II	<u>Wren, winter</u>	Troglodytes troglodytes		BOVA
030068	III	<u>Turtle, eastern box</u>	Terrapene carolina carolina		BOVA,HU6
040094	III	<u>Harrier, northern</u>	Circus cyaneus		BOVA,HU6

To view **All 439 species** [View 439](#)

\* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FC=Federal Candidate; FS=Federal Species of Concern; CC=Collection Concern

\*\* I=VA Wildlife Action Plan - Tier I - Critical Conservation Need;  
 II=VA Wildlife Action Plan - Tier II - Very High Conservation Need;  
 III=VA Wildlife Action Plan - Tier III - High Conservation Need;  
 IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

[View Map of All Query Results from All Observation Tables](#)

Bat Colonies or Hibernacula: **Not Known**

**Anadromous Fish Use Streams (2 records)**

[View Map of All Anadromous Fish Use Streams](#)

Stream ID	Stream Name	Reach Status	Anadromous Fish Species			View Map
			Different Species	Highest TE*	Highest Tier**	
P133	<u>Rivanna river</u>	Potential	0			<a href="#">Yes</a>
P189	<u>James River 4</u>	Potential	0			<a href="#">Yes</a>

**Impediments to Fish Passage** (1 records)[View Map of All Fish Impediments](#)

ID	Name	River	View Map
685	LEON HANSEN DAM	HOPPER ROCK CREEK	Yes

**Colonial Water Bird Survey**

N/A

**Threatened and Endangered Waters** (4 Reaches)[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
<a href="#">James River (02080203)</a>	FSSE	060006	SE	II	<a href="#">Floater, brook</a>	Alasmidonta varicosa	Yes
		060081	ST	II	<a href="#">Floater, green</a>	Lasmigona subviridis	
		060173	FSST	II	<a href="#">Pigtoe, Atlantic</a>	Fusconaia masoni	
<a href="#">James River (02080205)</a>	FSSE	060006	SE	II	<a href="#">Floater, brook</a>	Alasmidonta varicosa	Yes
		060081	ST	II	<a href="#">Floater, green</a>	Lasmigona subviridis	
		060173	FSST	II	<a href="#">Pigtoe, Atlantic</a>	Fusconaia masoni	
<a href="#">James River (02080205)</a>	FSSE	060006	SE	II	<a href="#">Floater, brook</a>	Alasmidonta varicosa	Yes
		060173	FSST	II	<a href="#">Pigtoe, Atlantic</a>	Fusconaia masoni	
<a href="#">Rivanna River (02080204)</a>	FSST	060081	ST	II	<a href="#">Floater, green</a>	Lasmigona subviridis	Yes
		060173	FSST	II	<a href="#">Pigtoe, Atlantic</a>	Fusconaia masoni	

**Managed Trout Streams**

N/A

**Bald Eagle Concentration Areas and Roosts**

N/A

**Bald Eagle Nests** (2 records)[View Map of All Query Results  
Bald Eagle Nests](#)

Nest	N Obs	Latest Date	DGIF Nest Status	View Map
<a href="#">CM0401</a>	2	May 1 2004	HISTORIC	<a href="#">Yes</a>
<a href="#">CM1001</a>	1	May 10 2010	UNKNOWN	<a href="#">Yes</a>

Displayed 2 Bald Eagle Nests

**Species Observations** (82 records - displaying first 20, 8  
Observations with Threatened or  
Endangered species)[View Map of All Query Results  
Species Observations](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
<a href="#">3551</a>	SppObs	Jan 1 1900	Div. Natural Heritage	1	FSST	II	<a href="#">Yes</a>
<a href="#">311815</a>	SppObs	Aug 30 2005	Savidge, Timothy	10	FS	III	<a href="#">Yes</a>
<a href="#">8692</a>	SppObs	Sep 24 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FS	III	<a href="#">Yes</a>
<a href="#">8691</a>	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FS	III	<a href="#">Yes</a>
<a href="#">8689</a>	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FS	III	<a href="#">Yes</a>
<a href="#">8687</a>	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FS	III	<a href="#">Yes</a>
<a href="#">8690</a>	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FS	III	<a href="#">Yes</a>
<a href="#">8686</a>	SppObs	Sep 22 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FS	III	<a href="#">Yes</a>

<a href="#">311816</a>	SppObs	Aug 31 2005	Savidge, Timothy	8		III	<a href="#">Yes</a>
<a href="#">315603</a>	SppObs	Aug 30 2005	T. Savidge, T. Dickinson, S. Garriock, K. Montieth	5		III	<a href="#">Yes</a>
<a href="#">375474</a>	Aquatics	Aug 27 1998	M. McGregor, P. Burgess, Sheila Harpster	15		III	<a href="#">Yes</a>
<a href="#">375244</a>	Aquatics	Oct 4 2007	B. T. Watson, M. E. Bradley	5		IV	<a href="#">Yes</a>
<a href="#">315604</a>	SppObs	Aug 31 2005	T. Savidge, T. Dickinson, S. Garriock, K. Montieth	2		IV	<a href="#">Yes</a>
<a href="#">311818</a>	SppObs	Aug 31 2005	Savidge, Timothy	6		IV	<a href="#">Yes</a>
<a href="#">65573</a>	SppObs	Sep 18 2001	JOHN M. ALDERMAN (PRINCIPLE PERMITTEE)	2		IV	<a href="#">Yes</a>
<a href="#">67829</a>	SppObs	Jul 5 2001	Rick Browder (Principle Permittee)	4		IV	<a href="#">Yes</a>
<a href="#">11623</a>	SppObs	Sep 11 2000	ANGERMEIER ET AL	29		IV	<a href="#">Yes</a>
<a href="#">340254</a>	SppObs	Aug 20 1998	K. Woodward, P. Wheeler	19		IV	<a href="#">Yes</a>
<a href="#">11624</a>	SppObs	Sep 12 1990	ANGERMEIER ET AL	37		IV	<a href="#">Yes</a>
<a href="#">11622</a>	SppObs	Sep 10 1990	ANGERMEIER ET AL	22		IV	<a href="#">Yes</a>

Displayed 20 Species Observations

**Selected 82 Observations** [View all 82 Species Observations](#)

**Habitat Predicted for Aquatic WAP Tier I & II Species** (6 Reaches)

[View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species](#)

Stream Name	Tier Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (20802031)	FSSE	060006	SE	II	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
		060081	ST	II	<a href="#">Floater, green</a>	Lasmigona subviridis	
					<a href="#">Pigtoe,</a>	Fusconaia	

		060173	FSST	II	<u>Atlantic</u>	masoni	
James River (20802032)	FSSE	060006	SE	II	<u>Floater, brook</u>	Alasmidonta varicosa	<u>Yes</u>
		060081	ST	II	<u>Floater, green</u>	Lasmigona subviridis	
		060173	FSST	II	<u>Pigtoe, Atlantic</u>	Fusconaia masoni	
James River (20802051)	FSSE	060006	SE	II	<u>Floater, brook</u>	Alasmidonta varicosa	<u>Yes</u>
		060081	ST	II	<u>Floater, green</u>	Lasmigona subviridis	
		060173	FSST	II	<u>Pigtoe, Atlantic</u>	Fusconaia masoni	
James River (20802052)	FSSE	060006	SE	II	<u>Floater, brook</u>	Alasmidonta varicosa	<u>Yes</u>
		060081	ST	II	<u>Floater, green</u>	Lasmigona subviridis	
		060173	FSST	II	<u>Pigtoe, Atlantic</u>	Fusconaia masoni	
Rivanna River (20802041)	FSST	060081	ST	II	<u>Floater, green</u>	Lasmigona subviridis	<u>Yes</u>
		060173	FSST	II	<u>Pigtoe, Atlantic</u>	Fusconaia masoni	
Rivanna River (20802042)	FSST	060081	ST	II	<u>Floater, green</u>	Lasmigona subviridis	<u>Yes</u>
		060173	FSST	II	<u>Pigtoe, Atlantic</u>	Fusconaia masoni	

**Habitat Predicted for Terrestrial WAP Tier I & II Species**

N/A

**Virginia Breeding Bird Atlas Blocks (1 records)**

[View Map of All Query Results](#)  
[Virginia Breeding Bird Atlas Blocks](#)

BBA ID	Atlas Quadrangle Block Name	Breeding Bird Atlas Species			View Map
		Different Species	Highest TE*	Highest Tier**	
45116	<u>Columbia, SE</u>	66		IV	Yes

**Public Holdings:**

N/A

**Summary of BOVA Species Associated with Cities and Counties of the Commonwealth of Virginia:**

FIPS Code	City and County Name	Different Species	Highest TE	Highest Tier
049	<u>Cumberland</u>	348	FSST	I
065	<u>Fluvanna</u>	346	FSST	I
075	<u>Goochland</u>	389	FSST	I

**USGS 7.5' Quadrangles:**

Lakeside Village  
Columbia

**USGS NRCS Watersheds in Virginia:**

N/A

**USGS National 6th Order Watersheds Summary of Wildlife Action Plan Tier I, II, III, and IV Species:**

HU6 Code	USGS 6th Order Hydrologic Unit	Different Species	Highest TE	Highest Tier
JM58	<u>James River-Bear Garden Creek</u>	54	FSST	II
JM60	<u>Middle Byrd Creek</u>	47	FSST	II
JM62	<u>James River-Hooper Rock Creek</u>	56	FSST	II
JR22	<u>Rivanna River-Carys Creek</u>	48	FSST	II

Compiled on 1/22/2014, 9:31:08 AM 1516470.0 report=all searchType= R dist= 3218.688 poi= 37,45,06.6 -78,10,02.4

PixelSize=64; Anadromous=0.038395; BBA=0.060369; BECAR=0.030706; Bats=0.040959; Buffer=0.161328; County=0.072148; HU6=0.139324; Impediments=0.027769; Init=0.203689; PublicLands=0.04807; Quad=0.050699; SppObs=0.930579; TEWaters=0.048799; TierReaches=0.067596; TierTerrestrial=0.088417; Total=2.186125; Trout=0.0376; huva=0.062367

ADDITIONAL INFO  
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### Threatened and Endangered Waters

37,45,06.6 -78,10,02.4  
is the Search Point

#### Show Position Rings

Yes  No  
1 mile and 1/4 mile at the Search Point

#### Show Search Area

Yes  No  
2 Search distance miles radius

Search Point is at map center

#### Base Map Choices

Topography

#### Map Overlay Choices

Current List: Position, Search, TEWaters

#### Map Overlay Legend

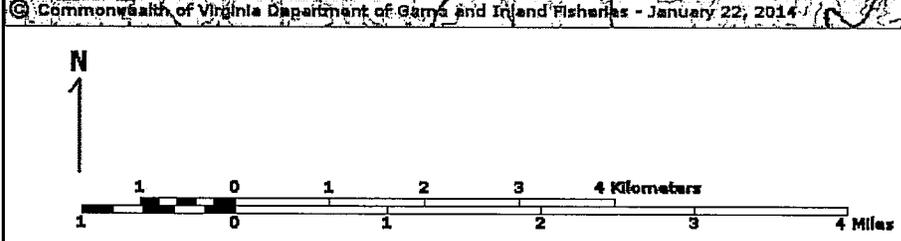
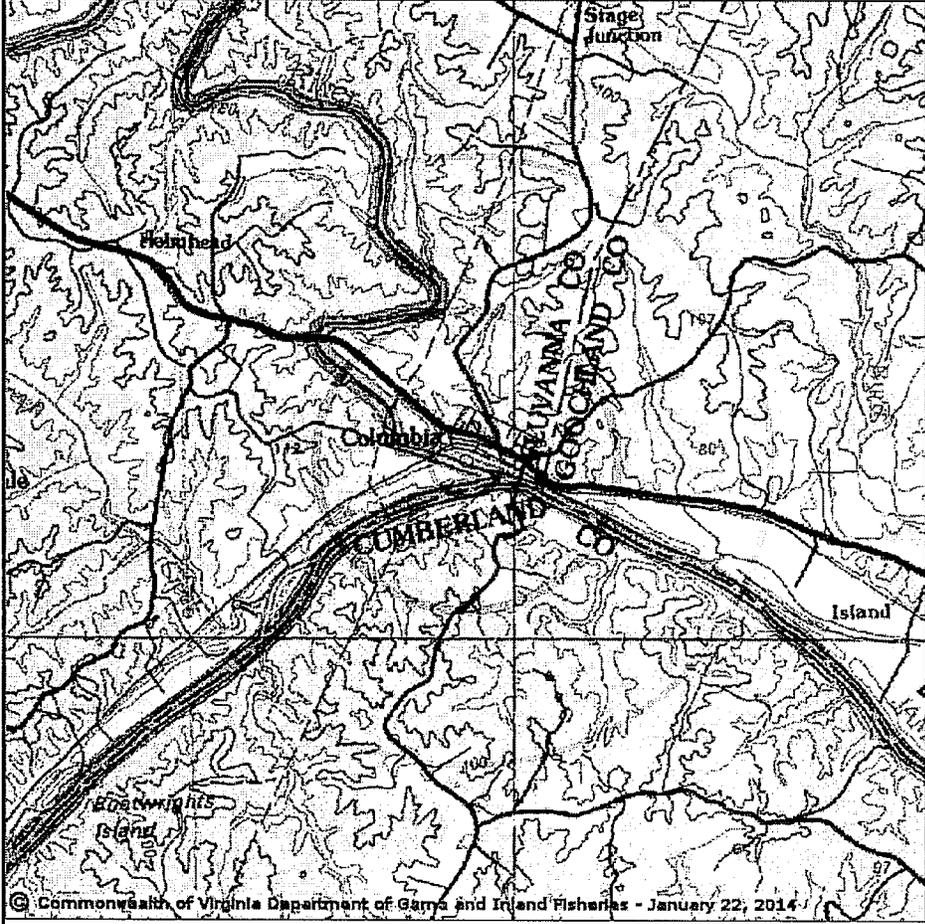
**T & E Waters**  
 Federal  
 State

 Position Rings  
1 mile and 1/4 mile at the Search Point

 2 mile radius Search Area



Refresh Browser Page  
Map Click **Pan** **To** **M** Map Scale **In** **Zoom** **Out** Screen Size **Small** **Size** **Big** **Help**



Point of Search 37,45,06.6 -78,10,02.4  
Map Location 37,45,06.6 -78,10,02.4

- Select Coordinate System:  Degrees, Minutes, Seconds Latitude - Longitude  
 Decimal Degrees Latitude - Longitude  
 Meters UTM NAD83 East North Zone  
 Meters UTM NAD27 East North Zone

Base Map source: USGS 1:100,000 topographic maps (see [Microsoft.terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 744762 and top 4186860. Pixel size is 16 meters. Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixels. The map display represents 9600 meters east to west by 9600 meters north to south for a total of 92.1 square kilometers. The map display represents 21501 feet east to west by 21501 feet north to south for a total of 25.5 square miles.

VaFWS Map

represents 31501 feet east to west by 31501 feet north to south for a total of 35.5 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic

<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2014-01-22 09:36:33 (qa/qc December 5, 2012 8:04 - tn=516475.0

dist=3218.688 I)

\$poi=37.7518333 -78.1673333

| [DGIF](#) | [Credits](#) | [Disclaimer](#) | [Contact \[shirl.dressler@dgif.virginia.gov\]\(mailto:shirl.dressler@dgif.virginia.gov\)](#) | [Please view our \[privacy policy\]\(#\)](#) |

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ADDITIONAL INFO  
REVISION



# IPaC - Information, Planning, and Conservation System

Environmental Conservation Online System

- <http://www.fws.gov>
- [IPaC Home Page \(/ipac/\)](#)
- [Initial Project Scoping \(/ipac/wizard/chooseLocation!prepare.action\)](#)
- [Project Builder \(\)](#)
- [FAQs \(/ipac/faqs.jsp\)](#)

## Step 1 Natural Resources of Concern

[\(/ipac/wizard/chooseLocation!prepare.action\)](#)

Location **An online Endangered Species Act species list IS available on this page for your project area, represented by the office(s) listed below.**

[Save o](#)

## Step 2

[\(/ipac/wizard/chooseActivities!prepare.action\)](#)

Activities **The Endangered Species Act species list below is for planning purposes only – it is not an official species list. To request an official species list, click the [Request an Official Species list](#) link to the right and follow the instructions.**

[/save](#)

## Step 3

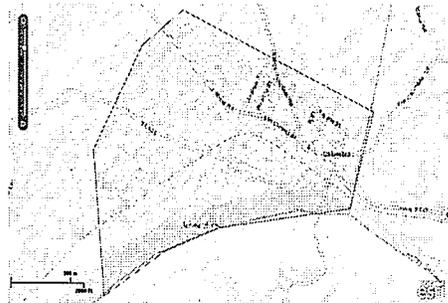
Trust resources list

Virginia Ecological Services Field Office  
 6669 SHORT LANE  
 GLOUCESTER, VA 23061  
 (804) 693-6694  
<http://www.fws.gov/northeast/virginiafield/> <http://www.fws.gov/northeast/virginiafield/>

## Step 4

Conservation measures

Project Location Map:



Note: The map reflects the map layers selected on the Step 1 Location page. To change what appears on this map, return to the Location page and adjust the map layers.

Project Counties:

Cumberland, VA | Fluvanna, VA | Goochland, VA

Project type: Water Supply / Delivery

### Endangered Species Act Species List (USFWS Endangered Species Program <http://www.usfws.gov>)

There are a total of 1 threatened, endangered, or candidate species on your species list. Species on this list should be conspecific species that exist in another geographic area. For example, certain fishes may appear on the species list because a project area listed under the Has Critical Habitat column may or may not lie within your project area. See the Critical habitats within your project area. Please contact the designated FWS office if you have questions.

Species that should be considered in an effects analysis for your project:

Clams	Status	
James spiny mussel ( <i>Pleurobema collina</i> ) Population: Entire	Endangered ☉	<a href="#">species info (/ipac/wizard/speciesInformation/showSpeciesInformation.action?spcode)</a>

[Don't see a species you expect to see? \(#\)](#)

Critical habitats within your project area:

There are no critical habitats within your project area.

Trust Resources

**FWS National Wildlife Refuges (USFWS National Wildlife Refuges Program (<http://refuge.fws.gov>))**

*There are no National Wildlife Refuges found within the vicinity of your project.*

**FWS Migratory Birds (USFWS Migratory Bird Program (<http://www.fws.gov/migratorybirds/>))**

Most species of birds, including eagles and other raptors, are protected under the Migratory Bird Treaty Act (16 U.S.C. protection under the **Bald and Golden Eagle Protection Act** (<http://www.fws.gov/midwest/eagle/protectflaws.html>) **Concern (2008)** ([http://library.fws.gov/Bird\\_Publications/BCC2008.pdf](http://library.fws.gov/Bird_Publications/BCC2008.pdf)) report identifies species, subspecies, and potential additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C.

*Migratory bird information is not available for your project location.*

**NWI Wetlands (USFWS National Wetlands Inventory (<http://www.fws.gov/wetlands/>)).**

The U.S. Fish and Wildlife Service is the principal Federal agency that provides information on the extent and status of wetlands within your immediate project area, wetlands outside your project area, and the hydrologic nature of wetlands (for example, project activities may affect local area). It may be helpful to refer to the USFWS National Wetland Inventory website. The designated FWS office can provide information on the relationship of these requirements to their project with the Regulatory Program of the appropriate State or Federal agency (<http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx>).

The following wetlands intersect your project area.

*To see these wetlands relative to your project area, return to Step 1 and enable the relevant NWI Wetlands map layer.*

Wetland Types	NWI Classification Code	Approximate Acres
Freshwater Forested/Shrub Wetland	<b>PFO1A</b> ( <a href="http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PFO1A">http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PFO1A</a> )	2.21582
Freshwater Forested/Shrub Wetland	<b>PFO1C</b> ( <a href="http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PFO1C">http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PFO1C</a> )	1.650493
Freshwater Forested/Shrub Wetland	<b>PFO1A</b> ( <a href="http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PFO1A">http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PFO1A</a> )	4.307808
Freshwater Forested/Shrub Wetland	<b>PSS1C</b> ( <a href="http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PSS1C">http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PSS1C</a> )	1.560878
Freshwater Forested/Shrub Wetland	<b>PFO1C</b> ( <a href="http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PFO1C">http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PFO1C</a> )	0.275104
Freshwater Pond	<b>PUBHh</b> ( <a href="http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PUBHh">http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PUBHh</a> )	0.726369
Riverine	<b>R2UBH</b> ( <a href="http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=R2UBH">http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=R2UBH</a> )	3640.521059
Freshwater Emergent Wetland	<b>PEM1C</b> ( <a href="http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PEM1C">http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PEM1C</a> )	0.178971
Freshwater Pond	<b>PUBHx</b> ( <a href="http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PUBHx">http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PUBHx</a> )	0.173213
Freshwater Forested/Shrub Wetland	<b>PSS1/EM1Ad</b> ( <a href="http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PSS1/EM1Ad">http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PSS1/EM1Ad</a> )	41.501291
Freshwater Pond	<b>PUBHx</b> ( <a href="http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PUBHx">http://137.227.242.85/Data/interpreters/wetlands.aspx?CodeURL=PUBHx</a> )	0.334449

Last updated: January 22, 2014

[ECOS Home \(ecos/indexPublic.do\)](http://ecos.fws.gov/ecos/indexPublic.do) | [Contact Us \(ecos/helpdesk.do\)](http://ecos.fws.gov/ecos/helpdesk.do)

# APPENDIX F

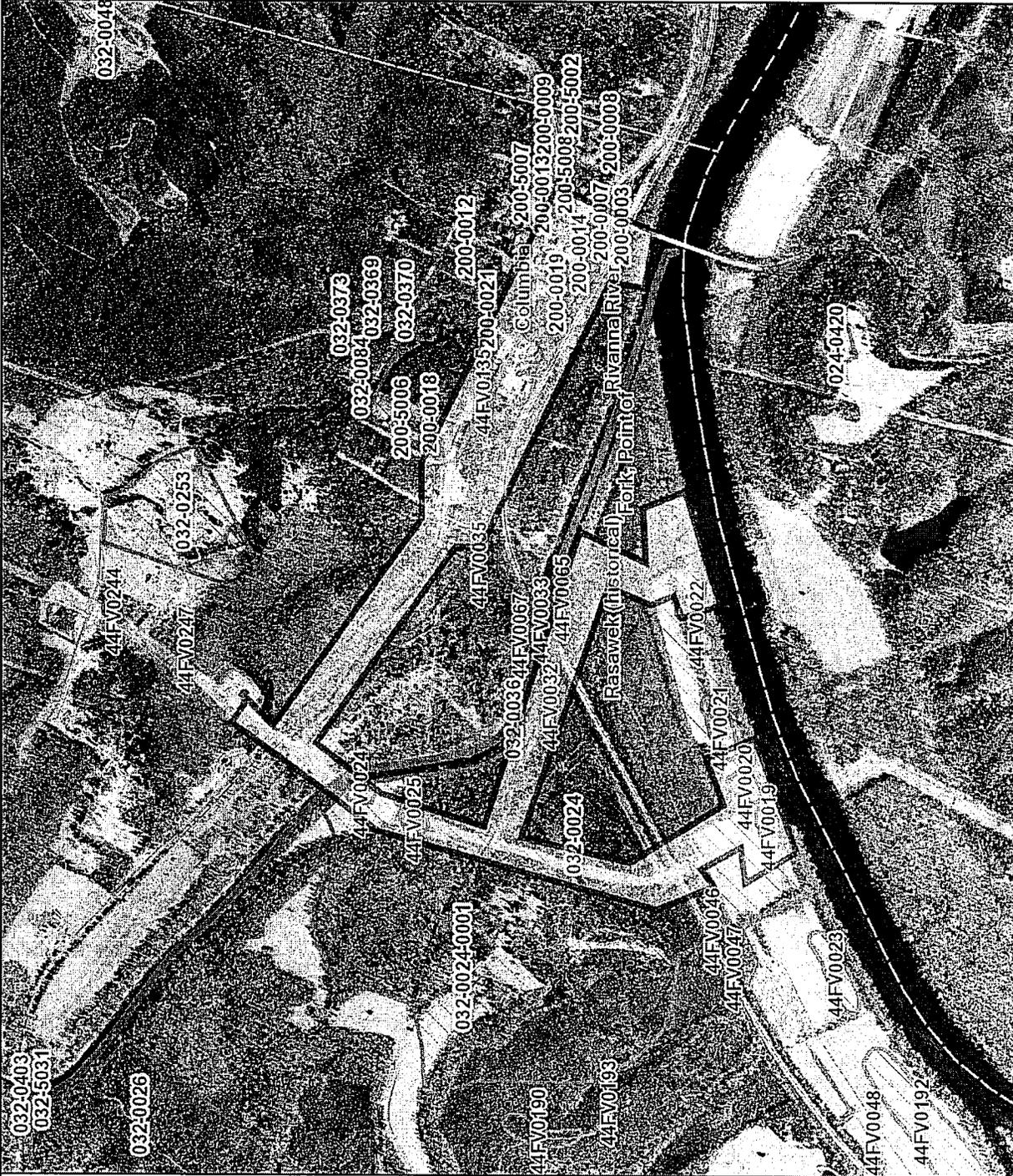
ADDITIONAL INFO  
REVISION

Virginia Dept. of Historic Resources  
**W-CRIS**

Virginia Cultural Resource Information System

**Legend**

-  Architecture Resources
-  Architecture Labels
-  Individual Historic District Properties
-  Archaeological Resources
-  Archaeology Labels
-  USGS GIS Place names
-  County Boundaries



**Title:**

**Date: 1/21/2014**

**DISCLAIMER:** Records of the Virginia Department of Historic Resources (DHR) have been gathered over many years from a variety of sources and the representation depicted is a cumulative view of field observations over time and may not reflect current ground conditions. The map is for general information purposes and is not intended for engineering, legal or other site-specific uses. Map may contain errors and is provided "as-is". More information is available in the DHR Archives located at DHR's Richmond office.

Notice if AE sites: Locations of archaeological sites may be sensitive to the National Historic Preservation Act (NHPA), and the Archaeological Resources Protection Act (ARPA) and Code of Virginia § 2-2-3705.7 (10). Release of precise locations may threaten archaeological sites and historic resources.