

Appendix B

Public Involvement and Agency Coordination

BLACKSNAKE CREEK FLOOD CONTROL PROJECT INFORMATIONAL HANDOUT

The Blacksnake Creek area in North St. Joseph has a long history of flooding. There have been damaging floods reported in 1849, 1943, 1959, 1962 and 1984. There have also been many other times where the stream flow overtopped Karnes Road, but not in a great enough amount to cause significant property damage.

The City is currently working with the United States Army Corps of Engineers-Kansas City Division (USACE-KCD) in order to help provide flood relief for this area, which is south of Karnes Road and east of St. Joseph Ave. The USACE has a 205 Program that will provide up to 65% of the cost of the construction.

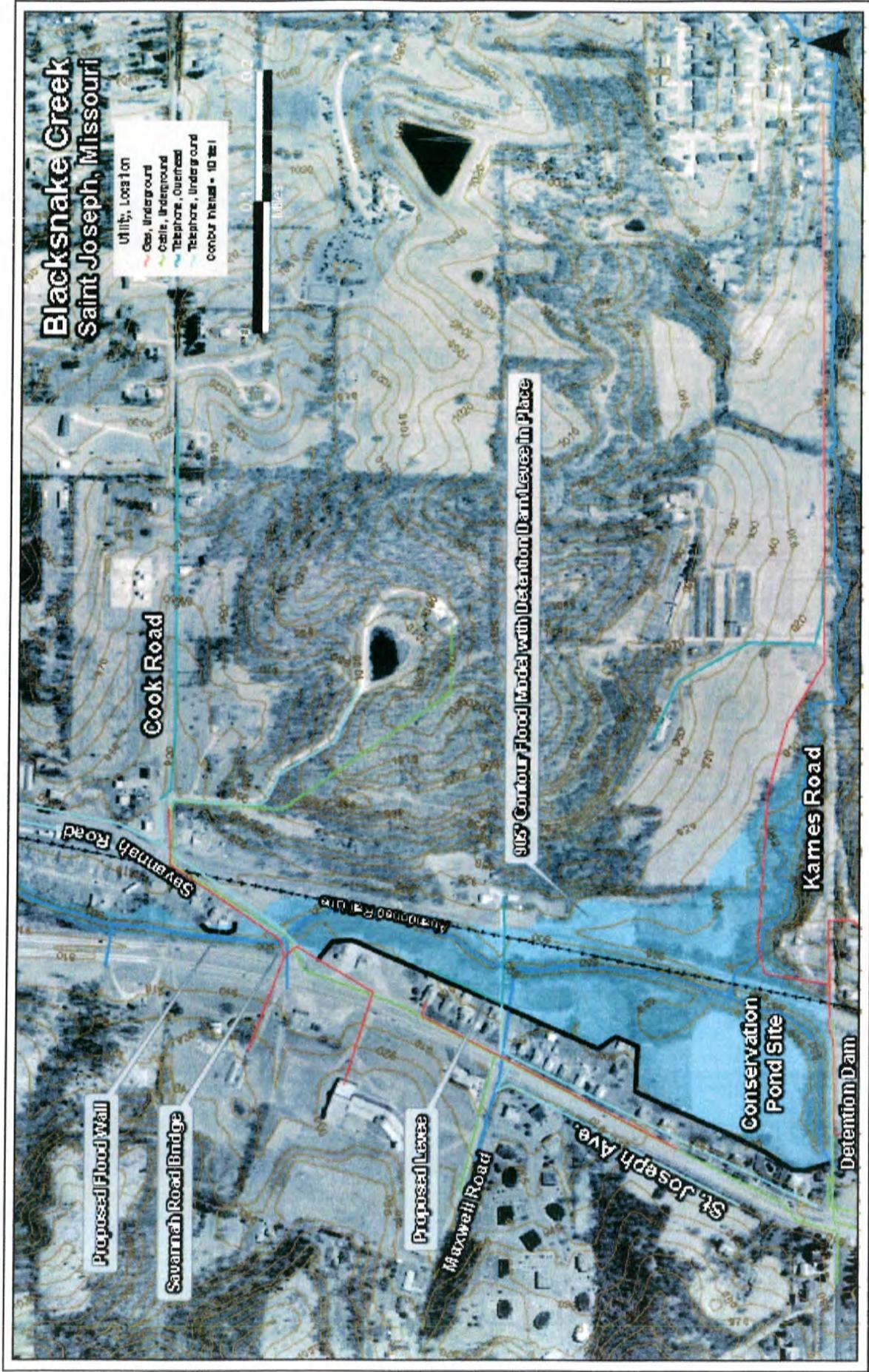
At least two other flood control studies have been completed in the past, with both recommending a similar solution to the one being currently proposed by the USACE-KCD. This current proposal is for a stormwater detention basin to be constructed north of Karnes Road and east of St. Joseph Ave. This proposal is shown in the drawing labeled Attachment 1. During large rain events water that would have normally overtopped Karnes Road would be detained North of Karnes Road. The water would be captured by a new earth dam with Karnes Road being reconstructed on top of the new dam. Karnes Road would be raised in elevation up to 12 feet so that it would be almost a level roadway from St. Joseph Ave. east to past the old railroad right-of-way.

The blue shaded area in attachment 1 is the proposed detention area. During the very large rain events which happen very infrequently, the entire blue shaded area would be utilized to hold back the storm water. The 1984 rainstorm for instance would have filled a significant portion of the blue shaded area but would not likely have filled the entire area.

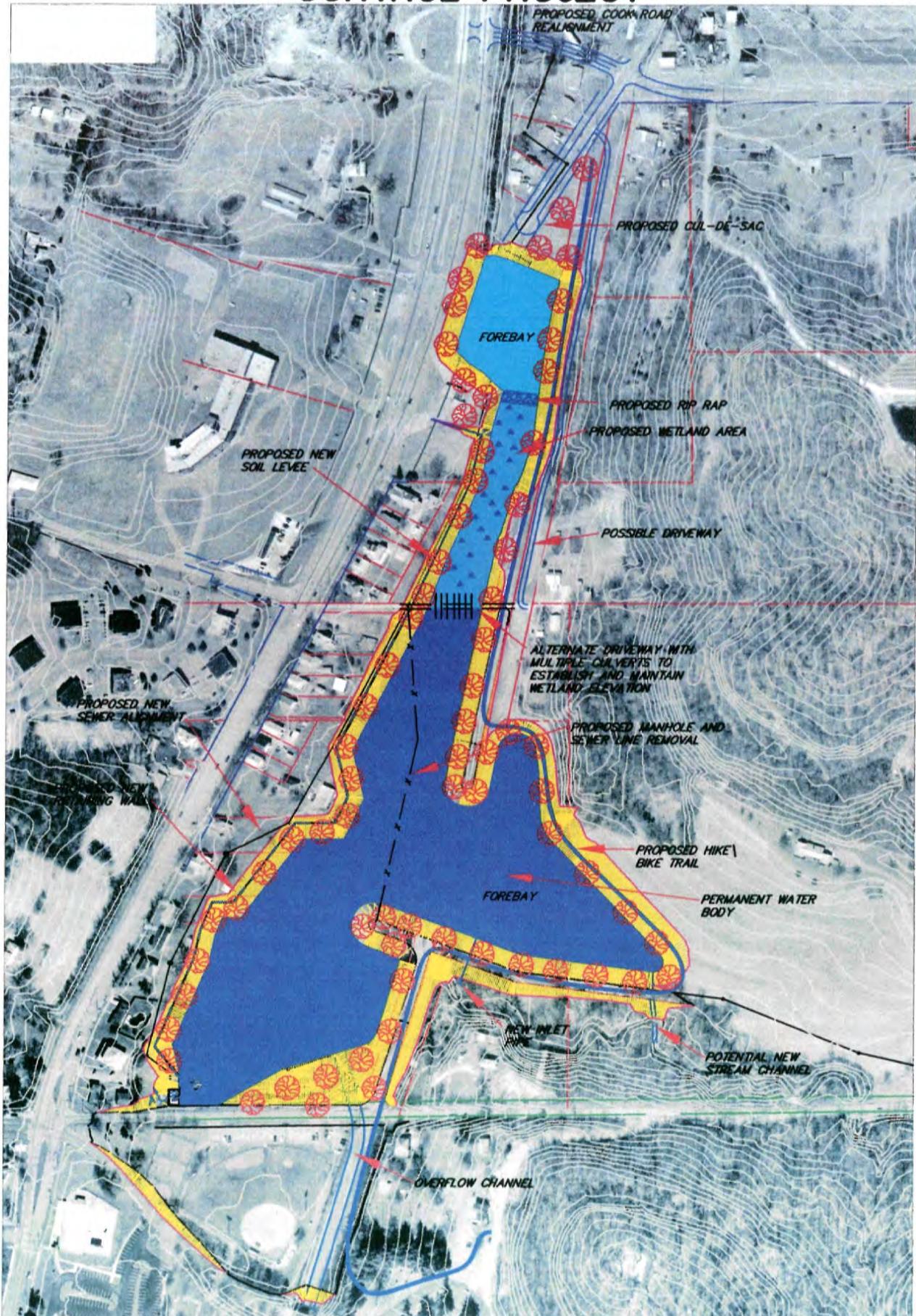
The enhancements being considered by the City (shown in attachment 2) could include a lake of up to 16 acres, hike and bike trails, water quality improvements and roadway reconstruction. The project is still in the early stages and the final plan has not yet been identified. It is expected that construction will begin in 2008 or 2009 for which ever flood protection method is ultimately selected.

The purpose of tonight's meeting is to present the project to the Council Committees and affected public at this conceptual stage so that input can be provided regarding the project. Additionally city staff is seeking direction from the Council Committees this evening with regard to continued pursuit of the enhancements/alternatives currently proposed by staff. Pursuit of the enhancements and alternatives with the USACE-KCD will likely increase the cost of the feasibility study but will allow for opportunities to review and approve a more detailed design proposal and construction cost estimate.

USACE-KCD BLACKSNAKE 205 FLOOD CONTROL PROJECT



POTENTIAL CITY ENHANCEMENTS TO USAGE - RCD FLOOD CONTROL PROJECT



Comment Form

Blacksnake Creek Section 205 Feasibility Study April 7, 2005

Name: _____

Address: _____

Tel. No. _____

Tract No. _____

What specific concerns do you have regarding your property as it relates to this project?

Is there any additional information you would like to share regarding this project and/or its impact to you property?

Do you believe that relieving the flooding that occurs on the Blacksnake watershed should be a priority project for the City of St. Joseph?

Additional Comments:

Please use back if necessary.

Blacksnake Creek Public Meeting October 9, 2014 Responses to Public Comments

Detention Basin

- Proponent of 100-year solution (Burnside resident experiences flooding). **The proposed detention basin will retain up to the 25-year return storm at the site. However, the project provides significant flood risk reduction benefits in that many structures will be removed from the 100-yr flood plain, and many others will have flood depths and risk significantly lowered. The project cannot provide 100-yr protection for all structures in the floodplain, this would not be economically feasible. Detention alternatives providing greater protection levels were evaluated, but the resulting project design elements and costs did not fit within the scope of the United States Army Corps of Engineers' (USACE) Section 205 Program. The current solution proposed offers the maximum level of flood protection possible within USACE's Section 205 Program.**
- Bug control and open water? **Design and construction for positive drainage and minimizing the potential for standing water will be important in helping to manage this concern. These are key considerations which will be addressed in the design phase.**
- Basin will result in loss of portion of property. **Some properties will be affected. The impacts to each property will be evaluated during the design phase. The City will be responsible for coordinating directly with property owner's related to the acquisition of property or easements.**
- Pay \$170.00 a month to FEMA - ridiculous! Can't sell my house because of it! **The USACE and City recognize the need for additional flood control in the Blacksnake basin. That is one of the main reasons for implementing the Blacksnake Detention Basin project. That said, the Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program not the USACE. To obtain a reduction in flood insurance premiums, a letter of map revision would need to be paid for and completed by the City after completion of the USACE Blacksnake 205 Project. The USACE project is focused on reducing ongoing flood damage and losses in the Blacksnake basin but FEMA will need to be involved at a later date to obtain credit for this effort to reduce the Flood Insurance Premiums.**
- Impact on existing recreational amenities. **The existing ball field located south of Karnes Road will be removed as a result of the project. The proposed USACE Section 205 project does not contain any new recreational features. That said, the City is planning to either relocate recreational features and/or install new recreational features impacted by the USACE Section 205 project. The USACE Section 205 project is strictly focused on the installation of a flood control detention basin while the City, outside of the USACE Section 205 project, is planning to offset the impacts to the recreational features.**
- Request for link regarding federal requirements for combined sewer overflow control. **This information was previously provided directly to the individual who made the request, but is available at: <http://www.stjoemo.info/index.aspx?nid=316> .**

- Push west to keep his trees, etc. (lives on the east side of cul-de-sac on Cook Road.) **The detention project will minimize impacts to existing trees at the periphery of the basin footprint where possible. Loss of trees has been identified as a project impact and mitigation is planned. The final footprint of the detention basin will be determined during the design phase.**
- Drainage concerns. **Construction of the project for appropriate drainage is a key design consideration. Drainage issues were mentioned as a concern by some property owners along St. Joseph Avenue due to the potential of levees or floodwalls. The proposed USACE Section 205 project plan does not have built-up features such as levees and floodwalls that would contribute to these concerns along St. Joseph Avenue.**
- Appearance of basin. **Appearance will be a consideration during the design phase of the project. Some meander features and small planting areas may be built where the base flow moves through the basin. Maintenance will also be considered when designing these features.**
- Will you use aggregate surface? If it is clay material it will be swamp-like and could be attractive for Mosquitoes. **Surfacing and drainage issues will be addressed during the design phase. Drainage will be a consideration in the selection of surfacing and designing the grading plan.**
- Access concerns: public access to my backyard. **Public access will not be provided to private properties. Any areas required for public access will be acquired by the City as part of its CSO project. Sensitivity to that subject will be considered and design elements included to minimize visual concerns. Any access requirements for the detention basin will be taken into consideration during the design phase..**
- Aesthetics of losing the trees. **The loss of trees within the basin foot print is unavoidable. The detention project will minimize impacts to existing trees at the periphery of the basin footprint where possible. Mitigation plans have been developed to identify potential locations for replanting. Plantings on the periphery of the basin foot print may also be considered.**
- Easements versus property acquisition. **Acquisition of properties within the detention basin footprint will be required. Maintenance or access easements may also be required. The City is responsible for land acquisition required for the project and will coordinate directly with individual property owners . Final land acquisition requirements will be determined during the design phase.**
- Do not want a levee in my backyard. **Alternatives with built-up structures such as levees and floodwalls are not part of USACE's proposed Section 205 Program project.**
- Question on timing of release of the USACE report. **At the time of the public meeting it was anticipated that a December or January release could be made. Due to the timing of final reviews, the release was delayed. Currently, the report is scheduled for release in 2015.**
- What type of soil was considered in the feasibility study/conceptual design and budget of the basin? **Conceptual design is that the basin topsoil as currently exists would be removed and then**

backfilled for planting back to grass. Some riprap/rocked features to promote proper drainage back into the re-aligned creek and to maintain bank stability in some locations would be required. This issue will receive further consideration during the design phase.

- Rip Rap class aggregate recommended in the main creek channel with a mix Rip Rap to smaller aggregate in the dry bank area to help with soil drying and mosquitoes. **It is anticipated some riprap/rocked features will be required to promote proper drainage back into the re-aligned creek (as well as tieback features to hold the new creek bed alignment in place) and to maintain bank stability in some locations. This will receive further consideration during the design phase.**

- Where will the current sewer main and underground phone cabling be located? Please provide a conceptual plan for relocating these two utilities. **Existing utilities within the design footprint of the detention basin will require relocation. A preliminary realignment for the sewer relocation is shown the USACE report. The City will implement the required relocation of utilities within the detention basin footprint outside of the USACE's Section 205 Program Project. Additional alignment details for relocated utilities will be available during the design phase of the project. Design details along these lines are confidential with the utilities because of safety and security concerns. No comments will be made concerning this information. .**

- Would the service and access road gravel surfaces be upgraded to an asphalt/concrete material? Building codes don't allow addition of gravel driveways. **The road will meet code requirements. This will be addressed during the design phase.**

- What is preventing the two surfaces from being combined into one road, with a gate located at the entrance off of Cook Road? Reduce the cost by having one 12' wide surface vs. 2-12' wide surfaces and a fence. **The roads will meet code as well as utility access requirements. At this time it was assumed that separate roads will be needed for utility access and residential access. This will be reviewed during the design phase.**

- Are there future plans for upgrading the dry basin to a wet basin? What is that expected timeframe? **The current design plan for the USACE's Section 205 Program basin does not include a wet basin.**

- What additional amenities are planned and what is the public access plan? **There is no plan to provide public access or new amenities via USACE's Section 205 detention project. If the City implements any recreational plans for the area, public access issues will be addressed through the City's planning and implementation process. Public access will not be provided to private properties. Any areas required for public access will be acquired by the City.**

- What is the conceptual plan for the buffer between public and private land? **This will be further addressed during the design phase as the final detention basin footprint is established and easements and maintenance accesses are considered. If the City implements any recreational or access plans for the area, public access issues will be addressed through the City's planning and**

implementation process. Public access will not be provided to private properties. Any areas required for public access will be acquired by the City.

- **Construction timing. It is anticipated that the design effort will take approximately two years, after which time construction activities may begin depending on availability of USACE Section 205 Program funding as well as City matching funds.**

- **Individual property impact concerns. There will be impacts to properties located in proximity to the detention basin. The City is responsible for negotiating easements and access needs with property owners on an individual basis.**

Comments related to the basin's technical design referred to the U.S. Army Corps of Engineers.

Blacksnake Creek Stormwater Separation Improvements Public Meeting Summary



Oct. 9, 2014

Lindbergh Elementary School gymnasium

2812 St. Joseph Ave.

City of St. Joseph, Missouri

5:30 p.m. – 7:00 p.m.

City of St. Joseph Public Works and Transportation Director, Jody Carlson, introduced himself to the audience and said he appreciated everyone's attendance.

Sheila Shockey, Shockey Consulting Services, announced the meeting format for the evening. She said the City of St. Joseph wants to hear from residents in the preliminary stages of the Blacksake project and as the project progresses. Ms. Shockey identified the speakers who would be presenting, and said that there will be opportunities to talk with them and others following the presentation. Those presenting included Page Burks, Black & Veatch Engineering Manager; Christina Ostrander, U.S. Army Corps of Engineers Project Manager; and Matt Schultze, Black & Veatch Project Manager. Ms. Shockey pointed out the locations of stations to obtain more detailed information and ask questions following the meeting. She introduced Ms. Burks.

Project Goals and Background

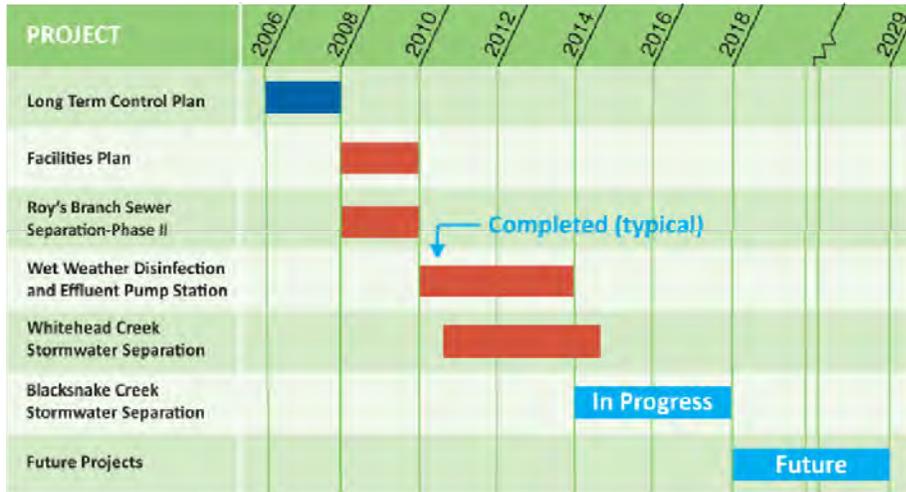
Ms. Burks, Engineering Manager, Black & Veatch, identified the overall goals of the Blacksake Creek improvements:

- complying with regulatory mandates
- offering improvements with the best value, cost effectiveness to the city
- restoring the corridor; putting things back better than we found them
- integrating project elements to save money
- getting public input on the project.

Ms. Burks talked about the City of St. Joseph's Combined Sewer Overflow (CSO) Control Program, and explained combined sewers' function, and combined sewer overflows, which occur when it rains. The sewage and stormwater flows enter the same combined sewer pipe in St. Joseph, and these mingled flows are considered combined sewage. During dry weather, all of the combined sewer flow goes to the treatment plant where it is treated prior to being sent to the Missouri River. During storm events, the high volume of stormwater overwhelms the combined sewer as well as the treatment plant and the combined sewage overflows directly to the river, resulting in a combined sewer overflow (CSO).

The goal is to reduce the combined sewer overflows to the Missouri River. The City of St. Joseph has agreed to a compliance plan and a schedule, including nine different projects over 20 years.

**Initial Phase of the Combined Sewer Overflow Program
Consists of Several Projects**



The Blacksnake Creek Stormwater Separation project is required by the Combined Sewer Overflow (CSO) Control Program. By separating the stormwater from the combined sewer, approximately 2 million gallons a day of flow from Blacksnake Creek will be directed to the Missouri River and will not be treated at the plant. In addition to CSO compliance, this will reduce operations and maintenance costs.

The Blacksnake Creek Stormwater Separation Improvements will be integrated with other needed projects in the vicinity – a flood control detention basin at Karnes Road as well as roadway improvements at Karnes Road/Northwest Parkway and Cook Road. Ms. Burks pointed out benefits of integrating different elements in the project area:

- provides the best value and saves money
- provides opportunities for community benefits
- reduces future CSO program costs
(by addressing other easy-to-separate CSO flows, such as from the Corby Pond area).

Ms. Burks shared the design schedule for the stormwater and roadway improvements:

Design Activity/Stormwater & Roadway	Completion Date
Draft Conceptual Basis of Design Report	September 2014
Final Conceptual Basis of Design Report	December 2014
Surveying & Geotechnical Investigations	Spring 2015
Preliminary Design	Summer 2015
Final Design	Summer 2016

Ms. Burks said the project is in the early phases of the design process and all plans are still concepts at this point. The survey work is scheduled for November 2014 and geotechnical investigations would likely occur in the spring of 2015. The field investigations are required to develop more defined preliminary and final design drawings.

Transporting Stormwater

The methods to transport stormwater have been evaluated at different ranges of flows, such as those during combined sewer overflows or during a 100-year rainfall event. Stormwater can be moved near the surface with a buried pipe, buried box culvert or an open stream channel. It can also be transported with a tunnel, up to 175 feet deep.

Moving the stormwater near the surface would begin at Karnes Road and flow south in the area of the abandoned railway corridor east of St. Joseph Avenue. Ms. Burks showed a topographical illustration with a tunnel, which would likely be used to convey stormwater west to the Missouri River. Tunneling is an effective way to move the stormwater beneath existing infrastructure and challenging topography, such as the river bluffs in this area. Impact to the community would be minimal, occurring only at the entrance and exit of the tunnel. She also showed photos of a working shaft, such as what will be located near the Missouri River, and a tunnel boring machine used to mine the tunnel. The selection of the stormwater conveyance technology will be determined in the preliminary design.

The project team evaluated five different alignment corridors within the Blacksnake Watershed, from Cook Road in the north to Francis Street in the south in an effort to achieve these goals:

- minimize the project cost and the maintenance cost
- minimize private property acquisition
- maximize opportunities for cost-effective community enhancements
- provide the ability to incorporate Corby CSO flows.

An alternative analysis looked at economic and criteria-weighted non-economic factors to determine the “best value” alignment for the City. The non-economic criteria were weighted as follows: functionality, 35 percent; community, 30 percent; sustainability, 20 percent; and constructability, 15 percent.

The City of St. Joseph hosted several events asking the community for their input about community enhancement opportunities and goals for the Blacksnake Creek project. The top four project goals indicated by public input were: growth and development, flood control, ground water and surface water, and safety.

Ms. Burks said the Highland Avenue alignment provides the greatest value to St. Joseph based on an analysis considering economic and non-economic factors.

Detention Basin

Christina Ostrander, Project Manager, U.S. Army Corps of Engineers (USACE), said USACE has worked a number of years on a flood control feasibility study for the project area. She showed the potential location for the detention basin at Karnes Road. She said approximately 140 structures are affected when there is water overtopping at Karnes Road.

Ms. Ostrander presented a recommended plan for the detention basin which includes:

- constructing a dry detention basin with approximately 440 acre-feet of storage
- significantly reducing the flood risk for the St. Joseph Avenue corridor
- preventing an estimated \$3 million in annualized economic flood damages
- minimizing risk for approximately 100 structures from a 100-year flood
- working efficiently in coordination with other City plans to maximize benefits to the area.

This would provide detention for up to a 25-year storm event, saving up to \$3 million in annualized assessed damages and minimizing flooding for 100 structures.

Ms. Ostrander said the next steps for the detention basin include:

- completing the technical review of the draft feasibility report
- publishing the report for public review and incorporate comments as appropriate
- completing the project design in approximately 2015-2016
- constructing the basin in 2017-2019.

Following determination of final details, the USACE will sign a project partnership agreement (PPA) with the City of St. Joseph.

Ms. Ostrander said recreational features can be included with the basin, but they wouldn't be part of the USACE cost share.

Roadways

Matt Schultze, Project Manager, Black & Veatch

Mr. Schultze said the Metropolitan Planning Organization (MPO) has developed a long-range transportation master plan, including roadways and trails. The City of St. Joseph is integrating roadway

improvements in this project through the 2013 Capital Improvements Sales Tax funds. The goal is to enhance public safety and traffic flows. There are also stormwater hydraulic issues associated with the roadways and including them with the stormwater separation project provides additional efficiencies.

Mr. Schultze showed an aerial photograph of the six-way intersection that will be improved to a four-way intersection in the project area near Northwest Parkway and Karnes Road. Road improvements will also eliminate the nearby aging Northwest Parkway bridge in order to resolve bridge maintenance issues. Enhancing the connectivity to Krug Park and the urban trail system is another benefit to including this work in the project, supporting the MPO transportation master plan.

Cook Road is another street improvement that is integrated with the Blacksnake Creek project. The MPO transportation plan identifies rebuilding Cook Road as a future east-west minor arterial roadway in the northern portion of the City and this project is an initial step toward this goal. In addition, the creek is currently funneled into an undersized culvert in this area; the creek will be opened up to improve flow through that area supporting the stormwater separation project.

Opportunities

Mr. Schultze said that the project is addressing these issues:

- putting things back in a better way
- potentially using green solutions to provide function and be an amenity for the community
- integrating project elements to provide efficiencies, such enhancing cost-effectiveness and minimizing community disruptions
- investing in the Northside community
- improving water quality by reducing CSOs and the associated bacteria
- providing improved roadways is important to the community
- working to provide flood control and reduce flood insurance premiums
- exploring opportunities for nature trails, park improvements, coordination with the Remington Nature Center and future possibilities to add detention basin amenities.

Ms. Shockey talked about additional public involvement opportunities in both the spring and summer of 2015. She invited meeting attendees to interact with people at four different stations, including stormwater conveyance alignment selection, detention, potential easements, and green solutions. Project team members were available at each station to write down comments and respond to questions.

Blacksnake Creek Stormwater Separation Improvements

Conceptual Design Public Comments



Public Meeting Oct. 9, 2014

Lindbergh Elementary School gymnasium

2812 St. Joseph Ave.

City of St. Joseph, Missouri

5:30 p.m. – 7:00 p.m.

Meeting Comments (written and verbal)

Public comments received will be considered during preliminary and detailed design.

Detention Basin

- Proponent of 100-year solution (Burnside resident experiences flooding)
- Bug control and open water?
- Basin will result in loss of portion of property
- Pay \$170.00 a month to FEMA - ridiculous! Can't sell my house because of it!
- Impact on existing recreational amenities
- Request for link regarding federal requirements for combined sewer overflow control
- Push west to keep his trees, etc. (lives on the east side of cul-de-sac on Cook Road.)
- Drainage concerns
- Appearance of basin
- Will you use aggregate surface? If it is clay material it will be swamp-like and could be attractive for mosquitoes
- Access concerns: public access to my backyard
- Aesthetics of losing the trees
- Easements versus property acquisition
- Do not want a levee in my backyard
- Question on timing of release of the USACE report
- What type of soil was considered in the feasibility study/conceptual design and budget of the basin?
- Rip Rap class aggregate recommended in the main creek channel with a mix Rip Rap to smaller aggregate in the dry bank area to help with soil drying and mosquitoes
- Where will the current sewer main and underground phone cabling be located? Please provide a conceptual plan for relocating these two utilities.
- Would the service and access road gravel surfaces be upgraded to an asphalt/concrete material? Building codes don't allow addition of gravel driveways.
- What is preventing the two surfaces from being combined into one road, with a gate located at the entrance off of Cook Road? Reduce the cost by having one 12' wide surface vs. 2-12' wide surfaces and a fence.
- Are there future plans for upgrading the dry basin to a wet basin? What is that expected timeframe?
- What additional amenities are planned and what is the public access plan?
- What is the conceptual plan for the buffer between public and private land?
- Construction timing
- Individual property impact concerns

Comments related to the basin's technical design referred to the U.S. Army Corps of Engineers.

Roadways

- Consider a roundabout at Karnes Road and St. Joseph Avenue (some discussion for and some against)
- What is the traffic count at Karnes Road and St. Joseph Avenue during the Holiday Park season?
- Extend Northwest Parkway at Karnes Road and St. Joseph Avenue to I-229, rather than Cook Road improvements, creating a gateway to St. Joseph

Conveyance Alignment

- General agreement with selected alignment
- Uncertain on stream channel conveyance method – provide more information

General/Miscellaneous

- Keep the basketball courts in the vicinity of Northside
- Would like to accomplish Krug Park restoration project
- Concerns over easements/acquisition

Blacksnake Creek Stormwater Separation Improvements

Oct. 9, 2014 Public Meeting Comments

Feedback on Top Public Goals for the Project

Top Three

- Safety - improve public safety
- Flood control
- Reduce congestion

Tell Us What You Think About Green Solutions

What do you think of the following green solutions strategies?

Top Four (in order mentioned)

- Transform vacant lots into community gardens
- Restore streams & natural wet places
- Create water features along parkways & parks
- Soak through pavement

What would you like to see in your community?

Top Three

- Restore streams & natural wet places
- Create water features along parkways & parks
- Provide habitat for birds & butterflies

2015

Missouri Natural Heritage Program Results for Buchanan

Name	State Rank	Global Rank	State Status	Federal Status
Central Plains – Warmwater – Large river	Unranked Code: S?	Not ranked Code: GNR		
Dry loess/glacial till prairie	Imperiled Code: S2	Not ranked Code: GNR		
Dry-mesic loess/glacial till forest	Vulnerable Code: S3	Not ranked Code: GNR		
Dry-mesic loess/glacial till woodland	Vulnerable Code: S3	Not ranked Code: GNR		
Marsh	Imperiled Code: S2	Not ranked Code: GNR		
American Badger <i>Taxidea taxus</i>	Vulnerable Code: S3	Secure Code: G5		
Brassy Minnow <i>Hybognathus hankinsoni</i>	Vulnerable Code: S3	Secure Code: G5		
Common Gallinule <i>Gallinula galeata</i>	Imperiled Code: S2	Secure Code: G5		
Eastern Tiger Salamander <i>Ambystoma tigrinum</i>	Vulnerable Code: S3	Secure Code: G5		
Flathead Chub <i>Platygobio gracilis</i>	Critically imperiled Code: S1	Secure Code: G5	Endangered Code: E	
Great Plains Skink <i>Plestiodon obsoletus</i>	Imperiled Code: S2	Secure Code: G5		
Great Plains Toad <i>Anaxyrus cognatus</i>	Vulnerable Code: S3	Secure Code: G5		
Highfin Carpsucker <i>Carpoides velifer</i>	Imperiled Code: S2	Apparently secure Secure Code: G4G5		
Lake Sturgeon <i>Acipenser fulvescens</i>	Critically imperiled Code: S1	Vulnerable Apparently secure Code: G3G4	Endangered Code: E	
Least Bittern	Vulnerable	Secure		

Name	State Rank	Global Rank	State Status	Federal Status
<i>Ixobrychus exilis</i>	Code: S3	Code: G5		
Loggerhead Shrike <i>Lanius ludovicianus</i>	Imperiled Code: S2	Apparently secure Code: G4		
Long-tailed Weasel <i>Mustela frenata</i>	Vulnerable Code: S3	Secure Code: G5		
Marsh Wren <i>Cistothorus palustris</i>	Vulnerable Code: S3	Secure Code: G5		
Pale Bulrush <i>Scirpus pallidus</i>	Imperiled Code: S2	Secure Code: G5		
Pallid Sturgeon <i>Scaphirhynchus albus</i>	Critically imperiled Code: S1	Imperiled Code: G2	Endangered Code: E	Endangered Code: E
Plains Minnow <i>Hybognathus placitus</i>	Imperiled Code: S2	Apparently secure Code: G4		
Schweinitz's Flatsedge <i>Cyperus schweinitzii</i>	Vulnerable Code: S3	Secure Code: G5		
Skeleton Plant <i>Lygodesmia juncea</i>	Vulnerable Code: S3	Secure Code: G5		
Sora <i>Porzana carolina</i>	Imperiled Code: S2	Secure Code: G5		
Sturgeon Chub <i>Macrhybopsis gelida</i> More information	Vulnerable Code: S3	Vulnerable Code: G3		
Tall Agrimony <i>Agrimonia gryposepala</i>	Unrankable Code: SU	Secure Code: G5		
Thirteen-lined Ground Squirrel <i>Ictidomys tridecemlineatus</i>	Imperiled Code: S2	Secure Code: G5		
Yellow-headed Blackbird <i>Xanthocephalus xanthocephalus</i>	Vulnerable Code: S3	Secure Code: G5		



DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS
700 FEDERAL BUILDING
KANSAS CITY, MISSOURI 64106-2896

Jane Ledwin
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
608 East Cherry Street, Room 200
Columbia, Missouri 65201

Subject: Blacksnake Creek Proposed Detention Pond Project

Per your request, enclosed is a map of the proposed Blacksnake Creek detention pond project. The area marked "Conservation Pond Site" is a corn field and was the project proponent's original design for the project. However, in a recent meeting with the sponsor, the sponsor proposed the creation of a much larger detention pond and removal of a substantial number of older trees. The proposed site is shown on the map as the light blue shaded area. Please note that this project proposal is preliminary at this point and discussions are still on-going. I am merely requesting input from the Fish and Wildlife Service as to the presence of endangered or threatened species, critical habitat, or species of special concern that may be found in the area. Any information you could provide will be helpful and brought to the attention of the sponsor at any future meeting.

Thanks for your assistance,

Matthew D. Vandenberg
Environmental Resources Specialist
Planning Branch, CENWK, PM-PR
Kansas City District
U.S. Army Corps of Engineers
601 E. 12th Street
Kansas City, Missouri 64106-2896



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Columbia Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-0007



Phone: (573) 234-2132 Fax: (573) 234-2181

December 10, 2003

Mr. Matthew Vandenberg
Environmental Resources Specialist
Kansas City District
U.S. Army Corps of Engineers
601 E. 12th Street
Kansas City, Missouri 64103-2896

Dear Mr. Vandenberg:

Please refer to your recent letter, and November 11, 2003, facsimile, regarding the Section 205 Blacksnake Creek Proposed Detention Pond Project in St. Joseph, Missouri. Our office just moved to a new location so I apologize for the delay. Your letter requested information on federally listed species that may occur in the proposed project area. The U.S. Fish and Wildlife Service (Service) has reviewed that information and submits the following comments pursuant to the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) and the Endangered Species Act of 1973, as amended (16 U.S.C. 1541 et seq.).

The only federally listed species likely to occur in the project area is the Indiana bat.

Indiana bat (*Myotis sodalis*), Endangered – From late fall through winter Indiana bats in Missouri hibernate in caves in the Ozarks and Ozark Border Natural Divisions. During the spring and summer, Indiana bats use living, injured (e.g., split trunks and broken limbs from lightning strikes or wind), dead or dying trees for roosting throughout the state. Indiana bat roost trees tend to be greater than 9 inches diameter at breast height (dbh) (optimally greater than 20 inches dbh) with loose or exfoliating bark. Most important are structural characteristics that provide adequate space for bats to roost.

Preferred roost sites are located in forest openings, at the forest edge, or where the overstory canopy allows some sunlight exposure to the roost tree, which is usually within 0.6 miles of water. Indiana bats forage for flying insects (particularly moths) in and around the tree canopy of floodplain, riparian, and upland forests.

If trees suitable for use by Indiana bats are to be removed for the proposed project, they must be removed between October 1st and March 30th to avoid the potential injury or death to roosting individuals and maternity colonies. If it is not feasible to schedule tree removal during this

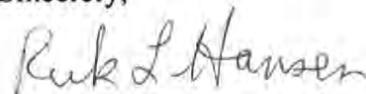
period, the Service requires a survey, to determine the presence or absence of Indiana bats, be conducted by a qualified biologist. Survey efforts should include using a combination of mist nets and bat detection devices [e.g., "Anabat" (© Titley Electronics, Ballina, New South Wales, Australia)]. If it is determined that a survey for Indiana bats is needed, please contact the Missouri Ecological Services Field Office to obtain specific information regarding survey protocol. If surveys indicate that Indiana bats are using trees proposed to be removed during their breeding season (April 1 to September 30) further consultation with the Service under section 7 of the Act will be required.

Although not requested, the Service has continuing concerns regarding alteration/degradation of urban stream corridors. Numerous fish and wildlife species benefit from intact riparian corridors in urban and rural settings. Such corridors also help maintain, and in some cases, improve water quality. It seems the St. Joseph vicinity is experiencing some residential expansion as are many areas north of Kansas City. In considering various project alternatives, we recommend the Corps and local sponsor plan for reasonably foreseeable long-term development of the watershed. In fact, in some areas, several smaller detention basins throughout the watershed may be a more efficient approach to a large basin at the bottom of the watershed. In addition, it may also be more cost-effective to designate greenspace/floodway areas prior to development of the surrounding lands. Lastly, we request a schedule (if possible) for project planning and identification of any Fish and Wildlife Coordination Act input the Corps will need from the Service.

Finally, I suggest you check with the local office of the Missouri Department of Conservation (816/227-3100) regarding specific fish and wildlife resource concerns in the project area.

Thank you for the opportunity to comment on the proposed project. If you have any questions regarding our comments, please call Ms. Jane Ledwin at 573/234-2132, extension 109.

Sincerely,



for Charles M. Scott
Field Supervisor

cc: MDC, Jefferson City, MO (Canaday)



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, KANSAS CITY DISTRICT
635 FEDERAL BUILDING
601 E 12TH STREET
KANSAS CITY MO 64106-2824

Planning, Programs and
Project Management Division

April 5, 2013

Mr. Rick Hansen
U.S. Fish and Wildlife Service
Columbia Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-0007

Dear Mr. Hansen:

RE: City of St. Joseph, Missouri Blacksnake Creek Proposed Detention Pond Project for Flood Risk Management

Thank you for your December 10, 2003 response in regards to federally listed species that may occur in the proposed project area. After receiving project input from the public and the City of St. Joseph following the April 7, 2005 public meeting, reformulation has resulted in the exclusion of levees and floodwalls from this project.

All current, proposed alternatives consist of a dry, excavated detention basin of varying capacities located east of St. Joseph Avenue and bounded north and south by Savannah Road and Northwest Parkway, respectively. As a result of feasibility analysis, the current preferred alternative provides approximately 25-year detention capacity and the highest net economic benefits of alternatives considered. The construction footprint is shown in the enclosed figure.

A draft feasibility level document is in progress with an estimated completion date of June, 2013. The current schedule estimates a minimum of 480 additional days for 100% project design completion.

If you have any questions or comments regarding the proposed project, please do not hesitate to contact me at richard.a.skinker@usace.army.mil; 816-389-3134.

Sincerely,

A handwritten signature in cursive script that reads "Richard A. Skinker".

Richard A. Skinker
Environmental Resources Specialist



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Missouri Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-0057
Phone: (573) 234-2132 Fax: (573) 234-2181

May 2, 2013

Mr. Richard A. Skinker
Environmental Resources Specialist
U.S. Army Corps of Engineers
Kansas City District
001 East 12th Street
Kansas City, Missouri 64106-2824

Dear Mr. Skinker:

The U.S. Fish and Wildlife Service (Service) has reviewed the information provided in your April 5, 2013, letter addressing the reformulation of the Blacksnake Creek Proposed Detention Pond Project in Buchanan County, Missouri. The following comments are provided under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347), and the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544).

Thank you for informing us of the reformulation of the project. We do not have any additional comments, but we still recommend tree removal to occur between November 1 and March 31 to minimize impacts to the Indiana bat (*Myotis sodalis*).

Thank you for your interest in the conservation of threatened and endangered species. Should you have questions concerning this response, please contact Josh Hundley at (573) 234-2132, extension 176.

Sincerely,

Amy Salveter
Field Supervisor

Skinker, Richard A NWK

From: Skinker, Richard A NWK
Sent: Wednesday, June 10, 2015 2:53 PM
To: Skinker, Richard A NWK
Subject: FW: Blacksnake Creek Project (UNCLASSIFIED)
Attachments: Recommended Detention Basin Footprint.jpg

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----

From: Skinker, Richard A NWK
Sent: Thursday, June 04, 2015 3:09 PM
To: 'Amy_Salveter@fws.gov'
Subject: Blacksnake Creek Project (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Dear Ms. Salveter,

Thank you for the May 2, 2013 follow-up letter regarding the Blacksnake Creek Project. Following a project public meeting conducted on October 9, 2014, the Recommended Plan consists of excavated, dry detention with an approximate 25-year detention capacity as mentioned in previous correspondence. The construction footprint is shown in the attached figure. The Recommended Plan has the highest net economic benefits of the alternatives considered and feasibility is nearing completion. Please let me know if there are any updates regarding threatened and endangered species and their associated habitats within or adjacent to the construction footprint.

Sincerely,

Richard A. Skinker
Project Manager, PM-PF
Kansas City District
U.S. Army Corps of Engineers
816-389-3134

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Skinker, Richard A NWK

From: Salveter, Amy [amy_salveter@fws.gov]
Sent: Thursday, June 04, 2015 5:18 PM
To: Skinker, Richard A NWK
Subject: [EXTERNAL] Re: Blacksnake Creek Project (UNCLASSIFIED)
Attachments: IPaC Instructions.pdf

Mr. Skinker,

We now have a project review tool that will allow project proponents to find information about any threatened or endangered species that could occur in a project area. This online tool serves as the first level of review. You can visit the Information for Planning and Conservation (IPaC) website (<http://ecos.fws.gov/ipac>) to determine if any proposed, threatened, or endangered species could occur in your project area. IPaC will generate an Official Species List for your project. If activities involved with development of your project will not impact any of the species listed, or if no species potentially occur in your project area, document that decision for your records and no further consultation with the USFWS is necessary. If you think your project may affect any listed species, send a copy of the official species list along with a project description to me. I will assign the project to a biologist for review as appropriate. For your convenience, I have attached a "How To" guide so you can utilize the Service's IPaC website for future projects.

Amy Salveter, Field Supervisor
U.S. Fish and Wildlife Service

Missouri Ecological Services Field Office
101 Park DeVille Dr., Ste. A
Columbia, MO 65203
573-234-2132, ext. 166

On Thu, Jun 4, 2015 at 3:09 PM, Skinker, Richard A NWK <Richard.A.Skinker@usace.army.mil> wrote:

Classification: UNCLASSIFIED
Caveats: NONE

Dear Ms. Salveter,

Thank you for the May 2, 2013 follow-up letter regarding the Blacksnake Creek Project. Following a project public meeting conducted on October 9, 2014, the Recommended Plan consists of excavated, dry detention with an approximate 25-year detention capacity as mentioned in previous correspondence. The construction footprint is shown in the attached figure. The Recommended Plan has the highest net economic benefits of the alternatives considered and feasibility is nearing completion. Please let me know if there are any updates regarding threatened and endangered species and their associated habitats within or adjacent to the construction footprint.

Sincerely,

Richard A. Skinker
Project Manager, PM-PF
Kansas City District
U.S. Army Corps of Engineers



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Columbia Ecological Services Field Office
101 PARK DEVILLE DRIVE, SUITE A
COLUMBIA, MO 65203
PHONE: (573)234-2132 FAX: (573)234-2181

Consultation Code: 03E14000-2015-SLI-0644

June 10, 2015

Event Code: 03E14000-2015-E-00361

Project Name: Blacksnake Creek Section 205 Flood Risk Management Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system in order to provide information on natural resources that could be affected by your project. The response is provided by the U.S. Fish and Wildlife Service (Service) under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.).

Threatened and Endangered Species

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact our office if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. **Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days.** This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, please visit species profiles at <http://www.fws.gov/midwest/endangered/section7/s7process/lifehistory.html>. Indiana bats, gray bats, and northern long-eared bats occur throughout Missouri and the information below may help in determining if your project may affect these species.

Gray bats - Gray bats roost in caves or mines year-round and use forest riparian areas for foraging. If your project will impact caves or mines or will involve tree removal around these areas (particularly within stream corridors, riparian areas, or associated upland woodlots), gray bats could be affected.

Indiana and northern long-eared bats - These species hibernate in caves or mines only during the winter. The rest of the year they roost under loose tree bark in tree crevices or cavities during the day and forage around tree canopies of floodplain, riparian, and upland forests at night. Trees which should be considered potential roosting habitat include those exhibiting loose or shaggy bark, crevices, or hollows. Tree species often include, but are not limited to: shellbark or shagbark hickory, white oak, cottonwood, and maple. If your project will impact caves or mines or will involve clearing forested habitat containing suitable roosting habitat, Indiana bats or northern long-eared bats could be affected. If your project will involve removal of over 5 acres of forested habitat, you may wish to complete a Summer Habitat Assessment prior to contacting our office in order to expedite the consultation process. The Summer Habitat Assessment Form is available in Appendix A of the most recent version of the Range-wide Indiana Bat Summer Survey Guidelines, located at www.fws.gov/midwest/Endangered/mammals/inba/ under the heading Summer Survey Guidance.

If no suitable habitat for any federally-listed, candidate, or proposed species is present, and no species or their critical habitat will be affected, then no further consultation or coordination is required. However, if any of the following apply, please contact our office for further consultation:

1. Designated critical habitat is present within the project area,
2. Suitable habitat for listed, candidate, or proposed species is present within the project area (see above for habitat descriptions for bat species), or
3. You determine that project activities may affect these species or their critical habitat (e.g., project occurs upstream or within a distance such that the species or habitat could be affected).

The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. For additional conservation measures that may benefit species identified in the enclosed list, please contact our office.

Other Considerations

Bald and Golden Eagles - Although the bald eagle has recently been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden

Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside of the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts and these can be found at <http://www.fws.gov/habitatconservation/communicationtowers.html>.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. In order to minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee's and the Service at http://www.aplic.org/uploads/files/2634/APPguidelines_final-draft_Apr12005.pdf. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas known to support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow guidelines located at <http://www.fws.gov/windenergy>. In addition, please refer to the Service's Eagle Conservation Plan Guidance, located at http://www.fws.gov/windenergy/eagle_guidance.html, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

Next Steps

Should you determine that project activities may impact any of the natural resources described herein, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header.

If you have not already done so, please contact the Missouri Department of Conservation (Policy Coordination, P. O. Box 180, Jefferson City, MO 65102) for information concerning Missouri Natural Communities and Species of Conservation Concern.

We appreciate your concern for threatened and endangered species and please feel free to contact our office with questions or for additional information.

Amy Salveter

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Blacksnake Creek Section 205 Flood Risk Management Project

Official Species List

Provided by:

Columbia Ecological Services Field Office
101 PARK DEVILLE DRIVE
SUITE A
COLUMBIA, MO 65203
(573) 234-2132

Consultation Code: 03E14000-2015-SLI-0644

Event Code: 03E14000-2015-E-00361

Project Type: LAND - FLOODING

Project Name: Blacksnake Creek Section 205 Flood Risk Management Project

Project Description: The project area center is located at approximately Latitude: 39°48'7.08"N, Longitude: 94°50'30.48"W. The City of St. Joseph, MO (City) is subject to overland flooding due to combined sewer overflows (CSOs) and the City is required to reduce CSOs to comply with the Clean Water Act. The excavation of 35.6 acres for dry detention is the Recommended Plan to reduce CSOs and associated flooding. Excavation is anticipated to occur within the 2016-2017 fiscal year timeframe.

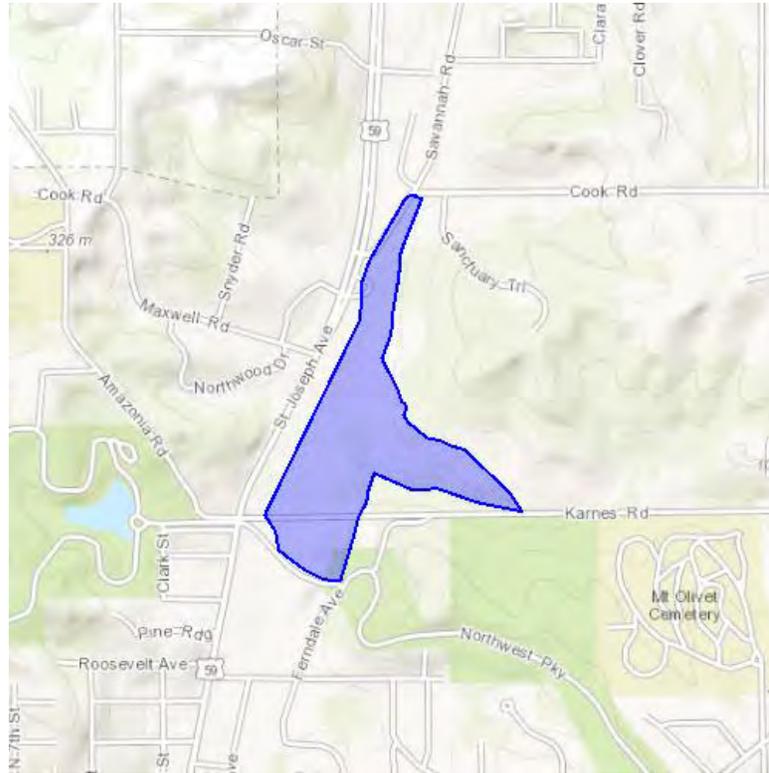
Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: Blacksnake Creek Section 205 Flood Risk Management Project

Project Location Map:



Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Buchanan, MO



United States Department of Interior
Fish and Wildlife Service

Project name: Blacksnake Creek Section 205 Flood Risk Management Project

Endangered Species Act Species List

There are a total of 6 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Birds	Status	Has Critical Habitat	Condition(s)
Least tern (<i>Sterna antillarum</i>) Population: interior pop.	Endangered		
Piping Plover (<i>Charadrius melodus</i>) Population: except Great Lakes watershed	Threatened	Final designated	
Red Knot (<i>Calidris canutus rufa</i>)	Threatened		
Fishes			
Pallid sturgeon (<i>Scaphirhynchus albus</i>) Population: Entire	Endangered		
Mammals			
Indiana bat (<i>Myotis sodalis</i>) Population: Entire	Endangered		
Northern long-eared Bat (<i>Myotis septentrionalis</i>)	Threatened		



United States Department of Interior
Fish and Wildlife Service

Project name: Blacksnake Creek Section 205 Flood Risk Management Project

Critical habitats that lie within your project area

There are no critical habitats within your project area.



United States Department of Interior
Fish and Wildlife Service

Project name: Blacksnake Creek Section 205 Flood Risk Management Project

Appendix A: FWS Migratory Birds

The protection of birds is regulated by the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). The MBTA has no otherwise lawful activities. For more information regarding these Acts see: <http://www.fws.gov/migratorybirds/RegulationsandPolicies.html>.

All project proponents are responsible for complying with the appropriate regulations protecting birds when planning and developing a project. To meet these conservation obligations, proponents should identify potential or existing project-related impacts to migratory birds and their habitat and develop and implement conservation measures that avoid, minimize, or compensate for these impacts. The Service's Birds of Conservation Concern (2008) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

For information about Birds of Conservation Concern, go to:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Management/BCC.html>.

To search and view summaries of year-round bird occurrence data within your project area, go to the Avian Knowledge Network Histogram Tool links in the Bird Conservation Tools section at:

<http://www.fws.gov/migratorybirds/CCMB2.htm>.

For information about conservation measures that help avoid or minimize impacts to birds, please visit:

<http://www.fws.gov/migratorybirds/CCMB2.htm>.

Migratory birds of concern that may be affected by your project:

There are 22 birds on your Migratory birds of concern list.

Species Name	Bird of Conservation Concern (BCC)	Seasonal Occurrence in Project Area
Acadian Flycatcher (<i>Empidonax vireescens</i>)	Yes	Breeding
Bell's Vireo (<i>Vireo bellii</i>)	Yes	Breeding



United States Department of Interior
Fish and Wildlife Service

Project name: Blacksnake Creek Section 205 Flood Risk Management Project

Least Bittern (<i>Ixobrychus exilis</i>)	Yes	Breeding
Rusty Blackbird (<i>Euphagus carolinus</i>)	Yes	Wintering
Wood Thrush (<i>Hylocichla mustelina</i>)	Yes	Breeding
Worm eating Warbler (<i>Helmitheros vermivorum</i>)	Yes	Breeding
Harris's Sparrow (<i>Zonotrichia querula</i>)	Yes	Wintering
Black-billed Cuckoo (<i>Coccyzus erythrophthalmus</i>)	Yes	Breeding
Northern Flicker (<i>Colaptes auratus</i>)	Yes	Year-round
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Yes	Year-round
Black-crowned Night-Heron (<i>Nycticorax nycticorax</i>)	Yes	Breeding
Field Sparrow (<i>Spizella pusilla</i>)	Yes	Breeding
Pied-billed Grebe (<i>Podilymbus podiceps</i>)	Yes	Breeding
Dickcissel (<i>Spiza americana</i>)	Yes	Breeding
Henslow's sparrow (<i>Ammodramus henslowii</i>)	Yes	Breeding
Hudsonian Godwit (<i>Limosa haemastica</i>)	Yes	Migrating



United States Department of Interior
Fish and Wildlife Service

Project name: Blacksnake Creek Section 205 Flood Risk Management Project

Kentucky Warbler (<i>Oporornis formosus</i>)	Yes	Breeding
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	Yes	Year-round
Upland Sandpiper (<i>Bartramia longicauda</i>)	Yes	Breeding
Red-headed Woodpecker (<i>Melanerpes erythrocephalus</i>)	Yes	Year-round
Short-eared Owl (<i>Asio flammeus</i>)	Yes	Wintering
Swainson's hawk (<i>Buteo swainsoni</i>)	Yes	Breeding

Skinker, Richard A NWK

From: Simmons, Bryan <bryan_simmons@fws.gov>
Sent: Friday, July 31, 2015 4:13 PM
To: Skinker, Richard A NWK; Dorsey, Trisha C NWK; Bax, Stacia; Sternburg, Janet MVS External Stakeholder; Campbell-Allison, Jennifer; Daniels, Jason
Cc: Amy Salveter (USFWS): amy_salveter@fws.gov; Shauna Marquardt
Subject: [EXTERNAL] USFWS Comments to Public Notice 2015-1496: Blacksnake Creek Flood Risk Management Project

Mr. Richard Skinker:

The U.S. Fish and Wildlife Service (Service) has reviewed Public Notice No. 2015-1496. The applicant – U.S. Army Corps of Engineers (Corps) under the authority of Section 205 of the Flood Control Act of 1948 is requesting to construct a 35 acre dry detention basin as a flood damage reduction project in Blacksnake Creek at latitude 39°48'08.52 north, longitude 94°50'29.69 west within the City of Saint Joseph, Buchanan County, Missouri.

This response is provided by the Service under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), National Environmental Policy Act of 1969 (42 U.S.C. 4321-4327), and the Endangered Species Act of 1973 as amended (16 U.S.C. 1531-1543).

When major impacts to wetlands / streams and their associated habitats are proposed, the Corps is responsible for compliance with Clean Water Act requirements including all Subparts (B thru J) of Section 404 (b)(1) guidelines within Part 230 regarding project impacts to waters of the US. Prior to permit issuance, particular focus should be given to applicable alternative analyses, least environmentally damaging practicable alternatives, consideration to primary and secondary effects on the ecosystem, and potential effects to all associated species, including permanent and migrant and their habitats.

The Service supports the use of dry detention structures for urban flood control vs traditional instream detention strategies. The 2013 Missouri Stream Mitigation Method (MSMM) was referenced as the stream evaluation method. The Service supports this metric as primary means to establish baseline condition, evaluate function, and dictate mitigation values necessary to offset proposed impacts to regulated waters of the US. Summary statements in Appendix J of the June 24th, 2015 Draft Integrated Definite Project Report and Draft Environmental Assessment and PN announcement indicated the stream is ephemeral, is generally incised and possesses impacts from its urban setting including concrete lining, low water crossings, trash and debris. The aquatic habitat was assessed and listed as highly disturbed and limited. The Draft EA referenced 3648 total debits for cumulative adverse impacts and 4008 credits for proposed offsets. However, no MSMM worksheets or calculations were included either in the PN or supporting reports for evaluation or critique. Further, a conflict of mitigation need was noted by the PN statement indicating mitigation would be sought using an approved mitigation bank nearest Blacksnake Creek. Because of a possible 360 debit discrepancy between documents, we request a reevaluation of MSMM calculations to ensure accuracy of the mitigation proposal.

The Corps made a preliminary determination that the project may affect but not likely adversely affect (NLAA) two federally listed bat species – the Indiana Bat (*Myotis sodalis*) and Northern Long-eared Bat (*Myotis septentrionalis*). Those determinations are based on potential woodland habitat to be impacted. However, the Service has yet to concur with these effects determinations. Section 7 consultation will continue to occur between the Corps and the Service apart from these comments due to the PN announcement July 31, 2015 expiration.

Please contact me if there are any questions in regards to these comments

Bryan Simmons

--

Bryan Simmons
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Missouri State University
Dept of Biology
Springfield, MO 65897
417-836-5302

Skinker, Richard A NWK

From: Skinker, Richard A NWK
Sent: Tuesday, February 09, 2016 4:18 PM
To: 'Simmons, Bryan'
Cc: Ostrander, Christina NWK
Subject: RE: [EXTERNAL] Re: Public Notice: Blacksnake Creek Flood Risk Management Project (UNCLASSIFIED)

Bryan,

Thanks for sending the most recent guidance regarding tree clearing. USACE will conduct a woodland assessment this spring-summer and coordinate the findings with your office. The project is currently in the final stage of feasibility. The project team will try to further minimize the acreage of trees removed during design. Construction is currently anticipated to begin in 2018. Please let me know if you have any additional questions.

Thanks,

Richard A. Skinker
Project Manager, PM-PF
Kansas City District
U.S. Army Corps of Engineers
816-389-3134

-----Original Message-----

From: Simmons, Bryan [mailto:bryan_simmons@fws.gov]
Sent: Friday, July 31, 2015 10:47 AM
To: Dorsey, Trisha C NWK <Trisha.C.Dorsey@usace.army.mil>; Skinker, Richard A NWK <Richard.A.Skinker@usace.army.mil>; Shauna Marquardt <shauna_marquardt@fws.gov>
Subject: [EXTERNAL] Re: Public Notice: Blacksnake Creek Flood Risk Management Project (UNCLASSIFIED)

Richard

I got your voicemail from yesterday evening. My question regarding woodland removal are in association to federally listed bat species potential use of the area.

Our current guidance allows a threshold limit of no greater than 10 acres for tree removal scheduled during the winter (November to March) while bats are hibernating. Since the project acreage exceeds this 10 acre limit, a woodland assessment is needed to consult on listed bats under Section 7 of the ESA.

If the assessment comes back positive for bat habitat, we would then need a bat survey to determine if maternity colonies are also present within the project limits.

I have included both the habitat evaluation and bat survey protocols

--Bryan

On Mon, Jul 13, 2015 at 9:24 AM, Simmons, Bryan <bryan_simmons@fws.gov <mailto:bryan_simmons@fws.gov> > wrote:

Richard, can you tell me how many acres of woodland are to be removed during the proposed Blacksnake Creek Project?

--Bryan

On Thu, Jul 2, 2015 at 2:42 PM, Dorsey, Trisha C NWK <Trisha.C.Dorsey@usace.army.mil <mailto:Trisha.C.Dorsey@usace.army.mil> > wrote:

Classification: UNCLASSIFIED
Caveats: NONE

This public notice is issued jointly with the Missouri Department of Natural Resources (MDNR), Water Pollution Control Program. MDNR will use the comments on this notice in deciding whether to grant Section 401 water quality certification. Commenter's are requested to furnish a copy of their comments to the Missouri Department of Natural Resources, P.O. Box 176, Jefferson City, Missouri 65102.

The full public notice and related documents can be found online, BLOCKEDnwk.usace.army.mil/Media/PublicNotices/PlanningPublicNotices/tabid/18613/Article/606493/blacksnake-creek-flood-risk-management-project.aspxBLOCKED.

Classification: UNCLASSIFIED
Caveats: NONE

--

Bryan Simmons
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Missouri State University
Dept of Biology
Springfield, MO 65897
417-836-5302

From: [Conger, Patricia](#) on behalf of [WPSC.Water Quality Certification](#)
To: [Skinker, Richard A NWK](#)
Cc: bryan.simmons@fws.gov; [USEPA Region 7](#); [Thorne, David](#); [Sternburg, Janet MVS External Stakeholder](#); ["laura.ruman@mdc.mo.gov"](mailto:laura.ruman@mdc.mo.gov); [Campbell-Allison, Jennifer](#); [Miller, Stuart](#); [Beres, Audrey](#); [Fett, Walter](#); [Bax, Stacia](#); [Irwin, Mike](#); [Wieberg, Chris](#)
Subject: [EXTERNAL] U.S. Army Corps of Engineers, Kansas City District, 2015-01495/CEK007082
Date: Thursday, August 06, 2015 12:19:40 PM

The Missouri Department of Natural Resources' Water Protection Program (DNR) has reviewed Public Notice 2015-01495 in which the U.S. Army Corps of Engineers' Kansas City District is proposing to clear 13.4 acres of riparian vegetation and 22.2 acres of turf and excavate to a depth of 5 to 15 feet to create a 35.6-acre stormwater detention basin to provide flood risk management benefits and control sanitary sewer overflows from the city of St. Joseph wastewater treatment plant. A temporary diversion channel to accommodate Blacksnake Creek at base flow will be excavated within the construction footprint. Northwest Parkway would be the primary spillway when the basin capacity is exceeded, and an abandoned railroad bed would act as a secondary spillway.

Blacksnake Creek conveys stormwater runoff through an open, natural channel in the upper reach to an enclosed system at Karnes Road. The enclosed system is a combined sewer with flows running through the wastewater treatment plant. When stormwater flow exceeds the treatment plant capacity, the excess flow is discharged directly into the Missouri River via a diversion structure. The project is aligned with the Long Term Control Plan (LTCP) developed by the city of St. Joseph to reduce sewer overflows. Additionally, there have been several major flood events that have caused major damages to developed property.

The proposed project is located in Section 33, Township 58 North, Range 35 West in the city of St. Joseph, Buchanan County, Missouri. It is just east of St. Joseph Avenue and is bounded by Northwest Parkway to the south, the Savannah and Cook Road intersection to the north, and generally bounded by an abandoned railroad bed to the east. Coordinates for the approximate center of proposed project area are 39.80236°N 94.84156°W.

We offer the following comments:

1. A stream, its channel configuration and its adjacent floodplain including wetlands and riparian vegetation are interrelated portions of a dynamic ecosystem that constitute a valuable natural resource. Disruption of this system through filling, relocating, shortening, or changing the shape and vegetation of the stream channel will likely result in negative impacts on the stream's water quality and associated habitat value. Any impacts are to be avoided or minimized if possible and will require appropriate mitigation.
2. DNR promotes the use of off-channel stormwater detention. For stormwater detention, DNR promotes the use of constructed wetlands over the establishment of monocultural turf. In order to reduce the amount of storage capacity needed in one particular area, could a series of smaller detention areas be used?
3. DNR encourages the permittee to consider environmentally-friendly design techniques such as green infrastructure into their plans. Green infrastructure is a stormwater management strategy that maintains or restores the original site hydrology through infiltration, evaporation or reuse of stormwater. Designs might include creating vegetated swales, rain gardens and porous pavement. More information regarding green infrastructure can be found at these websites: [BLOCKEDepa.gov/owow/NPS/lid/BLOCKED](#), [BLOCKEDwater.epa.gov/infrastructure/greeninfrastructureBLOCKED](#), or [BLOCKEDlid-](#)

stormwater.net/lid_techniques.htmBLOCKED. A good source of information regarding green infrastructure is contained within the “Missouri Guide to Green Infrastructure: Integrating Water Quality into Municipal Stormwater Management” at: BLOCKEDdnr.mo.gov/env/wpp/stormwater/mo-gi-guide.htmBLOCKED.

4. From the provided figures, it appears the stream will remain relatively straight. If space allows, the stream should be re-established to a more natural state, including meanders and in-stream structures such as riffles, runs and pools. A riparian zone with a buffer consisting of native shrubs and trees should also be established after the construction of the channel. These features would provide additional roughness and attenuation of stormwater flows.

5. It appears that the streambed will be lowered in order to increase flood storage capacity. Streambed gradient should not be permanently altered during project construction. Excavation should not occur deeper than the lowest undisturbed elevation of the stream bottom adjacent to the site. If it is absolutely necessary to lower the grade of the stream, adequate and appropriate grade control structures will be required.

6. To determine mitigation requirements, additional detail will be needed regarding the placement and duration of the temporary diversion of Blacksnake Creek.

7. Better coordination regarding these multi-phase projects and their compliance with city of St. Joseph’s LTCP is needed. Although the intent of this proposed project appears to be stormwater attenuation, is this enough to eliminate combined sewer overflows? Will Blacksnake Creek be separated from the sanitary sewer? A comprehensive watershed plan containing information for each of the phased projects in the St. Joseph area and making the plan available to other agencies and the public is suggested.

8. The alternative analysis of this project did not provide specific details regarding associated environmental damages for each alternative. Please provide an in-depth alternative analysis for the project with these details. To comply with antidegradation requirements, DNR will review any applicable alternatives analysis and/or compliance with Section 404(b)(1) guideline to ensure the proposed discharges are unavoidable and necessary, that the least damaging practicable alternative is authorized, and mitigation is required for all impacts associated with the activity.

9. To clarify the calculation of stream debits and credits, please provide more details about stream mitigation including the 2013 Missouri Stream Mitigation Method impact worksheets. In addition, a mitigation location will be required. Impact calculations and proposed mitigation should be discussed with DNR’s staff prior to U.S. Army Corps of Engineers’ (USACE) approval to ensure consistency with potential Clean Water Act Section 401 Water Quality Certification (WQC) conditions and compliance with 10 CSR 20-7.031 Water Quality Standards.

10. The proposed project will result in the excavation of approximately 660,000 cubic yards of soil. Although spoils sites have been selected with consideration to streams and wetlands, particular care should be taken that these materials do not enter non-target areas. The applicant should not dispose of waste materials, water, or garbage below the ordinary high water mark of any other water body, in a wetland area, or at any location where the materials could be introduced into the water body or an adjacent wetland as a result of runoff, flooding, wind, or other natural forces.

11. The city of St. Joseph is also covered under Municipal Separate Storm Sewer System Permit MO-R040057 with measures to control and possibly treat stormwater. It is important to comply with all stormwater requirements of the city's Stormwater Management Plan and any related ordinances.

12. Acquisition of a WQC should not be construed or interpreted to imply the requirements for other permits are replaced or superseded, including Clean Water Act Section 402 National Pollutant Discharge Elimination System Permits. Permits or any other requirements should remain in effect. Land disturbance activities disturbing one or more acres of total area for the entire project require a stormwater permit. Instructions on how to apply for and receive the on-line land disturbance permit are located at dnr.mo.gov/env/wpp/epermit/help.htmBLOCKED. Questions regarding permit requirements may be directed to DNR's Kansas City Regional Office at (816) 251-0700.

13. Antidegradation requirements dictate all appropriate and reasonable Best Management Practices related to erosion and sediment control, project stabilization and prevention of water quality degradation are applied and maintained; for example, preserving vegetation, streambank stability and basic drainage. Applicants will be responsible for ensuring that permit requirements and relevant WQC conditions are met. The project should not involve more than normal stormwater or incidental loading of sediment caused by construction disturbances.

14. Conduct project activity at low flows and water levels to limit the amount of sediment disturbance caused by the heavy equipment. Limit the duration and extent that any heavy equipment is required to be in-stream.

15. Care should be taken to keep machinery out of the water way as much as possible. Fuel, oil and other petroleum products, equipment, construction materials and any solid waste should not be stored below the ordinary high water mark at any time or in the adjacent floodway beyond normal working hours. All precautions should be taken to avoid the release of wastes or fuel to streams and other adjacent waters as a result of this operation.

16. Petroleum products spilled into any water or on the banks where the material may enter waters of the state should be immediately cleaned up and disposed of properly. Any such spills of petroleum should be reported as soon as possible, but no later than 24 hours after discovery to DNR's Environmental Emergency Response number at (573) 634-2436.

17. Only clean, nonpolluting fill should be used. The following materials are not suitable for bank stabilization and should not be used due to their potential to cause violations of the general criteria of the Water Quality Standards (10 CSR 20-7.031 (4)(A)-(H)):

a. Earthen fill, gravel, fragmented asphalt, broken concrete where the material does not meet the specifications stated in the "Missouri Nationwide Permit Regional Conditions" ([BLOCKEDdnw.usace.army.mil/Portals/29/docs/regulatory/nationwidepermits/2012/MORegCon.pdf](http://dnw.usace.army.mil/Portals/29/docs/regulatory/nationwidepermits/2012/MORegCon.pdf)BLOCKED), since these materials are usually not substantial enough to withstand erosive flows;

b. Concrete with exposed rebar;

- c. Tires, vehicles or vehicle bodies, construction or demolition debris are solid waste and are excluded from placement in the waters of the state;
 - d. Liquid concrete, including grouted riprap, if not placed as part of an engineered structure; and
 - e. Any material containing chemical pollutants (including but not limited to creosote or pentachlorophenol).
18. Clearing of vegetation/trees should be the minimum necessary to accomplish the activity.
19. The riparian area, banks, etc., should be restored to a stable condition to protect water quality as soon as possible. Seeding, mulching and needed fertilization should be within three days of final contouring. On-site inspections of these areas should be conducted as necessary to ensure successful re-vegetation and stabilization, and to ensure that erosion and deposition of soil in waters of the state is not occurring from these projects.
20. Use bio-engineering methods when practicable for bank stabilization that minimizes the amount of sediment and other pollutants entering the water ways. As opportunity allows, limit the amount of rock or other hard points while increasing the amount of native vegetation or a combination of rock and vegetation.
21. All other commenting parties' comments and the applicant's response to those comments should be sent by e-mail at wpsc401cert@dnr.mo.gov <<mailto:wpsc401cert@dnr.mo.gov>> or to the address below. Consideration for WQC cannot be made until all comments and responses have been received.
22. The request for WQC that is part of the public notice is denied without prejudice due to lack of complete application. Once the USACE is ready to issue the 404 Permit and the applicant, their consultant, or the USACE has provided to DNR a complete application per 10 CSR 20-6.060 and 20-7.031, which includes an in-depth alternatives analysis, 2013 Missouri Stream Mitigation Method impact worksheets and mitigation details, a formal request for WQC should be made to DNR.

Thank you for the opportunity to comment on the proposed project. You may send responses to comments and other requested information electronically to the Stormwater and Certification Unit's general e-mail account at wpsc401cert@dnr.mo.gov <<mailto:wpsc401cert@dnr.mo.gov>>. If you have any questions, please contact Mike Irwin by phone at (573) 522-1131, by e-mail at mike.irwin@dnr.mo.gov <<mailto:mike.irwin@dnr.mo.gov>>, or by mail at the Missouri Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102-0176. Thank you for working with DNR to protect our environment.

MI:pc

Thanks.

Patricia Conger

Missouri Department of Natural Resources

Water Protection Program

1101 Riverside Drive (65101)

P.O. Box 176

Jefferson City, MO 65102-0176

(573) 526-3589 phone

(573) 522-9920 fax

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STATE OF MISSOURI STREAM MITIGATION METHOD

Stream Mitigation Summary Worksheet

PROJECT NAME:	Blacksnake Creek
ORM #:	2015-01495
DATE:	21-Jan-16
STATE, COUNTY:	Missouri, Buchanan
SECTION - TOWNSHIP - RANGE:	Sections 32 & 33, Township 58 North, Range 35 West

I. Mitigation Debits Required Debits

B.	Adverse Impact - Debit Required	9,388.02
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II. Proposed Mitigation Credit Credits

C. 1.	Instream Credit Achieved	0.00
C. 2.	Riparian Buffer Credit Achieved	0.00

IV. Summary Credits

K.	Total Proposed Mitigation * (Credits minus Debits)	(9,388.02)
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* If the Total "Proposed Mitigation Credits" is less than the Total "Mitigation Debits Required", it will be displayed within a red ().

^ =====Not sure what the correct paragraph #s are.

**STATE OF MISSOURI - STREAM MITIGATION METHOD
Adverse Impact Factors Worksheet**

PROJECT NAME:	Blacksnake Creek								
ORM #:	2015-01495								
DATE:	Thursday, January 21, 2016								
STATE, COUNTY:	Missouri, Buchanan								
SECTION - TOWNSHIP - RANGE:	Sections 32 & 33, Township 58 North, Range 35 West								
Stream Type Impacted	Ephemeral 0.30	Intermittent 0.40	Perennial 0.80						
Priority Waters	Tertiary 0.10	Secondary 0.40	Primary 0.80						
Existing Condition	Functionally Impaired 0.10	Moderately Functional 0.80	Fully Functional 1.60						
Impact Duration	Temporary 0.05	Permanent 0.30							
Impact Activity	Clearing 0.05	Utility Crossing or Bridge Footing 0.15	Below Grade Culvert 0.30	Armor 0.50	Detention Facility 0.75	Morphologic Change 1.50	Impoundment 2.00	Pipe 2.20	Fill 2.50
Linear Impact Calculation	0.0002 multiplied by linear feet of stream impact recorded in each column below								
*Compensation Ratio	1.00	1.50	2.00	2.50	3.00				

For each column select a "Criteria" from the drop down list found in the tan boxes. Cells displaying "---" indicated a selection has not been made.

FACTORS	Impact 1		Impact 2		Impact 3	
Site Name	P-1		E-1			
	Criteria	Factor	Criteria	Factor	Criteria	Factor
Stream Type Impacted	Perennial	0.80	Ephemeral	0.30		---
Priority Waters	Tertiary	0.10	Tertiary	0.10		---
Existing Condition	Functionally Impaired	0.10	Functionally Impaired	0.10		---
Impact Duration	Permanent	0.30	Permanent	0.30		---
Impact Activity	Morphologic Change	1.50	Morphologic Change	1.50		---
Linear Feet of Stream Impact (LF)	2650		240			
Linear Impact Calculation (LF * 0.0002)		0.53		0.05		---
Sum of Factors (M)		3.33		2.35		---
Credits (C) = (M x LF)		8,824.50		563.52		---
*Compensation Ratio (CR)	1.0		1.0			---
Credits Required - all Columns (CR x C)		8,824.50		563.52		0.00
Sub-Total Mitigation Debits Required (Impacts 1-3)		9,388.02				

* **Compensation Ratio** - when the Corps determines that a third party mitigation source is acceptable to fulfill compensatory mitigation requirements the total credits determined on this worksheet shall be applied to mitigation banks or in-lieu fee programs at a 1:1 ratio when the impact area is within an approved service area. However, an increased compensation ratio may be used at the Corps discretion when an impact occurs beyond the geographic service area of an approved mitigation bank or in-lieu fee program.

Explanatory Notes: Impact 1: Corps discretion used in selecting existing condition. Trib has not been extensively impacted and does not exhibit significant erosion. However, the District does not support "fully functional" because the trib's size and morphology likely contribute only modestly to natural function in the watershed. Impact 2: Moderately functional selected. Trib appears to be in reasonably good condition on site, but is substantially filled or piped upstream. Modifier for "fill" used instead of "pipe" due to length of impact, channel relocation, and shortening of reach.

FACTORS	Impact 4		Impact 5		Impact 6	
Site Name						
	Criteria	Factor	Criteria	Factor	Criteria	Factor
Stream Type Impacted		---		---		---
Priority Waters		---		---		---
Existing Condition		---		---		---
Impact Duration		---		---		---
Impact Activity		---		---		---
Linear Feet of Stream Impact (LF)						
Linear Impact Calculation (LF * 0.0002)		---		---		---
Sum of Factors (M)		---		---		---
Credits (C) = (M x LF)		---		---		---
*Compensation Ratio (CR)		---		---		---
Credits Required - all Columns (CR x C)		0.00		0.00		0.00
Sub-Total Mitigation Debits Required (Impacts 4-6)		0.00				

* **Compensation Ratio** - when the Corps determines that a third party mitigation source is acceptable to fulfill compensatory mitigation requirements the total credits determined on this worksheet shall be applied to mitigation banks or in-lieu fee programs at a 1:1 ratio when the impact area is within an approved service area. However, an increased compensation ratio may be used at the Corps discretion when an impact occurs beyond the geographic service area of an approved mitigation bank or in-lieu fee program.

Explanatory Notes:

**STATE OF MISSOURI - STREAM MITIGATION METHOD
Adverse Impact Factors Worksheet**

PROJECT NAME:	Blacksnake Creek								
ORM #:	2015-01495								
DATE:	Thursday, January 21, 2016								
STATE, COUNTY:	Missouri, Buchanan								
SECTION - TOWNSHIP - RANGE:	Sections 32 & 33, Township 58 North, Range 35 West								
Stream Type Impacted	Ephemeral 0.30	Intermittent 0.40	Perennial 0.80						
Priority Waters	Tertiary 0.10	Secondary 0.40	Primary 0.80						
Existing Condition	Functionally Impaired 0.10	Moderately Functional 0.80	Fully Functional 1.60						
Impact Duration	Temporary 0.05	Permanent 0.30							
Impact Activity	Clearing 0.05	Utility Crossing or Bridge Footing 0.15	Below Grade Culvert 0.30	Armor 0.50	Detention Facility 0.75	Morphologic Change 1.50	Impound-ment 2.00	Pipe 2.20	Fill 2.50
Linear Impact Calculation	0.0002 multiplied by linear feet of stream impact recorded in each column below								
*Compensation Ratio	1.00	1.50	2.00	2.50	3.00				

For each column select a "Criteria" from the drop down list found in the tan boxes. Cells displaying "---" indicated a selection has not been made.

FACTORS	Impact 7		Impact 8		Impact 9	
Site Name						
	Criteria	Factor	Criteria	Factor	Criteria	Factor
Stream Type Impacted		---		---		---
Priority Waters		---		---		---
Existing Condition		---		---		---
Impact Duration		---		---		---
Impact Activity		---		---		---
Linear Feet of Stream Impact (LF)						
Linear Impact Calculation (LF * 0.0002)						
Sum of Factors (M)						
Credits (C) = (M x LF)						
*Compensation Ratio (CR)						
Credits Required - all Columns (CR x C)		0.00		0.00		0.00
Sub-Total Mitigation Debts Required (Impacts 7-9)		0.00				

* **Compensation Ratio** - when the Corps determines that a third party mitigation source is acceptable to fulfill compensatory mitigation requirements the total credits determined on this worksheet shall be applied to mitigation banks or in-lieu fee programs at a 1:1 ratio when the impact area is within an approved service area. However, an increased compensation ratio may be used at the Corps discretion when an impact occurs beyond the geographic service area of an approved mitigation bank or in-lieu fee program.

Explanatory Notes:

FACTORS	Impact 10		Impact 11		Impact 12	
Site Name						
	Criteria	Factor	Criteria	Factor	Criteria	Factor
Stream Type Impacted		---		---		---
Priority Waters		---		---		---
Existing Condition		---		---		---
Impact Duration		---		---		---
Impact Activity		---		---		---
Linear Feet of Stream Impact (LF)						
Linear Impact Calculation (LF * 0.0002)						
Sum of Factors (M)						
Credits (C) = (M x LF)						
*Compensation Ratio (CR)						
Credits Required - all Columns (CR x C)		0.00		0.00		0.00
Sub-Total Mitigation Debts Required (Impacts 10-12)		0.00				

* **Compensation Ratio** - when the Corps determines that a third party mitigation source is acceptable to fulfill compensatory mitigation requirements the total credits determined on this worksheet shall be applied to mitigation banks or in-lieu fee programs at a 1:1 ratio when the impact area is within an approved service area. However, an increased compensation ratio may be used at the Corps discretion when an impact occurs beyond the geographic service area of an approved mitigation bank or in-lieu fee program.

Explanatory Notes:

**STATE OF MISSOURI - STREAM MITIGATION METHOD
Adverse Impact Factors Worksheet**

PROJECT NAME:	Blacksnake Creek								
ORM #:	2015-01495								
DATE:	Thursday, January 21, 2016								
STATE, COUNTY:	Missouri, Buchanan								
SECTION - TOWNSHIP - RANGE:	Sections 32 & 33, Township 58 North, Range 35 West								
Stream Type Impacted	Ephemeral 0.30	Intermittent 0.40	Perennial 0.80						
Priority Waters	Tertiary 0.10	Secondary 0.40	Primary 0.80						
Existing Condition	Functionally Impaired 0.10	Moderately Functional 0.80	Fully Functional 1.80						
Impact Duration	Temporary 0.05	Permanent 0.30							
Impact Activity	Clearing 0.05	Utility Crossing or Bridge Footing 0.15	Below Grade Culvert 0.30	Armor 0.50	Detention Facility 0.75	Morphologic Change 1.50	Impoundment 2.00	Pipe 2.20	Fill 2.50
Linear Impact Calculation	0.0002 multiplied by linear feet of stream impact recorded in each column below								
*Compensation Ratio	1.00	1.50	2.00	2.50	3.00				

For each column select a "Criteria" from the drop down list found in the tan boxes. Cells displaying "---" indicated a selection has not been made.

FACTORS	Impact 13		Impact 14		Impact 15	
Site Name						
	Criteria	Factor	Criteria	Factor	Criteria	Factor
Stream Type Impacted		---		---		---
Priority Waters		---		---		---
Existing Condition		---		---		---
Impact Duration		---		---		---
Impact Activity		---		---		---
Linear Feet of Stream Impact (LF)						
Linear Impact Calculation (LF * 0.0002)						
Sum of Factors (M)						
Credits (C) = (M x LF)						
*Compensation Ratio (CR)						
Credits Required - all Columns (CR x C)		0.00		0.00		0.00
Sub-Total Mitigation Debits Required (Impacts 13-15)		0.00				

* **Compensation Ratio** - when the Corps determines that a third party mitigation source is acceptable to fulfill compensatory mitigation requirements the total credits determined on this worksheet shall be applied to mitigation banks or in-lieu fee programs at a 1:1 ratio when the impact area is within an approved service area. However, an increased compensation ratio may be used at the Corps discretion when an impact occurs beyond the geographic service area of an approved mitigation bank or in-lieu fee program.

Explanatory Notes:

FACTORS	Impact 16		Impact 17		Impact 18	
Site Name						
	Criteria	Factor	Criteria	Factor	Criteria	Factor
Stream Type Impacted		---		---		---
Priority Waters		---		---		---
Existing Condition		---		---		---
Impact Duration		---		---		---
Impact Activity		---		---		---
Linear Feet of Stream Impact (LF)						
Linear Impact Calculation (LF * 0.0002)						
Sum of Factors (M)						
Credits (C) = (M x LF)						
*Compensation Ratio (CR)						
Credits Required - all Columns (CR x C)		0.00		0.00		0.00
Sub-Total Mitigation Debits Required (Impacts 16-18)		0.00				

* **Compensation Ratio** - when the Corps determines that a third party mitigation source is acceptable to fulfill compensatory mitigation requirements the total credits determined on this worksheet shall be applied to mitigation banks or in-lieu fee programs at a 1:1 ratio when the impact area is within an approved service area. However, an increased compensation ratio may be used at the Corps discretion when an impact occurs beyond the geographic service area of an approved mitigation bank or in-lieu fee program.

Explanatory Notes:

**STATE OF MISSOURI - STREAM MITIGATION METHOD
Adverse Impact Factors Worksheet**

PROJECT NAME:	Blacksnake Creek								
ORM #:	2015-01495								
DATE:	Thursday, January 21, 2016								
STATE, COUNTY:	Missouri, Buchanan								
SECTION - TOWNSHIP - RANGE:	Sections 32 & 33, Township 58 North, Range 35 West								
Stream Type Impacted	Ephemeral 0.30	Intermittent 0.40	Perennial 0.80						
Priority Waters	Tertiary 0.10	Secondary 0.40	Primary 0.80						
Existing Condition	Functionally Impaired 0.10	Moderately Functional 0.80	Fully Functional 1.80						
Impact Duration	Temporary 0.05	Permanent 0.30							
Impact Activity	Clearing 0.05	Utility Crossing or Bridge Footing 0.15	Below Grade Culvert 0.30	Armor 0.50	Detention Facility 0.75	Morphologic Change 1.50	Impoundment 2.00	Pipe 2.20	Fill 2.50
Linear Impact Calculation	0.0002 multiplied by linear feet of stream impact recorded in each column below								
*Compensation Ratio	1.00	1.50	2.00	2.50	3.00				

For each column select a "Criteria" from the drop down list found in the tan boxes. Cells displaying "---" indicated a selection has not been made.

FACTORS	Impact 19		Impact 20		Impact 21	
Site Name						
	Criteria	Factor	Criteria	Factor	Criteria	Factor
Stream Type Impacted		---		---		---
Priority Waters		---		---		---
Existing Condition		---		---		---
Impact Duration		---		---		---
Impact Activity		---		---		---
Linear Feet of Stream Impact (LF)		---		---		---
Linear Impact Calculation (LF * 0.0002)		---		---		---
Sum of Factors (M)		---		---		---
Credits (C) = (M x LF)		---		---		---
*Compensation Ratio (CR)		---		---		---
Credits Required - all Columns (CR x C)		0.00		0.00		0.00
Sub-Total Mitigation Debits Required (Impacts 19-21)	0.00					

* **Compensation Ratio** - when the Corps determines that a third party mitigation source is acceptable to fulfill compensatory mitigation requirements the total credits determined on this worksheet shall be applied to mitigation banks or in-lieu fee programs at a 1:1 ratio when the impact area is within an approved service area. However, an increased compensation ratio may be used at the Corps discretion when an impact occurs beyond the geographic service area of an approved mitigation bank or in-lieu fee program.

Explanatory Notes:

Total Mitigation Debits Required (Impacts 1-21)	9,388.02
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STATE OF MISSOURI - STREAM MITIGATION METHOD In-Stream Worksheet

PROJECT NAME:	Blacksnake Creek
ORM #:	2015-01495
DATE:	Thursday, January 21, 2016
STATE, COUNTY:	Missouri, Buchanan
SECTION - TOWNSHIP - RANGE:	Sections 32 & 33, Township 58 North, Range 35 West

Stream Type Impacted	Ephemeral 0.15	Intermittent 0.20	Perennial 0.40	
Priority Waters	Tertiary 0.05	Secondary 0.20	Primary 0.40	
Net Benefit	Stream Relocation to Accommodate Authorized Project 0.50	Moderate 1.20	Good 2.40	Excellent 3.50
Site Protection	WITHOUT third party grantee 0.10	WITH third party grantee, or transfer of title. 0.40		
Credit Schedule	Schedule 1 0.30	Schedule 2 0.10	Schedule 3 0.00	
*Location and Kind Factor (LK)	0.50	1.00		

For each column select a "Criteria" from the drop down list found in the tan boxes.
Cells displaying "---" indicated a selection has not been made.

FACTORS	Net Benefit 1		Net Benefit 2		Net Benefit 3		Net Benefit 4	
Site Name	Criteria	Factor	Criteria	Factor	Criteria	Factor	Criteria	Factor
Stream Type Impacted		---		---		---		---
Priority Waters		---		---		---		---
Net Benefit		---		---		---		---
Site Protection		---		---		---		---
Credit Schedule		---		---		---		---
Sum of Factors (M)		0.00		0.00		0.00		0.00
Stream Length Benefited (Do not count each bank separately or count same channel reach twice) (LF)								
Credits (C) = (M x LF)		0.00		0.00		0.00		0.00
Location and Kind Factor (LK)								
Instream Credits Generated C x LK Factor*		0.00		0.00		0.00		0.00
Proposed Mitigation Instream Credits Generated		0.00						
Sub-Total (Net Benefits 1 - 4)								

*Location and Kind (LK) Factor only applies to permittee-responsible mitigation projects see page 18 of document.

Explanatory Notes:	
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STATE OF MISSOURI - STREAM MITIGATION METHOD In-Stream Worksheet

PROJECT NAME:	Blacksnake Creek
ORM #:	2015-01495
DATE:	Thursday, January 21, 2016
STATE, COUNTY:	Missouri, Buchanan
SECTION - TOWNSHIP - RANGE:	Sections 32 & 33, Township 58 North, Range 35 West

Stream Type Impacted	Ephemeral 0.15	Intermittent 0.20	Perennial 0.40	
Priority Waters	Tertiary 0.05	Secondary 0.20	Primary 0.40	
Net Benefit	Stream Relocation to Accommodate Authorized Project 0.50	Moderate 1.20	Good 2.40	Excellent 3.50
Site Protection	WITHOUT third party grantee 0.10	WITH third party grantee, or transfer of title. 0.40		
Credit Schedule	Schedule 1 0.30	Schedule 2 0.10	Schedule 3 0.00	
*Location and Kind Factor (LK)	0.50	1.00		

For each column select a "Criteria" from the drop down list found in the tan boxes.
Cells displaying "---" indicated a selection has not been made.

FACTORS	Net Benefit 5		Net Benefit 6		Net Benefit 7		Net Benefit 8	
Site Name	Criteria	Factor	Criteria	Factor	Criteria	Factor	Criteria	Factor
Stream Type Impacted		---		---		---		---
Priority Waters		---		---		---		---
Net Benefit		---		---		---		---
Site Protection		---		---		---		---
Credit Schedule		---		---		---		---
Sum of Factors (M)		0.00		0.00		0.00		0.00
Stream Length Benefited (Do not count each bank separately or count same channel reach twice) (LF)								
Credits (C) = (M x LF)		0.00		0.00		0.00		0.00
Location and Kind Factor (LK)								
Instream Credits Generated C x LK Factor* =		0.00		0.00		0.00		0.00
Proposed Mitigation Instream Credits Generated		0.00						
Sub-Total (Net Benefits 5 - 8)								

*Location and Kind (LK) Factor only applies to permittee-responsible mitigation projects see page 18 of document.

Explanatory Notes:

Proposed Mitigation Instream Credits Generated	0.00
Total Net Benefits	

**STATE OF MISSOURI - STREAM MITIGATION METHOD
Riparian Buffer Worksheet**

PROJECT NAME:	Blacksnake Creek
ORM #:	2015-01495
DATE:	Thursday, January 21, 2016
STATE, COUNTY:	Missouri, Buchanan
SECTION - TOWNSHIP - RANGE:	Sections 32 & 33, Township 58 North, Range 35 West

Stream Type Impacted	Ephemeral 0.15	Intermittent 0.20	Perennial 0.40	
Priority Waters	Tertiary 0.05	Secondary 0.20	Primary 0.40	
Net Benefit (For Each Side of Stream) - Activity	Riparian Restoration or Establishment "Value from Table 1"	Riparian Enhancement "Value from Table 1"	Riparian Preservation "Value from Table 1"	
Supplemental Buffer Credit	Benefits achieved on both Side "A" and "B" Yes	Benefits achieved on only ONE side. No		
Site Protection	WITHOUT third party grantee 0.05	WITH third party grantee, or transfer of title. 0.20		
Credit Schedule	Schedule 1 0.15	Schedule 2 0.05	Schedule 3 0.00	
Temporal Lag (Years)	Over 20 -0.30	10 to 20 -0.20	5 to 10 -0.10	0 to 5 0.00
Location and Kind Factor	Mitigation proposed outside of the 8-digit Hydrologic Unit Code (HUC). 0.5	Mitigation proposed within the 8-digit Hydrologic Unit Code (HUC). 1.00		

FACTORS	Net Benefit 1		Net Benefit 2		Net Benefit 3	
Site Name						
	Criteria	Factor	Criteria	Factor	Criteria	Factor
Stream Type Impacted		---		---		---
Priority Waters		---		---		---
Net Benefit						
Stream Side "A"						
Activity						
Slope (%)						
Proposed Buffer Width (ft)		0.00		0.00		0.00
Minimum Buffer Width (ft)	---		---		---	
Status of Proposed Width	---		---		---	
Stream Side "B"						
Activity						
Slope (%)						
Proposed Buffer Width (ft)		0.00		0.00		0.00
Minimum Buffer Width (ft)	---		---		---	
Status of Proposed Width	---		---		---	
Supplemental Buffer Credit (Buffer on both sides)	No	0.00	No	0.00	No	0.00
Site Protection		---		---		---
Credit Schedule						
Stream Side A		---		---		---
Stream Side B		---		---		---
Temporal Lag		---		---		---
Sum of Factors (M)		0.00		0.00		0.00
Linear Feet of Stream Buffered (LF) = (Do not count each bank separately or count same channel reach twice) (LF)						
Credits (C) = (M x LF)		0.00		0.00		0.00
Location and Kind Factor (LK)		---		---		---
Riparian Credits Generated C x LK Factor**		0.00		0.00		0.00
Sub - Total Riparian Credits (Net Benefits 1 - 3)		0.00				

*Location and Kind (LK) Factor only applies to permittee-responsible mitigation projects see page 18 of document.

Explanatory Notes:	
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STATE OF MISSOURI - STREAM MITIGATION METHOD Riparian Buffer Worksheet

PROJECT NAME:	Blacksnake Creek
ORM #:	2015-01495
DATE:	Thursday, January 21, 2016
STATE, COUNTY:	Missouri, Buchanan
SECTION - TOWNSHIP - RANGE:	Sections 32 & 33, Township 58 North, Range 35 West

Stream Type Impacted	Ephemeral 0.15	Intermittent 0.20	Perennial 0.40	
Priority Waters	Tertiary 0.05	Secondary 0.20	Primary 0.40	
Net Benefit (For Each Side of Stream) - Activity	Riparian Restoration or Establishment "Value from Table 1"	Riparian Enhancement "Value from Table 1"	Riparian Preservation "Value from Table 1"	
Supplemental Buffer Credit	Benefits achieved on both Side "A" and "B" Yes	Benefits achieved on only ONE side. No		
Site Protection	WITHOUT third party grantee 0.05	WITH third party grantee, or transfer of title. 0.20		
Credit Schedule	Schedule 1 0.15	Schedule 2 0.05	Schedule 3 0.00	
Temporal Lag (Years)	Over 20 -0.30	10 to 20 -0.20	5 to 10 -0.10	0 to 5 0.00
Location and Kind Factor	Mitigation proposed outside of the 8-digit Hydrologic Unit Code (HUC). 0.5	Mitigation proposed within the 8-digit Hydrologic Unit Code (HUC). 1.00		

FACTORS	Net Benefit 4		Net Benefit 5		Net Benefit 6	
Site Name	Criteria	Factor	Criteria	Factor	Criteria	Factor
Stream Type Impacted		---		---		---
Priority Waters		---		---		---
Net Benefit						
Stream Side "A"						
Activity						
Slope (%)						
Proposed Buffer Width (ft)		0.00		0.00		0.00
Minimum Buffer Width (ft)	---		---		---	
Status of Proposed Width	---		---		---	
Stream Side "B"						
Activity						
Slope (%)						
Proposed Buffer Width (ft)		0.00		0.00		0.00
Minimum Buffer Width (ft)	---		---		---	
Status of Proposed Width	---		---		---	
Supplemental Buffer Credit (Buffer on both sides)	No	0.00	No	0.00	No	0.00
Site Protection		---		---		---
Credit Schedule						
Stream Side A		---		---		---
Stream Side B		---		---		---
Temporal Lag		---		---		---
Sum of Factors (M)		0.00		0.00		0.00
Linear Feet of Stream Buffered (LF) = (Do not count each bank separately or count same channel reach twice) (LF)						
Credits (C) = (M x LF)		0.00		0.00		0.00
Location and Kind Factor (LK)		---		---		---
Riparian Credits Generated C x LK Factor* =		0.00		0.00		0.00
Sub - Total Riparian Credits (Net Benefits 4 - 6)		0.00				

*Location and Kind (LK) Factor only applies to permittee-responsible mitigation projects see page 18 of document.

Explanatory Notes:	
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STATE OF MISSOURI - STREAM MITIGATION METHOD Riparian Buffer Worksheet

PROJECT NAME:	Blacksnake Creek
ORM #:	2015-01495
DATE:	Thursday, January 21, 2016
STATE, COUNTY:	Missouri, Buchanan
SECTION - TOWNSHIP - RANGE:	Sections 32 & 33, Township 58 North, Range 35 West

Stream Type Impacted	Ephemeral 0.15	Intermittent 0.20	Perennial 0.40	
Priority Waters	Tertiary 0.05	Secondary 0.20	Primary 0.40	
Net Benefit (For Each Side of Stream) - Activity	Riparian Restoration or Establishment "Value from Table 1"	Riparian Enhancement "Value from Table 1"	Riparian Preservation "Value from Table 1"	
Supplemental Buffer Credit	Benefits achieved on both Side "A" and "B" Yes	Benefits achieved on only ONE side. No		
Site Protection	WITHOUT third party grantee 0.05	WITH third party grantee, or transfer of title. 0.20		
Credit Schedule	Schedule 1 0.15	Schedule 2 0.05	Schedule 3 0.00	
Temporal Lag (Years)	Over 20 -0.30	10 to 20 -0.20	5 to 10 -0.10	0 to 5 0.00
Location and Kind Factor	Mitigation proposed outside of the 8-digit Hydrologic Unit Code (HUC). 0.5	Mitigation proposed within the 8-digit Hydrologic Unit Code (HUC). 1.00		

FACTORS	Net Benefit 7		Net Benefit 8		Net Benefit 9	
Site Name	Criteria	Factor	Criteria	Factor	Criteria	Factor
Stream Type Impacted		---		---		---
Priority Waters		---		---		---
Net Benefit						
Stream Side "A"						
Activity						
Slope (%)						
Proposed Buffer Width (ft)		0.00		0.00		0.00
Minimum Buffer Width (ft)	---		---		---	
Status of Proposed Width	---		---		---	
Stream Side "B"						
Activity						
Slope (%)						
Proposed Buffer Width (ft)		0.00		0.00		0.00
Minimum Buffer Width (ft)	---		---		---	
Status of Proposed Width	---		---		---	
Supplemental Buffer Credit (Buffer on both sides)	No	0.00	No	0.00	No	0.00
Site Protection		---		---		---
Credit Schedule						
Stream Side A		---		---		---
Stream Side B		---		---		---
Temporal Lag		---		---		---
Sum of Factors (M)		0.00		0.00		0.00
Linear Feet of Stream Buffered (LF) = (Do not count each bank separately or count same channel reach twice) (LF)						
Credits (C) = (M x LF)		0.00		0.00		0.00
Location and Kind Factor (LK)		---		---		---
Riparian Credits Generated C x LK Factor* =		0.00		0.00		0.00
Sub - Total Riparian Credits (Net Benefits 7 - 9)		0.00				

*Location and Kind (LK) Factor only applies to permittee-responsible mitigation projects see page 18 of document.

Explanatory Notes:	
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**STATE OF MISSOURI - STREAM MITIGATION METHOD
Riparian Buffer Worksheet**

PROJECT NAME:	Blacksnake Creek
ORM #:	2015-01495
DATE:	Thursday, January 21, 2016
STATE, COUNTY:	Missouri, Buchanan
SECTION - TOWNSHIP - RANGE:	Sections 32 & 33, Township 58 North, Range 35 West

Stream Type Impacted	Ephemeral 0.15	Intermittent 0.20	Perennial 0.40	
Priority Waters	Tertiary 0.05	Secondary 0.20	Primary 0.40	
Net Benefit (For Each Side of Stream) - Activity	Riparian Restoration or Establishment "Value from Table 1"	Riparian Enhancement "Value from Table 1"	Riparian Preservation "Value from Table 1"	
Supplemental Buffer Credit	Benefits achieved on both Side "A" and "B" Yes	Benefits achieved on only ONE side. No		
Site Protection	WITHOUT third party grantee 0.05	WITH third party grantee, or transfer of title. 0.20		
Credit Schedule	Schedule 1 0.15	Schedule 2 0.05	Schedule 3 0.00	
Temporal Lag (Years)	Over 20 -0.30	10 to 20 -0.20	5 to 10 -0.10	0 to 5 0.00
Location and Kind Factor	Mitigation proposed outside of the 8-digit Hydrologic Unit Code (HUC). 0.5	Mitigation proposed within the 8-digit Hydrologic Unit Code (HUC). 1.00		

FACTORS	Net Benefit 10		Net Benefit 11		Net Benefit 12	
Site Name	Criteria	Factor	Criteria	Factor	Criteria	Factor
Stream Type Impacted		---		---		---
Priority Waters		---		---		---
Net Benefit						
Stream Side "A"						
Activity						
Slope (%)						
Proposed Buffer Width (ft)		0.00		0.00		0.00
Minimum Buffer Width (ft)	---		---		---	
Status of Proposed Width	---		---		---	
Stream Side "B"						
Activity						
Slope (%)						
Proposed Buffer Width (ft)		0.00		0.00		0.00
Minimum Buffer Width (ft)	---		---		---	
Status of Proposed Width	---		---		---	
Supplemental Buffer Credit (Buffer on both sides)	No	0.00	No	0.00	No	0.00
Site Protection		---		---		---
Credit Schedule						
Stream Side A		---		---		---
Stream Side B		---		---		---
Temporal Lag		---		---		---
Sum of Factors (M)		0.00		0.00		0.00
Linear Feet of Stream Buffered (LF) = (Do not count each bank separately or count same channel reach twice) (LF)						
Credits (C) = (M x LF)		0.00		0.00		0.00
Location and Kind Factor (LK)		---		---		---
Riparian Credits Generated C x LK Factor**		0.00		0.00		0.00
Sub - Total Riparian Credits (Net Benefits 10 - 12)		0.00				

*Location and Kind (LK) Factor only applies to permittee-responsible mitigation projects see page 18 of document.

Explanatory Notes:	
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Total Riparian Credits (Net Benefits 1 - 12)	0.00
---	-------------

A	B	C	D
Table 1. Missouri Stream Mitigation Method			
Riparian Buffer Net Benefit Values			
3	Buffer Restoration or Establishment	Buffer Enhancement	Buffer Preservation
4	Buffer width on one side of stream that is equal to or greater than:	Planted and/or undesirable vegetation is removed and appropriate native vegetation to be established (10-50%)	Planted and/or undesirable vegetation is removed and appropriate native vegetation to be established (10-50%)
5	(Measured in Feet)	Planted and/or undesirable vegetation is removed and appropriate native vegetation to be established (51-100%)	Planted and/or undesirable vegetation is removed and appropriate native vegetation to be established (10-50%)
6	50	0.50	0.13
7	75	0.60	0.15
8	100	0.70	0.18
9	125	0.75	0.19
10	150	0.80	0.20
11	175	0.85	0.21
12	200	0.90	0.23
13	225	0.95	0.24
14	250	1.00	0.25
15	275	1.05	0.26
	300	1.10	0.27

Net Benefit	Bank	Proposed	Acres	Linear Feet	Proposed Buffer Width	Actual Buffer Width
1	LA	Enhancement	10.6	1555	300	297
1	RA	Restoration	3.1	1555	75	87
2	LA	Restoration	2.85	1631	75	76
2	RA	Restoration	3.25	1631	100	87
3	LA	Enhancement	1.25	720	100	76
3	RA	Restoration	1.48	720	100	90
4	LA	Restoration	0.25	116	100	94
5		Relocation				
6		Stabilization				

January 25, 2016

BLACKSNAKE CREEK NWK RESPONSES TO MDNR COMMENTS

1. Concur. The feasibility study accounts for impacts and mitigation.
2. Detention of a large volume of water is needed in order to achieve flood reducing benefits. The real estate required to achieve a similar detention volume with a series of smaller basins is not achievable within the urbanized basin.
3. The overall purpose of the project under the authority of Section 205 of the Flood Control Act of 1948, as amended by the Water Resources Development Act of 1986, is flood risk management as opposed to stormwater management. COE will consider green infrastructure techniques in the design phase such as vegetated swales to avoid, or otherwise minimize, future water quality impacts.
4. There is limited space for a complete meandering, but will take into consideration stream alignment during design and look for opportunities for sinuosity. The construction estimate includes provisions for incorporating sinuosity.
5. A hard point (the CSO concrete inlet) controls the overall depth of the stream. The upstream end of the project and overall length controls the gradient. As the project proceeds into design the overall gradient will be evaluated and the need for grade control. It is not anticipated that grade control is necessary at this time.
6. It is not anticipated that temporary diversion is necessary. Construction methodology is left to the construction contractor, but it is anticipated that half of the basin will be constructed with the new creek alignment, stream flow diverted from the existing to the new alignment, and then the remaining basin features completed.
7. The authorized purpose under which this project is being executed is Section 205 of the Flood Control Act of 1948, as amended by the Water Resources Development Act of 1986. The purpose of this project is flood risk management, which will be accomplished by stormwater detention. Its purpose is not stormwater management for water quality improvements. However, water quality improvements will be an ancillary benefit. Questions/comments regarding LTCP and CSO should be directed to the City of St. Joseph Department of Public Works.
8. The environmental impacts as a result of implementation of the no action and action alternatives proposed are included as Section 3.6 Environmental Impacts within the Draft Integrated Definite Project Report and Draft Environmental Assessment for the Blacksnake Creek Section 205 Flood Risk Management Project, June 24, 2015, posted for public notice July 1 through July 30, 2015 and provided to your office on January 21, 2016. In accordance with Engineering Regulation 1105-2-100, dated 22 Apr 2000, for all purposes except ecosystem restoration, the alternative plan that reasonably maximizes net economic benefits consistent with protecting the Nation's environment, the National Economic Development Plan, shall be selected. The No Action alternative is not practical as it does not meet the basic project purpose of reducing flood risk.

All of the action alternatives proposed have similar impacts to the aquatic ecosystem. The recommended plan maximizes economic benefits through the reduction in flood damages. Differences in the construction footprint and impacts to aquatic resources is essentially the same for all alternatives brought forward for analysis. There are no practicable alternatives to the proposed discharge that would have a less adverse effect on the aquatic environment. Proposed mitigation is addressed in item 9 below.

9. NWK personnel Christy Ostrander, Cassidy Garden and Richard Skinker spoke with MDNR Environmental Scientist Mike Irwin regarding stream impact calculations and mitigation on January 21, 2016. The mitigation of 9,388 stream credits would be conducted using an in-lieu fee mitigation program as no available stream bank mitigation credits are available within the vicinity of the Blacksnake Creek watershed. As of January 14, 2016, 2,274 in-lieu fee credits are available within the Nishnabotna/Platte Rivers Geographic Service Area through the Missouri Conservation Heritage Foundation Stream Stewardship Trust Fund and 10,000 stream credits are available from the Land Learning Foundation within the same service area. Therefore, mitigation would be completed using one of these resources following the signing of a project partnership between CENWK and the City of St. Joseph, MO. The PPA signing is currently estimated to occur in late September, 2016.
10. Concur.
11. Concur. Details including drainage from disposal locations and BMP development will be addressed during design. The construction contractor will be required to apply for a NPDES permit prior to construction.
12. Concur.
13. Concur.
14. Concur.
15. Concur. The construction drawings and specifications will require the contractor to be compliant with the permit and WQC conditions.
16. Concur. The construction drawings and specifications will require the contractor to be compliant with the permit and WQC conditions.
17. Concur. The construction drawings and specifications will require the contractor to be compliant with the permit and WQC conditions.
18. During design, construction easements will be established to build the project. Construction easements will be established to minimize the clearing and grubbing to only those areas necessary to build the project.
19. Noted, this will be taken into consideration during design. The project specifications will include provisions for appropriate stabilization and revegetation measures.

20. Concur. Alternative methods will be considered during design to minimize the amount of sediment entering the water way.

21. Noted. The Corps of Engineers met on site September 15, 2015 with property owner Mrs. Reba Hebert and also with Mr. Kirby Paulman and Ms. Janice Paulman, also property owners with property adjacent to the proposed project. We visited each of the properties to better understand the concerns and were provided the attached additional comment by Ms. Hebert. These property owners are concerned about having a shared driveway to access their respective properties and about the replacement of utilities.

The plans for replacement of the driveway will undergo further consideration during design. At this time, with the information we have available the driveway will be along the railway embankment and will be a shared drive access as well as providing access to the electric utility that runs along the old railway embankment. More investigation needs to be conducted during design to evaluate the potential for building a driveway access from the south may be considered for the Hebert property. No assurances were given that this can work, but it will be considered.

The utilities across the basin along the private drive (which is labeled as the Maxwell Extension in the report) will be replaced/relocated to provide service to the Hebert property. The cost estimate and real estate plan are being revised to account for the cost of relocation/replacement of those utilities.

Roads are addressed in the report, however, road abandonment (Karnes Road and Savannah Road) are being undertaken by the City and are not a part of the Federal project. The DPR/EA is being revised for clarification.

22. Noted.

July 29, 2015

This is in response to: JOINT PUBLIC NOTICE: This public notice is issued jointly with the Missouri Department of Natural Resources (MDNR), Water Pollution Control Program. MDNR will use the comments on this notice in deciding whether to grant Section 401 water quality certification. Commenters are requested to furnish a copy of their comments to the Missouri Department of Natural Resources, P.O. Box 176, Jefferson City, Missouri 65102.

APPLICANT: U.S. Army Corps of Engineers – Kansas City District
601 East 12 Street , Kansas City, MO 64106-2896

RECEIVED
JUL 30 2015
Water Protection Program

First let me apologize for the level of questioning in my response. Only two public meetings have been held in last nine years regarding this project so there are many questions that have not been addressed.

We will only include one of those questions in this response and make one request in regards to access to our property.

From the:

Draft Integrated Definite Project Report and Draft Environmental Assessment Blacksnake Creek Section 205
Flood Risk Management St. Joseph, Missouri
PN # 105940 June 24, 2015

Roads within the project area primarily include Savannah Road to the north, St. Joseph Avenue to the west, Maxwell Road Connector located in the approximate center of the project area, Karnes Road and Northwest Parkway to the south. One resident uses the Maxwell Connector to access St. Joseph Avenue and additional roads to the west of the Maxwell Connector. Roads are addressed in Section 3.1.3 and shown in Figure 3-2.

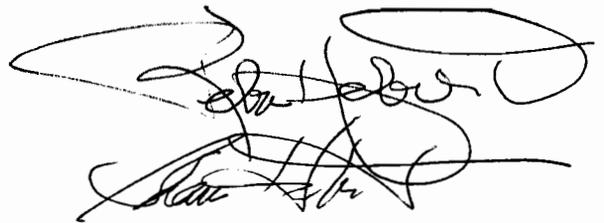
Section 3.1.3 is the benefit cost ratio not where roads are addressed. However 3.2.3 addresses roads.

Specifically 3.2.3.3 states-Two new access roads will be constructed along the east side of the basin. The southern road will extend north from Karnes Road to provide maintenance access to a power pole supporting 161 kilovolt (KV) power lines. The northern road will extend south from Cook Road to the residence formerly accessed by way of Maxwell Road Extension and to provide maintenance access to three 161 KV power poles. The access roads will be 20 feet wide with 6 inches of base gravel. The approximate total length of these access roads is 2,400 feet. These access roads would be constructed as part of the Federal project.

The road referred to as Maxwell Road Extension is actually our private driveway. Our gas and water lines are located in our driveway so we would like additional details regarding the relocation of those services. Also will electrical and communication lines be located underground?

Most importantly we would like to make a request that access to our property be provided from the south, not the north. We own over 13 acres, including a railroad right away from Karnes that extends through our property. We would like to request that access to our home be provided from Karnes. There are several reasons for this request that we will not go into in this response but rather would like to request a personal visit from someone who has the authority to make this change in the project design.

Shane and Reba Hebert
4133 St. Joseph Ave
St. Joseph, MO 64505
Cells: 816 244-1422 and 816 344-3131

Handwritten signatures of Shane and Reba Hebert. The signatures are written in black ink and are somewhat stylized and overlapping.

9/24/25

Utilities

Figures 3-4 and 3-5 in the June 25th Draft Integrated Definite Project Report identifies gas and water impacted by construction. The gas and water lines in our private drive (Maxwell Heights Extension) are not included in the report.

Driveway Concerns

We are opposed to entering our property from the north. Research revealed the following landscape/architectural points, which are not all encompassing, to consider from a landscape architectural design perspective.

Site planning in landscape architecture and architecture refers to the organizational stage of the landscape design process.

Landscape aesthetics is very important to homeowners. The design of routes/driveways should honor the location and arrangement of existing buildings. Location of drives and the approach to the property should fit harmoniously into the landscape and maintain the security and privacy of the property owners.

It is important to achieve balance in the final design. Maintaining the safety and privacy of the property owner should be the priority.

Universal design involves a considered approach to placement decisions based on an integrated assessment and an understanding of the user needs.



NWK Response to Hebert Comments

The Corps of Engineers has met on site on September 15, 2015 with property owner Mrs. Reba Hebert and also with Mr. Kirby Paulman and Ms. Janice Paulman, also property owners with property adjacent to the proposed project. We visited each of the properties to better understand the concerns and were provided the attached additional comment by Ms. Hebert. These property owners are concerned about having a shared driveway to access their respective properties and about the replacement of utilities.

The plans for replacement of the driveway will undergo further consideration during design. At this time, with the information we have available the driveway will be along the railway embankment and will be a shared drive access as well as providing access to the electric utility that runs along the old railway embankment. More investigation would need to be conducted during design to evaluate the potential for building a driveway access from the south may be considered for the Hebert property. No assurances were given that this can work, but it will be considered.

The utilities across the basin along the private drive (which is labeled as the Maxwell Extension in the report) will be replaced/relocated to provide service to the Hebert property. The cost estimate and real estate plan are being revised to account for the cost of relocation/replacement of those utilities.

Roads are addressed in the report, however, road abandonment (Karnes Road and Savannah Road) are being undertaken by the City and are not a part of the Federal project. The report is being revised to clarify this.



DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS
600 FEDERAL BUILDING
KANSAS CITY, MISSOURI 64106-2896

January 3, 2013

REPLY TO
ATTENTION OF

Environmental Resources Section
Planning Branch

Mr. Mark Miles
Director and Deputy State Historic Preservation Officer
State Historic Preservation Office
Department of Natural Resources
P. O. Box 176
Jefferson City, Missouri 65102-0176

Dear Mr. Miles:

The U.S. Army Corps of Engineers, Kansas City District (Corps) and the City of Saint Joseph are proposing a Section 205 flood control project along the Blacksnake Creek Basin in Buchanan County. The project would be constructed using federal funding. This letter initiates coordination of the project under Section 106 of the National Historic Preservation Act.

The project area is situated in northern Saint Joseph along Blacksnake Creek, a small tributary on the left bank of the Missouri River (Figure 1). Land use in the immediate vicinity consists of a mix of residential and commercial development. Blacksnake Creek enters the city about 4.3 miles above its mouth and flows south-southwest to its confluence with the river. The channel in the lower 3.2 square miles of the basin is enclosed in a combined sewer of varying size up to 17 feet in diameter. The upper 5 square miles of the basin above the combined sewer inlet at Karnes Road is drained by an open channel. During storm events the flows from the Karnes Road sewer overtop the road and flood residential, commercial, and industrial properties within the city.

The proposed project would excavate a detention basin between St. Joseph Avenue and an abandoned railroad right-of-way; remove the existing Karnes Road within the project area; construct an overflow spillway at the south end of the project; armor Northwest Parkway with riprap so the road will act as spillway for large flooding events; and relocate or modify utilities including sanitary lines, storm sewer, gas, water, electric, and communication lines. The detention excavation would extend from between 5 to 15 feet below the present ground surface. The excavation would also remove a portion of the abandoned railway grade (Figures 2, 3, and 4). Spoil from the excavation will be placed at two locations, one at Elwood Bottoms in Kansas and the other at a softball complex in northwest Saint Joseph. The project area encompasses approximately 26 acres along Blacksnake Creek extending from Savannah Road in the north to Karnes Road in the south.

An archeological background review of the project area was conducted that included an examination of the National Register of Historic Places on-line (NRHP); NRHP documents provided by the Missouri State Historic Preservation Officer (SHPO); the Missouri Department of Natural Resources Archeological Viewer; as well as pertinent Corps records. Geological maps and the Buchanan County Missouri Soil Survey were reviewed to determine the potential for unrecorded archeological sites in the area.

The background review found that one NRHP-listed district, the St. Joseph Park and Parkway System, crosses the southern portion of the proposed project area along Northwest Parkway (Figure 5). The NRHP district consists of 983 acres of park land and includes 11.5 miles of parkways and boulevards. Northwest Boulevard is included in the District, but Karnes road is not listed as a contributing element of the District. Park elements located within the project area including a ball park, tennis court, and swimming pool are not considered contributing elements to the historic district. No archeological or other cultural resources are recorded within or near the proposed project area; however, the area has not been professionally surveyed for sites. As the area had not been previously surveyed and was thought to have a moderate potential for unrecorded archeological sites, an archeological survey was conducted for the project area.

I conducted the archeological survey of the project area on 7 June 2013 with the assistance of biologist Richard Skinker. The survey consisted of a pedestrian survey of the entire project area and selective shovel testing. The pedestrian survey focused on areas with adequate ground surface visibility and cut bank exposures. Shovel tests were placed in areas of poor surface visibility that appeared to be relatively undisturbed. Areas of profound ground disturbance such as the former railway line that bisects the project area east of the creek and utility lines were noted, but not surveyed.

The field survey identified no archeological sites in the project area. The proposed project location was found to have been largely disturbed by passed urban development primarily from construction of the now abandoned railroad track and large associated berm and adjacent borrow areas; the Karnes and Northwest Parkway roadways; park development in the southern project area; housing and commercial along the eastern and western project boundaries, and park development.

The armoring of Northwest Parkway would not have an adverse effect on the St. Joseph Park and Parkway System NRHP District as the road would remain in place and there should be little visual impact from the finished project. In addition, the other project impacts would not impact contributing elements of the District as Karnes Road and adjacent field and park are not part of the NRHP District. The project is also unlikely to impact any unrecorded archeological sites within the area of potential effect as past disturbances throughout area make it unlikely that the area contains any unrecorded archeological sites that would be eligible for the NRHP. Because of the above conditions, the Corps has determined that the proposed project would have no adverse effect on the St. Joseph Park and Parkway System NRHP District and would not impact

any other sites eligible for the NRHP outside of the District. At this time, we are requesting your concurrence with this recommendation.

Thank you for your consideration in this matter. If you have any questions or have need of further information please contact me at timothy.m.meade@usace.army.mil or at (816) 389-3138.

Sincerely,

Timothy Meade
District Archeologist

Enclosure



Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

January 13, 2014

Timothy Meade
District Archaeologist
Corps of Engineers, Kansas City District
600 Federal Building
Kansas City, Missouri 64106-2896

Re: Blacksake Creek Flood Control Project, St. Joseph (COE) Buchanan County, Missouri

Dear Mr. Meade:

Thank you for submitting information about the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of cultural resources.

We have reviewed the information provided concerning the above referenced project. We concur with your determination that the proposed flood control project will have **no adverse effect** on the Northwest Parkway, a contributing property to the St. Joseph Park and Parkway System Historic District, a property listed in the National Register of Historic Places.

Please be advised that, should project plans change, information documenting the revisions should be submitted to this office for further review and comment on possible effects to historic properties. In the event that cultural materials are encountered during project activities, all construction should be halted, and this office notified as soon as possible in order to determine the appropriate course of action.

If you have any questions, please write Judith Deel at State Historic Preservation Office, P.O. Box 176, Jefferson City, Missouri 65102 or call 573/751-7862. Please be sure to include the SHPO Log Number **(018-BN-14)** on all future correspondence or inquiries relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE



Mark A. Miles
Director and Deputy State
Historic Preservation Officer

MAM:jd

c Scott Des Planques, St. Joseph

Skinker, Richard A NWK

Subject: FW: [EXTERNAL] Re: Blacksnake Creek proposed spoil deposit near Elwood, Kansas (UNCLASSIFIED)
Attachments: Blacksnake Creek Spoil Deposit.pdf

-----Original Message-----

From: Meade, Timothy M NWK
Sent: Thursday, April 23, 2015 12:16 PM
To: Skinker, Richard A NWK
Subject: FW: [EXTERNAL] Re: Blacksnake Creek proposed spoil deposit near Elwood, Kansas (UNCLASSIFIED)

-----Original Message-----

From: Tim Weston [<mailto:tweston@kshs.org>]
Sent: Wednesday, March 26, 2014 11:19 AM
To: Meade, Timothy M NWK
Subject: [EXTERNAL] Re: Blacksnake Creek proposed spoil deposit near Elwood, Kansas (UNCLASSIFIED)

Tim,

Our response letter for this project is attached. Please let me know if you have any questions.

Tim Weston
SHPO Archeologist
Kansas Historical Society
6425 SW 6th Avenue
Topeka, Kansas 66615
(785) 272-8681 ext. 214
tweston@kshs.org

On 3/20/2014 10:46 AM, Meade, Timothy M NWK wrote:

> Classification: UNCLASSIFIED
> Caveats: NONE
>
> Hi Tim,
>

This e-mail is in reference to the proposed spoil deposit location for material excavated for the Blacksnake Creek flood control project we discussed yesterday. The proposed spoil area is located near Elwood, Kansas in the Missouri River flood plain as depicted in the attached aerial map. No ground disturbance is planned for the project. No sites are mapped within or near the proposed spoil are. Please review and provide any comments you may have.

>
> Thanks for your consideration,
>
> Timothy Meade
> District Archeologist/Tribal Liaison
> U.S. Army Corps of Engineers
> Kansas City District
> 600 Federal Building
> 601 E. 12th Street
> Kansas City, MO 64106-2896
> P: (816) 389-3138



Kansas Historical Society

Sam Brownback, Governor
Jennie Chinn, Executive Director

KSR&C No. 14-03-147

March 26, 2014

Timothy Meade
District Archeologist/Tribal Liason
U.S. Army Corps of Engineers
Kansas City District
600 Federal Building
601 E. 12th Street
Kansas City, Missouri 64106-2896

RE: Blacksake Creek Spoil Deposit Location
City of Elwood
Doniphan County

Dear Mr. Meade:

In accordance with 36 CFR 800, the Kansas State Historic Preservation Office has reviewed your e-mail message and attached documentation (dated March 20, 2014) describing plans to deposit spoil excavated from the Blacksake Creek flood control project. Given the factors outlined in your documentation, we concur with the conclusion that the proposed project will have no effect on historic properties as defined in 36 CFR 800. This office has no objection to implementation of the project.

Any changes to the project, which include additional ground disturbing activities, will need to be reviewed by this office prior to beginning construction. If construction work uncovers buried archeological materials, work should cease in the area of the discovery and this office should be notified immediately.

This information is provided at your request to assist you in identifying historic properties, as specified in 36 CFR 800 for Section 106 consultation procedures. If you have questions or need additional information regarding these comments, please contact Tim Weston at 785-272-8681 (ext. 214).

Sincerely,

Jennie Chinn, Executive Director and
State Historic Preservation Officer

Patrick Zollner
Deputy SHPO



Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

JUN 24 2016

Ms. Christy Ostrander
Kansas City District
U.S. Army Corps of Engineers
601 East 12th Street
Kansas City, MO 64106-2896

RE: 2015-01495/CEK007082, Buchanan County

Dear Ms. Ostrander:

The Department of Natural Resources (DNR), Water Protection Program, has reviewed your request for Clean Water Act Section 401 Water Quality Certification (WQC) to accompany the U.S. Army Corps of Engineers' (USACE) Permit No. 2015-01495 in which you are proposing to clear 13.4 acres of riparian vegetation and 22.2 acres of turf and excavate to a depth of 5 to 15 feet to create a 35.6-acre stormwater detention basin to provide flood risk management benefits and control sanitary sewer overflows from the city of St. Joseph Wastewater Treatment Plant. A temporary diversion channel to accommodate Blacksnake Creek at base flow will be excavated within the construction footprint. Northwest Parkway would be the primary spillway when the basin capacity is exceeded, and an abandoned railroad bed would act as a secondary spillway.

Blacksnake Creek conveys stormwater runoff through an open, natural channel in the upper reach to an enclosed system at Karnes Road. The enclosed system is a combined sewer with flows running through the wastewater treatment plant. When stormwater flow exceeds the treatment plant capacity, the excess flow is discharged directly into the Missouri River via a diversion structure. The project is aligned with the Long Term Control Plan developed by the city of St. Joseph to reduce sewer overflows. Additionally, there have been several major flood events that have caused major damages to developed property.

The proposed project is located in Section 33, Township 58 North, Range 35 West in the city of St. Joseph, Buchanan County, Missouri. It is just east of St. Joseph Avenue and is bounded by Northwest Parkway to the south, the Savannah and Cook Roads intersection to the north, and generally bounded by an abandoned railroad bed to the east. Coordinates for the approximate center of proposed project area are 39.80236°N 94.84156°W. Approximate coordinates for the upstream limit of impacts are 39.80525°N and 94.84063°W.

1. The 2,890 linear feet of stream impacts were assessed using the "2013 State of Missouri Stream Mitigation Method" and determined to require 9,388 stream mitigation credits. Compensatory mitigation shall be satisfied by the purchase of 9,388 stream mitigation

credits from the Land Learning Foundation, the Stream Stewardship Trust Fund, a combination of these in-lieu fee providers, or other approved mitigation provider. Copies of the purchase documents shall be provided to DNR at the address below prior to the start of work within jurisdictional waters at the site.

2. To the amount practicable, the stream shall be re-established to a more natural state, including meanders and in-stream structures such as riffles, runs and pools.
3. Adequate and appropriate grade control structures shall be required when necessary.
4. Care shall be taken to ensure spoil materials do not enter non-target areas. The applicant shall not dispose of waste materials, water, or garbage below the ordinary high water mark of any other water body, in a wetland area, or at any location where the materials could be introduced into the water body or an adjacent wetland as a result of runoff, flooding, wind, or other natural forces.
5. Antidegradation requirements dictate all appropriate and reasonable Best Management Practices related to erosion and sediment control, project stabilization and prevention of water quality degradation are applied and maintained; for example, preserving vegetation, streambank stability and basic drainage. The applicant will be responsible for ensuring that permit requirements and relevant WQC conditions are met. The project shall not involve more than normal stormwater or incidental loading of sediment caused by construction disturbances.
6. Conduct project activity at low flows and water levels to limit the amount of sediment disturbance caused by the heavy equipment. Limit the duration and extent that any heavy equipment is required to be in-stream.
7. Care shall be taken to keep machinery out of the water way as much as possible. Fuel, oil and other petroleum products, equipment, construction materials and any solid waste shall not be stored below the ordinary high water mark at any time or in the adjacent floodway beyond normal working hours. All precautions shall be taken to avoid the release of wastes or fuel to streams and other adjacent waters as a result of this operation.
8. Petroleum products spilled into any water or on the banks where the material may enter waters of the state shall be immediately cleaned up and disposed of properly. Any such spills of petroleum shall be reported as soon as possible, but no later than 24 hours after discovery to DNR's Environmental Emergency Response number at (573) 634-2436.
9. Only clean, nonpolluting fill shall be used.
10. Clearing of vegetation/trees shall be the minimum necessary to accomplish the activity.

11. The proposed project could encounter sites of conservation concern, including those that have not been recorded. To determine the potential for species of concern within or near a project, please visit:
 - Department of Conservation's "Natural Heritage Review" website at <http://mdcgis.mdc.mo.gov/heritage/newheritage/heritage.htm>, and
 - U.S. Fish and Wildlife Service's "Information, Planning and Conservation" website at <http://ecos.fws.gov/ipac/>.

If the proposed project encounters and will potentially affect a species of concern, please report it to the Department of Conservation and the U.S. Fish and Wildlife Service.

12. The riparian area, banks, etc., shall be restored to a stable condition to protect water quality as soon as possible. Seeding, mulching and needed fertilization should be within three days of final contouring. On-site inspections of these areas should be conducted as necessary to ensure successful re-vegetation and stabilization, and to ensure that erosion and deposition of soil in waters of the state is not occurring from these projects.
13. Acquisition of a WQC shall not be construed or interpreted to imply the requirements for other permits are replaced or superseded, including Clean Water Act Section 402 National Pollutant Discharge Elimination System Permits. Permits or any other requirements shall remain in effect. Land disturbance activities disturbing one or more acres of total area for the entire project require a stormwater permit. Instructions on how to apply for and receive the on-line land disturbance permit are located at www.dnr.mo.gov/env/wpp/epermit/help.htm. Questions regarding permit requirements may be directed to DNR's Kansas City Regional Office at (816) 251-0700.
14. The city of St. Joseph is also covered under Municipal Separate Storm Sewer System Permit MO-R040057 with measures to control and possibly treat stormwater. It is important to comply with all stormwater requirements of the city's Stormwater Management Plan and any related ordinances.
15. This project shall not interfere with or inhibit the city of St. Joseph's Long Term Control Plan addressing combined sewer overflows.
16. Representatives from DNR shall be allowed on the project property to inspect the authorized activity at any time deemed necessary by DNR to ensure compliance with the above conditions.
17. The WQC is based on the plans as submitted. Should any plan modifications occur, please contact DNR to determine whether the WQC remains valid or may be amended or revoked.

Ms. Christy Ostrander
Page Four

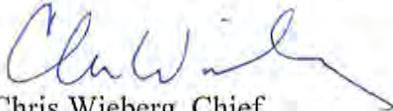
Pursuant to Chapter 644, RSMo, commonly referred to as the Missouri Clean Water Law, and fee regulations under 10 CSR 20-6.011(2)(I), this WQC shall be valid only upon payment of a fee of \$150.00. The enclosed invoice contains the necessary information on how to submit your fee. Payment must be received within 15 business days of receipt of this WQC. Upon receipt of the fee, the applicable office of the USACE will be informed the WQC is now in effect and final.

You may appeal to have the matter heard by the Administrative Hearing Commission (AHC). To appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

This WQC is part of the USACE's permit. Water Quality Standards must be met during any operations authorized. If you have any questions, please contact Mr. Mike Irwin by phone at (573) 522-1131, by e-mail at mike.irwin@dnr.mo.gov, or by mail at the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102-0176. Thank you for working with DNR to protect our environment.

Sincerely,

WATER PROTECTION PROGRAM



Chris Wieberg, Chief
Operating Permits Section

CW:mip

Enclosure

c: Ms. Sherry Bell, Fiscal Management Section, Budget and Fees Unit
Mr. Jesse Cochran, Kansas City Regional Office
Mr. John Hoke, Watershed Protection Section
Ms. Anna Nowack, Watershed Protection Section
Ms. Corinne Rosania, Kansas City Regional Office
Mr. Richard Skinker, U.S. Army Corps of Engineers, Kansas City District
Ms. Terrie Williams, Kansas City Regional Office