



MINUTES OF THE KANKAKEE RIVER BASIN AND YELLOW RIVER BASIN DEVELOPMENT COMMISSION

KRB-YRBDC Technical Advisory Committee

Wednesday, March 8, 2023

10:00 a.m. CDT/11:00 a.m. EDT

155 Indiana Avenue, Suite 205

Valparaiso, IN 46383

Tony Hendricks, Chair, called the meeting to order at 10:00 a.m. CST.

Vince Urbano, Secretary, called the roll.

Members Present Physically or Electronically

Kevin Breitzke	Dan Gumz	Tony Hendricks	Tom Larson
John Law	Vince Urbano	Beau Watkins	Kim Peterson (<i>for Mark Kingma</i>)

Staff Present

Scott Pelath

Guests Present Physically or Electronically

Angel Crawford	Grant Poole	Jim Walstra	John Shure	Julie Morris
Al Cameron	Patrick Murphy	Clyde Avery	Eric Brandt	Eric Courtright
Jen Birchfield	Jennifer Thum	Jim Sweeney	Larry Mackin	Larry Smith
Paul Brayton	Ray Chambers	Ross St. Clair	Reed Stiller	Maddie McFarland
Rich Mrozinski	Sheila McKinney	Sheila Schroeder	Sue Castanier	Tony Wolff
Trent Bennett	Siavash Beik	Kira Baltutis	Cara Pattullo	David Handwerk
Tom Schouten	Mike Novotney	Chester Magiera	Lee Magiera	Aaron Knezevic
Scott Lincoln	John McNamara	Jim Kreiger	Jay Hunter	Dave Eichelberger
Mel Haman	Craig Cultice	Scott Girardi	Dave Knipe	Courtney Anderson

Victoria Chessor Tim Werner

The chair announced the presence of a quorum.

APPROVAL OF DECEMBER 21, 2022, MINUTES

Kevin Breitzke moved to approve the December 21, 2022, minutes. Dan Gumz seconded the motion.

Breitzke – Aye

Gumz – Aye

Hendricks – Aye

Larson –Aye

Law -- Aye

Urbano – Aye

Watkins – Aye

Peterson for Kingma -- Aye

MOTION ADOPTED.

EXECUTIVE DIRECTOR’S REPORT

Executive Director Scott Pelath deferred his time to U.S. Army Corps of Engineers officials for their presentation.

OLD BUSINESS

None

NEW BUSINESS

The U.S. Army Corps of Engineers commenced the formal flood response planning process for the Kankakee River Basin in Indiana. A copy of their presentation is attached [ATTACHMENT 1]. Corps officials then fielded questions and solicited input from members of the public and interested stakeholders.

OTHER BUSINESS

Ross St. Clair of Stantec presented three different possibilities for Phase III of the Yellow River bank reconstruction project [ATTACHMENT 2].

Mr. Breitzke moved that the Committee defer its recommendation for the specific Phase III sites to the Marshall and Starke County Commission members, and that the members make a recommendation to the Commission in consultation with Stantec. Tom Larson seconded the motion.

Breitzke – Aye

Gumz – Aye

Hendricks – Aye

Larson –Aye

Law -- Aye
Urbano – Aye
Watkins – Aye
Peterson for Kingma -- Aye

MOTION ADOPTED.

PUBLIC COMMENT

None

SELECTION OF NEXT MEETING DATE

To be determined.

ADJOURNMENT

The Committee adjourned at 11:19 a.m. CDT.

Kankakee and Yellow River Flood Preparedness and Response Plan Kickoff Meeting

Porter County Commissioners Chamber
Valparaiso, IN
March 8, 2023
10:00 AM CST

<https://global.gotomeeting.com/join/687635045>



US Army Corps
of Engineers®





MEETING AGENDA

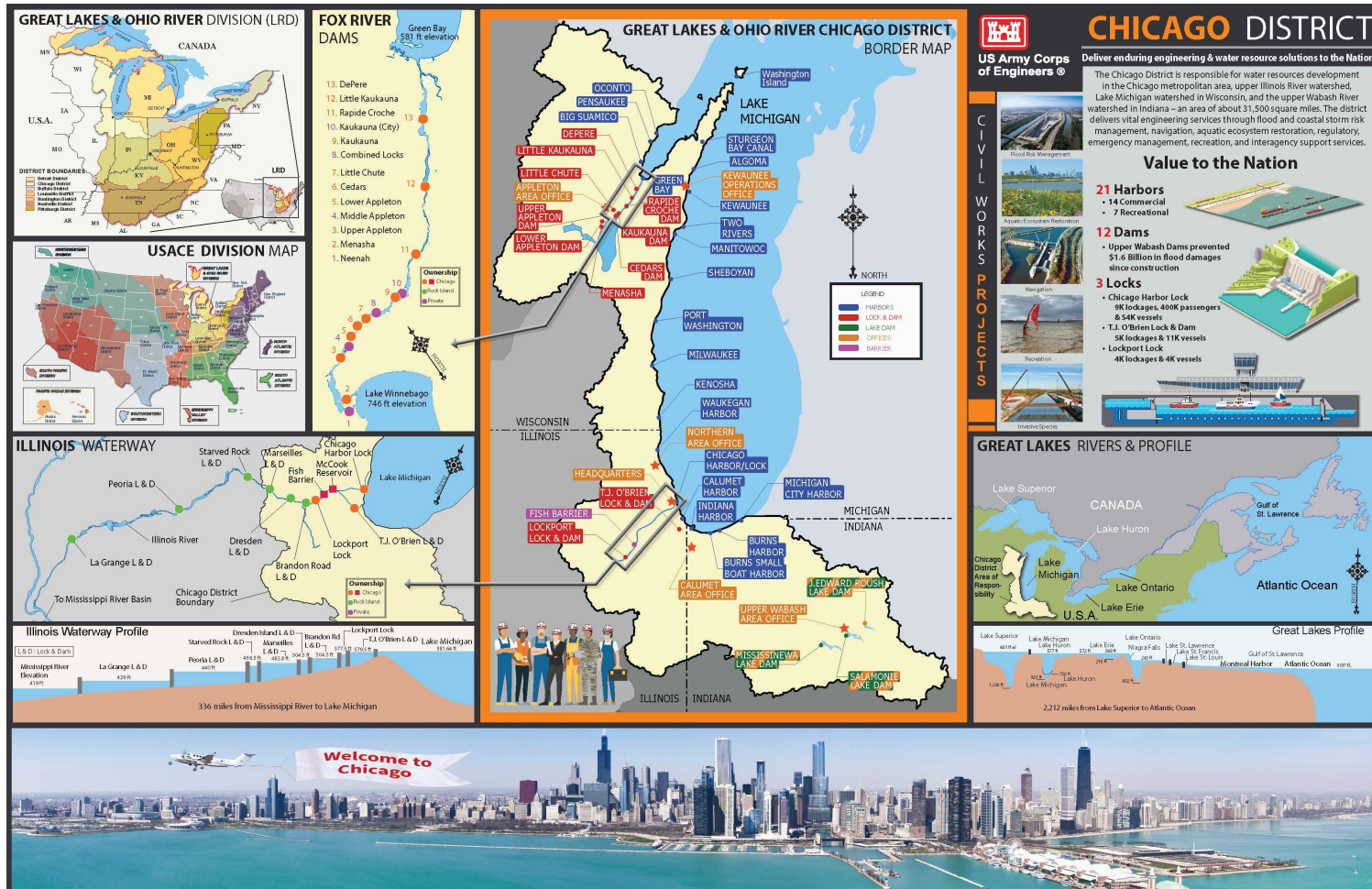


- Introductions
- Background
- Benefits of a Flood Response Plan
- Example Plans
- Proposed Schedule and Tasks
- Roles and Responsibilities
- Questions and Discussion



ARMY CORPS OF ENGINEERS CHICAGO DISTRICT

3





FLOODPLAIN MANAGEMENT SERVICES PROGRAM

4



- Authorized by Section 206 of the Flood Control Act of 1960, as amended
- Covers information, technical, and planning guidance and assistance for flood issues
- FPMS services are provided to state, regional, and local governments without charge



FLOODPLAIN MANAGEMENT SERVICES PROGRAM

5



Types of FPMS Services

General Technical Services: Flood and floodplain data is obtained or developed and analyzed. Outreach to communities, localities, and other public entities may be provided.

General Planning Guidance: Assistance and guidance is provided on floodplain management planning.

Guides, Pamphlets, and Supporting Studies. Flood and floodplain data/information are obtained and disseminated to states, local governments, federal agencies, and private citizens.

Common FPMS Products

- Flood Modeling and Preparedness
- Flood Hazard Vulnerability Analysis
- Flood Proofing
- Inundation of Flood Plain Mapping
- Hurricane Preparedness and Evacuation
- Evacuation of Structural and Nonstructural Alternatives
- Storm Water Management
- Emergency Action Plan/Floodplain Management Plan ★
- Dam Failure Analysis
- Inventory of Flood Prone Structure
- Nonstructural Flood Risk Management Workshops
- Risk Communication and Public Education
- Natural and Nature-Based Solutions
- Assessment Tools and Processes



SILVER JACKETS



A partnership of volunteers, devoted to developing comprehensive and sustainable solutions, to all natural hazards and risks.

Participating Agencies	
Federal	State
<ul style="list-style-type: none">• Federal Emergency Management Agency (FEMA)• NOAA, National Weather Service (NOAA-NWS)• U.S. Army Corps of Engineers (USACE)• USDA, Natural Resources Conservation Services (USDA-NRCS)• U.S. Geological Survey (USGS)	<ul style="list-style-type: none">• Indiana Air National Guard• Indiana Association of Floodplain and Stormwater Management (ASFPM)• Indiana Department of Environmental Management (IDEM)• Indiana Department of Homeland Security (IDHS)• Indiana Department of Natural Resources (IDNR)• Indiana Geographic Information Council• Indiana Office of Community and Rural Affairs (ORCA)• Indiana University Purdue University of Indianapolis• Purdue University



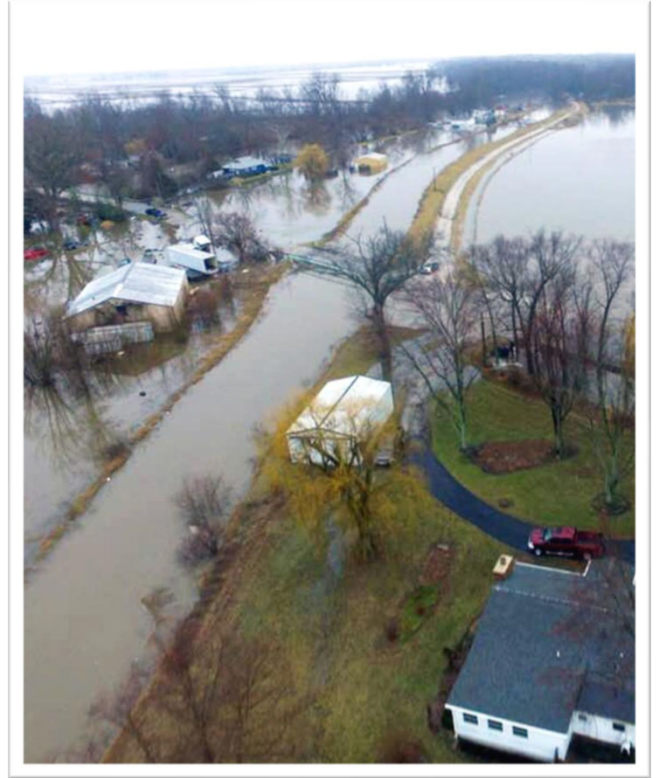


PROJECT BACKGROUND

7



Kankakee River Watershed
(USACE, 2023)



Kankakee River Flooding February 2018
(Kankakee Valley Post News, 2018)



BENEFITS OF A FLOOD RESPONSE PLAN



8

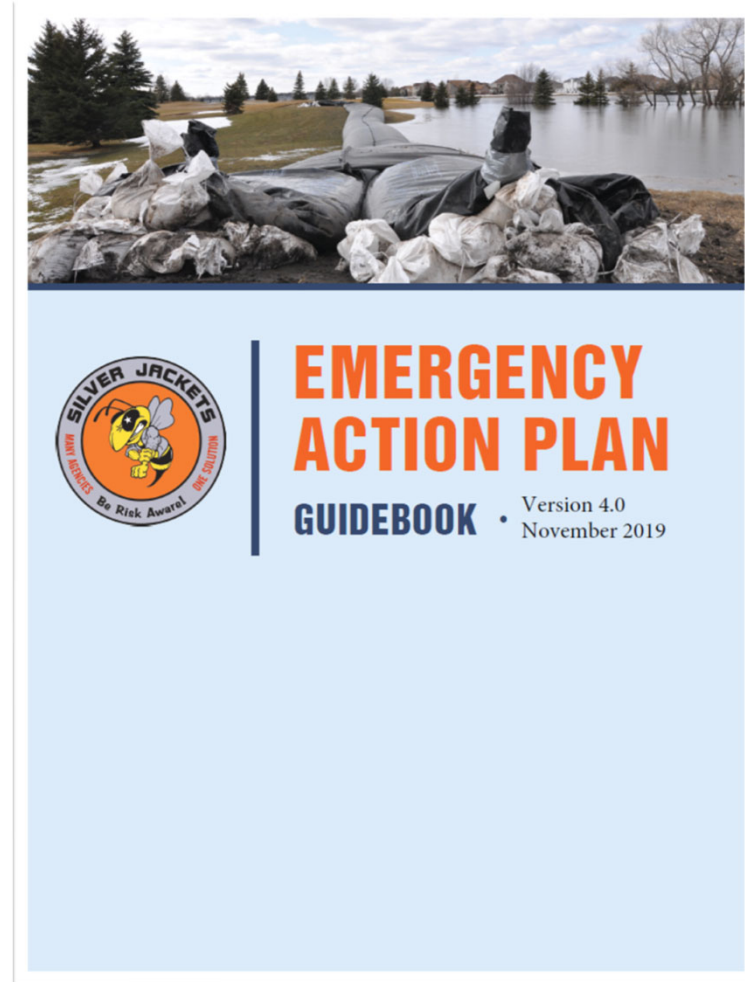
- Identifies flood risk to the community and critical infrastructure
- Standardizes response methods
- Establishes evacuation procedures and routes
- Helps avoid confusion during an emergency
- Gets people out of harm's way and prevents loss of life
- Reduces economic and environmental damages



EXAMPLE PLANS

Things to Consider:

- Authority
- Mutual Aid Agreements
- Flood Organization Personnel
- Contact Lists
- Flood Elevations, Mapping, and History
- Tasks and Prioritized Action
- Emergency Shelters
- Evacuations
- Utilities
- Critical Facilities
- Hazardous Materials
- Communications
- Training and Exercises





EXAMPLE PLANS



CHAPTER 2 AUTHORITY

1. Authority for Declaring an Emergency

The City Council has the authority to declare an emergency. City staff will prepare the appropriate resolution and notify officials if an event likely to incur costs of more than \$100,000 is anticipated. There are positive reasons for declaring an emergency early and few, if any, detrimental reasons for declaring an emergency that does not end up materializing. However, if necessary, it is recommended that a special council meeting be called if the timing is not favorable for waiting for the next regularly scheduled meeting.

2. Process for Declaring an Emergency

Staff will monitor National Weather Service (NWS) flood forecasts, participate in County and regional planning meetings, and notify the City Council and flood personnel as appropriate. Once a local emergency has been declared, it will be coordinated through the County Emergency Manager and provided to the State. There may be funds available through the State to assist with emergency operations.

3. Sample Resolution

A sample resolution is included as part of the appendix.

4. Process for Declaring an Evacuation

The Mayor and City Council have a responsibility to order an evacuation if the situation is deemed unsafe. Once the decision is made, the Incident Commander will direct his staff to initiate actions to notify everyone involved through press releases, calls to the radio and TV stations, reverse 911, and door-to-door notifications.

CHAPTER 3 MUTUAL AID AGREEMENTS

The following mutual aid agreements are in place and available for back-up if needed during the flood fight. Copies of the agreements are included in the appendix.

Community	Purpose	Point of Contact	Phone & Email
Overhere	Provide staff for second shift for emergency operations center	Jerry Lewis	651-293-5805 J.Lewis01@gmail.com
Hillside	Provide back-up fire department support	Dean Martin	651-228-9595 Dean.Martin@gmail.com
Center City	Provide back-up staff for wastewater treatment plant	Bob Hope	651-233-4678 Hope.Robert@comcast.com



EXAMPLE PLANS



CHAPTER 4

Page 1 of ____

PERSONNEL FOR FLOOD ORGANIZATION

The following personnel have been identified as part of the flood organization.

Name & Position	Cell Phone	Home Phone	Work Phone	Email Address	Other
Wendy Chamberlain, Incident Commander	651-291-0011	327-585-5369	898-565-4251	w.chambers@gmail.com	Husband's Cell: 123-566-8997
Gary Darwin, Operations	651-291-2989	327-585-4441	766-555-1986	darwin.g.5@gmail.com	Wife's Cell: 455-621-6363
Michelle Moes, Logistics	321-566-5488	-	766-555-2567	m.moes@htbuild.com	-
Russ Peterson, Finance	123-422-8979	-	-	Peterson99@hotmail.com	Wife's Cell: 455-563-1234



EXAMPLE PLANS



CHAPTER 7

Page 1 of __

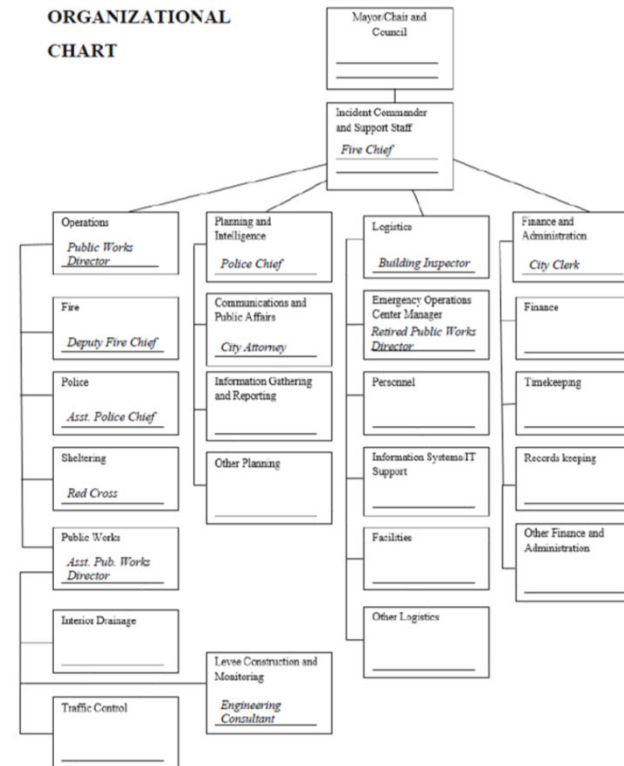
TASK LIST

This table is a summary of what actions need to be taken, the order they should be taken, and an estimated river stage at which the activity should happen. It also serves as the table of contents for the next set of worksheets. After each flood this list should be revisited to see if changes are recommended.

River Stage	Task	Notes
Pre-Flood	Get contract in place for pumps for when stormwater discharges into the river are closed.	Requires Council approval.
Pre-Flood	Get contract in place for technical assistance from Engineering Consultant.	Contract includes surveying and high water marks. Requires Council approval.
Pre-Flood	Confirm sandbag inventory	
5	Close gates at stormwater discharge into river (3 locations).	Allow ½ day since may be iced in and need to be streamed out.
8	Remove park benches along river.	
10	Road Closure at 2 nd Ave.	Requires detour signs.
12	Barricades for Main Street Bridge approach, which goes under water at stage 14.	
14	Monitor for potential ice jams at bridge and have excavator available.	
16	Road closure at 2 nd Ave.	

109

ORGANIZATIONAL CHART



102



EXAMPLE PLANS



CHAPTER 11 CRITICAL FACILITIES

Last Updated: 1/3/18

Name of Facility	Address	Elevation	Point of Contact			
			Name	Phone	Alternate Phone	Email
<i>Anywhere General Hospital</i>	<i>1689 12th Ave S Anywhere, MN</i>	<i>1463</i>	<i>Mary Williams</i>	<i>466-398-5445</i>	<i>321-969-5236</i>	<i>m.williams@gen.org</i>
<i>Elementary School</i>						
<i>High School</i>						
<i>Waste Water Treatment Plant</i>						
<i>Power Plant</i>						
<i>Quiet Acres Nursing Home</i>						

Additional Notes:

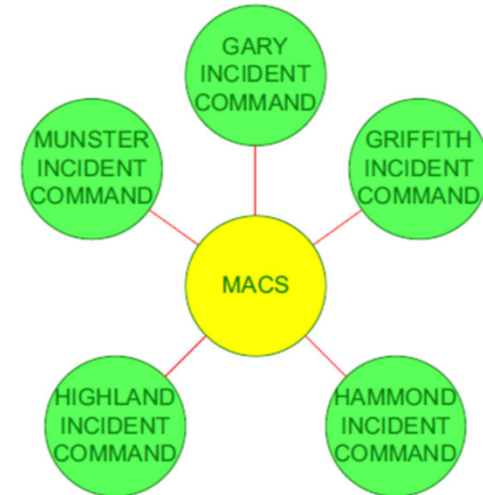


EXAMPLE PLANS

Little Calumet River *Operational Maintenance & Emergency Response Plan*

- Provides effective and efficient means of managing flooding incidents in the area under the control of the Little Calumet River Basin Commission
- Centered around a Multi-Agency Coordination System (MACS)
- MACS is activated when two or more communities enact phase two of their individual emergency response plans

Management Structure



The strategic management structure for an emergency response event will center around a Multi-Agency Coordination System, otherwise known as a MACS. This system allows for individual incident command structures while facilitating a coordinated response. The MACS, which is described in further detail in the MACS section of this document, will be the center point of communications and coordination. The MACS has no command authority over the individual incident commands but will serve as the central resource point. Other agencies which may have a role in the event such as INDOT, Army Corps of Engineers, etc. but who are not directly part of any individual incident commander will now be under the control of the MACS. This will allow these groups to provide information and resources to the group in a coordinated and efficient manner.

Source: Little Calumet River Flood Control & Recreation Project, 2010





EXAMPLE PLANS



Little Calumet River Operational Maintenance & Emergency Response Plan

Emergency Contact Numbers

Contact	Primary Telephone	Secondary Telephone
Indiana State Police	INFORMATION REDACTED	INFORMATION REDACTED
Indiana Department of Transportation		
INDOT - Laporte District		
Illinois Department of Transportation		
INDOT - Hoosier Helpers		
Munster Police Department		
Highland Police Department		
Griffith Police Department		
Dyer Police Department		
Schererville Police Department		
Hammond Police Department		
Lansing Police Department		
Lynwood Police Department		
Lake County Sheriff		
County Highway Department		
Walsh & Kelly		
Nat'l Weather Svc		

Little Calumet River Mitigation Committee		Subject: Traffic Control Plan
Effective: 9/1/2010	Revised:	
General Guidelines	The primary objective of this traffic control plan is to try and divert as much traffic away from the area as possible. The overall goal of this plan is to reduce the traffic congestion on the major east/west roadways that will occur when the bridges crossing the Little Calumet River are closed due to flooding. This will be accomplished through public information efforts involving the local news media, traffic control signs and with the help of private companies. There will be a major effort to educate the public to avoid the areas affected by the flooding and to use alternate routes. This plan does not include the closing of bridge approaches as that will be left to the individual governmental units to handle through their police and public works departments and through mutual aid if available.	
	The plan also takes into account the rerouting of traffic from Interstate 80/94 should it become necessary to close that roadway due to flooding. This plan covers the areas of Griffith, Hammond, Highland, and Munster.	
Activation Criteria	The plan includes the assistance of the following: <ul style="list-style-type: none">• Outside communities which have major roadways through them to include the following: Dyer, Schererville, Merrillville, & Lowell.• The use of major highway departments such as the Indiana Department of Transportation, Illinois Department of Transportation and the Lake County Highway Department.• The use of digital messaging signs on private businesses such as Walgreens, CVS and others.• The use of internet network sites such as Tweeter and NIXLE.	
	The traffic plan would go into effect when: <ol style="list-style-type: none">1. It becomes necessary to close one of the following primary bridges traversing the Little Calumet River:<ol style="list-style-type: none">a. Calumet Avenueb. Indianapolis Blvd (US41);c. Kennedy Avenue;d. Cline Avenue (IN912)2. In the event INDOT closes Interstate 80/94 due to flooding.	

ANTICIPATED SANDBAG REQUIREMENTS			
	Gary	Hammond	Highland
35th Street	Panel		
Broadway Street	5,500		
Calhoun Street	6,000		
Chase Street	Panel		
Clark Street	5,000		
Collins Street	2,500		
Georgia Street	2,500		
Grant Street	Earth		
Harmon Street	4,500		
NW RR (2-1)	410		
NW RR (2-2)	4,500		
NW RR Burn (T)	Panel		
NW RR Burn (W)	Panel		
Pope Control RR	2,420		
Total for Gary	34,500		
Hammond			
NW RR (2-1)		410	
Calumet Avenue		1,540	
Columbia Avenue		6,070	
Conrail RR		Panel	
Kennedy Avenue		Earth	
Northridge Avenue		1,610	
Total for Hammond		9,590	
Highland			
Cline Avenue		5,310	
Conrail RR		Panel	
Kennedy Avenue		Earth	
Total for Highland		5,310	
Munster			
Calumet Avenue		1,300	
Columbia Avenue		Earth / Water Bladder	
Northridge Avenue		Earth / Water Bladder	
Total for Munster		1,300	
Total for All	51,000	1,810	6,190

Revision: Final Review

Page 23

Date Printed: 08/21/10

Source: Little Calumet River Flood
Control & Recreation Project, 2010

[illegible]

Slide 16

MKECUC(0 I adjusted the schedule bars for the first three tasks to better reflect where I think we are.

I also tweaked the description for Task 6 because we have heard from Scott that we don't need one workshop per county given the small staffs.

McClain, Kaitlyn E CIV USARMY C, 2023-02-24T19:10:12.675



TASKS



Objective: Understand Flood Risks

- ☐ Collect existing flood inundation mapping information.
 - Dates: February – April 2023
 - Lead: USACE, KRB-YRBDC
 - Support: Counties, INDR-DOW, IDHS, USGS-OKI

- ☐ Collect existing hydraulic and hydrologic models and review documentation to identify potential areas for improvement.
 - Dates: February – April 2023
 - Lead: USACE, KRB-YRBDC
 - Support: Counties, INDR-DOW, USGS-OKI, NOAA-NWS

- ☐ Identify potential areas where the existing FEMA floodplain mapping does not match with recent flood experience.
 - Dates: March – April 2023
 - Lead: USACE, KRB-YRBDC
 - Support: Counties, INDR-DOW, IDHS, USGS-OKI, NOAA-NWS



TASKS



Objective: Understand Flood Warning and Response Needs

- ☐ Collect and review existing County Hazard Mitigation and/or flood response plans to identify potential areas for improvement and coordination between counties and the Commission.
 - Dates: February – April 2023
 - Lead: USACE, KRB-YRBDC
 - Support: Counties, IDHS

- ☐ Identify critical facilities/locations/roadways vital to flood response.
 - Dates: April – May 2023
 - Lead: USACE, KRB-YRBDC, Counties
 - Support: INDOT, IDHS

- ☐ Conduct workshops to develop response needs and respective roles/responsibilities crosswalk table.
 - Dates: June – August 2023 (likely group 2-3 counties per workshop)
 - Lead: USACE, KRB-YRBDC
 - Support: Counties, Municipalities, IDNR-DOW, IDHS, USGS-OKI, NOAA-NWS



TASKS



Objective: Develop Recommendations for Future Actions

- ☐ Work with NWS and USGS to refine flood warning trigger levels and identify potential locations for additional gaging. Integrate Commission purchased supplemental gages into overall plan.
 - Dates: February – August 2023
 - Lead: USACE, KRB-YRBDC, USGS-OKI, NOAA-NWS
 - Support: IDNR-DOW

- ☐ Coordinate with the Commission and County Surveyors to refine actions to be taken by local government agencies in response to flood warnings.
 - Dates: September – October 2023
 - Lead: USACE, KRB-YRBDC, Counties
 - Support: IDHS

- ☐ Outline a system for improved communication of flood warnings to local municipalities and the general public.
 - Dates: November – December 2023
 - Lead: USACE, KRB-YRBDC
 - Support: Counties, IDHS



SUMMARY OF ROLES AND RESPONSIBILITIES



Role	Responsibility
U.S. Army Corps of Engineers (USACE)	Facilitate the planning process and empower KRB-YRBDC and Counties to develop a flood response plan
Kankakee River Basin and Yellow River Basin Development Commission (KRB-YRBDC)	Provide coordination and technical support and act as the liaison between USACE and Counties/Municipalities
Counties/Local Municipalities	Actively participate in the planning workshops to document procedures, points of contact, critical response elements, areas for improvement, etc.
Indiana Department of Natural Resources (DNR)	Support flood risk identification/future recommendations tasks and provide technical support where appropriate
Indiana Department of Homeland Security (IDHS)	Support flood risk identification/future recommendations tasks and provide technical support where appropriate; IN Silver Jackets team lead agency
Indiana Department of Transportation (INDOT)	Actively participate in the planning workshops to document procedures, points of contact, critical response elements, areas for improvement, etc.
U.S. Geological Survey (USGS)	Support flood risk identification/future recommendations tasks and provide technical support where appropriate
National Weather Service (NWS)	Support flood risk identification/future recommendations tasks and provide technical support where appropriate

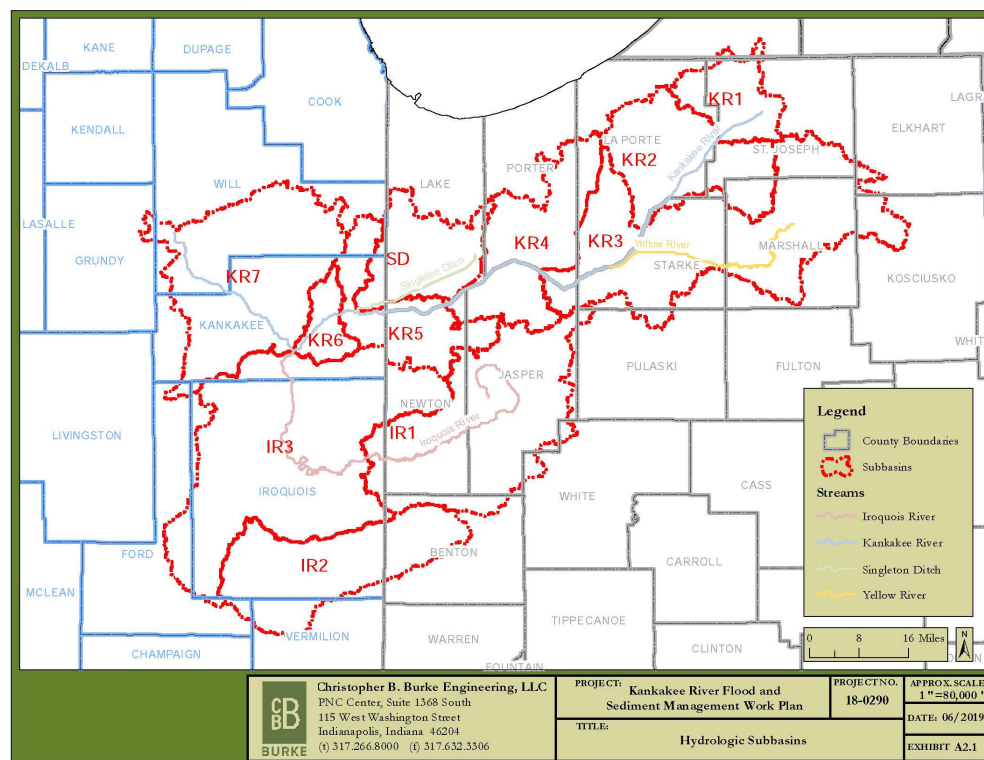
Slide 20

MKECUC(0 See what you think! I took a first stab. Kira - definitely want you to review/revise based upon your lessons learned from East River. And I think this slide was your idea.

McClain, Kaitlyn E CIV USARMY C, 2023-02-24T22:17:25.321



QUESTIONS & DISCUSSION



- What has been your experience in flood preparation and response? (as a resident, emergency management professional, public official, etc.)
- What is your greatest challenge when preparing and/or responding to flooding?
- Have you been involved in developing or utilizing a flood preparedness and response plan?
- How can we strengthen the joint efforts between counties regarding flood preparation and response? What tools or resources do you think would be beneficial?

Slide 21

MKECUC(0 Can you add in a slide with the discussion questions?

McClain, Kaitlyn E CIV USARMY C, 2023-02-24T19:35:03.448



Technical Memorandum

Date February 3, 2023

To: Kankakee River Basin and Yellow River Basin Development Commission

From: Ross St. Clair, P.E.

RE: Yellow River Phase III Site Selection

Stantec conducted site investigation to identify and prioritize reaches of the Yellow River in terms of existing erosion conditions, potential for sediment reduction and signs of any system wide instability. Stantec paddled and visually assessed the approximately 14 mile stretch between the SR 17 and Knox (IDNR River mile 26 to 12). Additionally, Stantec visited multiple sites further upstream on the Yellow River which had noted instability and landowners favourable to river improvements.

Once complete with the site investigation, Stantec compiled and assessed field data to identify recommended reaches for consideration for Phase III design and implementation. Stantec also defined additional project reaches which should be considered for future design and construction. Stantec considered project hurdles such as site access and landowner concerns when prioritizing reaches. This summary is not intended to be final or exhaustive and is largely based on initial visual observations. The document is intended to generate discussion about prioritization of projects by the Technical Advisory Committee and/or Commission.

Phase III Potential Sites

1.1 Marshall County: Upstream/Downstream Upas Road (1.5 mi)

In terms of system wide instability and the long-term trajectory of the Yellow River, the project reach starting approximately 1,000 feet upstream of Upas Road and extending nearly 6,000 linear feet downstream of Upas Road may be the most important reach viewed between Knox and SR 17. Upstream of this reach, the Yellow River has relatively consistent and adequate channel to floodplain connectivity extending to SR 17. Based on Stantec's field observations in September 2022, it appeared that the Yellow River consistently became more incised or entrenched (disconnected with floodplain) from upstream of Upas Road moving downstream to the Phase I stabilization work completed in 2021 near the Marshall County Line. In this reach, typical low bank heights increased from 4-5 feet on average to closer to 6-8 feet on average evidencing that the channel is becoming more disconnected from its floodplain. Stantec observed a series of steep riffle sections throughout this reach, and it appeared that the river became more entrenched downstream of each high gradient riffle. This pattern is typical for a system wide headcut or a series of headcuts in this reach that with time would likely continue to migrate upstream.

To address the system wide headcut and prevent entrenchment upstream, it will be important to address this reach at Upas Road in the near future. The project approach would likely be to install additional grade control structures throughout this reach to drop river profile more gradually. In addition, outside bank grading along high priority banks and inside floodplain grading in entrenched sections would be anticipated. The goal of this work would be to prevent an issue from continuing to migrate upstream causing further damage.

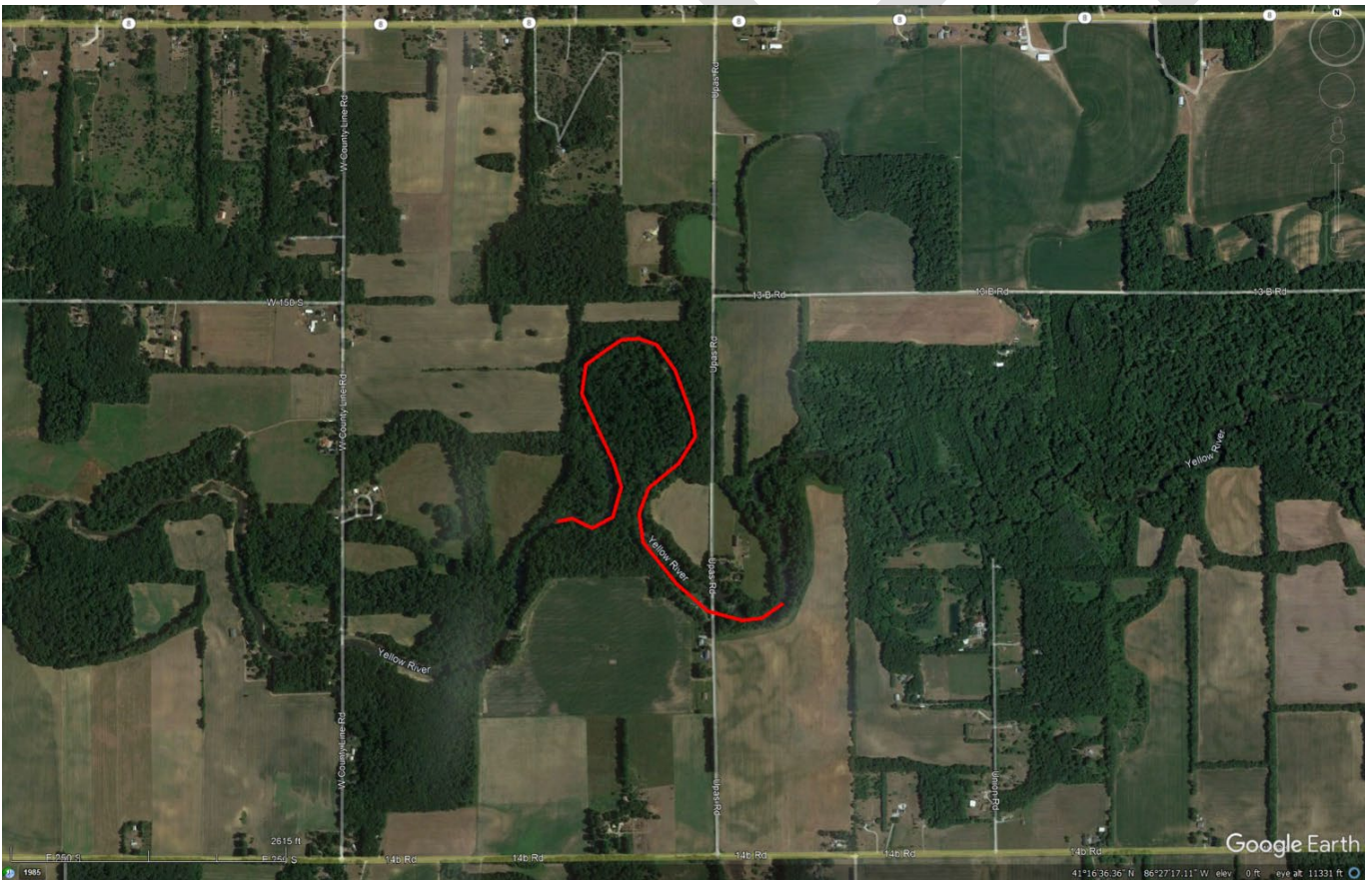
Considerations: One property owner with unknown opinion toward project, system wide implications with opportunity to alleviate future upstream issues, unknown site access conditions, considerable rock structures may be warranted.



500' long priority bank near downstream limits.



Multiple high priority banks near mid reach



Approximate project reach upstream and downstream of Upas Road in Marshall County

1.2 Marshall County: Vermillion Property between 12th and 13th Road (0.55 mi)

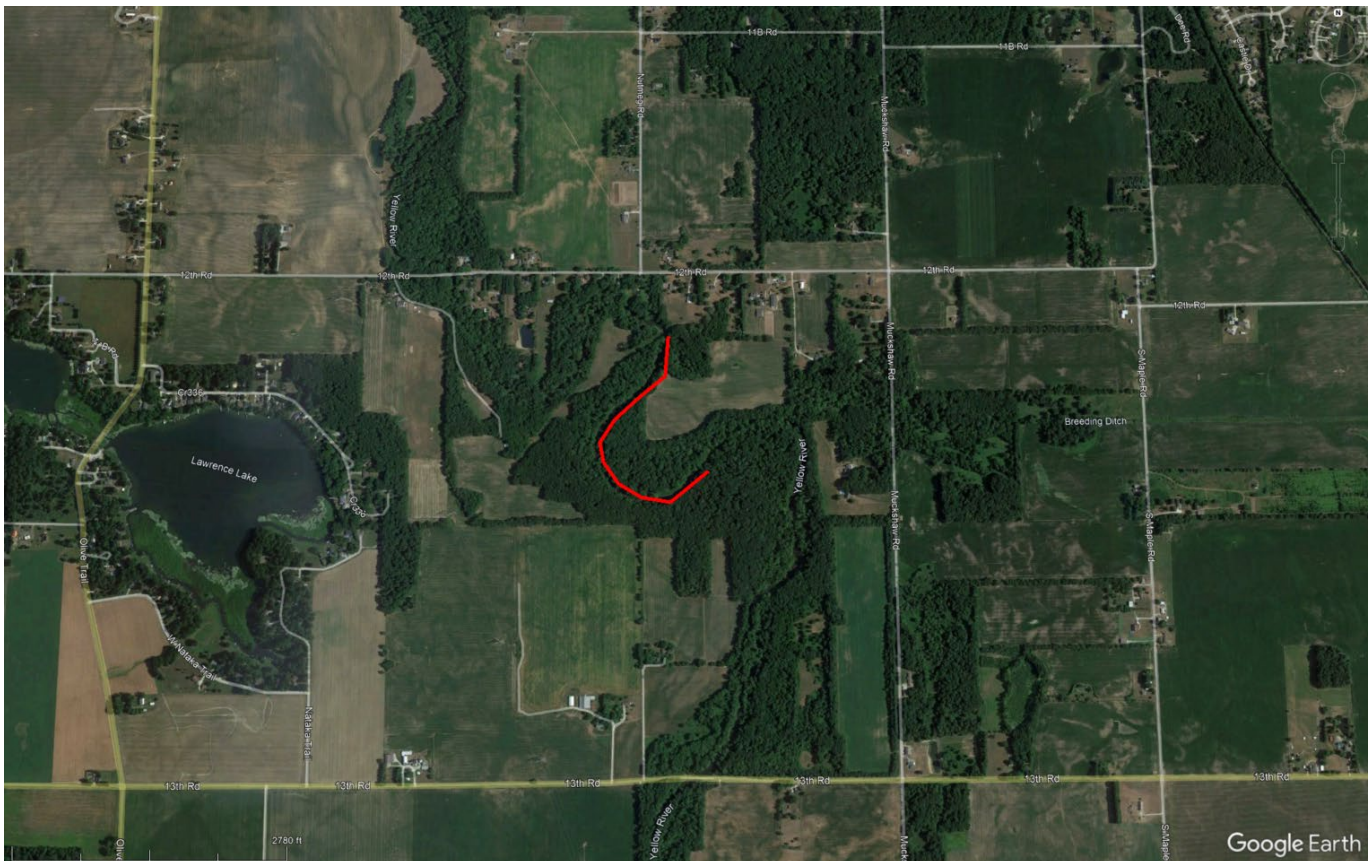
Marshall County Surveyor, Craig Cultice, was made aware of a highly degraded reach of the Yellow River downstream of Plymouth between 12th and 13th Road by a local landowner. The project reach consists of approximately 2,200 linear feet of outside bank erosion on 15-50' tall banks. The project reach is entirely owned by one property owner, Vermillion, who is in favor of the work being completed.

The project approach would likely consist of rock/wood toe stabilization on the outside bends and then offsetting inside floodplain grading. In-stream rock structures may be warranted within compound river bend. Few trees are present on the inside floodplain grading areas so earthwork would likely be more efficient than on previous Yellow River construction.

Considerations: One property owner with favourable opinion toward project, low-hanging fruit potential, good access.



Typical high outside bank and low inside bank



Approximate project reach between 12th and 13th in Marshall County

1.3 Starke County: SR 23 to SR 8 with Maintenance on Pilot Project (1.5 mi)

After the project at Upas Road, the reach from SR 23 to SR 8 should be considered the next highest priority project between SR 17 and Knox. In terms of Rosgen stream classification, much of this reach would classify as “G” stream type which is typically entrenched (disconnected from floodplain), narrow, and deep with low to moderate sinuosity. The “G” stream types have high bank erosion rates and a high sediment supply. In terms of channel evolution, we would anticipate that a “G” stream would continue to downcut and widen until it has formed new floodplain benches at a lower elevation. This evolution will lead to significant sediment supply between now and when the reach is restored (either passively by nature or actively with construction). Active restoration of this reach prior to nature taking its course would result in considerable sediment load reduction over time. In addition, there are multiple homes near SR 23 which are at the top of a high priority embankment. Although structure failure is not imminent, it is reasonable to believe that conditions in this stretch will worsen which could lead to greater risk for these homes. Finally, a number of minor to notable maintenance or repair opportunities were noted on the Pilot Project upstream of SR 8. With equipment already mobilized to this area, it’d be reasonable to correct a few of the issues noted to further protect the Commission’s previous investment.

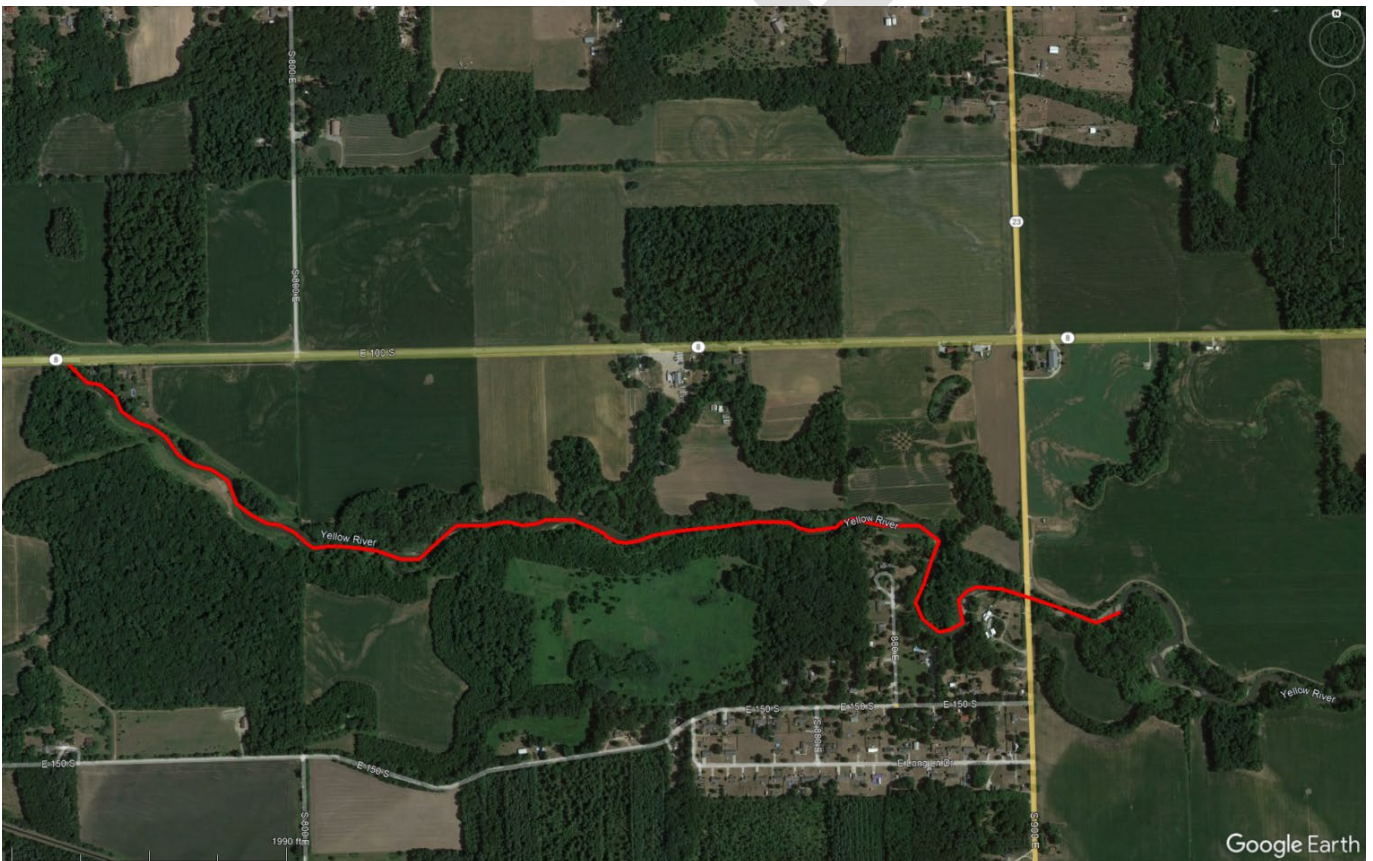
Considerations: Multiple property owners with unknown opinion toward project, system wide implications with opportunity to alleviate anticipated significant future erosion, unknown site access conditions, considerable rock structures may be warranted, opportunity to guard residential structures.



Typical “G” or gully type system



High priority bank with houses beyond top of bank



Approximate project reach upstream of SR 23 to SR 8 in Starke County

2 Future Priority Sites

- SR 8 to 600 E – Numerous moderate to high priority banks
- 600 E to upstream end 500 E Project (Phase II) – Numerous moderate to high priority banks
- 500 E to US 35 – Numerous moderate to high priority banks
- Scour Hole at Wythogan Park, Knox – Recreational hazard to be corrected with additional grade control
- Yellow River at Centennial Park Plymouth – High priority banks in highly used area. Opportunity for cost share with local or state entities.

3 Future Study

- SR 17 to Plymouth
- Plymouth to Bremen
- Headwater Yellow River
- Yellow River Tributary

DRAFT
