

Levee Analysis and Mapping Plan *Pearson Levee*

City of Pearl, Mississippi

08/31/2018

Final Report





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1 Levee System Description

The Pearson Levee was constructed in the mid-1980s to provide flood relief to residents from Richland Creek. According to the Pearson Levee Design Folder from Spencer-Associates, Inc. Consulting Engineers in Jackson, Mississippi, dated December 18, 1984, the Pearson Levee was designed to have a crest elevation three feet above the base flood elevation of Richland Creek. Two thru the levee drainage structures were located at existing low areas. Interior drainage is directed to these structures by ditches.

According to the United States Department of Agriculature, Soil Conservation Service, in a memoorandum dated November 15, 1983, water surface profiles for Richland Creek were developed using the WSP-2 computer program with the additional valley section surveys in the vicinity of the proposed levee. The profiles included the effects the levee has on constricting the flooplain. From the analysis, the 100 year frequency discharge produces an elevation of 284.7 ft. at the valley section near the southeast corner of the levee and an elevation of 285.1 ft. at the section near the upstream end.

The Operation and Maintenance Plan of the Pearson Levee states to control interior draingae, two drainage structures with slide gates will be provided. During normal river stages the gates will remain open and the interior drainage will pass under the levee. At river states of 279.0 ft. and higher, the gates will be closed to prevent backwater flooding. The interior sump will provide for storage of a 100-year storm without flooding any of the existing dwellings. The 100-year storm elevation is 281.1 ft.

A water level signaling device will be provide in the City of Pearl Police Station. An audible and visual alarm will be activated with the water level reaches 279.0 ft. At this time the police will notify proper individuals to close the slide gates. A second alarm will be activated when the water level drops below 279.0 ft. The police will then give notice to ope nthe gates.

Vehicular and recreational traffic should be kept off the embankement. Periodic maintenance will be required to insure all items are operating as designed. The embankment should be mowed at regular intervals to prevent saplings from growing on the slopes. Slopes should be checked for areas of no vegetation. All rip rap areas should be kept free of debris and any missing stone replaced.

The Rankin County Flood Insurance Study update was effective on June 9, 2014. The Pearson Road levee was shown providing projection on Flood Insurance Rate Map 0307 (Figure 1) and Flood Insurance Rate Map 0326 (Figure 2). The Person Levee on shows protection from the 1% annual chance flood event from Richland Creek on both panels 0307 and 0326 as shaded Zone X.

However, a warning note was added to both panels which stated "Note: this area is shown as being projected from the 1% annual chance or greater flood hazard by a levee system that has been provisionally accredited. Overtopping or failure of any levee system is possible."

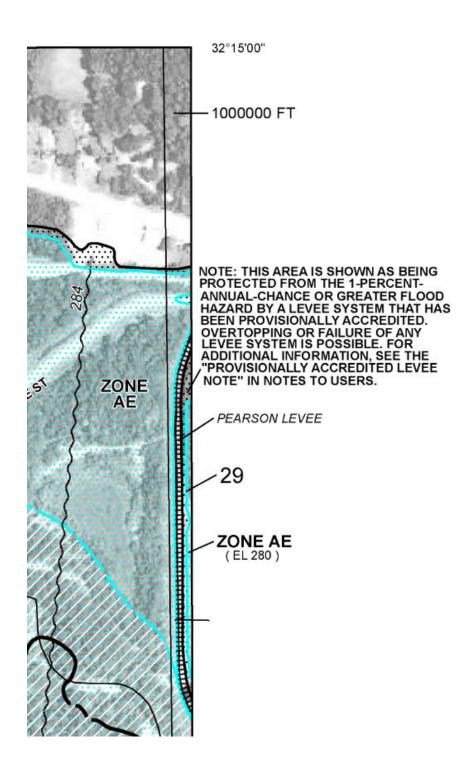


Figure 1. Rankin County Flood Insurance Rate Map 0307 (June 9, 2014)

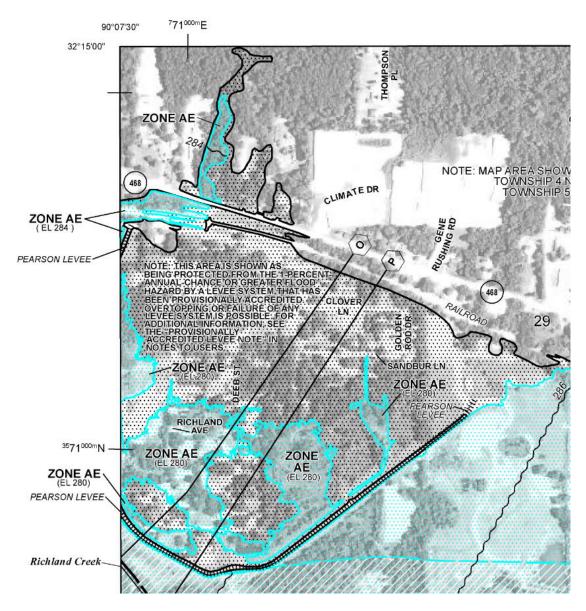


Figure 2. Rankin County Flood Insurance Rate Map 0326 (June 9, 2014)

FEMA issued a Provisional Accreditation Letter to the City of Pearl on February 21, 2012. The City of Pearl had until April 17, 2014 to provide documentation to FEMA that the Pearson Levee provided protection of the 1% annual chance flood event in accordance with Chapter 44 Code of Federal Regulations Section 65.10. That did not occur and provisional accreditation expired on April 17, 2014.

The Mississipppi Department of Environmental Quality and FEMA Region IV initiated a Levee Analysis and Mapping Procedures (LAMP) project for the Pearson Levee in late 2017.

The communities affected by the performance of the levee system and the communities participating in the National Flood Insurance Program (NFIP) are listed in Table 1.

Table 1 – Summary of Communities

County	Community	Participating in the NFIP?
Rankin County	Pearl, City of	Yes
Trainin Southly	Rankin County, Unincorporated Areas	Yes

The LAMP project implementation team is being led by the Mississippi Department of Environmental Quality (MDEQ), the Mississippi Emergency Management Agency (MEMA), FEMA Region IV, and study contractors. The project team includes the following individuals listed in Table 2.

Table 2 – Project Implementation Team

Individual	Agency	Role
Mark Vieira, PE	FEMA Region IV	Project Manager and Senior Engineer
Steve Champlin	Mississippi Department of Environmental Quality	Project Manager
Stacey Ricks	Mississippi Emergency Management Agency	State NFIP Coordinator
Zach Adams	Waggoner Engineering	Project Manager
Michael Taylor	AECOM	Project Manager
Zachariah Cohoon	AECOM	GIS Lead
Yong Jung	AECOM	Engineering Lead

2 Stakeholder Engagement and Data Collection

2.1 **Stakeholder Engagement**

A FEMA-led Project Team engaged impacted communities and levee owners/operators during the Stakeholder Coordination and Data Collection process. The purpose of this initial engagement was twofold: (1) to discuss the levee analysis and mapping process and (2) to collect initial community/levee-related data, information, and documentation to help streamline and facilitate future coordination meetings. Table summarizes the stakeholders contacted during this process.

Table 3 – Summary of Stakeholder Contact

Stakeholder Contacted	Role	Date Contacted
Jake Windham	Mayor, City of Pearl	10/19/2017
Kathy Bourgeios	Executive Assistant to Mayor, City of Pearl	10/19/2017
Jaime Oliver	Floodplain Administrator, City of Pearl	10/19/2017
William Busby	Public Works, City of Pearl	10/19/2017
Brendan Sartin	Attorney, City of Pearl	10/19/2017
Kelly Scouten	City Clerk, City of Pearl	10/19/2017
Rusty Fortenberry	City of Pearl	10/19/2017

The Project Team initiated a series of meetings and telephone calls with stakeholders to get a better understanding of the levee system. This will allow FEMA to tailor a modeling and mapping approach for the levee system that meets the needs of the community and recognizes the available data, information, and documentation, as wellas the history of the levee system.

2.2 **Data Collection**

Through the Stakeholder Coordination and Data Collection process, FEMA requested all available data, information, and documentation associated with the levee system.

Table 4 provides a summary of the data, information, and documentation collected during the Stakeholder Coordination and Data Collection process as well as the data, information, and documentation that are still to be submitted.

Table 4 – Data Sources for the Levee System

Data Type	Data Description (indicate certified/not certified)	Source
Topographic Data	Topographic data for Rankin County, MS	State of Mississippi
Levee Inspection Reports	Latest Inspection Reports for Levee System	City of Pearl
Local Levee Information	Local Levee Information including any hydrologic and hydraulic reports for the Pearson Levee System	City of Pearl

2.3 Stakeholder Engagement and Data Collection Meeting

During the stakeholder engagement process, FEMA held a meeting on November 2, 2017, at Pearl City Hall, 2420 Old Brandon Road, Pearl, MS 39208. The overarching objectives of the Stakeholder Engagement and Data Collection Meeting were to introduce stakeholders to each other and discuss areas of flood risk, available data and information, and the FEMA process for analyzing and mapping flood hazards landward of non-accredited levee systems. A photograph from the meeting is provided in Figure 3. The presentation is Appendix A.



Figure 3. Mark Vieira, FEMA Region IV, Stve Champlin, MDEQ, Stacey Ricks, MEMA, and Michael Taylor, AECOM, lead a discussion during the Stakeholder Engagement and Data Collection Meeting – Pearl, Mississippi

Based on the discussion during this meeting, several stakeholders were identified as potential members of a Local Levee Partnership Team (LLPT). The primary function of the LLPT was to provide feedback and, if necessary, additional data, information, or documentation.

2.4 Initial Data Analysis

The Project Team analyzed the collected data, information, and documentation to prepare for the LLPT Meeting. This included topographic data provided by the State of Mississippi and historical data provided by the City of Pearl (Appendix B).

3 Local Levee Partnership Team

An LLPT was formed to provide data and input to FEMA, including commenting on the creation of levee reaches and the procedures to be used for analyzing and mapping the reaches based on local levee conditions. The first LLPT Meeting was held on January 31, 2018 at Pearl City Hall, 2420 Brandon Road, Pearl, MS 39208. A list of invited LLPT members is provided in Table 5. The presentation is Appendix C.

Table 5 – Local Levee Partnership Team Members

Stakeholder Contacted	Role and/or Agency	E-Mail Address
Jake Windham	Mayor, City of Pearl	kbourgeois@cityofpearl.com
Kathy Bourgeios	Executive Assistant to Mayor, City of Pearl	kbourgeois@cityofpearl.com
Jaime Oliver	Floodplain Administrator, City of Pearl	joliver@cityofpearl.com
William Busby	Public Works, City of Pearl	bbusby@cityofpearl.com
Brendan Sartin	Attorney, City of Pearl	bsartin@cityofpearl.com
Kelly Scouten	City Clerk, City of Pearl	kscouten@cityofpearl.com
Rusty Fortenberry	City of Pearl	rfortenberry@cityofpearl.com
Jared Morrison	Rankin County Board of Supervisors	jmorrison@rainkincounty.org
Jay Bishop	Rankin County Board of Supervisors	jbishop@rankincounty.org
State Rep. Adrienne Wooten	Mississippi House of Representatives	adrienneahooper@yahoo.com
State Senator Dean Kilby	Mississippi Senate	dkirby@senate.ms.gov
Larry Wert	Congressman Greg Harper's Office	larry.wert@mail.house.gov
Teresa Love	Senator Roger Wicker's Office	teresa_love@wicker.senate.gov
Mark Vieira	FEMA Region IV	Mark.Vieira@fema.dhs.gov
Steve Champlin	Mississippi Department of Environmental Quality	schamplin@mdeq.ms.gov
Brandon Cummins	Mississippi Department of Environmental Quality	bcummins@mdeq.ms.gov
Stacey Ricks	Mississippi Emergency Management Agency	sricks@mema.ms.gov

Stakeholder Contacted	Role and/or Agency	E-Mail Address
Billy Patrick	Mississippi Emergency Management Agency	bpatrick@mema.ms.gov
Zach Adams	Waggoner Engineering	Zach.adams@waggonereng.com
Jimmy Bradley	Waggoner Engineering	Jimmy.bradley@waggonereng.com
Margie Dean	Waggoner Engineering	Margie.dean@waggonereng.com
Michael Taylor	AECOM	Michael.Taylor@aecom.com
Yong Jung	AECOM	YongSun.Jung@aecom.com
Zachariah Cohoon	AECOM	Zachariah.Cohoon@aecom.com

4 Modeling and Mapping Approach and Path Forward

Based on the discussions during meetings with LLPT members and review of the data, information, and documentation collected, the approach below will be used to model and map the flood hazards landward of the levee system.

The Natural Valley approach will be used for the Pearson Levee System

Richland Creek will be studied using the natural valley approach (with and without levee). The overall scope of work will include 9.8 miles of detailed study and 2.5 miles of redelilneation. This will include an update of 6 panels.

The scope of work breakdown by flooding source is listed in Table 6 and the overall scope of work map is Figure 4.

Table 6 - Proposed Study By Flooding Source

Flooding Source	Study Type	Mileage
Richland Creek	Detailed	9.8
Richland Creek	Redelineation	2.5

Pearson LAMP Scope of Work

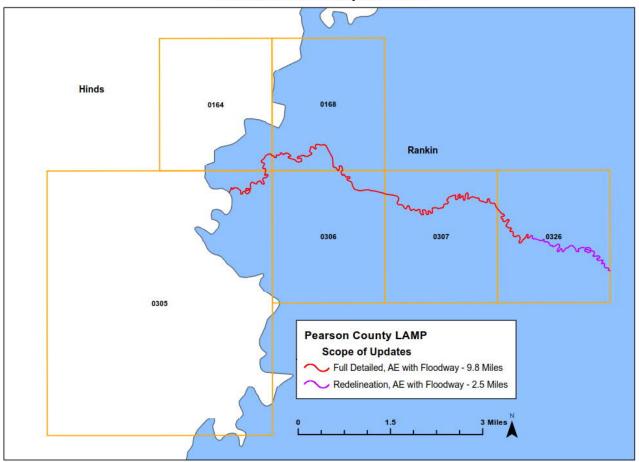


Figure 4. Pearson Levee LAMP Proposed Scope of Work

The LAMP Project schedule is listed in Table 7.

Table 7 – Proposed Study Schedule

Task	Completion Date
Terrain and Base Map	October 15, 2018
Field Survey	November 15, 2018
Hydrology	December 30, 2018
Hydraulics	March 31, 2019

Task	Completion Date
Floodplain Mapping	July 31, 2019
Preliminary Issuance	October 10, 2019



Appendix A

Stakeholder Engagement Meeting Presentation



Stakeholder Coordination and Data Collection Meeting

Pearson Levee Pearl, Mississippi FEMA Region 4

November 2, 2017





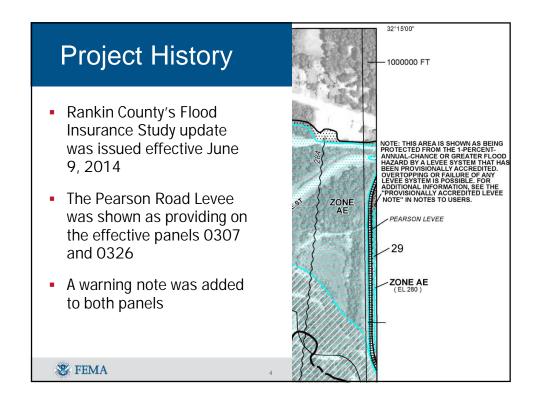
Objective of this Meeting

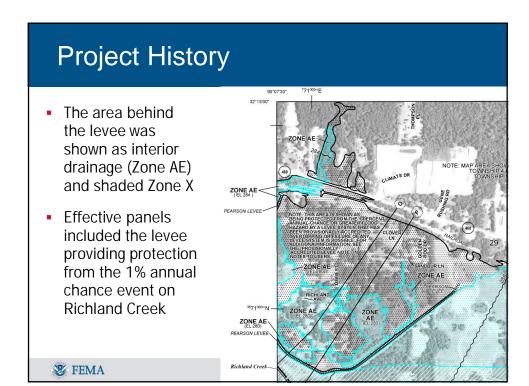
- Introduce the Project Team
- Project Location and History
- Provide overview of Levee Analysis and Mapping Process (LAMP) for Non-accredited Levees Approach
- Review available data, information, and documentation on the levee system
- Explain Local Levee Partnership Team (LLPT)
- Next Steps













Region IV 3003 Chamblee Tucker Road Atlanta, Ga 30341

FEMA

January 17, 2012

Accreditation
Letter (PAL)
issued by
FEMA on
January 17,
2012

The Honorable Brad Rogers Mayor, City of Pearl 2420 Old Brandon Road Pearl, MS 39208

Dear Mayor Rogers:

This letter is in regard to the Pearson Levee shown on the effective Flood Insurance Rate Map (FIRM) and in the effective Flood Insurance Study (FIS) report for City of Pearl, Mississippi. As you may know, the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) is in the process of updating the countywide FIS and Digital Flood Insurance Rate Map (DFIRM) for Rankin County, Mississippi. This effort is being undertaken as part of our Risk MAP (Mapping, Assessment, Planning) program.

As part of our effort to produce the DFIRM, it was determined that the flood hazard information presented on the effective FIRM and in the FIS report is based, in some areas, on flood protection provided by the Pearson Levee. Based on the information available and the mapping standards of the National Flood Insurance Program (NFIP) at the time that the FIS was performed, FEMA accredited the levee with providing protection from the flooding of Richland Creek that has a 1-percent-chance of being equaled or exceeded in any given year. This 1-percent-annual-chance flood also is referred to as the base flood.



Project History

PAL AGREEMENT, SCENARIO A1: LEVEE NOT IN FEDERAL SYSTEM

 Provisional Accreditation Letter (PAL) Agreement signed by the City of Pearl on February

21, 2012

Letter of Agreement and Request for Provisionally Accredited Levee (PAL) designation and Agreement to Provide Adequate Compliance with the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10)

We, the undersigned, have received the letter from FEMA dated January 17, 2012 and the enclosed document entitled "Requirements of 44 CFR 65.10". We understand that FEMA is in the process of providing updated flood maps for Rankin County, Mississippi and that the area behind the levee known as Pearson Levee will be remapped to reflect that the levee has been designated as a Provisionally Accredited Levee or PAL.

To the best of our knowledge, the levee known as Pearson Levee meets the requirements of 44 CFR 65.10 and has been maintained in accordance with an adopted operation and maintenance plan as evidenced by the attached plan and records of levee maintenance and operation, as well as tests of the mechanized interior drainage systems, if applicable. We hereby submit to FEMA, within 90 days (before April 17, 2012) our agreement to provide FEMA with all the necessary data and documentation to show that the levee known as Pearson Levee complies with 44 CFR 65.10. We understand that this data and documentation will be required before April 17, 2014. This information will allow FEMA to move forward with the DFIRM for Rankin County, Mississippi. We fully understand that if complete data and documentation that show compliance with 44 CFR 65.10 are not provided within the designanted timeframe of 24 months, FEMA will initiate a revision to the DFIRM to redesignate the area as Special Flood Hazard Area, the area subject to injurgation by the base (1-percent-annual chance) flood.

The Honorable Brad Rogers (signature)
Mayor, City of Pearl BRAD ROGERS (print)

Date: 2-21-12

S FEMA

RiskMAP

Project History

 Provisional Accreditation Letter (PAL) Agreement expired on April 17, 2014 Deeb Street levee was built to provide protection for the residents and their properties along the Richland Creek and to maintain a high level of safety while controlling the flood waters of the creek.

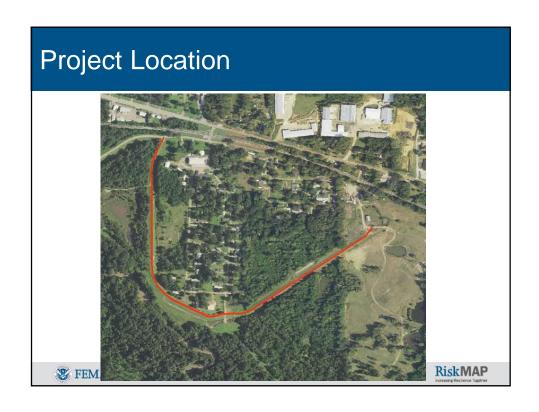
The Deeb Street levee is currently maintained by the City of Pearl. The grass on the levee is usually cut three or more times a season based on inspections. Repairs are made as needed.

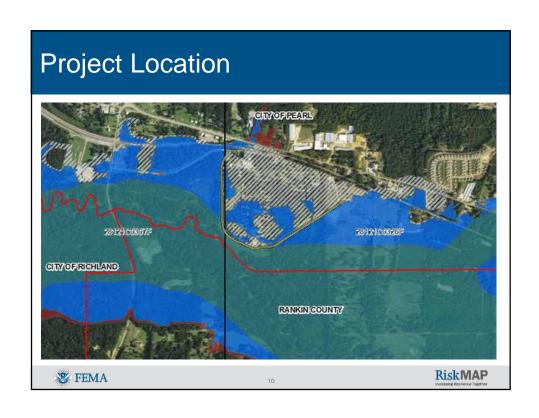
The basin has two main collection points where rain water is discharged from the subdivision to Richland Creek. These two discharge locations have a 36° piping system with a valve to keep flood waters out. One collection point is located on the south side / near the west corner of the basin and the other one is located on the west side / near the south corner of the basin. The two collection points can be used as a detention area for rain water when the creek is at or above flood stage and the two valves have been turned off. The collection point on the west side of the basin has an eight inch 7.5 h.p. pump which we use to drain the basin of additional rain fall. The City of Pearl will rent additional pumps as needed.

Currently the City of Pearl Public Works Department and The Fire Department works jointly to provide protection to residents and properties in the Deeb Street subdivision; while working to provide safe conditions in combating the dangers flood water of Richland Creek.

W.C. Overby
Public Works Director

FEMA





Levee Analysis and Mapping Process (LAMP) Approach

- FEMA has replaced the former levee analysis and mapping approach with a suite of alternative procedures created to:
 - Comply with all current statutory and regulatory requirements governing the NFIP
 - Be a cost-effective, repeatable, and flexible approach
 - Leverage local input, knowledge, and data through proactive stakeholder engagement
 - Align available resources for engineering analysis and mapping
 - Consider unique levee and flooding characteristics
 - Allow a variety of approaches to be applied to a levee system if needed



RiskMAP

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Levee Analysis and Mapping Process (LAMP) Approach



- Four Features of the New Approach:
 - Interactive Stakeholder Engagement Process (Local Levee Partnership Team)
 - Recognition of the Uncertainty Associated with Levee Systems
 - Analysis of Levee Reaches
 - More Robust Levee Analysis and Mapping Procedures

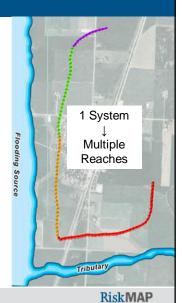
This New Approach is Not:

- A revision to the process or data required to accredit a levee system
- A solution addressing recommendations of other entities, such as Levee Task Force or National Committee on Levee Safety

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Overview of LAMP Approach

- There are five procedures that can be applied to a non-accredited levee:
 - Natural Valley
 - · Sound Reach
 - Freeboard Deficient
 - Overtopping
 - · Structural-Based Inundation
- A system can be broken up into multiple reaches in order to analyze the flood risk in its vicinity

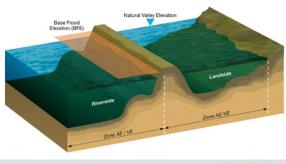




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Natural Valley Procedure

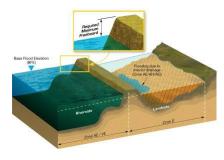
- Basic analysis to be applied to all levee systems, and/or individual reaches (procedure possible with minimal data)
- This procedure refers to the river channel and floodplain of a river system, or coastal area, prior to the addition of floodcontrol structures (e.g., levees)
- No additional data needs or requirements for preparation of analysis





Sound Reach Procedure

- For a levee reach designed, constructed, and maintained to withstand and reduce the flood hazard posed by the base (onepercent-annual-chance) flood
 - No levee reach-specific modeling necessary
 - Zone D landward of the reach
 - Interior drainage may map some flood hazard on the landward side
 - Specified reach meets all 44 CFR 65.10 requirements and each is documented



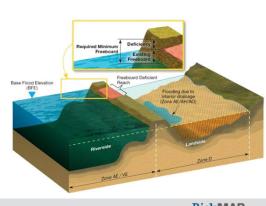


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Freeboard Deficient Procedure

- For levee <u>reaches</u> that cannot meet the freeboard regulatory requirements in 44 CFR 65.10 (freeboard helps to account for uncertainty in design and the base flood)
 - Natural Valley Approach is used to map landward risk
 - Zone D landward of the reach
 - Levee crest must be higher than the calculated BFE for this method to be suitable



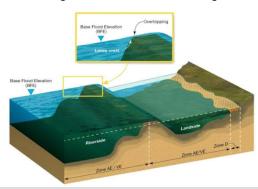


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RiskMAP Increasing Resilience Together

Overtopping Procedure

- Appropriate for levee reaches that are known to overtop during the one-percent-annual chance flood.
- The BFE is calculated to exceed the height of the levee crest at a minimum of one location along the levee's reach length)
- Structure should be designed for overtopping
- Structural requirements are met and documented
- Levee modeled as a lateral weir

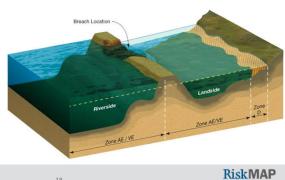




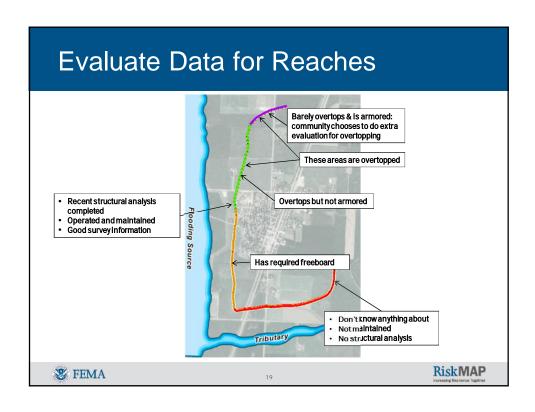
RiskMAP

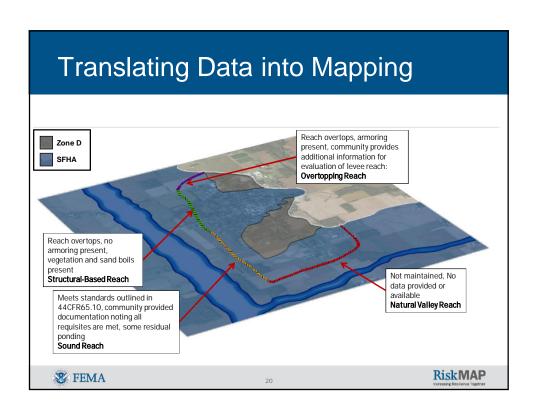
Structural-Based Inundation **Procedure**

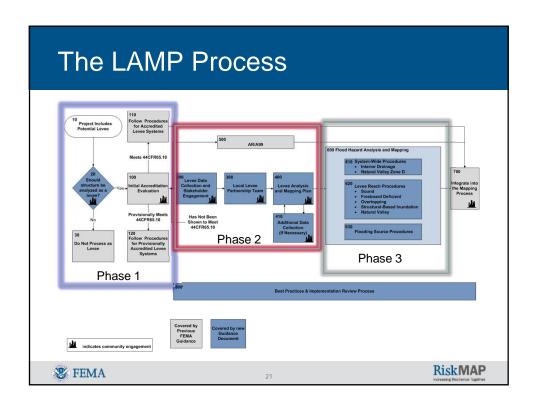
- For a levee reach where evaluation reports and/or historic performance indicate structural issues
 - Levee reports and historical information will inform the modeling effort for this scenario
 - Need to identify the locations of structural issues & determine failure scenarios

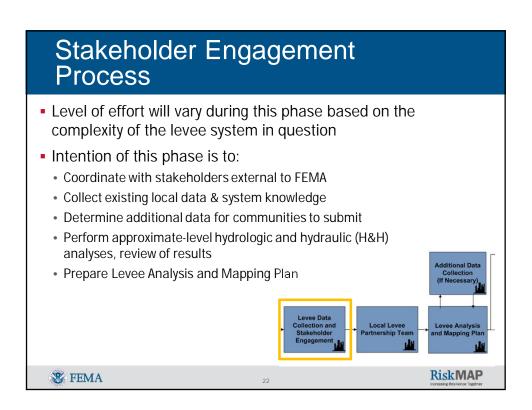












Potential Data Needs

- Elevation Information for the Levee System (Toe & Crest)
- Design Base Flood Elevation (BFE)
- Structural Design Information
- Geotechnical Evaluation
- Interior Drainage Analysis
- Evaluation of Overtopping Erosion Potential
- Operation and Maintenance Plans
- Levee Inspection Reports

For more information refer to LAMP Final Approach document: http://www.fema.gov/final-levee-analysis-and-mapping-approach



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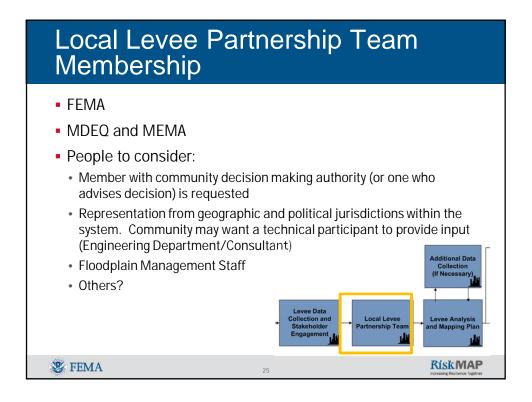
Local Levee Partnership Team

- Meeting-Specific Objectives:
 - LLPT members have an opportunity to explain the unique conditions related to their levee that will impact the analysis and mapping
 - LLPT members comment on methods for levee reaches, analyses, and mapping within the allowable guidelines
 - A reasonable schedule is developed for obtaining input or additional data



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Options Moving Forward

- Follow New Levee Procedure
 - Available for non-accredited and de-accredited levee systems
 - Local coordination to identify levee reaches
 - Levee owner must provide data pertaining to proposed reach scenarios agreed upon
- Waiver Letter
 - Community/levee owner may opt out of new process by providing FEMA a waiver letter
 - FEMA will move forward with any levee project using Natural Valley procedure for all levee system reaches.



Next Steps

- Phase 1 Project Entry
- Phase 2 Stakeholder Engagement and Data Collection
 - Levee Stakeholder Engagement Meeting Today
 - Initial Data Analysis and Collection November / December 2017
 - Local Levee Partnership Team (LLPT) Meeting January 2018
 - Levee Analysis and Mapping Plan February 2018
- Phase 3 Flood Hazard Analysis and Mapping



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State of Mississippi Leads



Steve Champlin, RPG

MS Dept. of Environmental Quality

P.O. Box 2279

Jackson, MS 39225

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Stephen_Champlin@deq.state.ms.us



Stacey Ricks, CFM

MEMA

P.O. Box 5644

Pearl, MS 39208

601.933.6610

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Questions and Answers



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Appendix B

City of Pearl Historical Data

RICHLAND CREEK WATERSHED

RANKIN COUNTY, MISSISSIPPI

PEARSON LEVEE
DESIGN FOLDER

SPENCER-ASSOCIATES, INC.
CONSULTING ENGINEERS
JACKSON, MISSISSIPPI

DESIGN REPORT

PEARSON LEVEE

RICHLAND CREEK WATERSHED

Summary

A field trip was made to this site in August 1983 for site familiarization. A review of the survey data in September 1983 resulted in a relocation of a major portion of the dike centerline. This relocation resulted in a reduction in the amount of fill material required. Preliminary plans were submitted in January 1984. Comments from the plan review were received in April 1984 and final plans and specifications were scheduled for July 1984.

Description of the Job

This flood water retarding dike is classified as a Class I dike. It protects approximately 75 acres within the watershed from flooding. The dike is 4900 feet long and has an average height of eight feet.

The major items of work and the estimated quantities are as follows:

- 1. 31,811 cubic yards of excavation
- 2. 107,725 cubic yards of fill
- 3. 2,783 tons of rip rap
- 4. 4,954 pounds of steel
- 5. 202 cubic yards of concrete

Design Objectives

This site was planned and designed in accordance with the objectives of the Watershed Work Plan. Completion of this dike will enhance the adjacent community by:

- 1. Eliminating the flood hazard of rising waters on Richland Creek.
- 2. Minimize flood hazards within the sump area.

Basis for Design

The list of reference documents used in this design includes:

- 1. National Engineering Manual
- 2. National Engineering Handbook
 - a. 4 Hydrology
 - b. 5 Hydraulics
 - c. 8 Engineering Geology
- 3. <u>Conservation Practice Standard 356</u> Dike <u>Conservation Practice Standard 412</u> Grassed Waterway or Outlet
- 4. Technical Paper 61
- 5. Engineering Field Manual

Design Report
Pearson Levee
Richland Creek Watershed
Page two

Location and Layout

Pearson Levee is located on the north side of Richland Creek at the community of Pearson. This project is within the present city limits of Pearl, Mississippi. The crest elevation of the dike was determined by adding three feet to the design highwater elevation. of the Richland Creek Channel.

Two thru-the-levee drainage structures were located at existing low areas. Interior drainage is directed to these structures by ditches. The dike will require a channel relignment of approximately six hundred feet.

Hydrology

The drainage structures were designed for a 100 year-24 hour storm. The two condition checked were:

- Condition No. 1: No tailwater below gated structure; gates open.

 This condition causes a sump elevation of 279.8.
- Condition No. 2: Gates closed when storm occurs. This condition causes a sump elevation of 231.4.
 281.4-

Since the lowest floor elevation is 281.9, neither condition will cause flooding in dwellings.

Hydraulic Design

Both outlet structures were checked for flow with inlet and outlet controlling condition. This was done using nomographs from Hydraulic Engineering Circular No. 5, USBPR, 1965.

Orifice control was also checked using the equation Q=CA 2gh. Rating curves were developed using the controlling conditions.

Foundation and Embankment Design

This design follows the recommendations of the Soil Mechanics Report.

The Detailed Geologic Investigation and The Soil Mechanics Report recognize the existence of dispersed clay soils in the borrow area. Select placement of the borrow material has eliminated the need for a lime-soil-plating to prevent severe slope maintenance problems.

Environmental Considerations

The standard procedures outlined in the SCS South Construction Specification No. 5, Pollution Control, will be specified for this project. Vegetation of the dike, borrow areas, waste areas, cut slopes and disturbed work areas is to be done under a separate contract immediately following the construction contract. The contract will also include land-scaping of the dike and area around the J. C. Rhinehart property.

Design Report Pearson Levee Richland Creek Watershed Page three

Construction Drawings

The only standing SCS drawing used in preparing the construction drawing is the anti-seep collar details.

Specifications

The standard specifications for the South Technical Service area are used. A "one time use" construction specification for the water level signaling device is included.

Bid Schedule

Clearing, Class B, Site Area is a lump sum bid item.
Clearing and Grubbing, Dike Base Area is a lump sum bid item.
Clearing and Grubbing, Borrow Area will be paid by the acre.
The Common and Channel Excavation will be paid by the cubic yard.
Borrow Excavation of materials suitable for use in the permanent works is subsidiary to earth fill.

The water level signaling device is a lump sum bid item.

Cost Estimate

\$ 612,000

The estimate cost of this project is \$572,533.04 Current unit costs from similar projects in the area were used as a basis for the unit costs in this estimate, where possible.

Operation and Maintenance

The City of Pearl, through the Richland Creek Watershed Management District will be responsible for the operation and maintenance of this facility. Mowing or spraying will be required to control vegetation and the slide gates and warning device will require periodic inspection and maintenance. The city will lease a telephone line between the device and the receiver. The operation and maintenance procedures are outlined in the layout section and the O & M section.

Construction Review

A preconstruction conference is advised for this structure.

Suite 1321, Federal Building 100 West Capitol Street Jackson, MS 39269

Subject: ENG - Design - Richland Creek Watershed Pearson Levee Date: December 18, 1984

To: Jerry Keeton, Acting Project Engineer SCS, PEO, Canton, MS File code: 210-13

Please make the following pen and ink changes on the Design Report in your copy of the Design Folder.

- 1. Under "Foundation and Embankment Design", change the second sentence to "The outer 3' of the embankment from Station 11+82 to Station 28+50 is to be constructed of non-dispersed soil obtained from the top 3' of Borrow Area A. The outer 12" of the embankment from Station 28+50 to Station 58+04 is to be constructed of lime-soll mixture. Field personnel are to conduct numerous crumb tests and at least two field turbidity test daily to verify placement of non-dispersed material."
- 2. Under "Cost Estimate", change the estimated cost to \$612,000.

Please note under "Construction Review" that a preconstruction conference with the design section is recommended for this structure.

Robert C. Daniel

State Design Specialist





August 15, 1983

Mr. Pat Guest Spencer-Associates, Inc. P. O. Box 4328 Jackson, MS 39216

> Richland Creek Watershed Pearson Levee Contract No. 53-4423-3-460

Dear Pat:

Enclosed please find the following reference material for your use in performing the work under this contract:

Surveys

- 1. National Engineering Manual Part 540
- 2. "Planning Party Survey" engineering field book*
- 3. Example site map
- 4. (2) Engineer Field Books*

Foundation Investigation

- 1. National Engineering Manual Part 531
- 2. Soil classification "Zip"
- 3. National Engineering Handbook, Chapter 5, Section 8*
- 4. Forms SCS-35A, 35B, and 35C
- 5. Example Foundation Investigation Report*
- 6. Boring, Sampling and Testing Program forms
- 7. Forms SCS-ENG-533T and 534
- 8. Preliminary layout of borings

Soil Testing and Geotechnical Report

- 1. Example Geotechnical Report*
- 2. Soil testing forms SCS-ENG-127, 128, 128A, 129, 130, 352, 354, 355A, 355B, 357, 372A, 372B RTSC-FW-ENG-39, 43

SCS-SM-22

3. TR-60, Pages 5-2, 3, 4, 5

Design

- 1. National Engineering Manual Parts 511, 541, and 542
- 2. Conservation Practice Standard 356
- 3. Title Blocks
- 4. Supplemental Watershed Work Plan No. 3*
- 5. Example Design Folder*



Design, Cont'd

- 6. Example Cross Sections*
- 7. Forms SCS-ENG-315 and 3150
- 8. Example Construction Plans (previously furnished)
- 9. Specifications for construction contracts South Region*
- 10. Cover sheet mylar
- 11. Preliminary design data*
 - a. Contour map
 - b. Drainage area map
 - c. Plan of centerline of levee
 - d. Earth fill computation sheet
 - e. Plan of subdivision showing house locations
 - f. Subdivision plat
 - g. Aerial photograph CPR-3GG-70

Land Rights

1. Example land rights map

If you need any additional information or assistance, please feel free to call me at 960-4070. I look forward to working with you on this project.

R. C. Daniel

Civil Engineer

Government Representative

Enclosure

cc:

M. Robert Swofford, State Administrative Officer, SCS, Jackson, MS Peter Forsythe, State Conservation Engineer, SCS, Jackson, MS

*Please return after completion of contract.

Soil Conservation Service

Suite 1321, Federal Building 100 West Capitol Street Jackson, MS 39269

August 16, 1983

Spencer-Associates, Inc. P. O. Box 4328 2675 River Ridge Road Jackson, MS 39216

Gentlemen:

Subject: NOTICE TO PROCEED WITH WORK

You were awarded Contract No. 53-4423-3-460 on August 8, 1983, for drilling, sampling, and preliminary design on Richland Creek Watershed, Pearson Levee, Pearl, in Rankin County, Mississippi.

You are hereby notified to commence work within 20 calendar days and to complete all work within 154 calendar days. Performance time begins the day following receipt of this notice.

Sincerely yours,

PATRICK K. WOLF

Acting State Administrative Officer

(Contracting Officer)

Robert C. Daniel, Civil Engineer, SCS, Jackson, MS Jack Winstead, Area Conservationist, SCS, Jackson, MS Peter Forsythe, State Conservation Engineer, SCS, Jackson, MS Wallace T. Manor, District Conservationist, SCS, Brandon, MS

THIS IS TO ACKNOWLEDGE RECEIPT OF THE ORIGINAL OF THIS DOCUMENT

P.O. Box 4328 Jackson, MS 39216 (601) 982-7766 Poscagoula, MS (601) 497-6360 Vicksburg, MS (601) 638-5422

September 9, 1983

USDA, Soil Conservation Service Suite 1321, Federal Building 100 West Capitol Street Jackson, MS 39269

ATTN: Mr. Robert C. Daniel

RE: Richland Creek Watershed

Pearson Levee

Contract No. 53-4423-3-460

As we discussed the following changes will be incorporated into Phase I of this project.

- A) Relocate and stake centerline from Station 10 + 00 to approximately Station 39 + 00.
- B) Topo additional area betwwn station 10 + 00 and woods line to north.
- C) Topo structure outlet thalweg from levee to Richland Creek.
- D) Obtain additional elevations in Richland Creek upstream and downstream of the proposed channel cutoff.

It is estimated that an additional $\underline{5}$ days of surveying time will be required to accomplish this work. As per our contract this would amount to \$1,917.00.

We also request an additional $\underline{14}$ days be allowed for the completion of Phases I & II since the down time already experienced has caused a scheduling conflict.

If additional information is needed, please advise.

Sincerely,

SPENCER-ASSOCIATES, INC.

George B. Guest, P.E.

GPG:ds

spencerassociates inc.

p.o. box 4328 jackson, mississippi 39216 601·982·7766

to: Mr. Bobby Deviel SCS	date: Sept. 22,1983
re: Pearson Levee So: Borings	
GENTLEMEN:	
we are forwarding the following preferenced project via: hand	rints, concerning the
copies drawing no.	description
this submission:(>\times) for approval () for filing () appd. as noted	() resubmit() appd. for fabrication()
comments:	
fabricator:	spencer- associates inc.
cc:	Pat Cuest

P.O. Box 4328 Jackson, MS 39216 (601) 982-7766 Pascagoula, MS (601) 497-6360 Vicksburg, MS (601) 638-5422

September 29, 1983

Mr. Bobby Daniel U. S. D. A., Soil Conservation Service Suite 1321, Federal Building 100 West Capitol Street Jackson, Mississippi 39269

RE: Pearson Levee
Rankin County, Mississippi

In accordance with Item 4 of the special provisions of our contract for the referenced project, we disignate that Mr. Pat Guest will be the Architect - Engineer's representative.

In accordance with Item 7 of the special provisions, we submit for approval that we will employ the following subcontractors for portions of this contract:

SUBCONTRACTOR

RESPONSIBILITIES

Maptech, Inc.

Topographic Mapping

Engineer's Laboratories, Inc.

Foundation Investigation and Laboratory Testing

.These firms were listed as consultants in our 255 form.

If you have any questions or desire additional information, please let us know.

Yours very truly,

SPENCER-ASSOCIATES, INC.

T.A. Spencer, P. E.

THS:ds

Note to File

Pearson Levee 10/6/83

Elliott Bowman w/Engineer's Lab called and said they needed to take the undisturbed samples today. I called Pat Guest w/Spencer-Associates. He said he would be out of town today but was agreeable to my selecting the locations. I went to the field, reviewed the boring logs and selected Boring No. 7 from 8'-10' for an undisturbed sample. I also asked that Boring No. 9 be blow counted due to the loose condition of the sand.

Res

Robert C. Daniel Government Representation

cc: Pat Guest

Spencer-Associates, Inc./ Consulting Engineers

P.O. Box 4328 Jackson, MS 39216 (601) 982-7766 Pascagoula, MS (601) 497-6360 Vicksburg, MS (601) 638-5422

October 25, 1983

USDA, Soil Conservation Service Suite 1321, Federal Building 100 West Capitol Street Jackson, MS 39269

ATTN: Mr. Robert C. Daniel

RE: Richland Creek Watershed

Pearson Levee

Contract No. 53-4423-3-460

Attached are four copies of the foundation investigation report for this project.

If additional information is required, please advise.

Yours very truly,

SPENCER-ASSOCIATES, INC.

George P. Guest, P. E.

GPG:ds

Enclosures

'Spencer-Associates, Inc. / Consulting Engineers

P.O. Box 4328 Jackson, MS 39216 (601) 982-7766 Pascagoula, MS (601) 497-6360 Vicksburg, MS (601) 638-5422

November 1, 1983

USDA, Soil Conservation Service Suite 1321, Federal Building 100 West Capitol Street Jackson, Mississippi 39269

Attention: Mr. Robert C. Daniel

RE: Richland Creek Watershed

Pearson Levee

Contract No. 53-4423-3-460

Attached are 4 copies of the topographic maps for this project.

If additional information is required, please advise.

Yours very truly,

SPENCER-ASSOCIATES, INC.

G.P. Guest At

George P. Guest, P. E.

GPG:tz

Enclosures 4



Soil Conservation Service 1321 Federal Building 100 West Capitol Street Jackson, MS 39269

Subject: PROJ DEV MAINT - Richland Creek Watershed, Pearson Levee (Dike), Design Water Surface Elevations

Date: November 15, 1983

το: Robert C. Daniel, Civil Engineer SCS, Jackson, Mississippi

File Code: 390

Water surface profiles have been developed using the WSP-2 computer program with the additional valley section surveys, from the A&E contract, in the vicinity of the proposed levee. These profiles include the effects the levee has on constricting the floodplain. From this analysis, the 100 year frequency discharge produces an elevation of 284.7 at the valley section near the southeast corner of the levee and a 285.1 elevation at the section near the upstream end.

Phillip H. Jones
Hydraulic Engineer

Spencer-Associates, Inc./Consulting Engineers

P.O. Box 4328 Jackson, MS 39216 (601) 982-7766 Pascagoula, MS (601) 497-6360 Vicksburg, MS (601) 638-5422

January 4, 1984

USDA, Soil Conservation Service Suite 1321, Federal Building 100 West Capitol Street Jackson, Mississippi 39269

Attention: Mr. Robert C. Daniel

Re: Richland Creek Watershed

Pearson Levee

Contract No. 53-4423-3-460

Attached is the laboratory testing data for this project. The triaxial results for the compacted sample seem fairly high. I would recommend that we limit the strength to $\emptyset=30^{\circ}$ and C=500 psf. With the height levee we have, even that should give adequate factors of safety.

Yours very truly,

SPENCER-ASSOCIATES, INC.

George P. Guest, P.E.

GPG:cs

Enclosure

Spencer-Associates, Inc./Consulting Engineers

P.O. Box 4328 Jackson, MS 39216 (601) 982-7766 Pascagoula, MS (601) 497-6360 Vicksburg, MS (601) 638-5422

January 18, 1984

Mr. Bobby Daniel USDA, Soil Conservation Service Suite 1321, Federal Building 100 West Capitol Street Jackson, Mississippi 39269

RE: Pearson Levee Rankin County, Mississippi

Submitted herein are three copies of the preliminary plans and design folders for this project. One copy of the preliminary land rights map is also attached.

If additional information is necessary, please advise.

Yours very truly,

SPENCER-ASSOCIATES, INC.

George P. Guest, P. E.

GPG:tz

Enclosures

spencerassociates inc.

p.o. box 4328 jackson, mississippi 39216 601-982-7766

to: Bobby De	ewie.	date:	3/2/84
re: Pearson Fasments	levee		*
GENTLEMEN:			
we are forwarding referenced project	the following princt via:	ts, conceri	ning the
copies d	rawing no.	de	scription
this submission:(() for approval) for filing) appd. as noted	() resu () appo ()	bmit d. for fabrication
comments:	Mhese	aren's fand a spence associa	end back rentes
		Ta	
cc:			

2075 File Bidge Peac P.O. So. 1921 - Jacks v. Mindssippl 39216 (601) 982-7766

MEMO-LETTER

TO Bobby Dawiel

DATE 3/20/84
SUBJECT PEONS A 18000

Boll, Of this is OK let me Answer Acour many sets you wants

ENGINEERING ASSOCIATES, INC.

Consulting Engineers

500 East Capitol Street - Jackson, Mississippi - Telephone: (601) 948 7474

P. O. Box 22541 Jackson, Ms 39205

Carl Ray Furr, PE - Robert D. Montgomery, PE - Joe L. Johnson, PE

April 13, 1984

DIVISION OFFICES

122 PATTON DRIVE
PEARL, MS 39208
(601) 939 7866

Spencer & Associates Box 4328 Jackson, Mississippi 39216

ATTN: Mr. Bob McGrath

RE: Phase 6

West Rankin Interceptor

Dear Mr. McGrath:

Reference is made to your request for additional information concerning the 48" West Rankin Interceptor line in the vicinity of the proposed Deeb Street SCS levee. (Pearson Road)

1. Crossing No. 1 - Sewer Station 96 + 75

This crossing consists of 2000 D-load reinforced concrete pipe.

ASTM C-76 Class IV D.01 crack = 2,000 plf Ult load = 3,000 plf

The pipe is laid on Class "C" Bedding. (Probably pervious)

In our opinion the pipe will not be adequate under a flood control levee.

2. Crossing No. 2 - Sewer Station 108 + 43

This crossing consists of mark 89 prestressed concrete pipe laid on Class "C" Bedding. (Probably pervious)

This pipe has a 3-edge bearing strength of 6,007 plf.

I am enclosing a design data sheet for the prestressed pipe.

As you can see the pipe is designed for Ten (10) feet of cover and would not be adequate for 16' of cover under a flood control levee.

3. Comments

The load carrying capacity of the pipes should be increased to provide adequate safety factors against failure under a flood control levee.

Impervious backfill and anti-seep collars should be placed around the sewer line. Manholes inside the levee should be protected against backwater from the creek should the creek get into the sewer line.

Spencer & Associates April 13, 1984 Page two

Copies of the proposed plan should be approved by the City of Jackson Public Works Department.

I am enclosing a Xerox copy of the sewer profile indicating thereon the proposed levee.

Please call me if you need additional information.

Very truly yours,

ENGINEERING ASSOCIATES

JLJ/vl

Enclosure

cc: Mac Fulghum, City of Jackson Public Works Department

960-1187

AARK NO	. (MK)	/ Earth Cut	36.25' MK 239	24! MK 165	(14' MK 89 /	20 MK 151
PIPE SI	ZE (Internal Dia.)	48''	48''	48"	48"
	INTERNAL	Design	A	В	С	#2B
0100	PRESSURE (psi)	Surge				
LOADS	EXTERNAL	Dead	13942	10176	. 5633	8600
	3-EDGE (#1.F.)	Live		\$U		
CORE TH	IICKNESS (Incl. Cy	n.)	3"	3" ⁻	`3"	3"
COATING	THICKNESS (Min.)	Over Wire	5/8"	5/8"	·5/8"	5/8"
	THICKNESS (Nomin	nal) · · · · · · · · · · · · · · · · · · ·	7/8"	7/8"	7/8"	7/8"
CYLINDE (Not Ha	ER GAUGE arnessed or Harnes	ssed One End)	16	16	• 16	16
	SIZE	8 * 8	#6	#6	#6	#6 -
WIRE	AREA (in. 2/L.F.)		£75	:48	.23	.43
_	MIN. TENSILE ST	RGTH. (psi)	267,000	-267,000	267,000	267,000
DATA	GROSS WRAPPING S	STRESS (psi)	200,250	200,250	200;250	200,250
	·	Ctr. Spacing)(in.)	. 46	.72	1.50	.80
D. 3'	x 6" TEST CYL. S (Min. at Wrappin		4410	3000	3000	3000
$P_0 = Z$	ERO COMPRESSION PI	RESSURE (psi)	338	→ 225	112	203
$P_b = M$	INIMUM BURSTING (psi)	717	495	289	454
ELBOW	CYLINDER THICKNES	S	:	er e		
REINFO	RCING BAND THICKN	ESS ,	• ,			.U. •0•0 0
CORE P	RESTRESS (psi)	INITIAL . RESULTANT	3236 2571	2150 1765	1068	1939 1603
3-EDGE	PIPE STRGTH. (#/	L.F.) W _o	14,116	10189	6007	9399
SPECIA	L NOTES:		1	A.	REV.C:	

SPECIAL NOTES:

All pipe to have 24 mil's of C-200 epoxy inside.

REV.B: REV.A: 12/5/79 DATE: 10/17/79

GENERAL NOTES:

- 1. Design information shown is for wire and cylinder most commonly used. Alternate wire or cylinder steel complying with ARMA C-301 may be supplied at Price Brothers discretion. Pipe strength properties will equal or exceed the properties shown above.
- 2. All prestressed pipe sections will have the "Hark No." identification to indicate pipe strength.
- 3. Where a heavier cylinder gauge is required, it will be shown on the pipe laying schedule.

PRICE BROTHERS COMPANY DESIGN SHEET

Jackson, Mississippi West Whitfield Interceptor Phase 5-A

West Rankin (County) Regional DESIGN BY: DWG NO. REV.

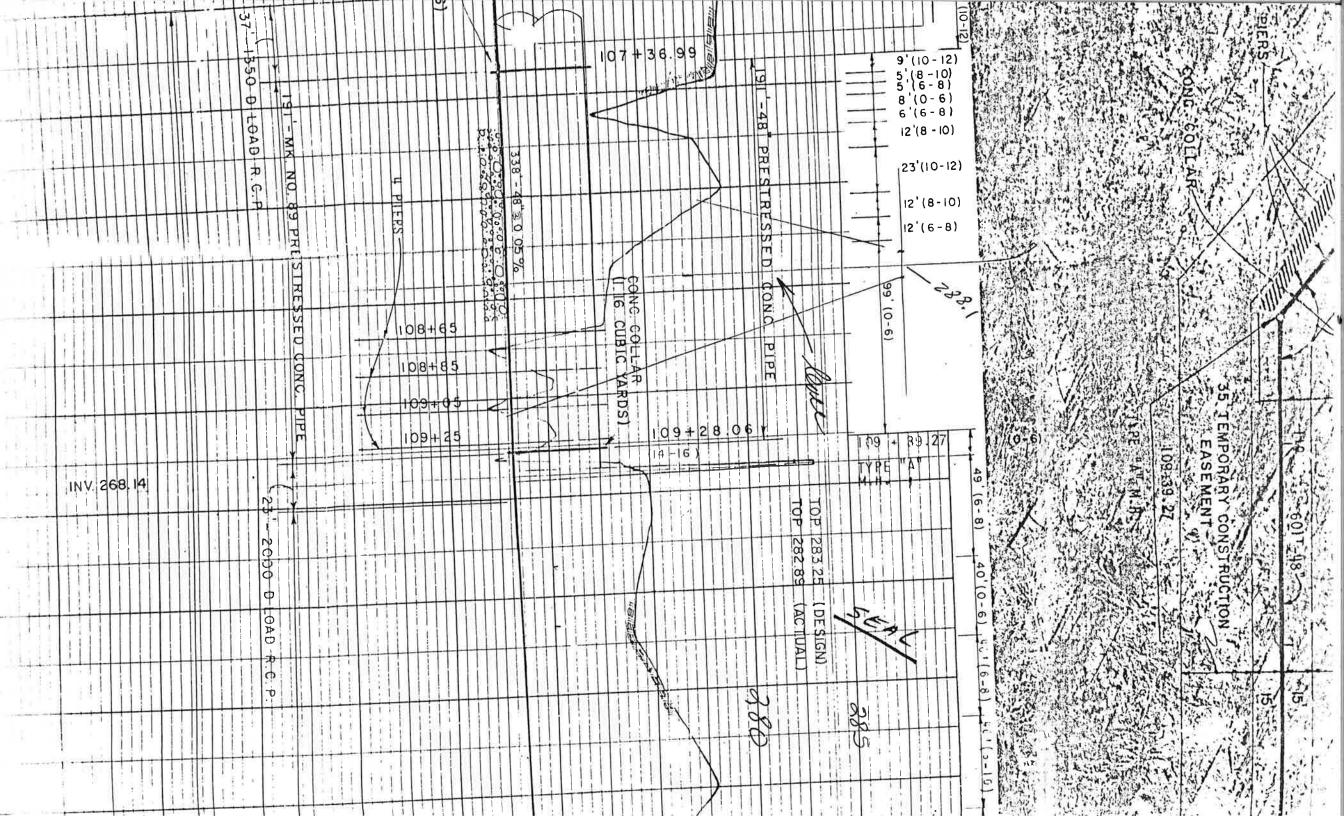
RW

APP'D

Α

1 K. 89	December 5, 1979
HEARD CONSTRUCTION COMPANY	Jackson, Mississippi West Whitfield Intercepto Phase 5-A
PRICE BROTHERS CO. JOB #108.79H	West Rankin County Regional Interceptor
Earth Cover is less than	feet (or equal to.)
Trench Width maximum of 82	feet at top of pipe.
Refer to Concrete Pipe Design Manual page	129, Chart C
Backfill load= 7041 # @	100# Soil.
Backfill load= <u>8450</u> # @	
External 3-edge bearing load= 8450	
$factor) = \underline{5633}$	#
REFER TO DESIGN SHEET 108.79H-	÷
The W_0 of $MK 89 = $	6007
The 3-edge bearing load <u>5633</u> <	
THEREFORE:	* * *
use MK 89 in	n this area.
	*

Refer to design curve on Sheet No. J-883-A





Suite 1321, Federal Building 100 West Capitol Street Jackson, MS 39269

April 16, 1984

Mr. George P. Guest, P.E. Spencer-Associates, Inc. Consulting Engineers P. O. Box 4328
Jackson, MS 39216

Dear Mr. Guest:

Subject: Richland Creek Watershed
Pearson Levee
A&E Contract No. 53-4423-3-460

We have reviewed Phase III - Soil Mechanics Laboratory Testing, which we received on January 6th, and Phase IV - Preliminary Design, which we received on January 18th, and have the following comments:

Phase III

- 1. The zero air zoids curve is incorrectly plotted for sample (20.2 thru 20.6) 1'-7.5'.
- 2. There are numerous omissions and inconsistencies in the two triaxial shear test results and worksheets. We have noted these in red on the enclosed forms which we are returning for correction. We were not aware that these tests were to be performed by Soil Testing Engineers, Inc., in Baton Rouge, Louisiana. The only firm approved under this contract to do the soil testing was Engineers Laboratories, Inc. Since there are so many questions to be answered and corrections to be made on the triaxial shear tests data, we are withholding approval of this work until we receive and review the corrected data. Due to questionable value of these tests, we are furnishing you some correlation data on similar materials in this area which should be considered in the analysis phase of the contract.
- 3. The results of the double hydrometer dispersion test appear to be high compared to the lab crumb tests and the pinhole tests. Was distilled water used? If Engineers Laboratories still have the samples on which these tests were run, please furnish them to the government representative so that we can run independent tests.
- 4. Several of the PI values shown appear too high (samples 16-5, 11-6, 2-7, 11-8). Please review your worksheets for these samples.



Phase IV

Comments are shown in red on the plans and in the report.

If you have any questions about these comments, contact Robert C. Daniel. Please return the marked up copy of the plans and report with the final design.

Very truly yours,

Patrick K. Wolf Contracting Officer

Enclosure

cc:

Peter Forsythe R. C. Daniel

Suite 1321, Federal Building 100 West Capitol Street Jackson, MS 39269

Subject: ADMIN SERV - A&E Contract No. 53-4423-3-460

Date: April 26, 1984

Richland Creek Watershed Pearson Levee

File code: 120-11-11-13

To: Patrick K. Wolf State Administrative Officer SCS, Jackson, MS

Transmitted herewith is pay estimate and progress report number two and a statement in the amount of \$9,616.74 from Spencer-Associates, Inc. You will note that I have reduced the quantity of Phase III, Item 5, from 30 to 25 because no tests were run on samples 16-9, 16-12, 9-11, 10-1, and 20-10. I have also reduced the quantity of Phase III, Item 12, from 2 to 0 because the results of these tests have not been approved. The cost has been adjusted for both of these items, making the approved amount \$8,649.74.

Please process the statement for payment.

R. C. Daniel

Government Representative

Attachment

cc:

Peter Forsythe, w/attachment
Jack Winstead, w/attachment
Larry Milner, w/attachment
Pat Guest, Spencer-Associates, Inc.





Spencer-Associates, Inc./Consulting Engineers

P.O. Box 4328 Jackson, MS 39216 (601) 982-7766 Pascagoula, MS (601) 497-6360 Vicksburg, MS (601) 638-5422

June 7, 1984

Mr. Bobby Daniel
USDA, Soil Conservation Service
Suite 1321, Federal Building
100 West Capitol Street
Jackson, Miss. 39269

RE: Pearson Levee Rankin County, Miss.

Submitted herewith is the set of land rights map original tracings. Also attached is an original of the slide gate details.

If additional information is necessary, please advise.

Yours very truly,

SPENCER-ASSOCIATES, INC.

George P. Guest, P. E.

GPG:gm



July 24, 1984

Mr. Pat Guest Spencer-Associates, Inc. P. O. Box 4328 Jackson, MS 39216

Dear Mr. Guest:

Subject: Richland Creek Watershed

Pearson Levee

(A&E) Contract No. 53-4423-3-460

This is to notify you that Phase VI, Land Rights, Field Surveys and Maps, which you submitted, are approved as corrected.

Very truly yours,

Patrick K. Wolf

State Administrative Officer

(Contracting Officer)

cc: Peter Forsythe

R. C. Daniel



Public Works Department . William R. Lewis, P.E., Director

P.O. Box 17 • Jackson, Mississippi 39205 • (601)960-1175

June 27, 1984

Mr. George P. Guest, P.E. Spencer-Associates, Inc. Post Office Box 4328 Jackson, Mississippi 39216

Dear Mr. Guest:

We have reviewed your plans for the Pearson Levee as it affects the West Rankin Regional Interceptor Sewer.

I. <u>Alternative Selection</u>: The following alternatives with respect to the sewer are in evidence:

A. Alternatives

- 1. Relocate sewer to outside of levee such that interceptor does not present a penetration hazard to the levee.
- Install flood gates in the interceptor sewer
 to physically prevent flow of water through
 sewer during threatening periods and strengthen
 sewer for additional fill loads and hydrostatic
 loads.
- 3. Strengthen sewer for additional fill loads and hydrostatic loads.

B. Discussion:

1. Relocation of sewer removes the penetration of the levee and the possibility that a sewer failure may result in levee failure. This alternative will require relocating some 1120 feet of 48" diameter sewer and two manholes. The cost is estimated to be \$120,000. Sewer service of area within levee would be by pump station and force main over levee.

Mr. George P. Guest, P.E. June 27, 1984 Page Two

- 2. Installation of flood gates in the interceptor allows positive control of sanitary sewer in the event the sewer became surcharged and represented a flood hazard. The flood gates would not protect against piping failure under the levee. Cost has not been estimated.
- 3. Simply strengthening the sewer and sealing the manholes provides the lowest level of protection. The sewer as built is a gravity sewer with "0" ring joints that are not designed for internal pressure. The pipe is bedded in a soil stratum designated "SM", a medium grained sand, by your boring logs. Our experience with large diameter sewers embedded in similar sands on the west bank of the Pearl River indicates that the probability for failure due to the transport of surrounding soils is high. Any such failure in the vicinity of the levee will jeopardize the integrity of that levee. Any such failure anywhere in the system will surcharge the sewer and place full differential hydrostatic head pressure on that portion of the sewer within the levee.
- C. Conclusion: The City of Jackson cannot be responsible for any damages resulting from the failure of the sewer. We think it is reasonable and prudent to relocate the sewer and recommend that the sewer be relocated to the outside of the levee for the protection of life and property.
- II. Comments Concerning Plans Submitted for Alternative 3. as described above:
 - A. Extend limits of Class "A" embedment to toe of levee.
 Use reinforced concrete rather than plain concrete.

Mr. George P. Guest, P.E. June 27, 1984 Page Three

- B. Use a positive structural restraint to hold manholes together when subjected to positive internal pressure rather than passive weight. Do not consider benefits of soil friction on walls on manholes.
- C. Execute a hold harmless agreement with City of Jackson.

Sincerely,

William R. Lewis, P.E., Director

Department of Public Works

WRL/CMFAlt

spencerassociates inc.

p.o. box 4328 jackson, mississippi 39216 601·982·7766

to: <u>505</u>		date: 7/6/84
· pHw: Bo	bby Deviel	*
re: Pearson	o Levee	
GENTLEMEN:		
	rding the following project via:ha~d_	rints, concerning the
copies	drawing no.	description
/	Fine	-/ Plans
this submissio	on:(※) for approval () for filing () appd. as noted	() resubmit() appd. for fabrication()
comments:	This should of geotechnical testing data.	be everythic except the report and the corrected
fabricator:	8 (0.0)	spencer- associates inc.
****		3
R		PSD Crest
CC:		

spencerassociates inc.

p.o. box 4328 jackson, mississippi 39216 601·982·7766

	321, Federal Building	date: 8/6/84	
re:	Capital St Ins. 39269 U Levee	at	9
GENTLEME	N: Atto: Mr. Bobby D	enie	
	varding the following pri project via:	nts, concerning the	
pies	drawing no.	description	
	2 ≥		
	sion:(以) for approval () for filing () appd. as noted	() resubmit() appd. for fabrication()	
comments:	We have previously de Laborator Testiz Data	livered to you the	a
fabricator:	Report (7/31/84).	spencer- associates inc.	
 		ê.	
ij	<u> </u>	Pat Guest	8
*			



Soil Conservation Service 1321 Federal Building 100 West Capitol Street Jackson, MS 39269

ENG - DESIGN

Subject: PROJ DEV MAINT - Richland Creek Watershed,
Pearson Levee (Dike), Design

Pearson Levee (Dike), Design Water Surface Elevations

Date: November 15, 1983

To. Robert C. Daniel, Civil Engineer SCS, Jackson, Mississippi

File Code: 390

Water surface profiles have been developed using the WSP-2 computer program with the additional valley section surveys, from the A&E contract, in the vicinity of the proposed levee. These profiles include the effects the levee has on constricting the floodplain. From this analysis, the 100 year frequency discharge produces an elevation of 284.7 at the valley section near the southeast corner of the levee and a $\frac{285.1}{+3.0}$ elevation at the section near the upstream end.

288.1

Phillip H. Jones Hydraulic Engineer

Summary of Hydrologic/Hydraulic Design

The low floor elevation in the subdivision is 281.9. The design should not allow the maximum water surface from a 100 year - 24 hour storm to exceed this elevation.

The following two extreme conditions were assumed:

Condition 1 - No Tailwater Below Gated Structures - Gates Open

(a) Drainage Area A (West) - Site No. 2

Determine maximum water surface elevation within the levee for a 100 year - 24 hour storm.

- (b) Determine maximum water surface elevation within the levee for a 100 year 24 hour storm if the low area is filled in to elevation 279.5.
- (c) Drainage Area B (East) _ Site No. 1

Determine maximum water surface elevation within the levee for a 100 year - 24 hour storm.

Condition 2 - Gates Closed When Storm Occurs

(a) Assume the gates are closed when the tailwater gets to elevation 279.0.

Determine the maximum water surface elevation within the levee for a 100 year - 24 hour storm.

- (b) Same as (a) except close gate at elevation 279.5.
- (c) Same as (a) except close gate at elevation 280.0.

The following results were obtained:

```
For Condition 1(a): Elev 279.8 (See Sh 1-10)
" " 1(b): Elev 280.3 (" " 1-12)
" " 1(c): Elev 279.8 (" " 13-20)
" " 2(a): " 281.1 (" " 21-24)
" " 2(b): " 281.3 (" " 21-24)
" " 2(c): " 281.4 (" " 21-24)
```

For the worst condition (gates closed when water surface gets to elevation 280.0 and 100 year - 24 hour storm occurs) the water surface elevation within the levee will rise to elevation 281.4. This elevation is 0.5' below the low floor elevation within the subdivision. The pipe sizes used in the gated structures to arrive at the results were 36" diameter.

Watershed Licht AUD CLETZ Structure No. PERCON LEVEZ

County LAULIN Hazard Classification.

OAA (West) Site # 2

T AUTHORNIA P	PETERNIA TON OF RUNOFF CURVE	F CURVE	NUMBER	OR SOIL	MOIS TURI	NUMBER FOR SOIL MOISTURE CONDITION II
Land Use or Cover	Hydrologic Condition	Soil Name	Soil Group	Aree Acres	Curve No.	Acres X Curve No.
1000	Pared	33	Q	.76	98	74.48
1/2004	fair	23	Q	1.14	79	90.06
L'aritemy	1300	23	0	1.0.6	84	807.24
Cart.	f.3, r	23	9	189	84	574.5%
いれてい	fair	0)	U	71.	79	13.43
word.	foir	0)	C	.34	73	24.82
Cool	pard	22A	J	1.12	98	109.76
Chodina	/ sore	22A	2	3.16	79	249.64
Sec.	14	22A	2	23.08	79	1823.32
Waads	toir	224	U'	81.1	73	86.14.

Weighted Curve No. = Acres X Curve No. Total No. Acres

Weighted Curve No. - 3853.45 - 81.30 : Use 47.40

Pearson Level

Report (217183)

Hydrology - Darinage Ania. A (West)

Sine#2

Drainage Anea = 47.4 Ac. = .074 sq. mi.

Runeff Curve Mo. = 81

EA In. 160 yr. rainfall = 9.45"

Runeff = 7.11"

Compute To

I) Overland Flow 1=950'

Stope 288-280 = .0084

Short aras sortum Fig. 15-6

Short grass posture Fig. 15-6 NEH4 V=.63 fps

TE = 1 = 950 = . 42

2 Channel Flow L= 750' to Richard Ave 81-79 (Elev 279.0) Slope = 2/750= 0.003

From NEH, Fig 15.2. V = 1.0 fps V= .95 tps
Use 1.0 fps

7: 750 = .21 = .21

TC = 0.42 + ... 21 = . 63 USE .5

for use in TRSS

ps-9

PEDISON LIEVER LSH 12-7-83 RED

Hydrology- Liamage Ama A(West) - Site#2

from TR55, p. 5-9

Tc= .5

Hydrogoph Rischarge Discharge time com/in cfs Hrs. 11.0 11.5 11.7 80 -11.8 12.0 12.1 12.2 12.3 12.4 12.5 12.6 12.7 12.8 13.0 13.2 57361585 14.0 14.5 15,0

14.0 18.0 20.0 RCD 12/5/83

STORAGE - DRAINAGE AREA A (SITE # 2)

WEST SIDE

ELEV 279.0

9.64

8.82 x .23 = 2.0 Ac

ELEV 280.0

55.56 111.10 00.02 55.56 + 55.54 55.54

55,54

15.87 24.28 07.50 15.81 + 8.37 8.41

8.39

50.19 7.00 43.37 0.19 + 6.82 6.81

6.82

89.51 95.45 83.57 89.51 5.94 5.94

- 5.94 V

64.81 x.23= 14.9 Ac

ELEV AC Storage Ac.F1
279.0 2.0

280.0 14.9

8.5

279.5

280.0 14.9

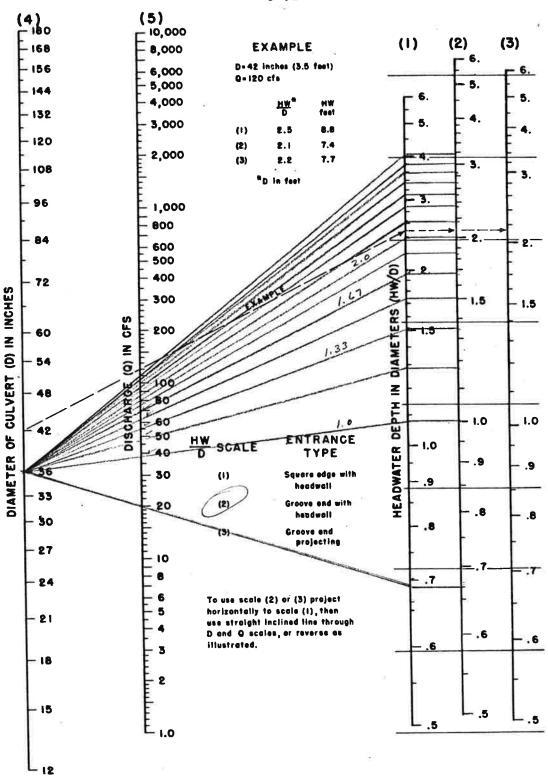


Exhibit 3-9 Headwater depth for concrete pipe culverts with inlet control (Ref. Hyd. Eng. Cir. No. 5, USBPR, 1965)

RLD

Bsy-Pearson Level

35e 86 DESIGNER STATION: ALLOWABLE OUTLET VELOCITY DATE 80: Ba / SKETCH EL. 228,5 HYDROLOGIC AND CHANNEL INFORMATION

PHOJECT:

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					I	EADY.	ATER	HEADWATER COMPUTATION	TATIO	N.			ואפ				_
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2	77.5	1097	4	1.67	5	:			=	2.55	=	23	1-1			8	_
'n	78.0	176	14	1.83	5.5"				:	305	=	2.8	Н				1
	:78.5	801	. 1.	2 7	67				=	3.45	=	3.23	1-1	***	٠		Τ-
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SUMMAR	SUMBARY & RECOMMENDATIONS:	MIJENDA	TIONS:		o de la		1101	Les I Von Vine	,,,0						*		
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Figure 5

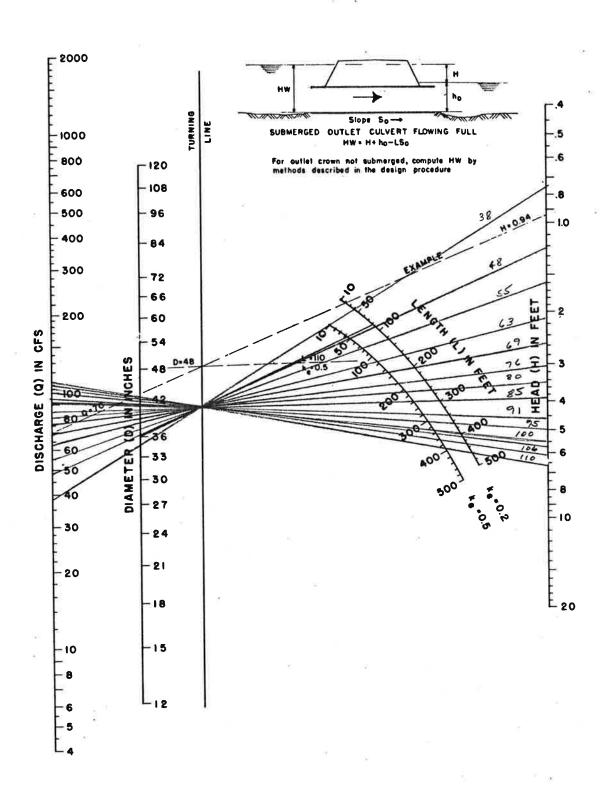


Exhibit 3-11 Head for concrete pipe culverts flowing full with outlet control n = 0.012 (Ref. Hyd. Eng. Cir. No. 5, USBPR, 1965)

BLY-PEARSON LEVEZ

```
MISSISSIPPI
                           PEARSON LIEVEE
   BDY 12-14-0-
Orifice Flow 36"D. pipe
Orifice Flow 7. rive - F
                                12/14/83
            for Rating Curve - Free Outlet
   0= Ca-12gh
     C= coefficient of discharge =. Le
    a=77r2=77(1.5)2=7.07ft2
     g: 32.2 ft/sec2
  Site A - & pipe elev. = 272. $ +1.5 = 274.0
 (Site 2)
           275.5
           274.5
           $ pipe elev. = 276.0+1.5 = 277.5
(Site 1)
```

```
MISSISSIPPI
BSY 12-14-83
RATING CURVE
```

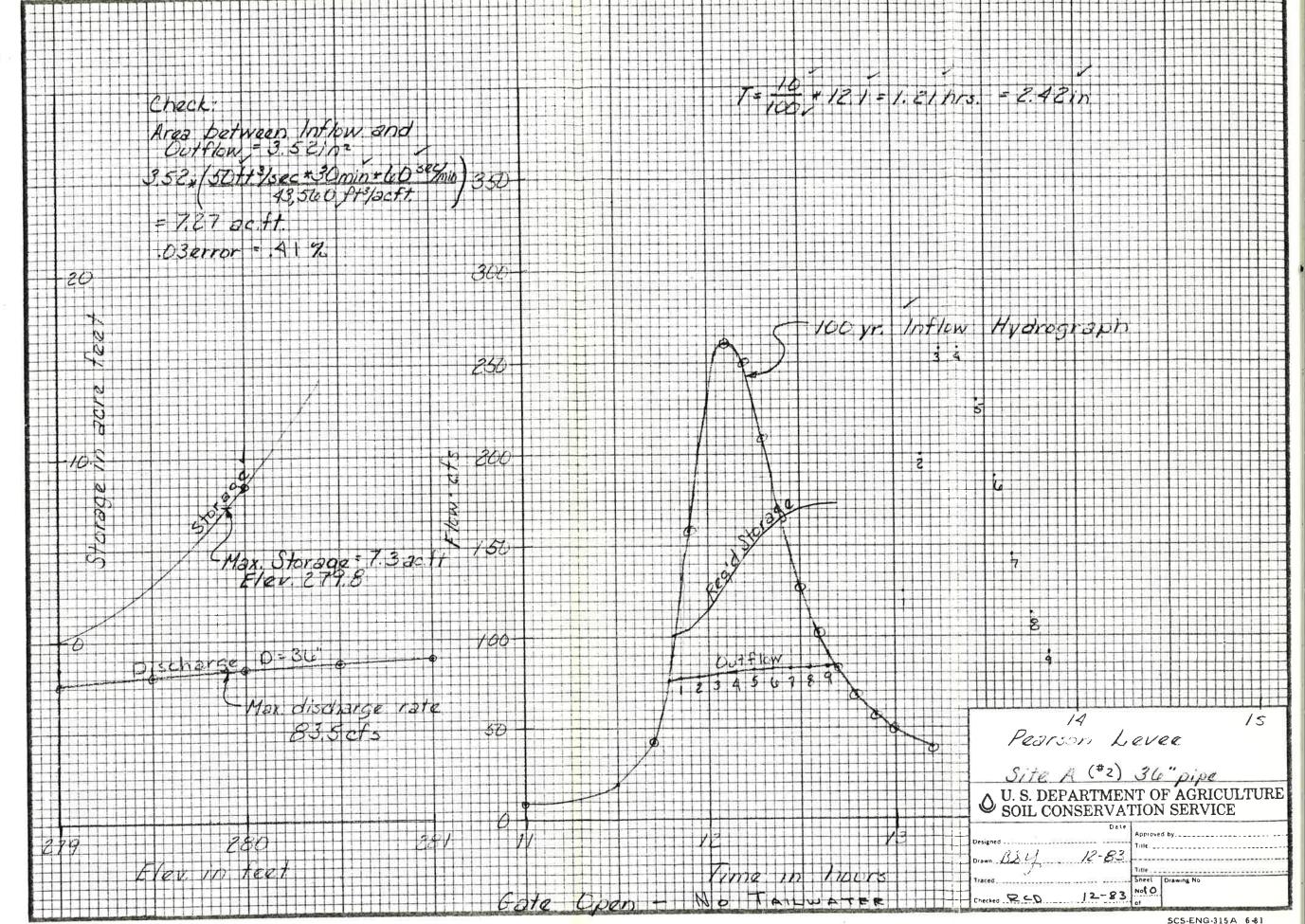
PEHRSON LEVEE
RCD 12/14/83

Site A (Site 2)

```
Elev. Q Control
275.5 38 × Inlet
276.0 48 × Inlet + oritice
276.5 54 × Oritice
277.5 64 × 11
278.5 72 × 11
278.5 72 × 11
279.0 76 × 11
280.0 83 × 11
281.0 90 × 11
281.5 93 × 11
282.0 96 × 11
```

Site B (Site 1)

```
Elev. Q Control
279.0 38 Inlet
279.5 48 Inlet + orifice
280.0 54 orifice
280.5 59 '''
281.0 64 '''
281.5 68 '''
```



111012 1111 + 43560412 . 23

11.184 PEARSON LEVEE

BZY 12-14-83 RCD 12/14/83

Storage Drainage Area A (WEST SIDE) Site Z

Assuming they fill in low area adjacent to pipe

to Elev 279.5

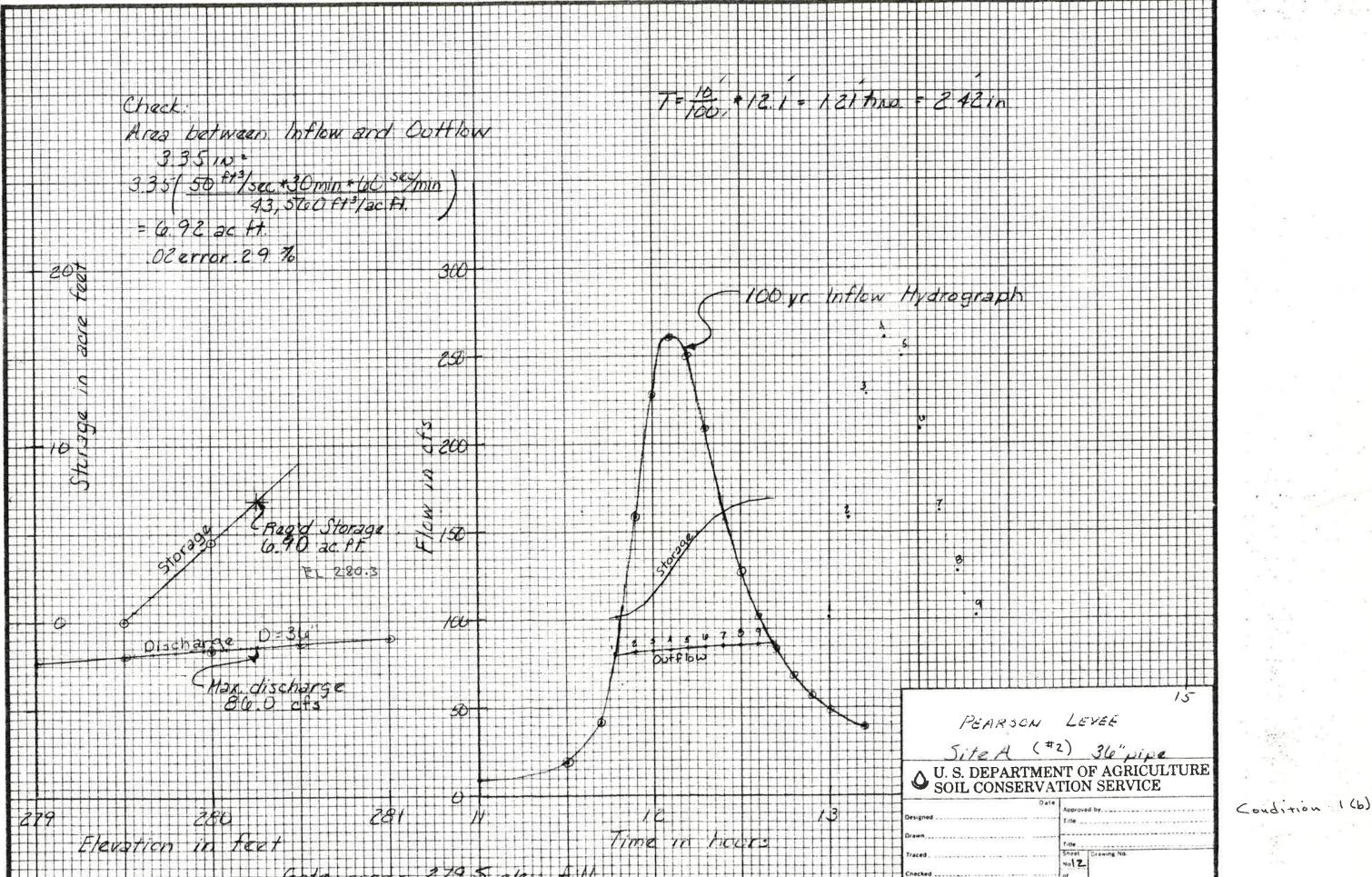
13.07 IN. 2 12.97 IN. 2

13.02 * . 23 = 2.99 AC.

ELEV. 280

14.9 Ac

ELEV. Ac. Integral Storage Storage Ac. Ft. 279.5 3.0 0 280.0 14.9 4.5 11



SCS-ENG-315A 5-81

Watershed Rr HIAND LILE Structure No. PERSON LEVER

Hazard Classification. County LANKIA

	MINION OF DINOPP CITAVE NUMBER FOR SOIL MOISTURE CONDITION IN	TE CITRVE	NUMBER F	OR SOIL	MOIS TURE	CONDITION I
Land Use or Cover	Hydrologic Condition	Soil Name	Sof1 Group	Acres	Curve No.	Acres X Curve No.
vato	(J	478	C	10.79	79	852.41
5,000	7.53	428	C	.30	73	21.90
7	P.m.C	22.A	2	.32	86	31.36
1,000	Pair	A22	7	2.52	79	199.08
i 'real.	190	7	C	.92	73	(07.16
100 m	700/100	23	Q	.92	86	90.16
3	731.0	53	a	15.75	84	1323.00
"Ilonds	Cica	23	0	9.47	79	748.13
3	Sair	23	0	3.78	84	334.32

Weighted Curve No. - Acres X Curve No. Total No. Acres

Weighted Curve No. - 3467.52 - 87.55: Use

39

Pearson Lievee

RED 12/5/83 Bly 12-7-83

Hydrology - Drainage Area B - Site#1

East

Drainage Area = 39 Ac = 0.061 Sq. Mi.

Runoff Curve No. = 81

24 Hour - 100 Year Rainfall = 9.45" (TP +0)

TZ un aff = 7.11" (100 4v.)

Compute Te

Overland Flow - 2 = 1100

Slope = 89.5-81.0 = 0.008

Short grass pasture

1 = 0.63 fps NEH 4, , p 15-8

 $T_{\pm} = \frac{1}{3600 \, \text{V}} = \frac{1100'}{3600 \, \text{K} \, 0.63} = 0.49 \, \text{Hr.} \, \text{pis-3}$

Channel Flow _ Q = 550 to Elev 279.0

77.0 -75.0 = 0.00Z

Assume 4'BW, 2:155, 2.0' depth, n=.04

R = 1.24

V = 1.9. fps Say 2.0 fps 9

Tt= 350 = 0.08 Hr. = .17

Te= 0.49 + 0.08 = 0.57 Hv. Use Te= 0.5 · le le

P 5-9

Pearson Levee

RCD 12/5/83

from TRSS, p5-9

2		
Hydrograph Time,	Discharge csm/in.	Discharge cfs
Hrs.		
11.0	18	8 "
11.5	34	16
11.7	80	35 "
11.8	144	72
11.9	301	131
12.0	433	188 -
12.1	496	215
12.2	474	204
12.3	395	171
12.4	309	134
12.5	242	105/
12.6	194	84
12.7	158	69
12.8	130	56 V
12.9	109	4.7
13.0	94	41 -
13.2	75	33 /
135	57	25 /
14.0	4-3	19
14.5	36	16
15.0	31	13 ′
16.0	25	11 '
18.0	18	8
20.0	15	7 '

PEARSON LEVEE

12/5/83 PLD B - Site #1 STORAGE - DRAINAGE AREA ELEV 278.0 47.34 57.80 10:50 x . 23 = ELEY 279.0 40.40 103.57 19.37 82.53 21.03 21.04 21,64 x . 23 = 4,8 Ac

ELEV 280.0

47.50 16.78

30.68 x .23 = 7.1 AC

Interval Storage Storage Eler AC 2.1 278 0 3.4 4.8 279 3.6 5.95 280 7.1 9.6

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7.57	INFORM	,	9		_	INLET HW D	-	1.Ne7	1,33	.5,	1.67,	1.83	2	,-	Ų.	
# Q E	ANNEL	3 11		40	_	SIZE	36	2	-	7	, F 1	s`	Š	ATIONS	•	(4).
PEARSON LEZEE Site B ,	AND CH		1 81			o inlet	38.	48	55	63.	رد م	76	90	MIJENO/		١.
PROJECT: L	HYDROLOGIC AND CHANNEL INFORMATION		" " o o	* * * * * * * * * * * * * * * * * * *		COUNTERT TYPE COURTER PIPE ELEVATION	279.0	279.5	2800	280.5	281.0	281.5	282.0	SUMMARY & RECOMMENDATIONS:		

```
Orifice Flow 36"D. pipe
for Rating Curve - Free Outlet
O= Cawagh
 C= coefficient of discharge =. 6
 a-771 = 77 (1.5)2 = 7.07 ft2
 g= 322 ft/sec2
Site A + & pipe elev. = 2725 +1.5 = 274.0
Site B - & pipe elev. = 276.0+1.5-277.5
```

	Site	A	-			
i.	Elev.		1	Control	3.	Ť
	275.5	38		Inlet+	1014	بر س'
	276.5	. 54	~	Orifica		برو
	277.0	59	1			
100	278.0	. 48				
	2785	72		1	d.	
1 2	279.5	80		//	1	
i i	280,5	87		u	71 3	***
	281.0	90	/			
	282.0	96	/	"		

5 ite B

Elev. Q Control
279.0 38 Inlet
279.5 48 Inlet + orifice
280.0 54 orifice
280.5 59 '''
281.0 64 '''
282.0 72 '''

Project Layout

The levee elevation was set from water surface profiles developed using the WSP-2 computer program. The 100 year profile gave an elevation of 285.1 near the upstreamend of the levee. A freeboard of three feet was added to this elevation.

To control interior drainage, two drainage structures with slide gates will be provided. During normal river stages the gates will remain open and the interior drainage will pass under the levee. At river stages of 279.0 and higher, the gates will be closed to prevent backwater flooding. The interior sump will provide for storage of a 100 year storm without flooding any of the existing dwellings. The 100 year storm elevation is 281.1.

A water level signaling device will be provided in the City of Pearl Police Station. An audible and visual alarm will be activated when the water level reaches 279.0. At this time, the police will notify the proper individuals to close the slide gates. A second alarm will be activated when the water level drops below 279.0. The police will then give notice to open the gates.

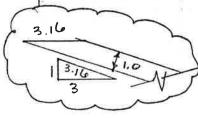
Sper	ncer-Associates,Ir	nc./Consulting Eng	gineers
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		2	

Spence	er-Associates,Inc.,	/Consulting Eng	gineers
DESIGN ATO	DATE 6/84 SUBJ	JECT Pagron Le	ovce -
CHECK CHECK	DATE 6/84	SHEET	OF
Length (Computations Ec	ast pipe Under	evee.
Elevat	ion of top o	of levee	
Elevation of Height of Head	Apron Slok	767.0	0.2
Height of Head	uall & Riprap	4, 5	
ELEV OF TOD OF	PIDE AL		771.5

Horizontal projection of thickness of Rip rap 3.16 Fill height above top of rip rap -16.6 1/2 rop Width of lever

DOWNSTREAM

X3= 13.5



UPSTREAM SIDE

Distance from & Lever to End of pipe = 72.46

Pur vader Loque

Elevation of Top of levee 288.1 Elevation of end of pipe 275.0 Allow 0.4 for Slope to outside end of "c" distance on flared end Section-Elex 274.6 カナキナバ

ELEV OF TOP of Pipe 278.01. 278,01

EIL 10.09 13= 30.27 1/2 Top width of levee 6,00 Deduct "c" distance on FES -7.90

DISTANCE from & to end of pipe. 33.37

min length of pipe Regd 105.23 13,23 8

> USE 13-8 JOINTS \$ 1-4 DINT 108

Operation and Maintenance

To control interior drainage, two drainage structures with slide gates will be provided. During normal river stages the gates will remain open and the interior drainage will pass under the levee. At river stages of 279.0 and higher, the gates will be closed to prevent backwater flooding. The interior sump will provide for storage of a 100 year storm without flooding any of the existing dwellings. The 100 year storm elevation is 281.1.

A water level signaling device will be provided in the City of Pearl Police Station. An audible and visual alarm will be activated when the water level reaches 279.0. At this time, the police will notify the proper individuals to close the slide gates. A second alarm will be activated when the water level drops below 279.0. The police will then give notice to open the gates. When the gates are opened, the Police need to be advised to depress the reset button on the alarm panel. Failure to reset the alarm will prevent proper signals. The gates should be promptly opened to prevent a pressure head from developing on the pipe joints.

Keys to the locks on the chain barrier should be given to the individual property owners on whose property the barriers are placed. Post "Keep Off" signs at the chain barriers. Vehicular and recreational traffic should be kept off of the embankment.

Periodic maintenance will be required to insure all items are operating as designed. The signaling device can be manually activated by lifting the float switches in the wet well. This should be done twice a year. The slide gates should also be opened and closed at least twice a year to insure they will close when necessary.

The embankment should be moved at regular intervals to prevent saplings from growing on the slopes. At the same time the slopes should be checked for rills and areas with no vegetation. All rip rap areas should be kept free of debris and any missing stone replaced.

Items requiring repairs or maintenance should be promptly repaired.

Fencing of the dike area was discussed with Mr. Ron Morgan, Administrative Assistant for the City of Pearl. During his discussion with some of the landowners while obtaining land rights, he advised them that the dike would not be fenced. It is estimated that fencing will cost approximately \$30,000. It would have to be maintained by the City of Pearl. Due to the close proximity of the levee to the residences, it is not felt that the owners will allow others to trespass on the levee or their land. Also the City of Pearl will police the use of the levee. For these reasons, fencing is not felt to be needed.



BRAD ROGERS MAYOR

W.C. "BUD" OVERBY PUBLIC WORKS DIRECTOR POST OFFICE BOX 54195 PEARL, MISSISSIPPI 39288-4195 TELEPHONE: (601) 932-3520 ALDERMEN:

JOHN McHENRY - At-Large TERRY ISHEE - District 1 MICHAEL SARTOR - District 2 BECKY TULLOS - District 3 TOMMIE HILL - District 4 TODD JENKINS - District 5 GAVIN GILL - District 6

Deeb Street levee was built to provide protection for the residents and their properties along the Richland Creek and to maintain a high level of safety while controlling the flood waters of the creek.

The Deeb Street levee is currently maintained by the City of Pearl. The grass on the levee is usually cut three or more times a season based on inspections. Repairs are made as needed.

The basin has two main collection points where rain water is discharged from the subdivision to Richland Creek. These two discharge locations have a 36" piping system with a valve to keep flood waters out. One collection point is located on the south side / near the west corner of the basin and the other one is located on the west side / near the south corner of the basin. The two collection points can be used as a detention area for rain water when the creek is at or above flood stage and the two valves have been turned off. The collection point on the west side of the basin has an eight inch 7.5 h.p. pump which we use to drain the basin of additional rain fall. The City of Pearl will rent additional pumps as needed.

Currently the City of Pearl Public Works Department and The Fire Department works jointly to provide protection to residents and properties in the Deeb Street subdivision; while working to provide safe conditions in combating the dangers flood water of Richland Creek.

Public Works Director

December 8, 2014

The Honorable Brad Rogers Mayor of Pearl P.O. Box 5948 Pearl, MS 39288

Dear Mayor Rogers:

This is in response to your request pertaining to the Pearson Levee in the Richland Creek Watershed. On November 20, 2014, our Area Engineer from the Pearl Area Office performed an inspection and found that the levee is well maintained and functioning as designed. When the levee was designed (in the mid 1980's), it was designed for the 100-year 24-hour storm for Richland Creek plus 3 feet of freeboard. The floodwater retarding dike is classified as a Class I dike. It protects approximately 75 acres from flooding.

If you need any additional information or further assistance, please let us know.

Sincerely,

Scott Culberson

State Conservation Engineer

CC;

David Brunson, Area Conservationist, NRCS, Pearl, MS Shannon McCarty, Supervisory Engineer, NRCS, Pearl, MS Malcolm Lowe, Supervisory District Conservationist, NRCS, Brandon, MS

United States Department of Agriculture



300 Community Way, Brandon, MS 39042

Subject:

Richland Creek Watershed Drainage District

May 9, 2006

To:

The Honorable Jimmy Foster, Mayor

Pearson Levee Erosion Problem

File Code:

Date:

City of Pearl

RICHLAND CREEK

WATERSHED

Mr. Bud Overby, Public Works Director

DRAINAGE DISTRICT

City of Pearl

Dear Sirs:

The Pearson Levee plays an integral part for flood protection to many residents in Rankin County.

It has recently come to the attention of the Natural Resources Conservation Service and the Richland Creek Watershed Drainage District board of commissions that a serious erosion problem exists on a section of the Pearson Levee in Pearl. The integrity of the levee structure is at risk. Livestock, specifically horses, have the area closely grazed resulting in inadequate ground cover to protect the structure from erosion. Livestock trails also pose a serious erosion problem.

The Richland Creek Watershed Drainage District board of commissioners and the USDA – Natural Resources Conservation Service recommend that steps be taken immediately to correct this very serious problem. Restricting the access of livestock to the levee is imperative to re-establishing a good ground cover.

Thank you for giving your prompt attention to this matter.

Please contact me at (601) 824-4601 if I can be of assistance to you in any way.

Respectfully yours,

Murray Fulton

District Conservationist

USDA- NRCS

Brandon Field Office

300 Community Way

Brandon, MS 39042



JOHN GRANT PUBLIC WORKS DIRECTOR

POST OFFICE BOX 5948 PEARL, MISSISSIPPI 39288-5948

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

ALDERMEN:
DEANIE ALLEN
MIKE CARR
KEITH DENNIS
DALE HARDY
LAWRENCE HARVEY
LONNIE JENKINS
DALE ZEBERT

September 18, 1990

Mr. Philip Hollis U.S. Army Corps of Engineers P. O. Box 60 Vicksburg, Mississippi 39181-0060

Re: Application No. CELMK-OD-FE 14-7P23-48
Response to Public Notice

Dear Mr. Hollis:

This letter is written on behalf of the City of Pearl in response to the Public Notice dated August 31, 1990, for the referenced application. This application provides for activity at three sites. Comments and questions in regard to the proposed or previously completed activity are as follows:

TRACT 1

The primary concern with Tract 1 is drainage. This tract lies adjacent to the southwest corporate limit line of the City of Pearl and has a common boundary of approximately 5,000 feet. The area drains to the north and west. A major portion of Tract 1 drains through a railroad trestle north and into the City of Pearl. This low lying area is drained by a small meandering tributary of Conway Slough.

The primary drainage considerations with this tract are as follows:

- Clearing and filling of wetlands and ponds in Tract 1 will decrease the runoff time and increase flow from the tract into the City of Pearl.
- 2. The map included with the Public Notice does not indicate new ditches in Tract 1 which have been cut to channel runoff to the railroad trestle and into the City of Pearl.

U. S. Army Corps of Engineers September 18, 1990 Page -2-

3. The Public Notice does not indicate whether or not any drainage studies have been made to determine the effects of additional runoff into the City of Pearl.

The primary concerns with Tract 2 are listed as follows:

- 1. Ponding of water on Tract 2 is mentioned in its description. Fill on Tract 2 will cause reduction of ponding area and decreased runoff time will increase the pumping load on the pump station which pumps water over the flood control levee into the Pearl River.
- 2. Tract 2 is located adjacent to a drainage ditch which takes runoff west from Tract 1. Fill adjacent to this ditch may reduce its capacity and cause more drainage backup onto Tract 1.

The primary concern with Tract 3 is its location outside the flood control levee. The mitigation effort planned for this tract may be beneficial from a environmental standpoint, but its location will do nothing to mitigate possible flooding problems caused by the construction on Tracts 1 and 2 within the levee.

The area within the City of Pearl which will be affected by this project includes a commercial/industrial area and also contains a major metering station for the West Rankin Wastewater Interceptor. Additional runoff into this area may cause damage or limit access to these facilities and to homes in this section. It is therefore in the City's best interest to be assured that the construction of this project will not affect the area within the corporate limits in Section 24. If there is any additional flooding potential caused by this project, then mitigation efforts which address this problem should be required.

We trust that the Corps of Engineers will keep us informed of any further developments on this project. If you need any additional information or to contact the City on this matter, please contact the Public Works Office.

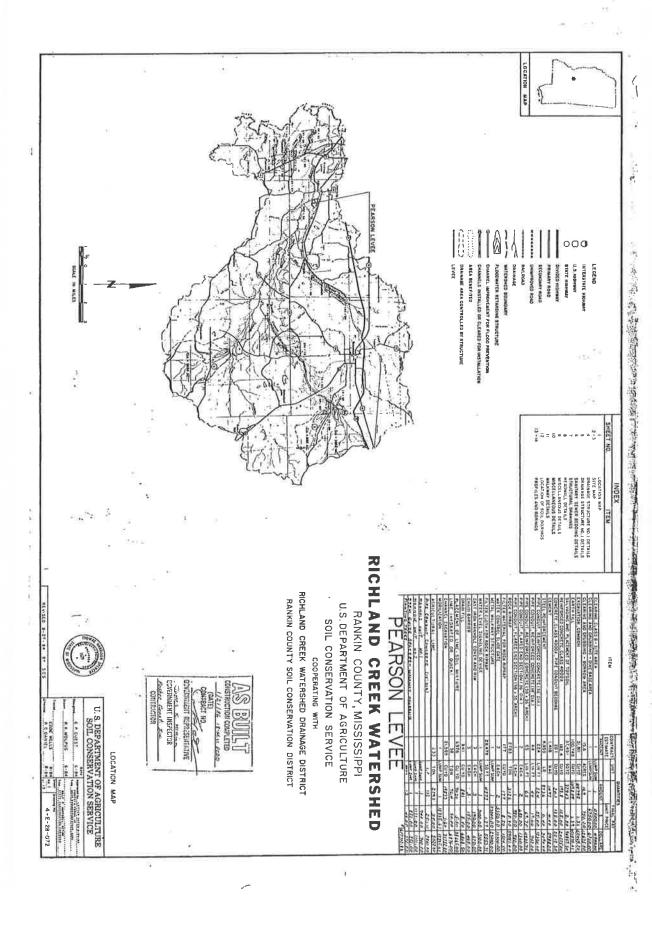
Very truly yours,

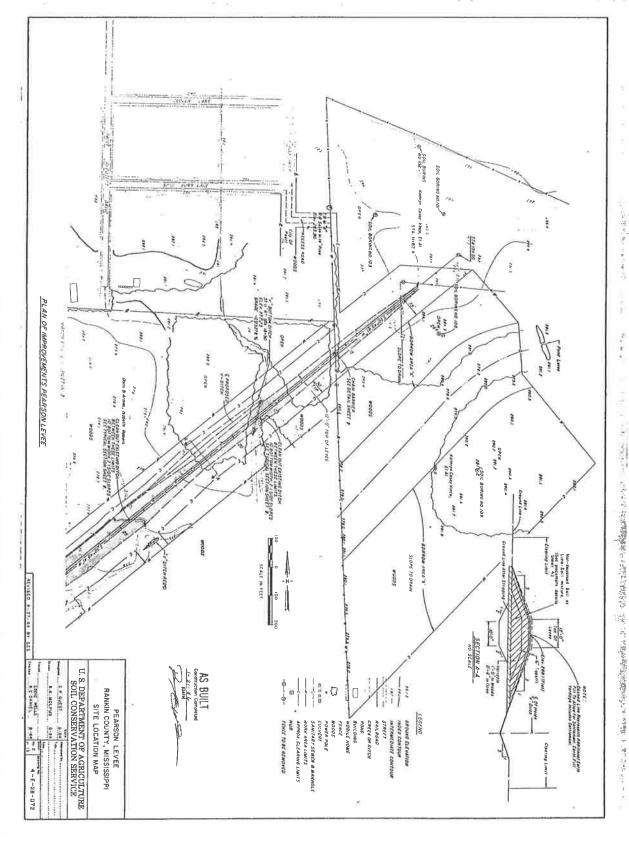
John Grant

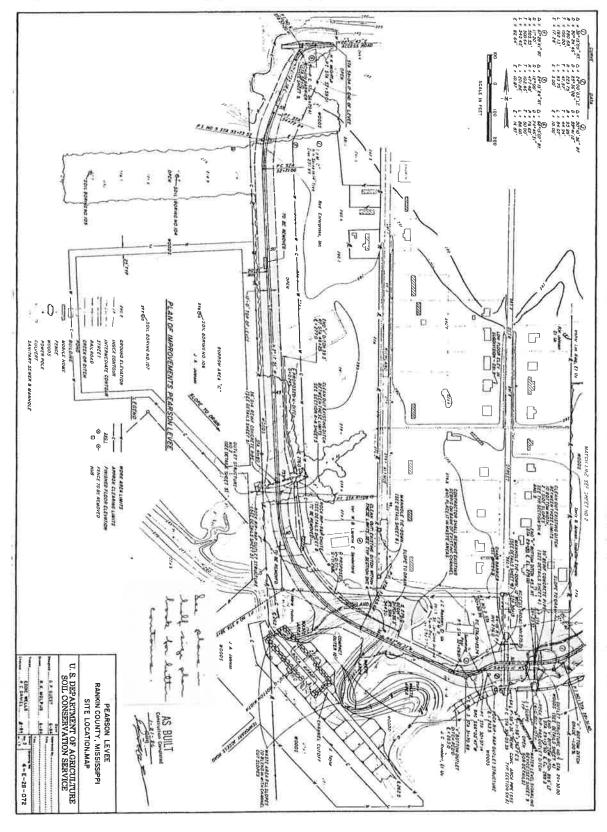
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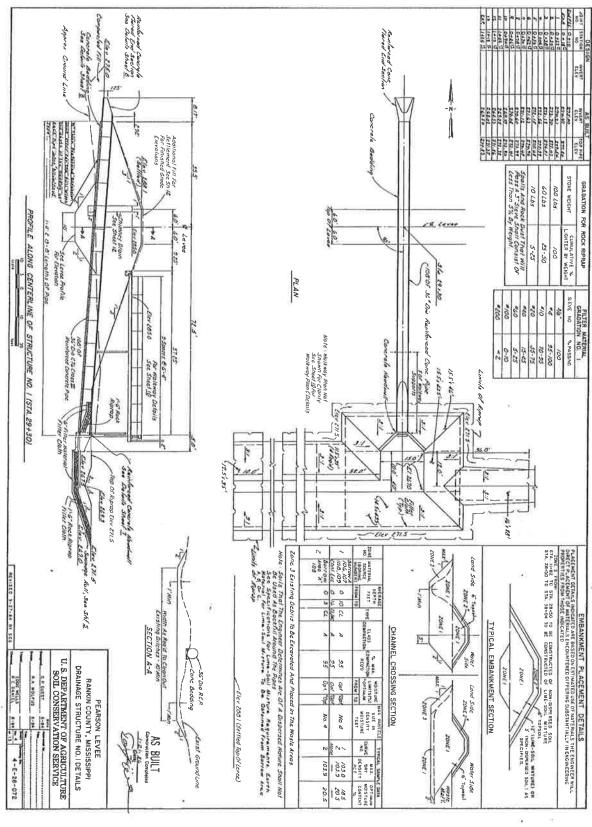
Director of Public Works

cc: Mayor Childre Board of Aldermen

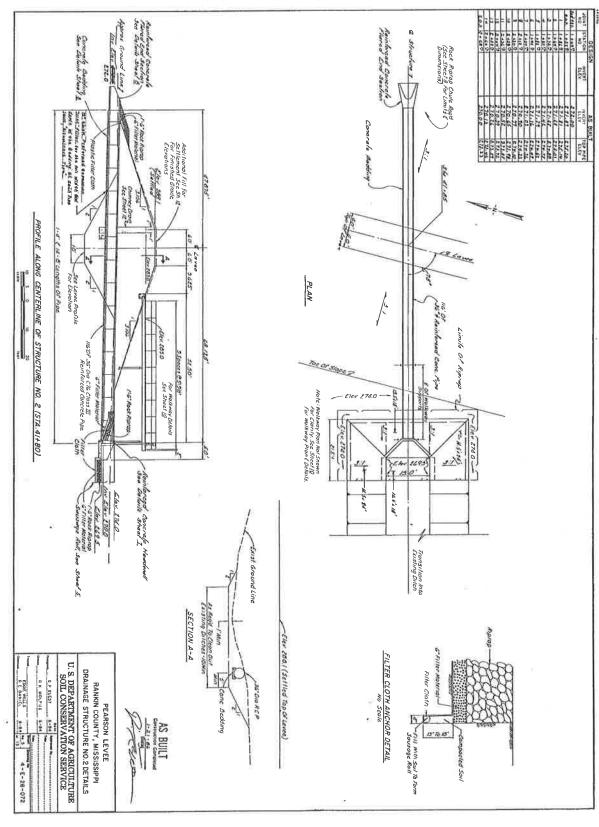


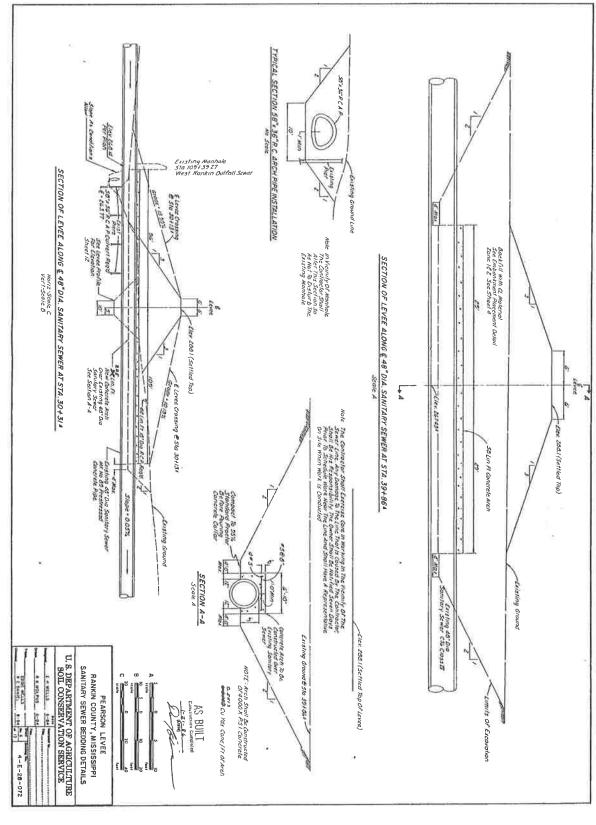


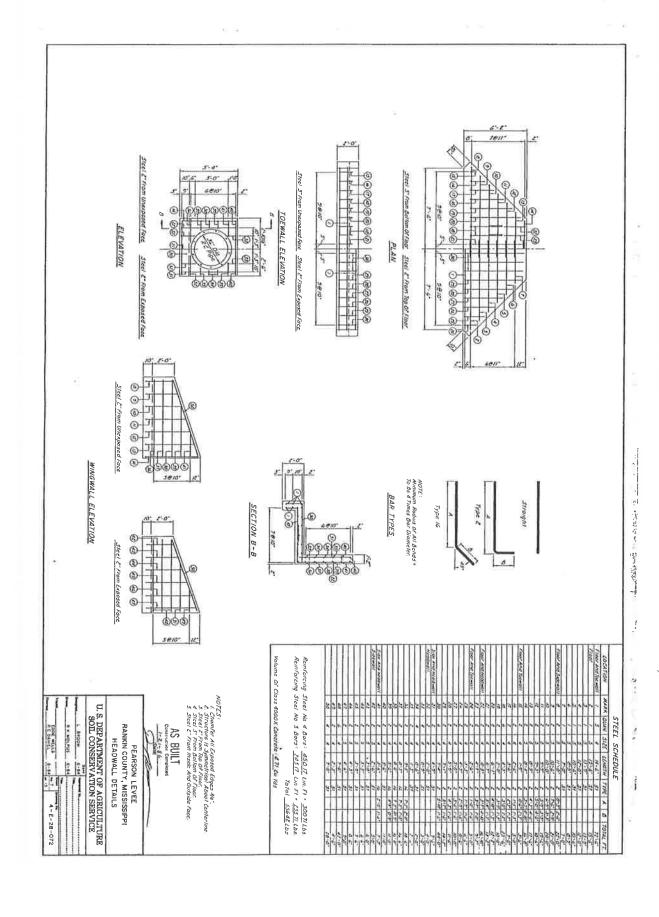


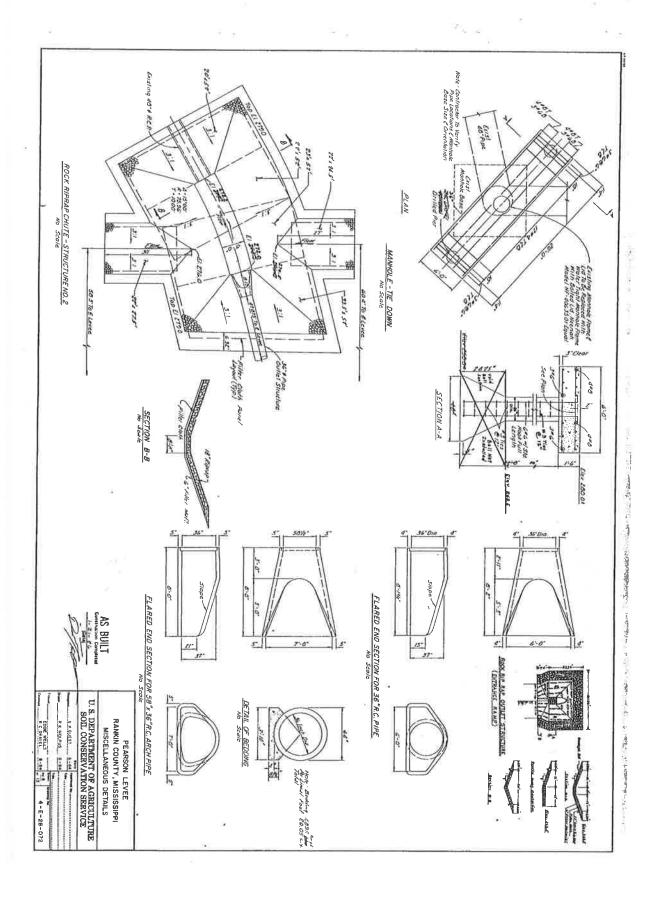


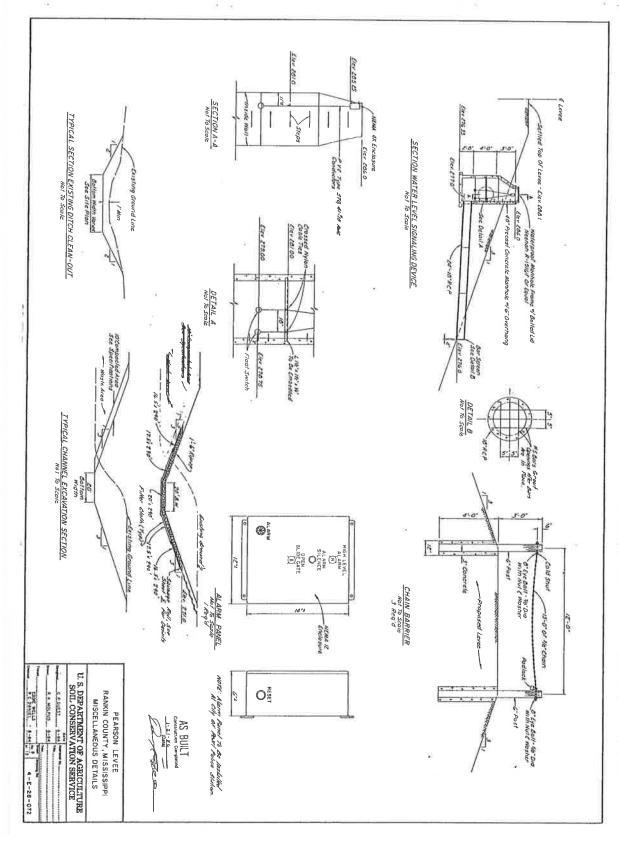
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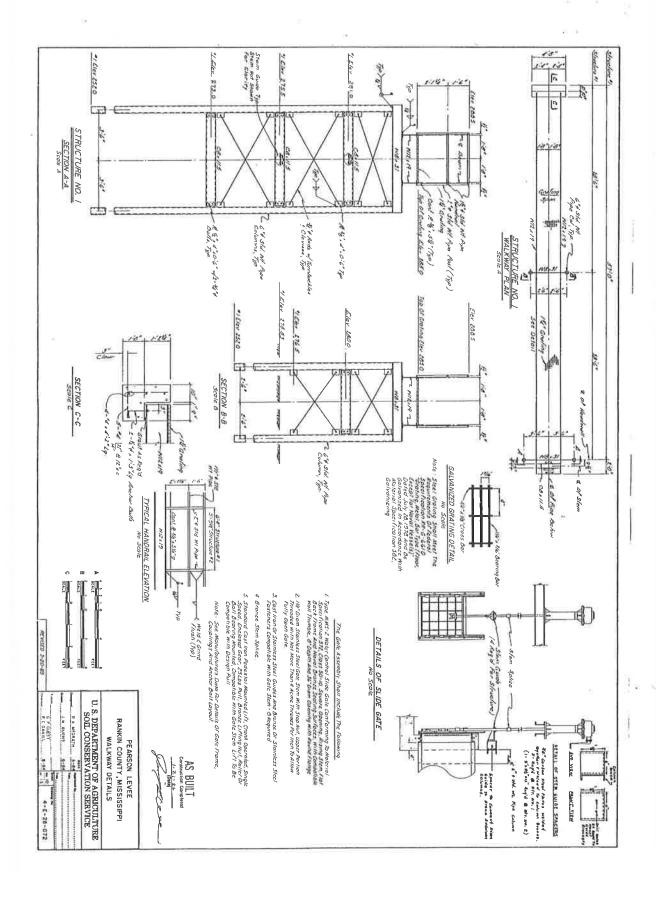


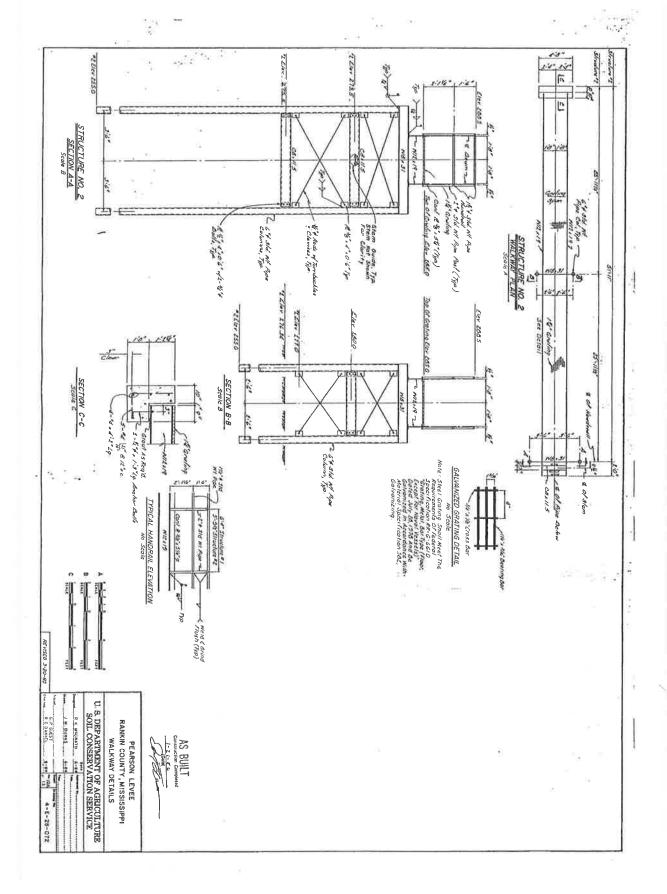


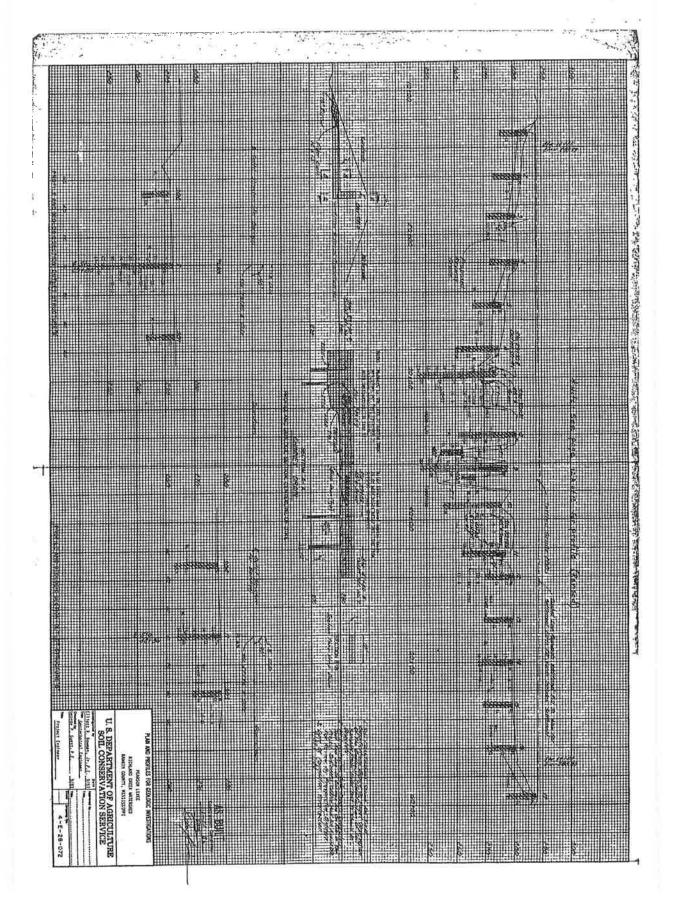




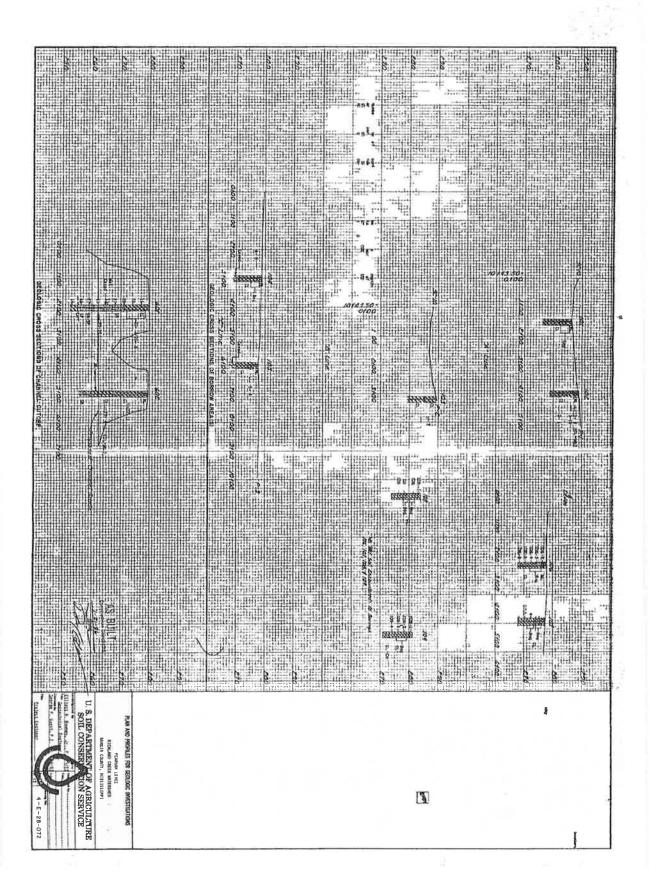
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Appendix C

Local Levee Partnership Team Meeting Presentation



Local Levee Partnership Team Meeting

Pearson Levee Pearl, Mississippi FEMA Region 4

January 31, 2018





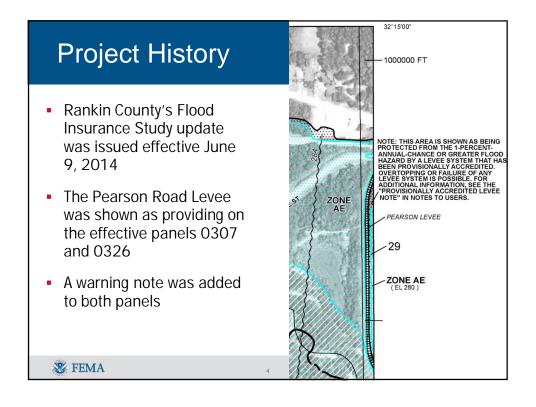
Objective of this Meeting

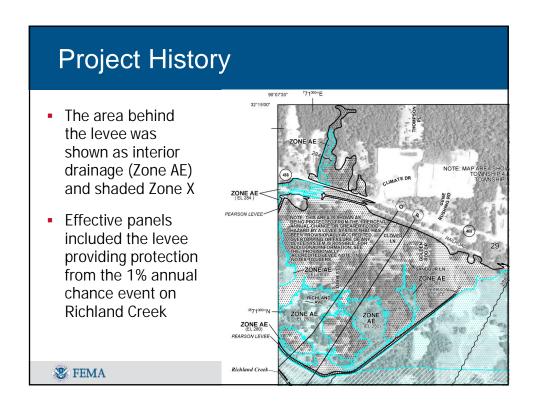
- Introduce the Project Team
- Project Location and History
- Provide recap of Levee Analysis and Mapping Process (LAMP) for Non-accredited Levees Approach
- Review any data submitted
- Identify Local Levee Partnership Team (LLPT)
- Next Steps

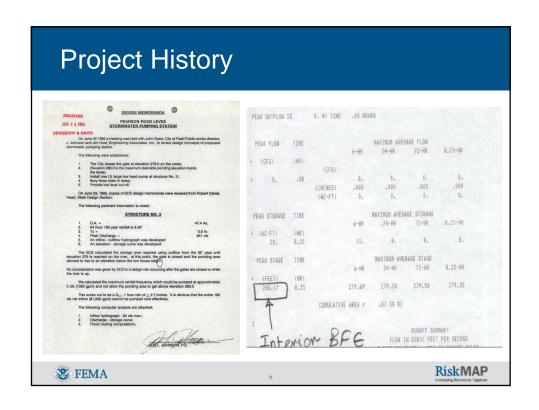












Project History

 Provisional Accreditation Letter (PAL) issued by FEMA on January 17, 2012 U.S. Department of Homeland Security Region IV 3003 Chamblee Tucker Road Adanta, Ga 30341



The Honorable Brad Rogers Mayor, City of Pearl 2420 Old Brandon Road Pearl, MS 39208

Dear Mayor Rogers:

This letter is in regard to the Pearson Levee shown on the effective Flood Insurance Rate Map (FIRM) and in the effective Flood Insurance Study (FIS) report for City of Pearl, Mississippi. As you may know, the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) is in the process of updating the countywide FIS and Digital Flood Insurance Rate Map (DFIRM) for Rankin County, Mississippi. This effort is being undertaken as part of our Risk MAP (Mapping, Assessment, Planning) program.

As part of our effort to produce the DFIRM, it was determined that the flood hazard information presented on the effective FIRM and in the FIS report is based, in some areas, on flood protection provided by the Pearson Levee. Based on the information available and the mapping standards of the National Flood Insurance Program (NFIP) at the time that the FIS was performed, FEMA accredited the levee with providing protection from the flooding of Richland Creek that has a 1-percent-chance of being equaled or exceeded in any given year. This 1-percent-annual-chance flood also is referred to as the base flood.





Project History

PAL AGREEMENT, SCENARIO A1: LEVEE NOT IN FEDERAL SYSTEM

 Provisional Accreditation Letter (PAL) Agreement signed by the City of Pearl on February 21, 2012 Letter of Agreement and Request for Provisionally Accredited Levee (PAL) designation and Agreement to Provide Adequate Compliance with the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10)

We, the undersigned, have received the letter from FEMA dated January 17, 2012 and the enclosed document entitled "Requirements of 44 CFR 65.10". We understand that FEMA is in the process of providing updated flood maps for Rankin County, Mississippi and that the area behind the levee known as Pearson Levee will be remapped to reflect that the levee has been designated as a Provisionally Accredited Levee, or PAL.

To the best of our knowledge, the levee known as Pearson Levee meets the requirements of 44 CFR 65.10 and has been maintained in accordance with an adopted operation and maintenance plan as evidenced by the attached plan and records of levee maintenance and operation, as well as tests of the mechanized interior drainage systems, if applicable. We hereby submit to FEMA, within 90 days (before April 17, 2012) our agreement to provide FEMA with all the necessary data and documentation to show that the levee known as Pearson Levee complies with 44 CFR 65.10. We understand that this data and documentation will be required before April 17, 2014. This information will allow FEMA to move forward with the DFIRM for Rankin County, Mississippi. We fully understand that if complete data and documentation that show compliance with 44 CFR 65.10 are not provided within the designanted timeframe of 24 months, FEMA will initiate a revision to the DFIRM to redesignate the area as Special Flood Hazard Area, the area subject to injurgation by the base (1-percent-annual chance) flood.

The Honorable Brad Rogers Mayor, City of Pearl BRAD ROGERS (print)

Date: 2-21-12



Project History

 Provisional Accreditation Letter (PAL) Agreement expired on April 17, 2014 Deeb Street levee was built to provide protection for the residents and their properties along the Richland Creek and to maintain a high level of safety while controlling the flood waters of the creek.

The Deeb Street levee is currently maintained by the City of Pearl. The grass on the levee is usually cut three or more times a season based on inspections. Repairs are made as needed.

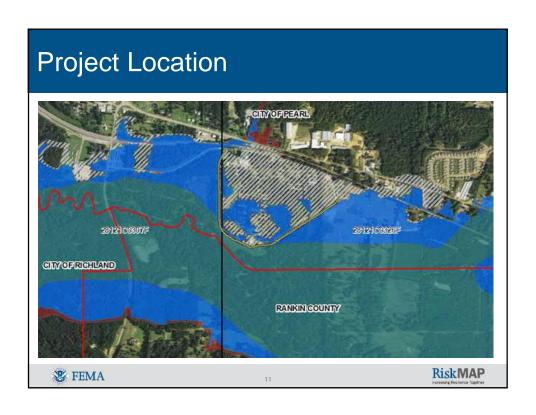
The basin has two main collection points where rain water is discharged from the subdivision to Richland Creek. These two discharge locations have a 36° piping system with a valve to keep flood waters out. One collection point is located on the south side / near the west corner of the basin and the other one is located on the west side / near the south corner of the basin. The two collection points can be used as a detention area for rain water when the creek is at or above flood stage and the two valves have been turned off. The collection point on the west side of the basin has an eight inch 7.5 h.p. pump which we use to drain the basin of additional rain fall. The City of Pearl will rent additional nums as needed.

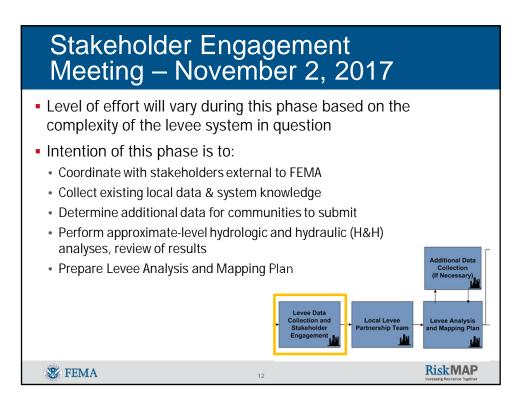
Currently the City of Pearl Public Works Department and The Fire Department works jointly to provide protection to residents and properties in the Deeb Street subdivision; while working to provide safe conditions in combating the dangers flood water of Richland Creek.

W.C. Overby









Potential Data Needs

- Elevation Information for the Levee System (Toe & Crest)
- Design Base Flood Elevation (BFE)
- Structural Design Information
- Geotechnical Evaluation
- Interior Drainage Analysis
- Evaluation of Overtopping Erosion Potential
- Operation and Maintenance Plans
- Levee Inspection Reports

For more information refer to LAMP Final Approach document: http://www.fema.gov/final-levee-analysis-and-mapping-approach



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RiskMAP

Levee Analysis and Mapping Process (LAMP) Approach

- FEMA has replaced the former levee analysis and mapping approach with a suite of alternative procedures created to:
 - Comply with all current statutory and regulatory requirements governing the NFIP
 - Be a cost-effective, repeatable, and flexible approach
 - Leverage local input, knowledge, and data through proactive stakeholder engagement
 - Align available resources for engineering analysis and mapping
 - Consider unique levee and flooding characteristics
 - Allow a variety of approaches to be applied to a levee system if needed



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Levee Analysis and Mapping Process (LAMP) Approach



- Four Features of the New Approach:
 - Interactive Stakeholder Engagement Process (Local Levee Partnership Team)
 - Recognition of the Uncertainty Associated with Levee Systems
 - Analysis of Levee Reaches
- More Robust Levee Analysis and Mapping Procedures

This New Approach is Not:

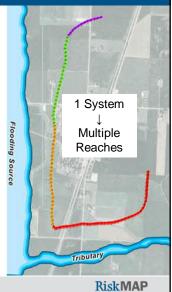
- A revision to the process or data required to accredit a levee
- A solution addressing recommendations of other entities, such as Levee Task Force or National Committee on Levee



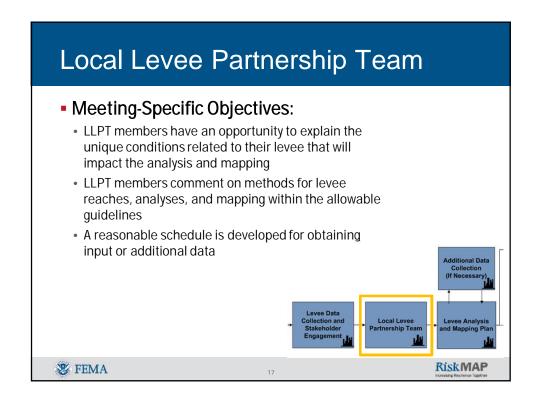


Overview of LAMP Approach

- There are five procedures that can be applied to a non-accredited levee:
 - Natural Valley
 - Sound Reach
 - · Freeboard Deficient
 - Overtopping
 - · Structural-Based Inundation
- A system can be broken up into multiple reaches in order to analyze the flood risk in its vicinity











Supervisor Jared Morrison jmorrison@rainkincounty.org

Supervisor Jay Bishop jbishop@rankincounty.org

Dewayne Jones, Floodplain Administrator <u>djones@rankincounty.org</u>



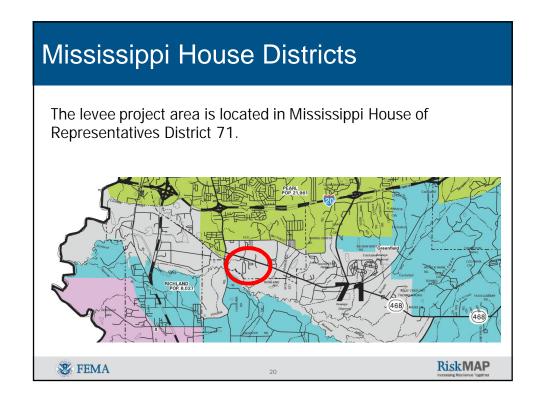






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State Representative Adrienne Wooten

Rep. Adrienne Wooten
P.O. Box 1018, Room 400-F
Jackson, MS 39215
adrienneahooper@yahoo.com





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RiskMAP

Mississippi State Senate Districts The levee project area is located in Mississippi State Senate District 30.

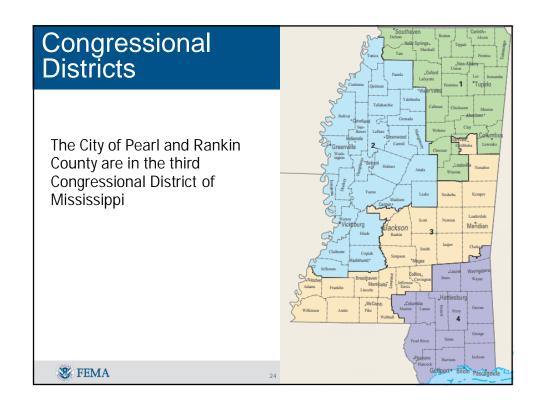


Sen. Dean Kirby
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Jackson, MS 39215
dkirby@senate.ms.gov





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Congressman Gregg Harper

Mr. Larry Wert

2507 Old Brandon Road, Suite A

Pearl, MS 39208

larry.wert@mail.house.gov





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RiskMAP

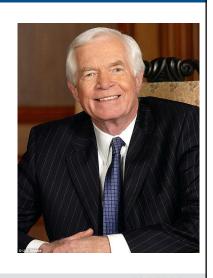
Senator Thad Cochran

Mr. Chris Richardson

190 East Capitol St.

Jackson, MS 39201

chris_richardson@cochran.senate.gov





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Senator Roger Wicker

Ms. Teresa Love

501 East Court Street, Suite 3-500

Jackson, MS 39201

teresa_love@wicker.senate.gov





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RiskMAP

Next Steps

- Identify any missing stakeholders
- Project Timeline
 - Levee Stakeholder Engagement Meeting November 2, 2018
 - Initial Data Analysis and Collection November / December 2017
 - Local Levee Partnership Team (LLPT) Meeting January 2018
 - Levee Analysis and Mapping Plan February 2018
- Flood Hazard Analysis and Mapping



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RiskMAP Increasing Resilience Together

State of Mississippi Leads



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MS Dept. of Environmental Quality

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Jackson, MS 39225

601.961.5506

S FEMA

Stephen Champlin@deg.state.ms.us



Stacey Ricks, CFM

MEMA

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RiskMAP

Questions and Answers



AECOM

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Mark.Vieira@fema.dhs.gov

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