



**MISSISSIPPI  
DEPARTMENT OF MARINE RESOURCES**

**REQUEST FOR REVIEW OF APPLICATION**

**TO:** District Attorney, Harrison County  
Harrison County Prosecuting Attorney  
Harrison County Board of Supervisors  
Mayor of Biloxi  
Gulf Regional Planning Commission  
Southern Mississippi Planning and Development District

**FROM:** Department of Marine Resources  
Bureau of Wetlands Permitting

**SUBJECT:** Application by Steven Kingsley; DMR-110281

**DATE:** April 15, 2011

In accordance with the provisions of the Coastal Wetlands Protection Law, we herewith enclose a copy of the application by Steven Kingsley.

If you would like to comment on the proposed project, please provide your comments in writing to our office by the close of business on **May 16, 2011**.

If you have any questions, please contact Lynn Moore at 228-523-4136 or [lynn.moore@dmr.ms.gov](mailto:lynn.moore@dmr.ms.gov).

GP

# JOINT APPLICATION AND NOTIFICATION

U.S. ARMY CORPS OF ENGINEERS  
MISSISSIPPI DEPARTMENT OF MARINE RESOURCES  
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY/OFFICE OF POLLUTION CONTROL

This form is to be used for proposed activities in waters of the United States in Mississippi and for the erection of structures on suitable sites for water dependent industry. Note that some items, as indicated, apply only to projects located in the coastal area of Hancock, Harrison and Jackson Counties.

1. Date  
1 12 2011  
month day year  
Mississippi Dept of Marine Resources

2. Applicant name, mailing address, phone number and email address:

Steven Kingsley  
12012 Rio Lado Lane  
Biloxi, MS 39532

Agent name, mailing address, phone number and email address:

Coastal Environments, Inc  
812 Water Street  
Biloxi, MS 39530

3. Official use only  
COE  
DMR JAN 26 2011 150-  
DEQ 84681

RECEIVED  
DATE RECEIVED

## 4. Project location

Street Address 12012 Rio Lado City/Community Biloxi  
Name of Waterway Tchoutacabouffa River Latitude 30°27'28.77"N Longitude (if known) 88°55'11.10"W  
Geographic location: Section 7 Township 7S Range 9 W County Harrison

110781 (C) 1-26-11 LM

## 5. Project description

New work  Maintenance work

### Dredging

Channel length 15' width 25' existing depth 0 proposed depth -3'  
 Canal length \_\_\_\_\_ width \_\_\_\_\_ existing depth \_\_\_\_\_ proposed depth \_\_\_\_\_  
 Boat Slip length 120' width 60' existing depth -3' proposed depth -5'  
 Marina length \_\_\_\_\_ width \_\_\_\_\_ existing depth \_\_\_\_\_ proposed depth \_\_\_\_\_  
 Other-Mooring Basin length \_\_\_\_\_ width \_\_\_\_\_ existing depth \_\_\_\_\_ proposed depth \_\_\_\_\_

Cubic yards of material to be removed +/- 1,800 Type of material Riverine sediments, sand and silt  
Location of spoil disposal area Spread around existing upland on subject property  
Dimensions of spoil area +/- 1 acre Method of excavation bulldozer and trackhoe  
How will excavated material be contained? small retention dikes

### Construction of structures

Bulkhead Total length 300' Height above water 4.5'  
 Pier length 55' width 4' height natural elevation  
 Boat Ramp length \_\_\_\_\_ width \_\_\_\_\_ slope \_\_\_\_\_  
 Boat House length \_\_\_\_\_ width \_\_\_\_\_ height \_\_\_\_\_

Structures on designed sites for water dependent industry (Coastal area only). Explain in item 11 or include as attachment.

Other (explain) \_\_\_\_\_

### Filling

Dimensions of fill area +/- 200' X 200'  
Cubic yards of fill +/- 1,800 Type of fill Riverine sediments, sand and silt

Other regulated activities (i.e. Seismic exploration, burning or clearing of marsh) Explain.

**6. Additional information relating to the proposed activity**

Does project area contain any marsh vegetation? Yes  No

(If yes, explain)

Is any portion of the activity for which authorization is sought now complete? Yes  No

(If yes, explain)

Month and year activity took place

If project is for maintenance work on existing structures or existing channels, describe legal authorization for the existing work. Provide permit number, dates or other form(s) of authorization.

Has any agency denied approval for the activity described herein or for any activity that is directly related to the activity described herein?

Yes  No  (If yes, explain) In 1999 the applicant applied for a permit to create a swimming area where the drainage channel runs through his property. The project as proposed in 1999 was denied. The current proposed project does occur in the same area, however the project as proposed, is to create a boat slip and to protect the applicants property from further erosion

**7. Project schedule**

Proposed start date March 2011 Proposed completion date March 2012

Expected completion date (or development timetable) for any projects dependent on the activity described herein.

**8. Estimated cost of the project \$50,000**

**9. Describe the purpose of this project. Describe the relationship between this project and any secondary or future development the project is designed to support.**

The project consists of the construction of a boat slip as well as bulk heading the drainage canal and banks along the river. The project is designed to provide natural protection for the applicant's personal watercraft by constructing a boat slip in the drainage canal and to also protect the applicant's property from further erosion by bulk heading the banks on the river side of the property.

Intended use: Private  Commercial  Public  Other (Explain)

**10. Describe the public benefits of the proposed activity and of the projects dependent on the proposed activity.**

**Also describe the extent of public use of the proposed project.**

No public benefit, however there will be a benefit for the neighbor (see below)

**11. Narrative Project Description:**

The purpose of the project is to provide river access as well as a boat slip for the applicant that will provide natural protection for his personal watercraft that would otherwise be subjected to continuous damage from storm debris and wakes caused by recreational boating activities. Also, the bulkhead will provide bank stabilization to the applicant and adjacent property owner's eroding property downstream. The project consists of the construction of a boat slip as well as bulk heading an unnamed drainage canal that is located west of, and connects to, the Tchoutacabouffa River. Material will be dredged from the drainage canal as well as the upland adjacent to the drainage canal. The dredged material will be hauled and spread onto adjacent upland areas on the applicant's property. The area proposed for excavation of the boat slip is approximately 120 ft in length with a width of +/- 60 ft and +/-15 ft by +/- 25 ft. The depths will range from +/- 3 ft to +/- 5 ft. The bulk head will be constructed out of wood and will protect approximately 300 feet of eroding upland property.

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12. Provide the names and addresses of the adjacent property owners. Also identify the property owners on the plan view of the drawing described in Attachment "A". (Attach additional sheets if necessary.)

- |   |  |
|---|--|
| 1. Mark Balius<br>5591 Whetstone Dr<br>Biloxi, MS 39532         | 2. Ben Sheely<br>12015 Rio Lado Ln<br>Biloxi, MS 39532               |
| 3. Robin & Regina Owen<br>11520 Rio Lado Ln<br>Biloxi, MS 39532 | 4. JJ & Catherine Pierotich<br>5591 Whetstone Dr<br>Biloxi, MS 39532 |
| 5. Janet B. Sheely<br>12020 Rio Lado Ln<br>Biloxi, MS 39532     |  |

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13. List all approvals or certifications received or applied for from Federal, State and Local agencies for any structures, construction, discharges, deposits or other activities described in this application. Note that the signature in Item 14 certifies that application has been made to or that permits are not required from the following agencies. If permits are not required, place N/A in the space for Type Approval.

<u>Agency</u>	<u>Type Approval</u>	<u>Application Date</u>	<u>Approval Date</u>
Dept. of Environmental Quality			
Dept. of Marine Resources			
Army Corps of Engineers			
City/County _____			
Other _____			

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**14. Certification and signatures**

Application is hereby made for authorization to conduct the activities described herein. I agree to provide any additional information/data that may be necessary to provide reasonable assurance or evidence to show that the proposed project will comply with the applicable state water quality standards or other environmental protection standards both during construction and after the project is completed. I also agree to provide entry to the project site for inspectors from the environmental protection agencies for the purpose of making preliminary analyses of the site and monitoring permitted works. I certify that I am familiar with and responsible for the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete and accurate. I further certify that I am the owner of the property where the proposed project is located or that I have a legal interest in the property and that I have full legal authority to seek this permit.

U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willingly falsifies, conceals, or covers up by any trick, scheme or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than \$10,000 or imprisoned not more than five years, or both.

**Mississippi Coastal Program (Coastal area only)**

I certify that the proposed project for which authorization is sought complies with the approved Mississippi Coastal Program and will be conducted in a manner consistent with the program.

  
\_\_\_\_\_  
Signature of Applicant or Agent

1-12-11  
\_\_\_\_\_  
Date

**Attachment A**

**DRAWINGS  
Kingsley Permit  
BILOXI, MS**

*Sections 6 & 7, T-7-S, R-9-W*

**HARRISON COUNTY, MS**

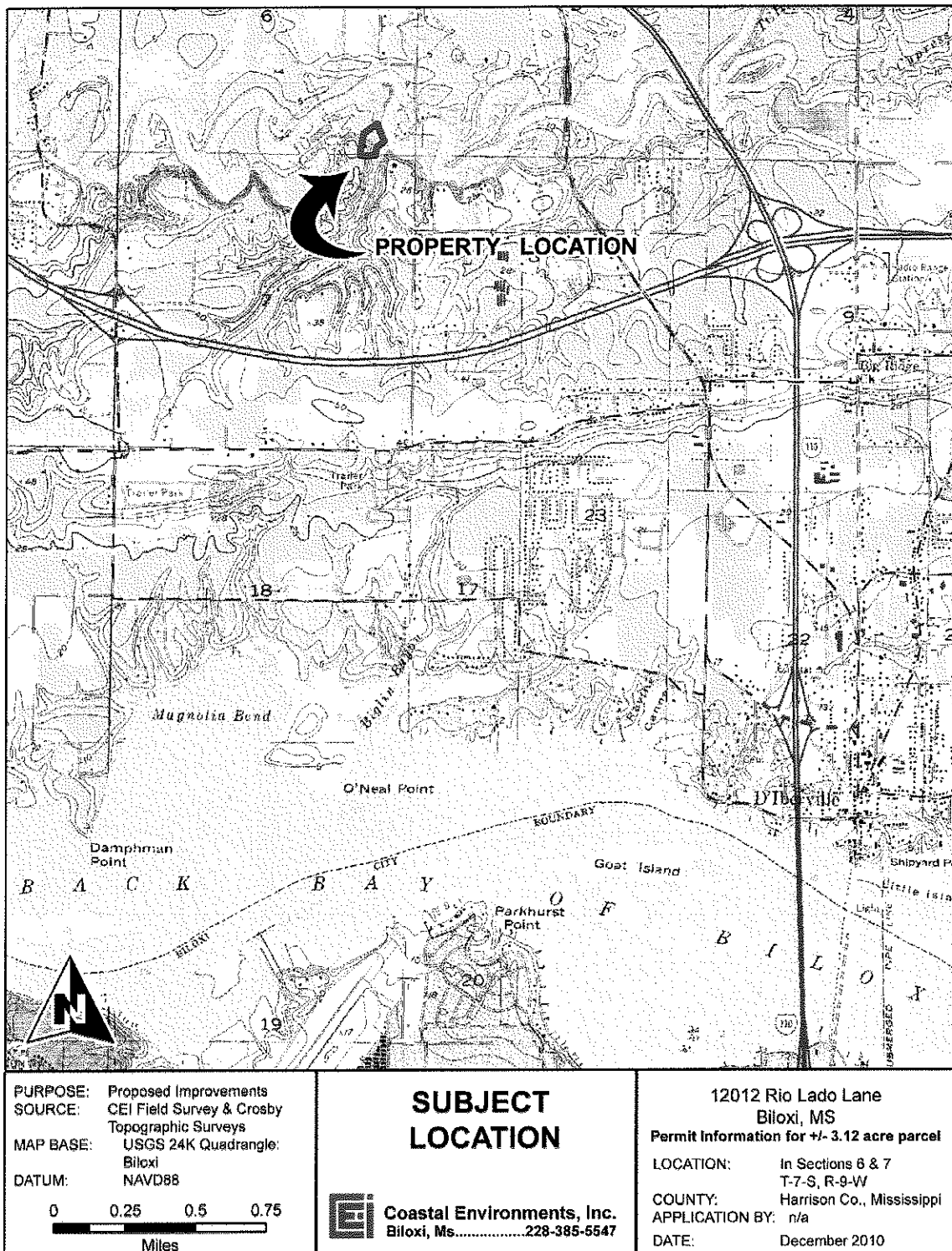


Figure 1. Location of Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS

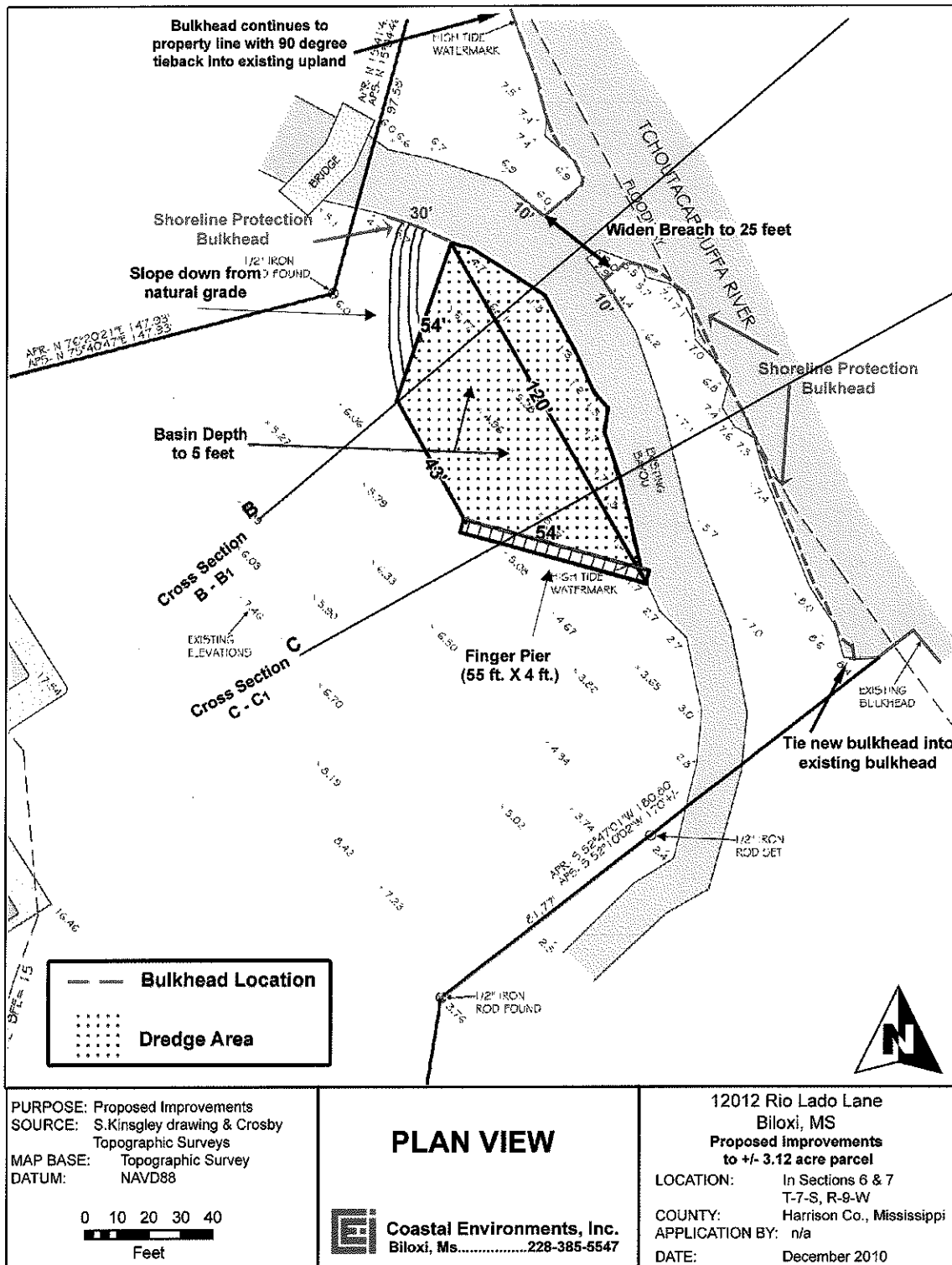


Figure 2. Plan View. Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS



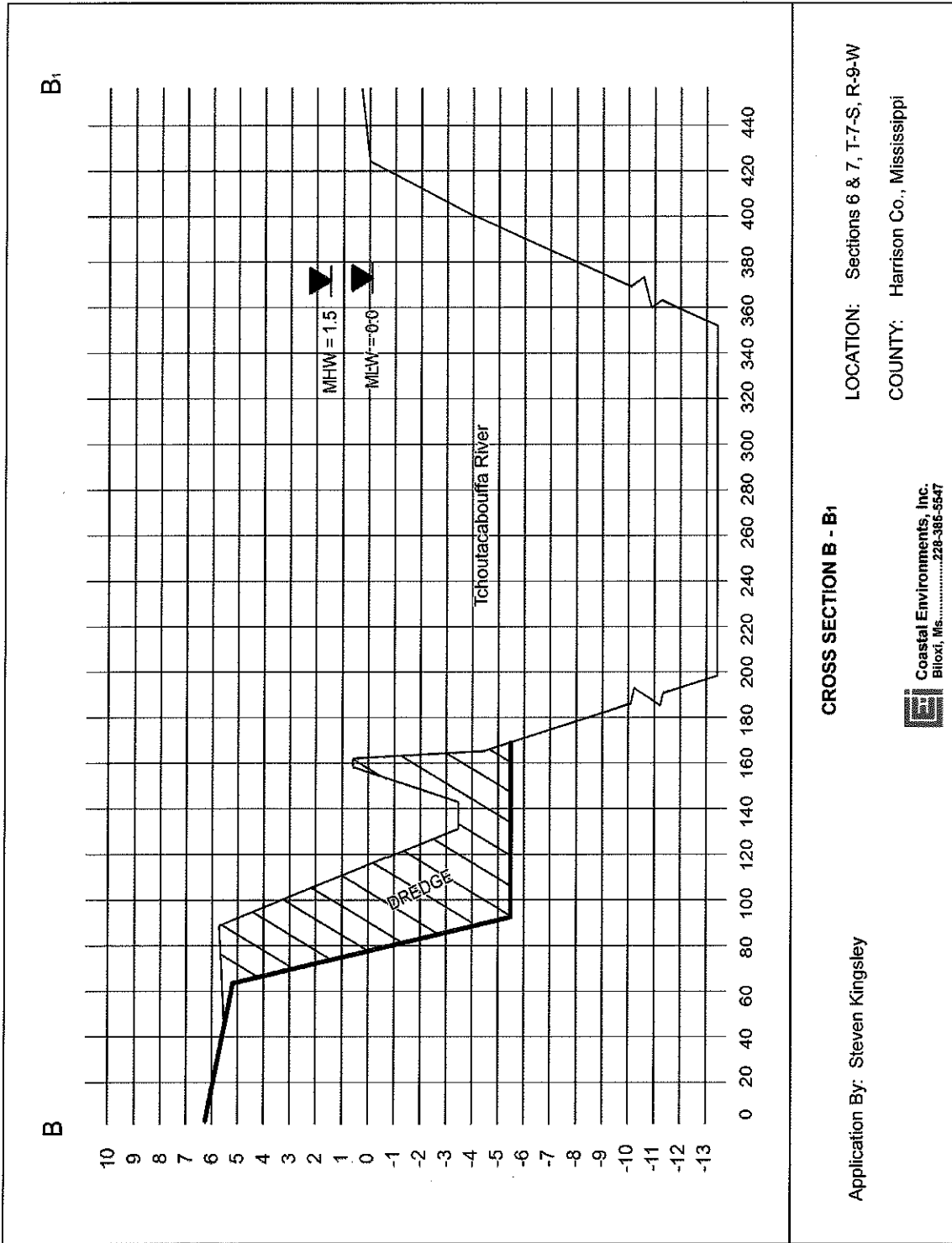


Figure 3. Cross Section B-B1 as referenced in Figure 2. Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS

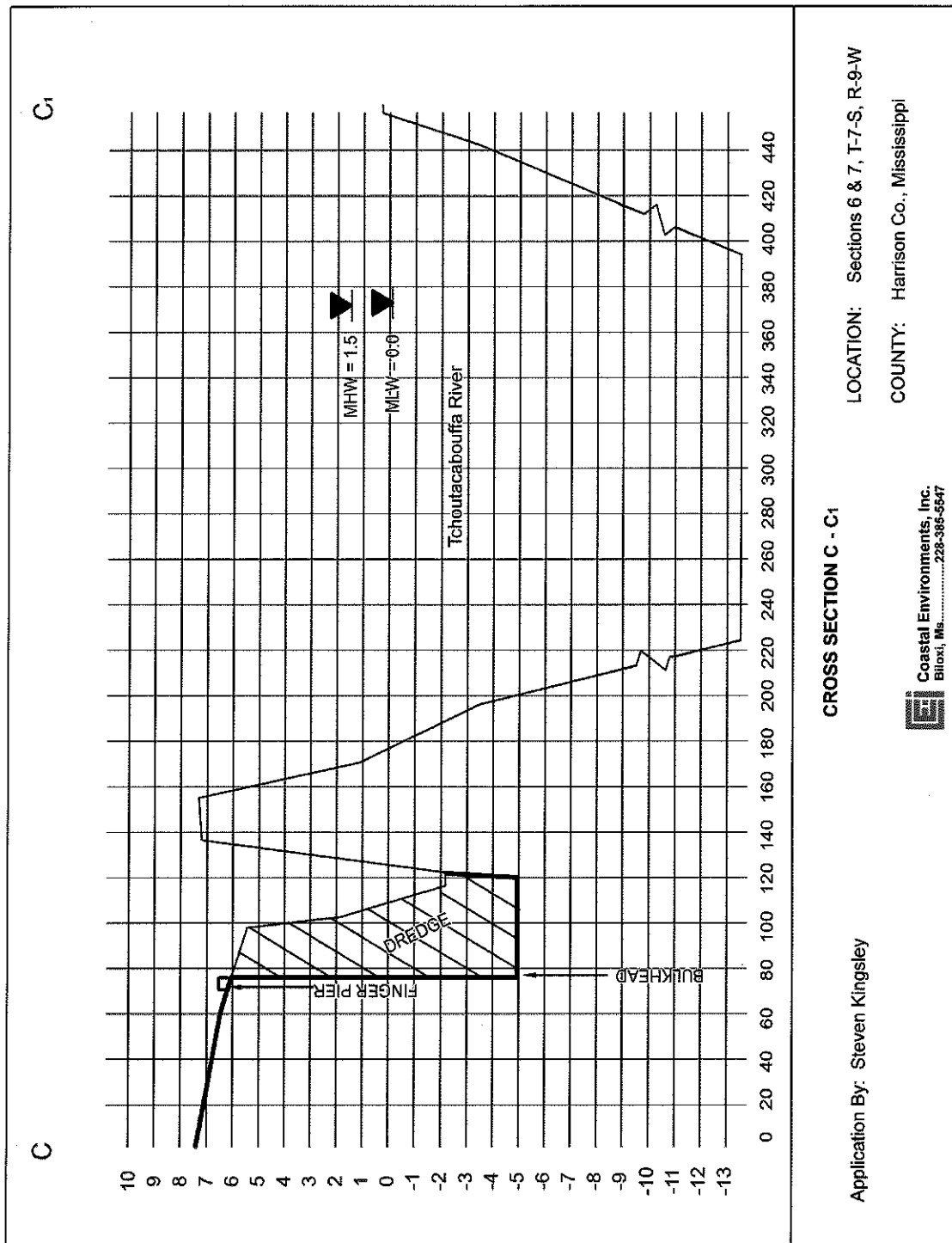
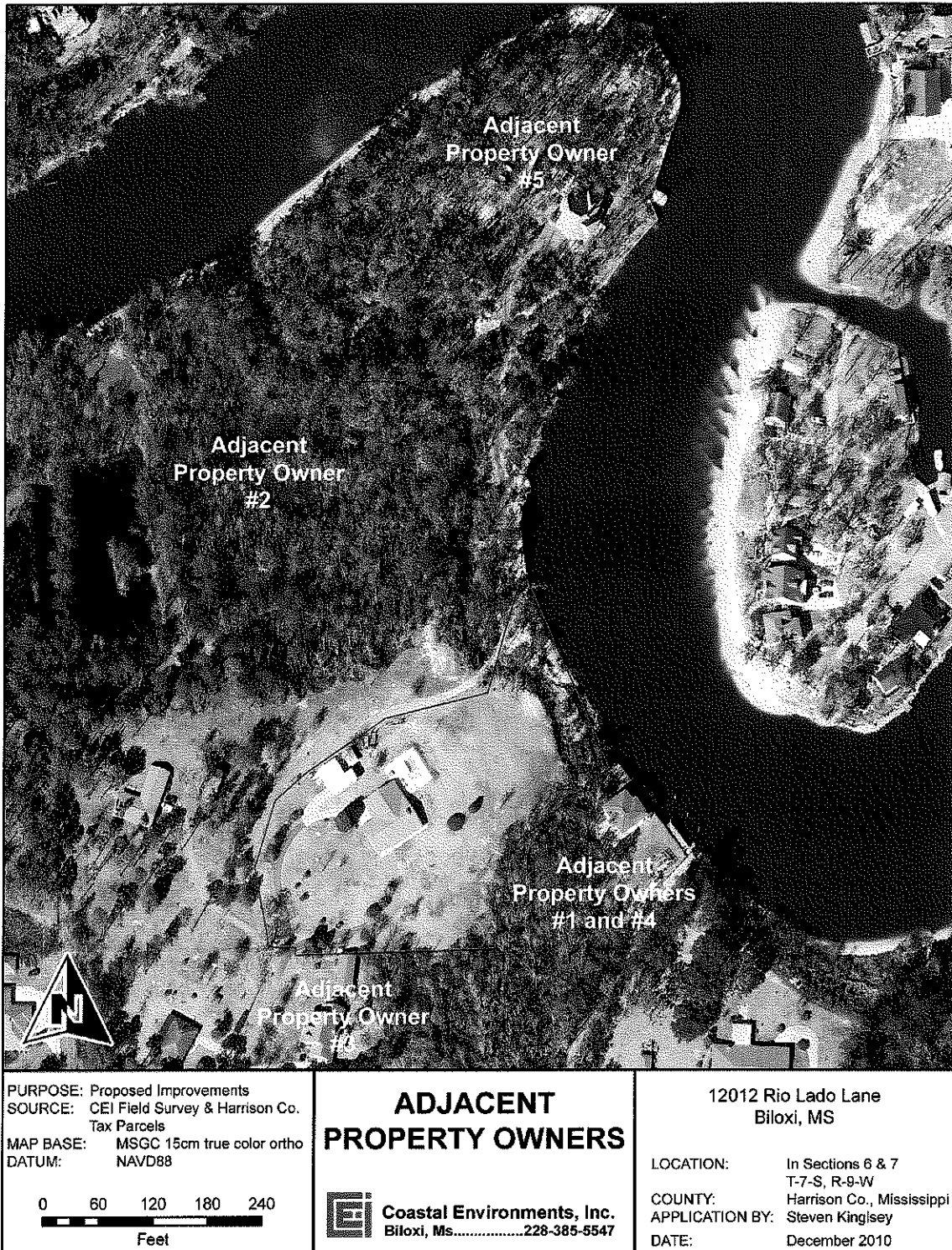


Figure 4. Cross Section C-C1 as referenced in Figure 2. Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS



**Figure 5. Adjacent Property Owners. Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS**

**Attachment B**

**AUTHORIZED AGENT**

**Kingsley Permit**

**BILOXI, MS**

*Sections 6 & 7, T-7-S, R-9-W*

**HARRISON COUNTY, MS**



**MISSISSIPPI DEPARTMENT OF MARINE RESOURCES**

**Agent Authorization**

I authorize the person(s) and/or company listed below to act as my agent regarding the proposed project as described in the Joint Application and Notification at the location listed below:

Coastal Environments, Inc  
(name of agent)

12012 Rio Lado Ln  
(location of project)

812 Water St  
(address)

Biloxi, MS 39532

Biloxi, MS 39530  
(city, state, zip code)

Section 7, T-7-S, R-9-W

228 385 5547  
(agent phone number)

Steve Kingsley  
(print applicant name)

  
(applicant signature)

12-15-10  
(date)

Do you want the permit mailed to the agent?  Yes  No

**Attachment C**

**ENVIRONMENTAL ASSESSMENT**

**Kingsley Permit**

**BILOXI, MS**

*Sections 6 & 7, T-7-S, R-9-W*

**HARRISON COUNTY, MS**

## **Environmental Assessment**

### **Project Description**

The project consists of the construction of a boat slip as well as bulk heading an unnamed drainage canal that is located west of, and connects to, the Tchoutacabouffa River. The property is more specifically located in Sections 6 and 7, Township-7-South, Range-9-West (Attachment A-1). The area proposed for excavation of the boat slip is approximately 120 ft by  $\pm$  60 ft, with a  $\pm$  15 ft by 25 ft connection to the Tchoutacabouffa River. The depths will range from  $\pm$  3 ft to  $\pm$  5 ft. Material will be dredged from the drainage canal as well as excavated from the upland adjacent to the drainage canal. The dredged material will be hauled and spread onto adjacent upland areas on the applicant's property.

### **Purpose and Need for Project**

The purpose of the project is to provide river access as well as a boat slip for the applicant that will provide natural protection for his personal watercraft that would otherwise be subject to damage from storm debris and wakes caused by recreational boating activities. Also, the bulkhead will provide bank stabilization to the applicant and adjacent property owner's eroding property downstream

### **Alternatives**

Identified project and alternatives include: (1) construction of the project as proposed, (2) construction of a smaller scaled-down project, and (3) the no-build alternative.

The project, as proposed, provides river access as well as natural protection to the applicant's watercraft. The bulkhead will provide protection against further land loss from erosion. Reducing the size of the project would not provide an adequate area for his watercraft. The no-build alternative is undesirable because it would not satisfy the purpose

and need for the project and would continue to cause the applicant and adjacent property owner loss of land due to erosion.

## **Affected Environment**

### **Site Analysis**

The project area consists of a shallow, narrow drainage canal and improved property site associated with a single-family residential dwelling. The land is consists of a predominantly flat surface that gently slopes from the residence toward the drainage canal. The drainage canal parallels and connects to the Tchoutacabouffa River by a naturally occurring breach on the applicant's property.

### **Vegetation**

Natural vegetation within the land component of the project area has been largely displaced by domesticated landscape species. No emergent and/or submergent vegetation is present in the drainage canal portion of the project area.

### **Wetlands**

A site visit by Coastal Environments Inc. biologists on November 9, 2010 and by personnel from the U.S. Army Corps of Engineers, Mobile District on October 22, 1997 (see Appendix A), indicated that no wetlands are present in the project area.

### **Water Quality**

See Appendix B, "Hydrological Study."

### **Cultural Resources**

A Cultural Resources Survey (see Appendix C), conducted in 1999 by Baxter Mann, shows that no historic or prehistoric archaeological remains were found within the survey area. This report was sent to the Mississippi Department of Archives and History (MDAH) for review and comments. A response from MDAH is still pending.



### **Threatened and Endangered Species**

According to the U.S. Fish and Wildlife Services, the following threatened and endangered species, plus those with critical habitats are listed for Harrison County, Mississippi: Louisiana black bear (*Ursus a. luteolus*), West Indian manatee (*Trichechus manatus*), Red-cockaded woodpecker (*Picoides borealis*), Black pine snake (*Pituophis melanoleucus*), Eastern indigo snake (*Drymarchon corais couperi*), Gopher tortoise (*Gopherus polyphemus*), Green turtle (*Chelonia mydas*), Kemp's ridley turtle (*Lepidochelys kempii*), Loggerhead turtle (*Caretta caretta*), Gulf Sturgeon (*Acipenser oxyrinchus desotoi*), Mississippi gopher frog (*Rana capito sevosa*), Louisiana quillwort (*Isoetes louisianensis*), and the Alabama red-bellied turtle (*Psuedemys alabamensis*).

The habitat within the project site is not known to contain any species listed as threatened or endangered. However, the Tchoutacabouffa River is known to support nesting and feeding habitat for the Alabama red-bellied turtle, which is an endangered species. The river may also support habitat for the Gulf sturgeon, although their presence in the area is not well documented. A field visit by a trained Biologist on November 9, 2010 determined that no known species listed as threatened and/or endangered will be directly impacted by the proposed project.

### **Wildlife and Fisheries**

The land portion of the project area is a maintained lawn that provides minimal habitat value for wildlife such as fur-bearing animals. The drainage canal portion of the project area provides habitat for freshwater and estuarine organisms.

## **Environmental Consequences**

### **Wetland Impacts**

No wetlands will be directly affected by the proposed activity (Appendix A).

### **Water Quality**

No degradation of water quality chemistry is expected to result from the presence of the proposed project (Appendix B).

### **Cultural Resources**

The project will have no adverse effects on known cultural resources within the project area (Appendix C).

### **Threatened and Endangered Species**

The project will have no known adverse effects on species listed as threatened or endangered.

### **Wildlife and Fisheries**

The project will have a minimal effect on wildlife due to the fact that the upland habitat is a maintained lawn and will remain as such. The drainage canal will continue to support habitat for freshwater and estuarine organisms.

**Works Cited**

*Endangered Species.* (n.d.). Retrieved November 16, 2010, from U.S. Fish & Wildlife Services: <http://www.fws.gov/mississippiES/pdf/MScountylistforT&ENovember2010.pdf>

*Habitat descriptions: Federally Endangered and Threatened and Candidate Species of Mississippi.* (n.d.). Retrieved November 18, 2010, from U.S. Fish & Wildlife Services: <http://www.fws.gov/mississippiES/pdf/T&ESpeciesHabitatinfor2010updated.pdf>

**Appendix A**

**United States Army Corps of Engineers Inspection  
Kingsley Permit  
BILOXI, MS**

*Sections 6 & 7, T-7-S, R-9-W*

**HARRISON COUNTY, MS**

MICROGRAPHICS SYSTEM DATA REPORT  
ENFORCEMENT

199704200

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Completed By: \_\_\_\_\_

KEY NAME AND ABBREVIATION	DATA VALUE
=====	=====
NAME	KINGSLEY, STEVEN. D.
WATERWAY NAME/WWN	Tchoutacabouffa River
ENFORCEMENT NUMBER/ENUMB	MSJ1997-04200-T
CROSS REFERENCE NUMBER/CRN	
MARKS FILE NUMBER	1145b
UTM/UTM	16, 315700, 3370920
LT-LONG/LTLG	30 -27-28.7001, 88 -55-10.3472
PROPOSED WORK	{ BOATSLIP/BULWHEAD/PIER
APPROVED WORK	{ CONNECTION (ACCESS) TO RIVER
VIOLATION WORK	
STATE/CO	MS, Harrison
LEGAL AUTHORITY/ETYPE	10 404
SECTION, TOWNSHIP & RANGE	6, T7S, R9W
DATE VIOLATION REPORTED/WHENR	
DATE INSPECTED	22 Oct 1997
TYPE OF FINAL ACTION	FJL
TYPE OF PERMIT REQUIRED	
AF APPLICATION NO/AFAN	
DATE OF FINAL ACTION/EDATE	01 Nov 1997

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COMMENTS:

DATE REPORTED/REQUESTED 27 OCT. 1997

a) Public Notice # \_\_\_\_\_

b) General Permit # \_\_\_\_\_

c) Violation # \_\_\_\_\_

(d) Jurisdiction # MSJ97-04200-T

**ENFORCEMENT SECTION (OP-SA) INSPECTION REPORT**

1. Property Owner: STEVEN D. KINGSLEY Telephone # 228-392-1833  
12012 RIO LINDO LN. BILOXI, MS. 39532  
(Street) (City) (State) (Zip)

2. Party Performing Work \_\_\_\_\_ Telephone # \_\_\_\_\_  
(Street) (City) (State) (Zip)

3. Summary of Information Given: 2 PROPERTY OWNER PROPOSES TO  
CONSTRUCT A BULKHEAD, BOATSLIP, BOATHOUSE, PIER  
AND CONNECT EXISTING DRAINAGEWAY TO RIVER FOR  
ACCESS ON A PARCEL OF PROPERTY OFF RIO LINDO LANE,  
BILOXI MISSISSIPPI.  
\* OPENING/CONNECTION HAS BEEN ENLARGED BY REMOVAL OF 1-2 TBM'S  
UTM's NORTH 3370920 EAST 315700

4. Location of Activity: a) Waterway: TCHOUACA BOUJA RIVER  
b) State: MS County: HARRISON Section: 6  
Township: T7S Range: R9W  
c) Quadrangle Map: BILOXI, MS.

5. Inspector: FRANK HUBBARD Inspection Date: 22 OCT. 1997  
Method: BY FOOT Inspection Time: 0845-2100

6. Permits Issued for Work: a) State: \_\_\_\_\_ DOA: \_\_\_\_\_

7. JURISDICTION:  
a) Section 10  Section 404  None \_\_\_\_\_  
b) Dredging: \_\_\_\_\_ c) Fill/Cubic Yards # \_\_\_\_\_  
d) Other Activity: \_\_\_\_\_

e) Description of work: \_\_\_\_\_

SEE ITEM #3

f) Date work commenced: \_\_\_\_\_ Date completed: \_\_\_\_\_

8. Environmental Information:

a) Description of Vegetation and Area: \_\_\_\_\_

AREA - RESIDENTIAL (MODERATE DEVELOPMENT)  
VEGETATION - PINUS SPP, QUERCUS SPP, PALMETTO,  
ANDROPOGON SPP, VACCINIUM SPP, ILEX SPP, MYRTICA CANNIFERA,  
ARUNDINARIA SPP, MAGNOLIA GRANIFLORA (FRW), ETC.

b) Description of Effects of activity upon environment: \_\_\_\_\_

\* WETLANDS - NO ADVERSE IMPACTS  
\* WATER QUALITY - POSSIBLE DEGRADATION (FLUSHING)

9. Remarks or summary of discussion with persons on site during inspection: \_\_\_\_\_

\* DISCUSSION WITH MR. KINGSLEY AND MESSRS. HOWARD  
LADNER AND JOEY BOSARGE (MSDMA)  
- LIMITATIONS ON JURISDICTIONAL AUTHORITY  
- PROPOSED 'PROJECT' NOT VIEWED FAVORABLY BY  
MSDMA OR COMPS BECAUSE OF POSSIBLE CHANGE IN  
DIRECTION OF RIVER FLOW THAT MAY CAUSE SEVERE  
PROPERTY DAMAGE VIA EROSION TO ADJACENT NEARBY  
PROPERTIES (\* HYDROLOGICAL ENGINEER RECOMMEND)  
- BMP'S - LOW PROFILE RESOLVEMENT  
- MINOR RESTORATION VIA STABILIZATION (PLACEMENT OF  
HYDRO-MATERIALS IN AREA OF CONCERN (SMALL SPOTS))

MANK BALIUS (799 FOREST AVE. BILOXI, MS)  
10. Reported by: HOWARD LANNER (MS DWM) Telephone # 228-385-5560  
BILOXI, MS,  
(Street) (City) (State) (Zip)

(Agency, if applicable)

11. Photographs:

Date and time taken: \_\_\_\_\_

Description of weather: CLOUDY, INTERMITTENT RAIN

Tide Stage: LOW

12. Other Data Obtained:

\* FAMILIARIZATION WITH AREA VIA PREVIOUS INSPECTION

13. Recommendations: (Include restoration comments and/or after-the-fact recommendations, and/or action to be taken regarding issuance of a permit.)

{ \* PROPERTIES - LOCATED ON  
(MANK BALIUS FORM)  
TURN OF RIVER }

\* INDIVIDUAL SECTION 101404 DOA PERMIT REQUIRED  
FOR PROPOSED PROJECT

- MAJOR CONCERN - POSSIBLE ADVERSE HYDROLOGICAL  
CHANGE IN <sup>DIRECTION OF</sup> RIVER FLOW THAT COULD CAUSE SEVERE  
PROPERTY DAMAGE VIA EROSION TO ADJACENT AND  
NEARBY PROPERTIES WITHIN SEGMENT OF RIVERINE  
FLOODPLAIN (MAN-MADE INFLUENCES WILL ACCELERATE NATURAL

\* HYDROLOGICAL ENGINEER RECOMMENDED -

\* SMALL OPENING AGGRAVATED BY PROPERTY OWNER VIA  
PULLING OF 1-2 STUMPS WILL BE VOLUNTARILY STABILIZED  
WITH RIP-RAP MATERIAL BEFORE DEC. 1, 1997 - <sup>LOW PROFILE</sup> RE-SEWERMENT

- NOTE: NATURAL COURSE OF RIVER WILL PROBABLY ERODE

\* BEST MANAGEMENT PRACTICES <sup>CUT-THROUGH NARROW SPIT</sup>  
- NON-TOXIC FILL MATERIAL <sup>AREA FILL-ESTIMATED IN</sup>  
<sup>NEAR FUTURE.</sup>

- EROSION CONTROL MEASURES



**Appendix B**

**HYDROLOGICAL REPORT**

**Kingsley Permit**

**BILOXI, MS**

*Sections 6 & 7, T-7-S, R-9-W*

**HARRISON COUNTY, MS**

**HYDROLOGICAL STUDY**

**Steven Kingsley Property  
Sections 6 and 7, Township-7-South, Range-9-West  
Harrison County, Mississippi**

**Prepared by**

**Johannes L. van Beek, Ph.D.**

**Coastal Environments, Inc.  
812 Water Street  
Biloxi, MS 39530**

**Prepared for**

**Steven Kingsley  
12012 Rio Lado Lane  
Biloxi, MS 39532**

**December 29, 2010  
(CEI 210097)**

## *Hydrologic Study*

### *Steven Kingsley Property Sections 6 and 7, Township-7-South, Range-9-West Harrison County, Mississippi*

## **Hydrologic Considerations**

### **Setting**

The site of a proposed excavation for private boat access and mooring is located along the left descending bank of the Tchoutacabouffa River near D'Iberville (Figure 1). The location is approximately 7 miles upstream of the confluence of the Tchoutacabouffa River and the Biloxi River and 8 miles upstream from where the combined flow of these rivers enters the Back Bay of Biloxi estuarine system. Because of the short distance to the estuary, the river stage at the site is subject to tidal variation during moderate and low discharges (USGS, 2000).

The Tchoutacabouffa River is typical of the alluvial streams entering the estuarine systems of the central and eastern Gulf of Mexico. Their morphology is characterized by wide flood plains and meandering stream courses. The meandering process reshapes the floodplain within the confines of adjacent terraces, resulting in numerous meander cutoffs as the channel shifts through the growth of pointbars and erosion of the opposite concave or cut-bank or, occasionally, through avulsion.

Flow conditions and channel morphology vary along the stream course. Higher flow velocities and bank erosion dominate along the concave stream bank, the cutbank, where the channel is deepest. Bank erosion occurs largely through undercutting and slumping of the bank so that stream banks are steep along the outside of river bends. Along the opposite bank, the pointbar side or the inside of the river bend, flow velocities are generally low and deposition of the coarser sediments transported by the stream occurs. This allows the point bar to grow out into the stream in tandem with the erosion of the cutbank.

Flow conditions vary also according to discharge. During moderate and low discharges, flow lines within the channel generally follow the concave banks and cross over in the more linear stream segments between river bends. During flood discharges, however, stages often increase sufficiently to allow flow to shortcut across pointbars, even to the extent that a secondary channel develops, albeit of a lesser size than the main channel.

Each of the above mentioned process is exemplified at the site of the proposed excavation. The site is located along the cutbank of a Tchoutacabouffa River meander (Figure 2). Because the river here flows along the southern edge of its floodplain, the river cuts into the adjacent higher terrace on which the property is located. The aerial photograph shows coarse material exposed on the corresponding point bar across the river. The stream bank along the site is steep and being actively eroded through

undercutting as evidenced by recent slump blocks (Figure 3). Analysis of historic aerial photographs, engineering surveys, and maps shows that erosion has progressed at a rate of 6 linear feet on some locations and as much as 27 linear feet in other places over the last 14 years.

Bank erosion at the site during recent years encroached upon a natural drainage channel that drained a portion of the higher terrace and flowed northward into the Tchoutacabouffa River across the terrace point associated with the bend immediately downstream of the site (Figure 4). During rain induced flood stages in the summer of 2010, this allowed natural development of a second connection of the drainage channel with the Tchoutacabouffa River (other than the outflow point). The breach into the drainage channel is shown in Figures 5 and 6. This connection now provides a shortcut for river flow across the point. Distance between the inflow and outflow points of the drainage channel measures approximately 1670 ft along the Tchoutacabouffa River versus 910 ft along the drainage channel. Depths of the drainage channel as well as that of its newly developed connection with the Tchoutacabouffa River allow some flow even during normal low stages of the Tchoutacabouffa River.

A number of measurements were made of the drainage channel and its connections with the Tchoutacabouffa River. These measurements are tabulated in Table 1 and graphically presented in Figures 7a through 7e. Measurement locations are referenced to Figure 4. Width of the drainage channel still reflects mostly original drainage conditions with a gradual downstream increase in width from 16 feet to 46 feet. Depth below bank elevation increases from about 6.5 feet at the project site to 10 ft at the confluence with the Tchoutacabouffa River. A bridge crossing at Point 8 is part of an access road to a residence further north (Figure 4). Further characteristics of the drainage channel are illustrated by the photographs of Figures 9 through 14.

## **Future changes without proposed action**

### **Bank and flow changes**

At the site location, the bank is expected to continue to erode at the historic average rate of 0.4 to 2 feet a year. Accordingly, the Tchoutacabouffa River will continue to encroach upon the drainage channel. Only approximately 20 ft of bank now separate the Tchoutacabouffa River from the drainage channel on either side of the breach. At such time that the river channel intersects with the drainage channel, a rapid increase in width of the connection will occur, if such will not already have occurred as a result of increased flow through the shortcut that was created by the breach.

In the absence of constraints on erosion of the existing connection between the Tchoutacabouffa River and the drainage channel, flow diversion from the Tchoutacabouffa River is expected to gradually increase because of the gradient advantage the drainage channel provides. Because of the much shorter distance, the gradient along the drainage channel is almost twice that of the Tchoutacabouffa River. Initially, increased flows will occur mostly during flood stages with a commensurate increase in size of the breach as a result of erosion. This will subsequently lead to greater flow diversion during all stages. With flow expected to increase through the drainage channel shortcut, the drainage channel downstream from the cut is expected to increase in depth and width to the extent that remedial measures will be required to maintain the bridge crossing. Eventually the river must be expected to at

least bifurcate by developing a second major channel across the point and ultimately shift its course, leaving another meander cutoff.

### **Habitat Changes**

A number of changes related to fish and wildlife habitat can be expected to occur as erosion of the Tchoutacabouffa River bank continues. Erosion along the cutbank will result in loss of wooded upland habitat. Bank slumping will intermittently diminish water quality and the habitat quality of the deep pools along the cutbank as large volumes of sediment are suddenly introduced. The river channel cross-section can be expected to adjust for the erosion by pointbar growth along the opposite bank and a riverward shift of associated habitats.

Further losses of wooded upland habitat will result when the drainage channel enlarges and begins to increasingly function as a Tchoutacabouffa cutoff during all flows. This will increase the suspended sediment load of the Tchoutacabouffa River in the reach below the point where the drainage channel enters the river.

### **Anticipated changes with proposed action**

#### **Bank and flow changes**

As described earlier, the installation of bulkheads is proposed for three locations (Figure 8):

- 1) Along the Tchoutacabouffa River bank,
- 2) On both sides of the breach between the Tchoutacabouffa River and the drainage channel,
- 3) Along the drainage channel adjacent to the breach and across from the breach

Bulkheading of the Tchoutacabouffa River bank will have two related benefits. It will halt bank erosion and thereby protect the limited high ground that still separates the river from the drainage channel and the associated residence access road. It will thereby prevent increasing intersection of the river and drainage channel which would greatly increase the width over which flow diversion would otherwise develop even during moderate river stages.

Bulkheads on both sides of the breach and extending along the drainage channel will stabilize the width of the opening at 25 feet. While some deepening of the opening may still occur during flood stages, any increase in cross-section is expected to remain limited because of flow limitation imposed during non-flood stages by the restricted width of both the opening and the drainage channel immediately downstream from the opening.

Bulkheading the bank of the drainage channel across from the connection with the Tchoutacabouffa River will be a further deterrent to an increase in flow diversion. By protecting the bank of the drainage channel on which inflow from the Tchoutacabouffa River is expected to impinge will, together with the bulkhead on the opposite site, restrict an increase in width of the drainage channel through bank erosion. While some deepening of the drainage channel may occur, such an increase is expected to be minimal and will be annually monitored. Remedial measures will be undertaken should deepening of the drainage channel become of concern.

## **Habitat Changes**

Bulkheading the Tchoutacabouffa River bank is not anticipated to result in aquatic habitat loss other than that of the unstable natural bank and it will help maintain wooded upland habitat. The bulkhead will prevent the intermittent slumping of the river bank, thus stabilizing the deep-water aquatic habitat of the pool along the cutbank where warm season water temperatures are reduced because of water depth. Upland wooded habitat will also be preserved as widening of the river connection is limited by the bulkhead associated with the navigation entrance. Width of the entrance does not exceed the present width at bank elevation.

While no effort has been made to predict the rate at which a second Tchoutacabouffa River channel would develop, it is apparent that any such development would destabilize the river in this area. Accordingly, it could be argued that the limited measures associated with the proposed action will at least impair such development in the near future.

As proposed, the boat-mooring basin is located immediately upstream from the present breach (Figure 8). The mooring area is obtained by widening a 120 ft reach of the drainage channel. The basin will have a water depth equal to that of the connection with the Tchoutacabouffa River so that ponding of water due to excessive depth is prevented. Because the Tchoutacabouffa River is tidally influenced at this location, water exchange with the river will occur on a daily basis during low and moderate river stages. During higher and flood stages water movement in the mooring basin will be induced as flow along the drainage channel increases. The immediate connection with, and the close vicinity of, the river will ensure that water quality in the mooring basin will remain essentially identical to that of the Tchoutacabouffa River. Therefore, no degradation of water quality chemistry is expected to result from the presence of the proposed mooring basin.

Some sedimentation may result in the mooring basin and the drainage channel upstream from the river connection. Relative to present and future river flow diversion, the upper drainage channel and mooring basin occupy a backwater position. Sedimentation occurring from this backwater position is, however, expected to be limited. Even though the connection with the river has existed now for some time, the channel thalweg profile (Figure 9 and Table 2) upstream from the river connection does not show any characteristics indicative of backwater sedimentation.

## **References**

USGS, 2000. Simulations of Flooding on Tchoutacabouffa River at State Highways 15 and 67 at D'Iberville, Mississippi. Water-Resources Investigations Report 01 4007. U.S. Geological Survey, Pearl River.

**Attachment A**

**FIGURES AND TABLES**

**Kingsley Hydrological Report  
BILOXI, MS**

*Sections 6 & 7, T-7-S, R-9-W*

**HARRISON COUNTY, MS**

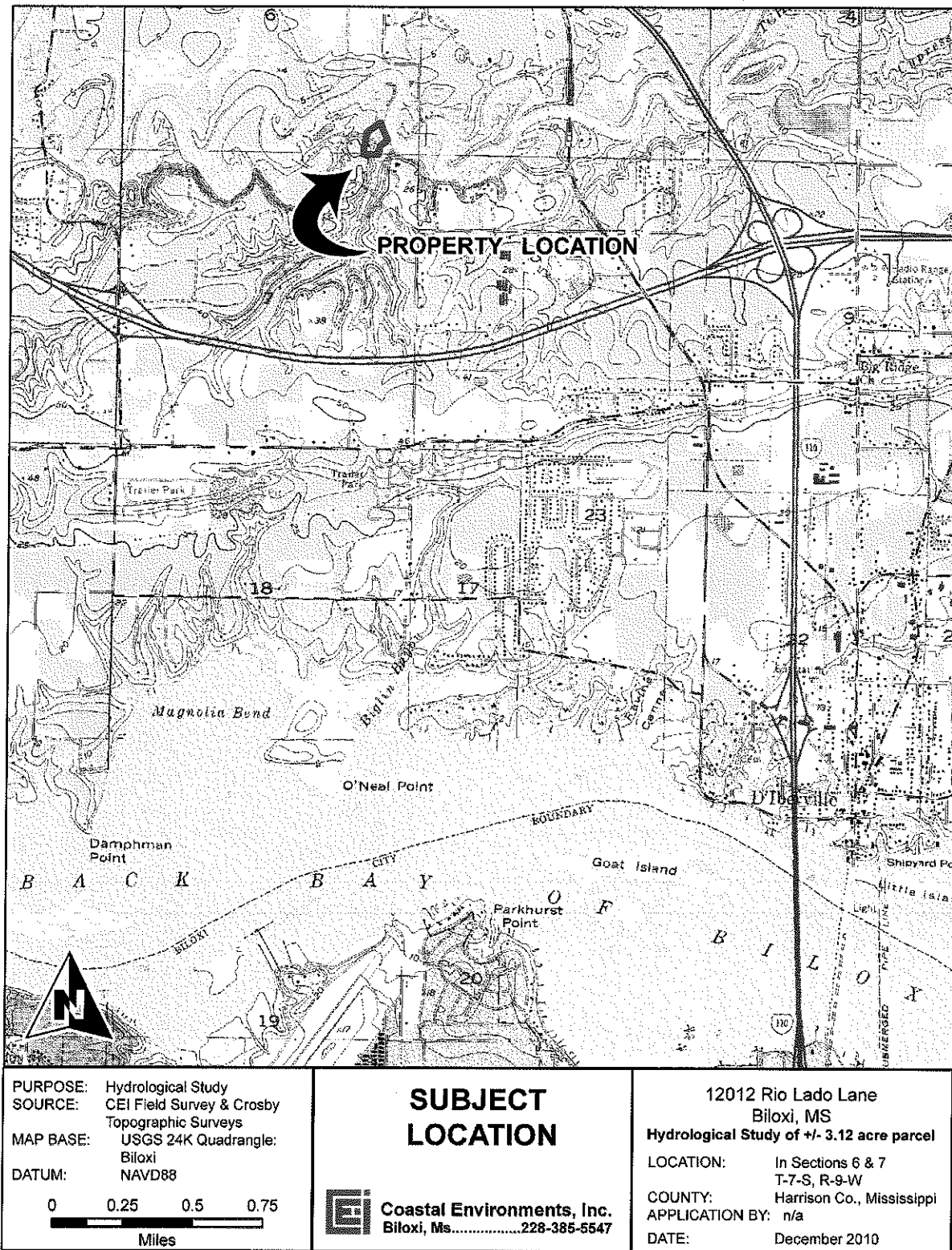


Figure 1. Location of Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS.





<p>PURPOSE: Hydrological Study          SOURCE: MSGC Raster Imagery &amp; Crosby Topographic Surveys          MAP BASE: MSGC 15cm true color ortho          DATUM: NAVD88</p> <p>0 80 160 240 320          Feet</p>	<p><b>AERIAL          SITE DETAIL</b></p> <p> Coastal Environments, Inc.          Biloxi, Ms.....228-385-5547</p>	<p>12012 Rio Lado Lane          Biloxi, MS          Hydrological Study of +/- 3.12 acre parcel</p> <p>LOCATION: In Sections 6 &amp; 7          T-7-S, R-9-W</p> <p>COUNTY: Harrison Co., Mississippi</p> <p>APPLICATION BY: n/a</p> <p>DATE: December 2010</p>
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Figure 2. Aerial view of Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS.



**Figure 3. Southeasterly view of bank slumping along Steven Kingsley's property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS.**




<p>PURPOSE: Hydrological Study          SOURCE: CEI Field Survey &amp; Crosby Topographic Surveys          MAP BASE: MSGC 15cm true color ortho          DATUM: NAVD88</p> <p>0 60 120 180 240          Feet</p>	<p><b>AERIAL SITE DETAIL          with Drainage Data</b></p> <p> Coastal Environments, Inc.          Biloxi, Ms.....228-385-5547</p>	<p>12012 Rio Lado Lane          Biloxi, MS          Hydrological Study of +/- 3.12 acre parcel</p> <p>LOCATION: In Sections 6 &amp; 7          T-7-S, R-9-W</p> <p>COUNTY: Harrison Co., Mississippi          APPLICATION BY: n/a          DATE: December 2010</p>
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Figure 4. Aerial view with measurements of drainage channel of Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS.

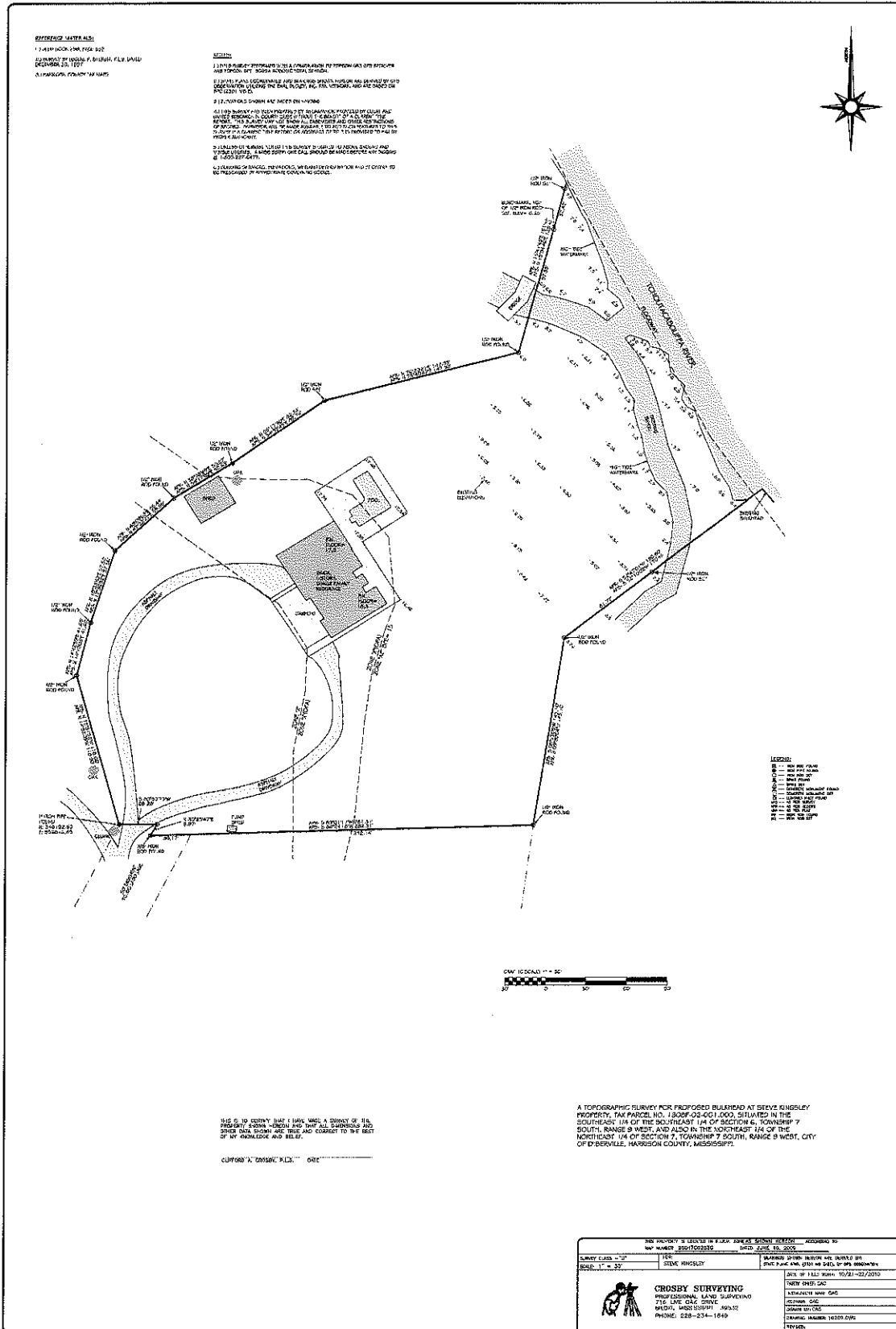


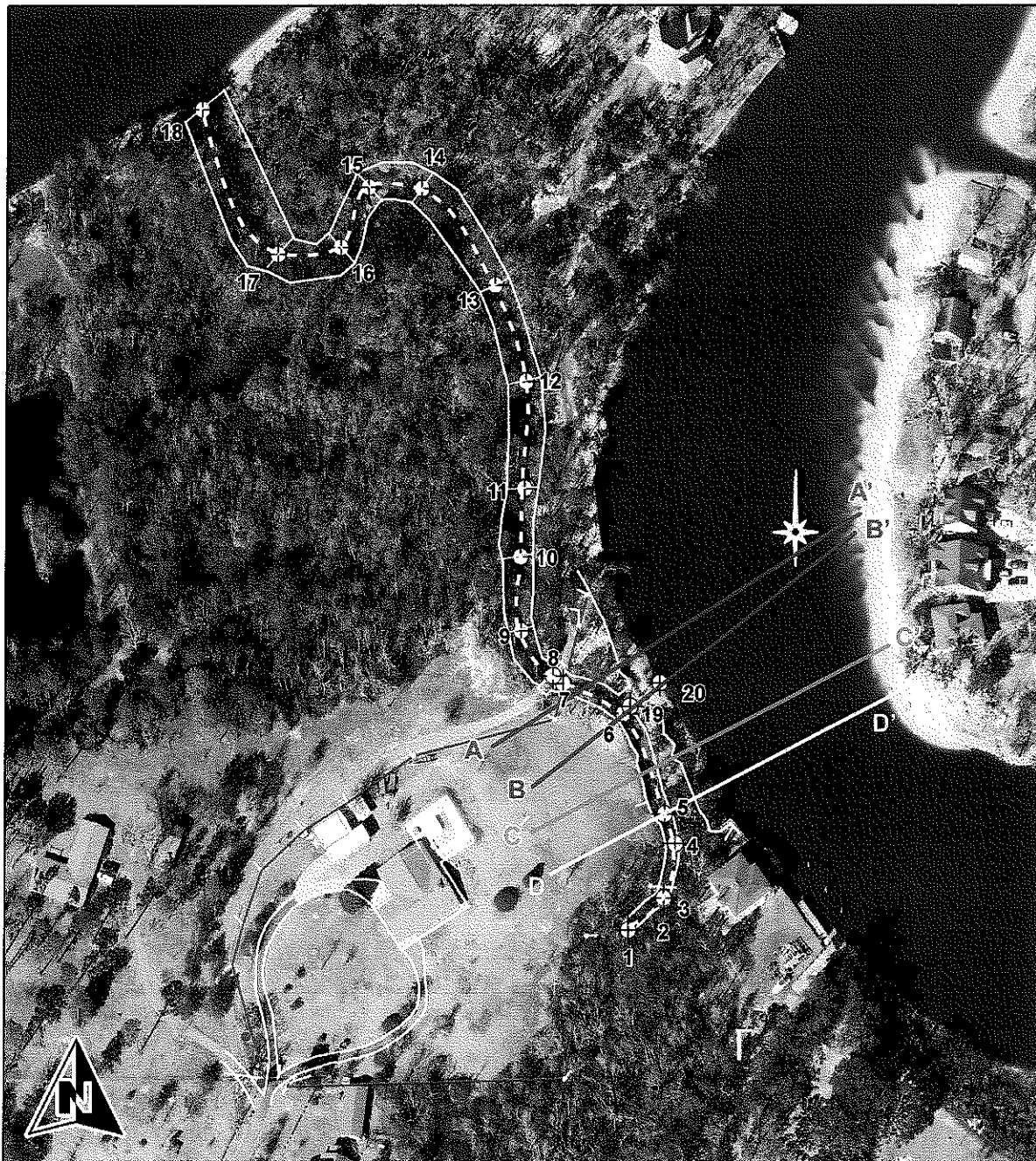
Figure 5. 2010 Survey of Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS.




**Figure 6. Northeasterly view of the breach. Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS**

Point Label	Point Location	+/- Width in Feet Between Top Banks	+/- Depth in Feet Below Top Banks
1	Centerline Bayou	16	-5.00
2	Centerline Bayou	16	-6.56
3	Centerline Bayou	16	-6.56
4	Centerline Bayou	20	-6.89
5	Centerline Bayou	23	-6.56
6	Centerline Bayou	30	-8.20
7	Centerline Bayou	26	-7.54
8	Centerline Bayou	26	-7.54
9	Centerline Bayou	26	-7.87
10	Centerline Bayou	30	-7.87
11	Centerline Bayou	33	-8.53
12	Centerline Bayou	33	-8.20
13	Centerline Bayou	33	-8.20
14	Centerline Bayou	36	-8.53
15	Centerline Bayou	36	-8.53
16	Centerline Bayou	39	-9.84
17	Centerline Bayou	46	-10.00
18	Centerline Bayou	46	-10.00
19	Centerline at Cut at Bayou	16	-9.51
20	Centerline at Cut at River	n/a	-9.51

**Table 1. Measurements along drainage channel as referenced to Figure 4. Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS.**



<p>PURPOSE: Hydrological Study          SOURCE: CEI Field Survey &amp; Crosby Topographic Surveys          MAP BASE: MSGC 15cm true color ortho          DATUM: NAVD88</p>	<h3>AERIAL SITE DETAIL with Cross Sections</h3>	<p>12012 Rio Lado Lane          Biloxi, MS          Hydrological Study of +/- 3.12 acre parcel</p>
<p>0 60 120 180 240          Feet</p>	 <p><b>Coastal Environments, Inc.</b>          Biloxi, Ms.....228-385-5547</p>	<p>LOCATION: In Sections 6 &amp; 7          T-7-S, R-9-W          COUNTY: Harrison Co., Mississippi          APPLICATION BY: n/a          DATE: December 2010</p>

**Figure 7a. Aerial site detail map with cross sections. Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS.**

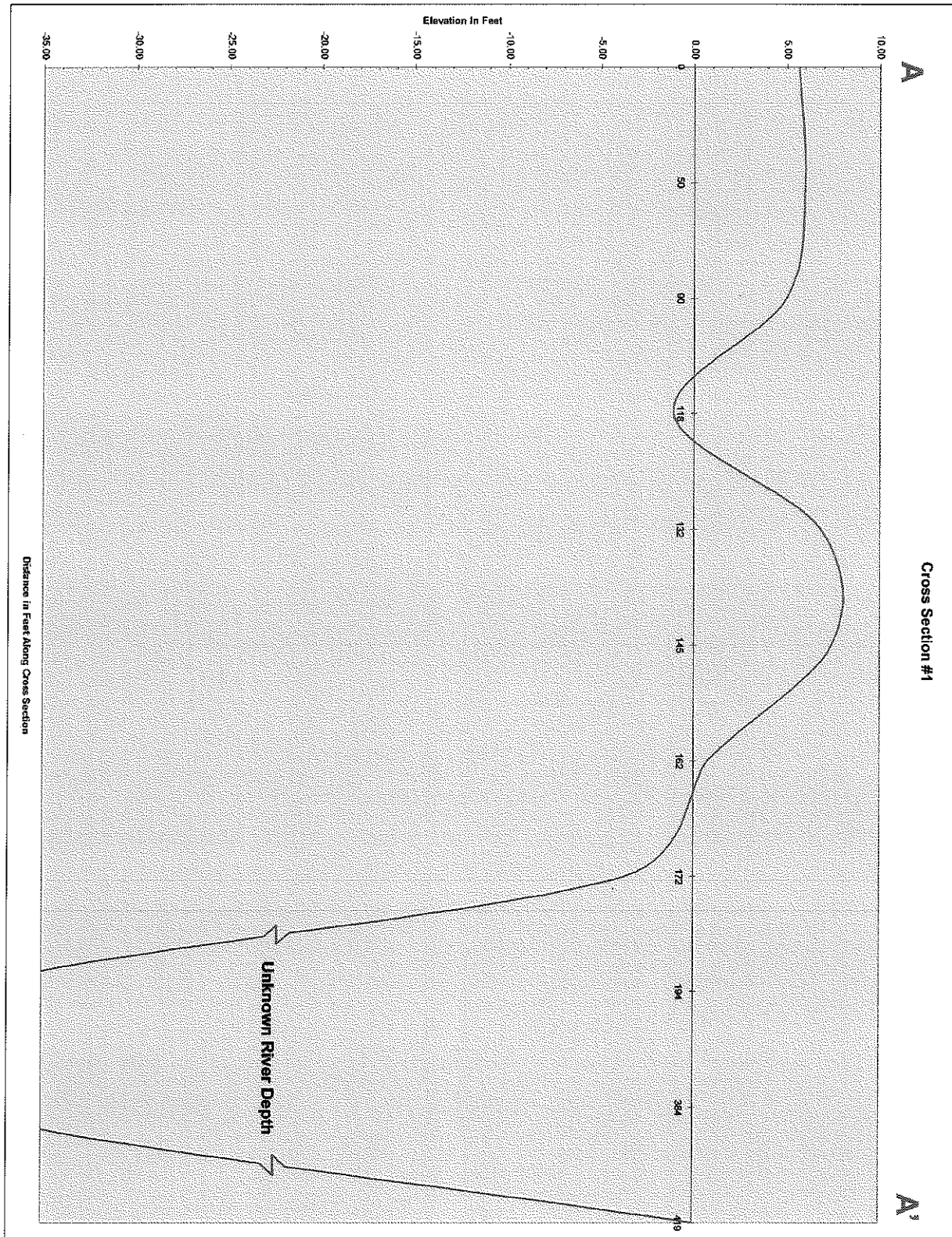
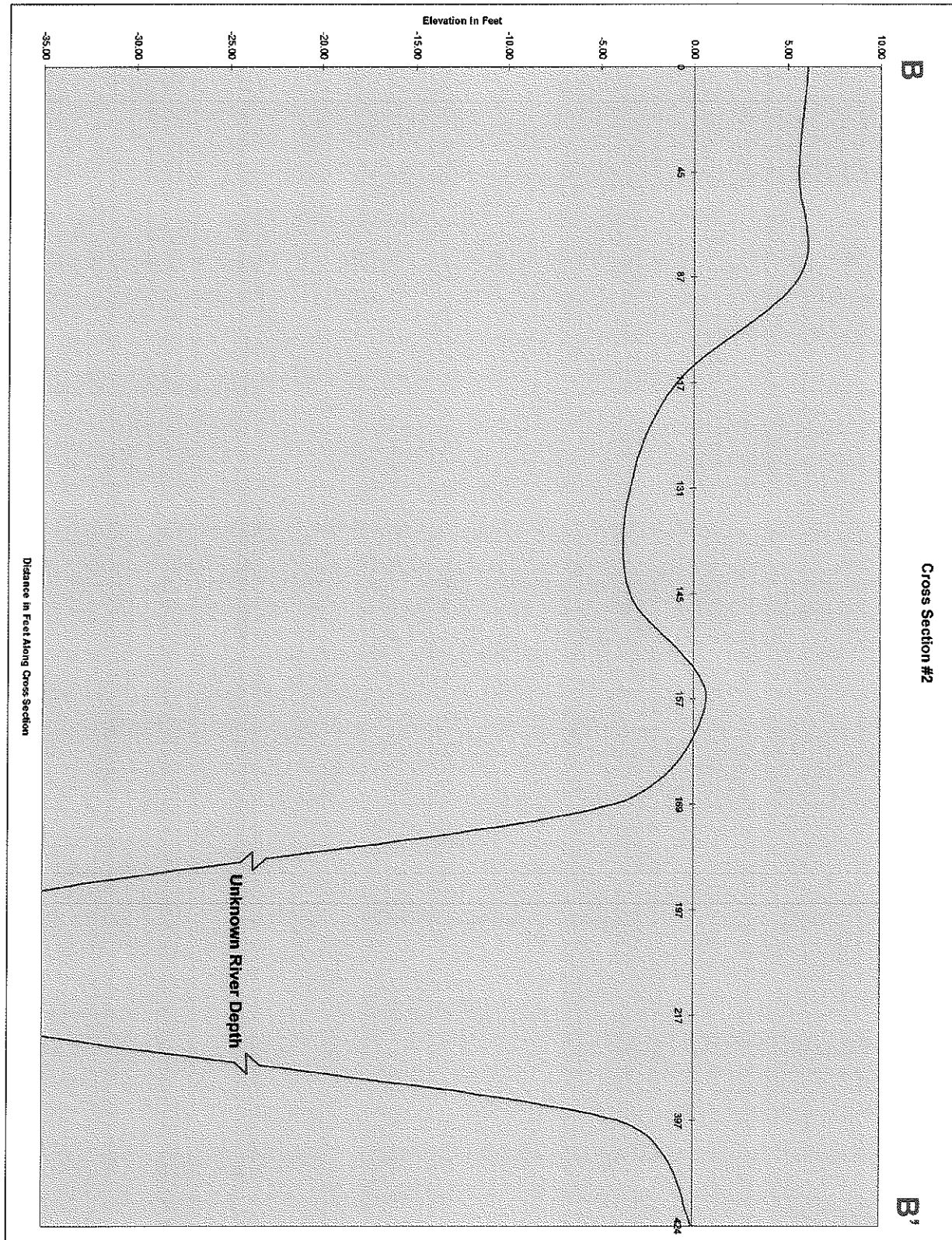


Figure 7b. Cross Section A as referenced in Figure 7a. Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS





**Figure 7c. Cross Section B of Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS**

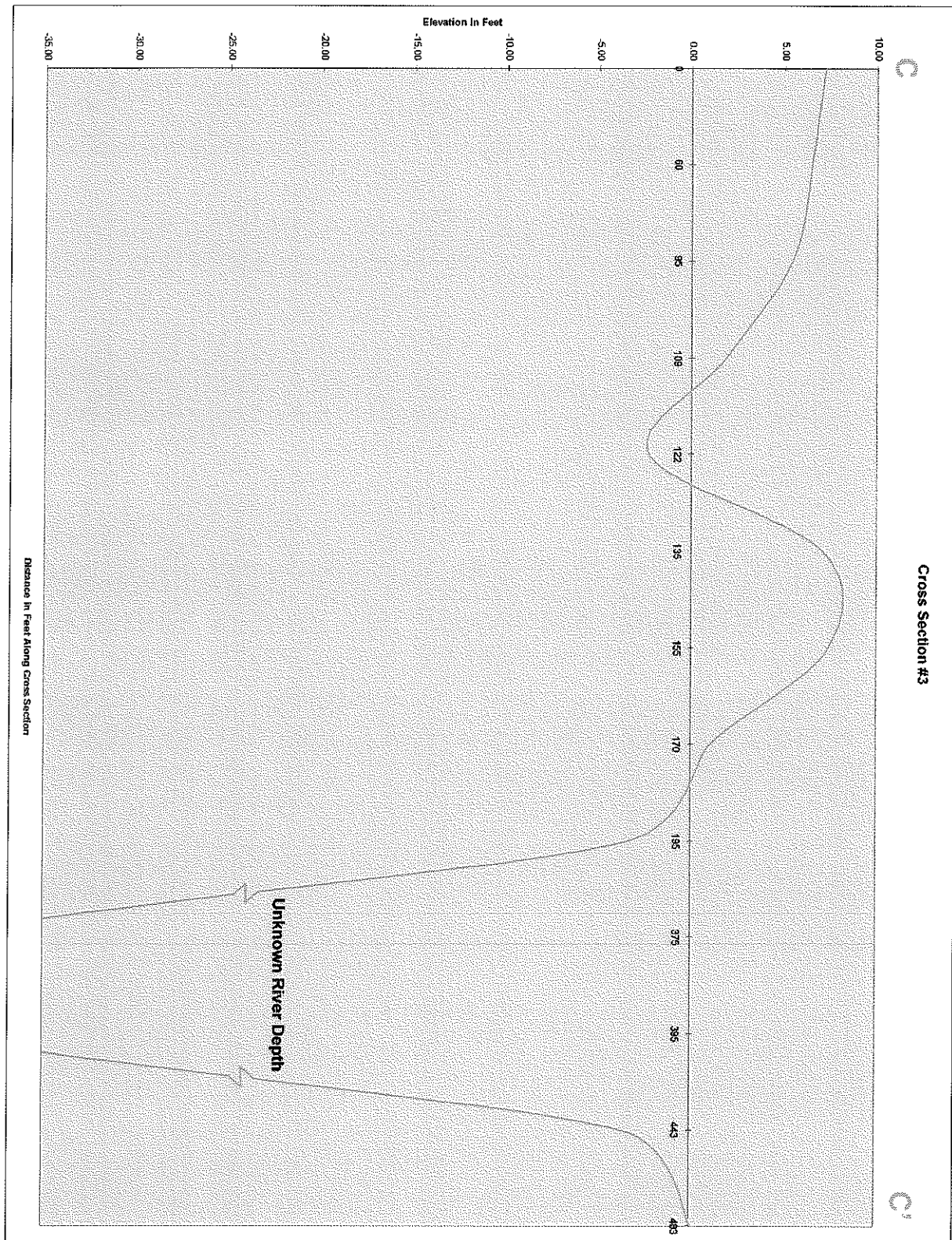
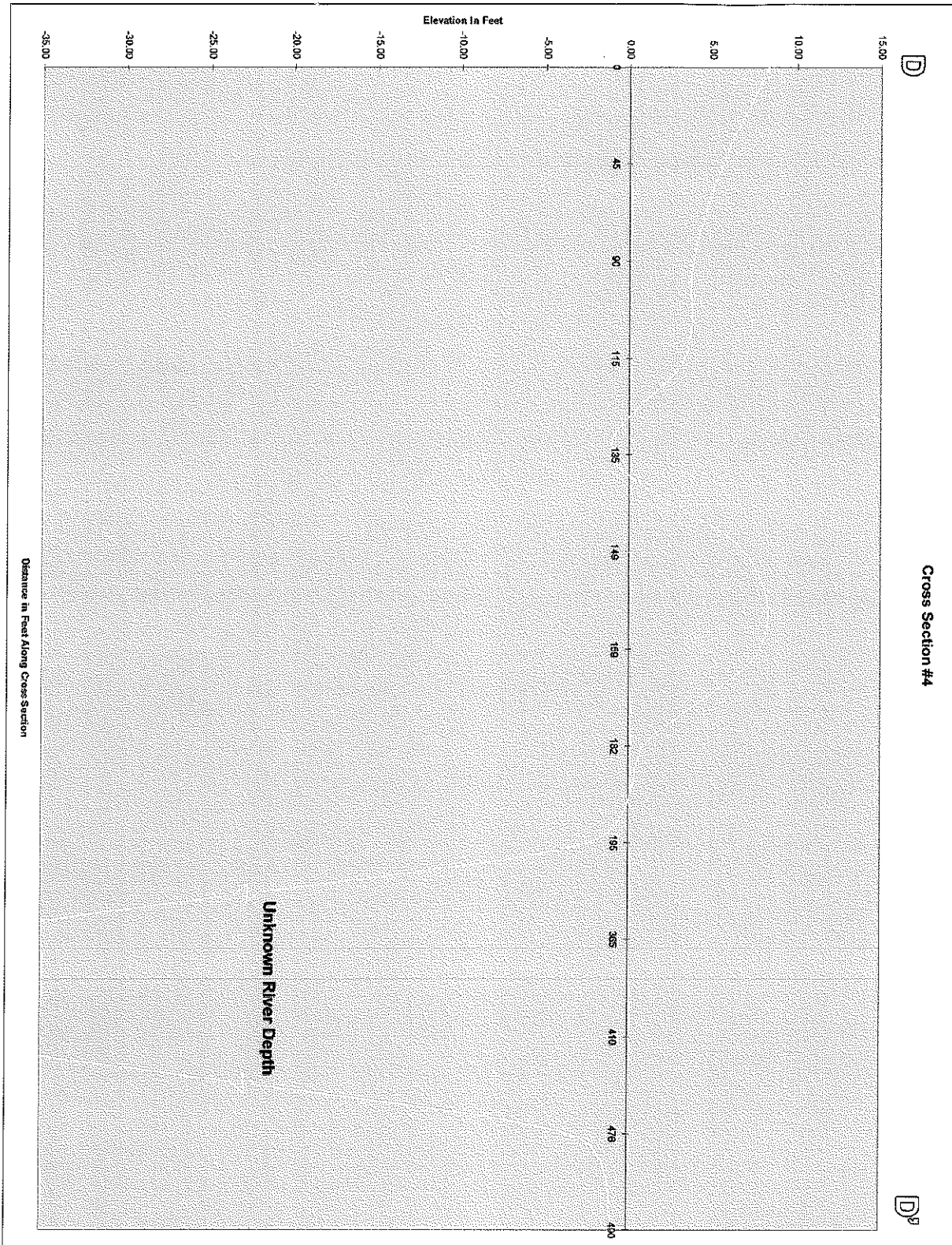


Figure 7d. Cross Section C of Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS



**Figure 7e. Cross Section D of Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS**

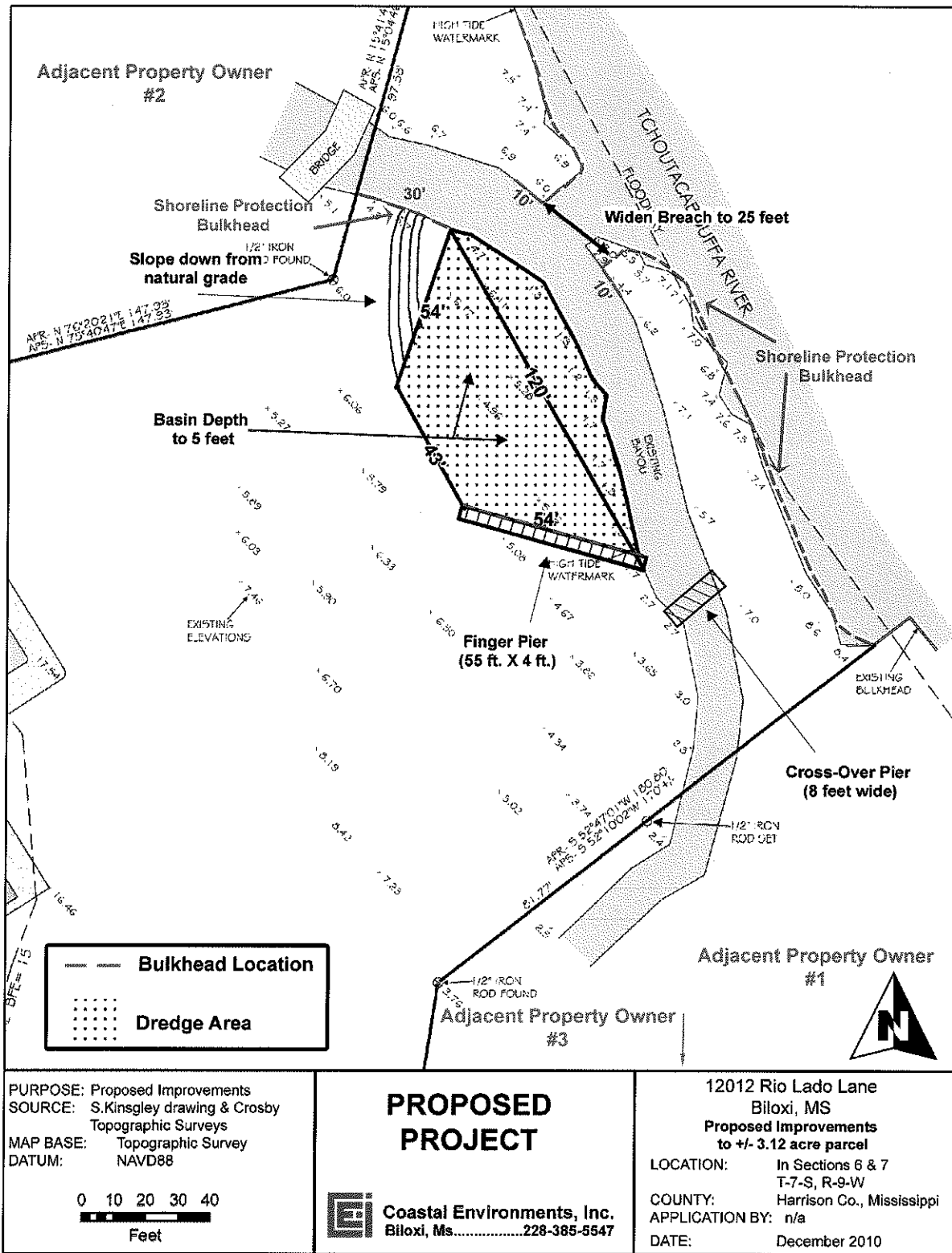


Figure 8. Proposed Improvements. Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS.

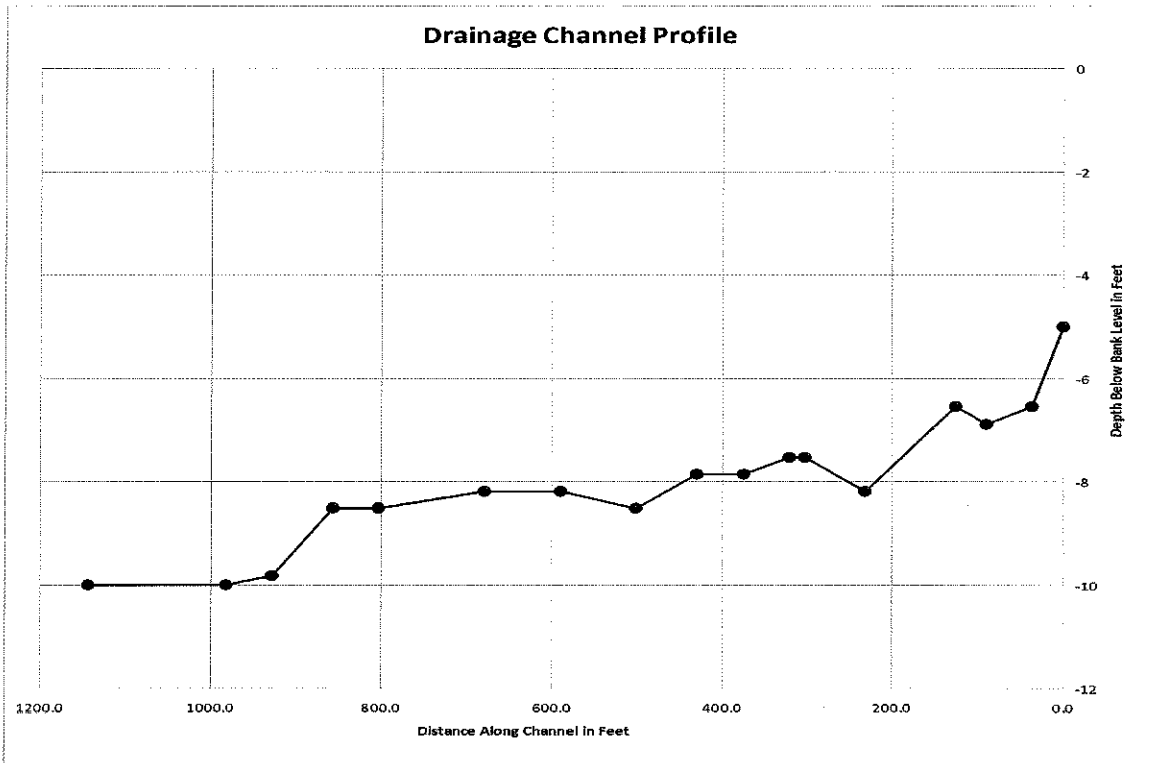


Figure 9. Distance along drainage channel as referenced to Table 2. Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS

Location	Depth (ft)	Distance (ft)
1	-5	0.0
2	-6.56	35.7
3	-6.56	35.7
4	-6.89	89.3
5	-6.56	125.0
6	-8.2	232.1
7	-7.54	303.6
8	-7.54	321.4
9	-7.87	375.0
10	-7.87	428.6
11	-8.53	500.0
12	-8.2	589.3
13	-8.2	678.6
14	-8.53	803.6
15	-8.53	857.1
16	-9.84	928.6
17	-10	982.1
18	-10	1142.9

Table 2. Measurements along drainage channel as referenced to Figure 9. Steven Kingsley property in Sections 6 & 7, T-7-S, R-9-W, Harrison County, MS.



**Figure 10. Southwesterly view of drainage data point 18 referenced on figure 4 (CEI 11/9/10).**



**Figure 11. Northwesterly view of drainage data point 8 referenced on figure 4 (CEI 11/9/10).**



**Figure 12. Southeasterly view of drainage data point 7 referenced on figure 4 (CEI 11/9/10).**



**Figure 13. Northwesterly view of drainage data point 5 referenced on figure 4 (CEI 11/9/10).**



**Figure 14. Westward view of drainage data point 17 referenced on figure 4 (CEI 11\9\10).**



**Figure 15. Northeasterly view of drainage data point 16 referenced on figure 4 (CEI 11\9\10).**



**Appendix C**

**CULTURAL RESOURCE SURVEY**

**Kingsley Permit**

**BILOXI, MS**

*Section 7, T-7-S, R-9-W*

**HARRISON COUNTY, MS**

A CULTURAL RESOURCE SURVEY OF A PROPOSED BEACH AND  
RECREATIONAL AREA (60' X 90 FEET), TO BE LOCATED IN HARRISON  
COUNTY, MISSISSIPPI  
THIS SURVEY WAS CONDUCTED AT THE REQUEST OF  
MR. STEVEN D. KINGSLEY

RE: DMR-M 99344-X  
Archaeological Survey of a Proposed Beach and Recreational Area, Harrison  
County, Mississippi.

Performed by:

C. Baxter Mann, Jr.  
Mann & Associates, Inc.  
PO Box 2611  
Bay Saint Louis, MS 39521  
Phone (228) 463-1622

Submitted to:

Mr. Steven D. Kingsley  
12012 Rio Jado Lane  
Biloxi, MS 39532

Mr. Roger Walker  
Division of Historic Preservation  
Mississippi Department of Archives and History  
PO Box 571  
Jackson, Mississippi, 39205

April 5, 1999

### Introduction

At the request of Mr. Steven D. Kingsley, a cultural resource survey was conducted of a proposed beach and recreational area to be located in Harrison County, Mississippi. This survey was conducted on April 2, 1998, by C. Baxter Mann, Jr., of Mann and Associates, Inc.

### Basic Record and Literature Search

The existing archaeological site files located at the Mississippi Department of Archives and History in Jackson were consulted. No properties listed on or being considered for listing on or determined eligible for the National Register of Historic Places are located within the survey area. Two known archaeological sites are located within a one mile radius of the survey area. To the north of the subject property an undefined site (221Ir523) is located north of the Tchoutacabouffa River. The second site (221Ir863) is located east of the subject property. Neither of these two sites will be impacted by the proposed project. No standing structures were noted within the survey area.

### Description of the Area Surveyed

The area surveyed is located in the Northeast 1/4 of the Northeast 1/4 of Section 7, Township 7 South, Range 9 West, Harrison County, Mississippi. The area surveyed consisted of a 0.123 acre parcel, which had sparse grass as ground cover. The north half of the subject property was a small stream flowing from east to west across the subject property just to the south of a small river levee. A number of natural and human processes contributed to the formation of the subject property. First, the subject property was composed of alluvium deposited when the Tchoutacabouffa River overflowed its natural levee. Also, zones of redeposited topsoils deposited when areas of higher elevation had been denuded, allowing erosion to deposit soils within the confines of the subject property. Finally, at some point in the past the small stream which flows from east to west across the subject property had been channelized and the spoil had been deposited in the area of the proposed project. No undisturbed land surface was noted within the confines of the project area. The area described above can be located on the 1954 (Photorevised 1970 and 1976), U.S.G.S., Biloxi, Miss., Topographic Quadrangle. See exhibits at the end of this report for the exact limits of area surveyed.

### Environment

The area surveyed was located in what is known as the Coastal Pine Meadows physiographic region. The surface conditions of some of the areas of higher elevation were often deposited or disturbed as described above. The site was covered sparse grass.

The area surveyed ranged in elevation from 0 to 5 feet above sealevel. Soils were sands, sandy loams, and clay lens.

### Survey Method

A pedestrian survey was conducted across the entire survey area. A visual examination of the ground surface was conducted. Also, transects were walked at 5 meter intervals and test units were placed along these transects at 5 meter intervals (in all areas that were undisturbed and that had ground cover that prevented direct examination of the land surface). Each 30 x 30 cm test unit was excavated down to sterile subsoil/sand or water. Subsoil or sand was encountered at a depth ranging from 40 to 70 cm below surface (all land surfaces within the survey area had been disturbed or created as described above).

### Results

No historic or prehistoric archaeological remains were recovered within the confines of the survey area.

### Conclusion and Recommendation

The recommendation of this report is that the proposed project to be located in Harrison County, Mississippi, be cleared in terms of potential cultural remains.

The possibility exist, however, that there are deeply buried cultural remains located within the survey area. Any major finds such as human burials, or large artifact concentrations, must be reported to the Division of Historic Preservation, Mississippi Department of Archives and History (601)-359-6945.

  
C. Baxter Mann, Jr.