



DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS, NEW ORLEANS DISTRICT  
7400 LEAKE AVENUE  
NEW ORLEANS LA 70118-3651

February 12, 2024

Regulatory Division  
Eastern Evaluation Branch

Project Manager:  
Michael Maaninen  
(601) 953-9350  
Michael.A.Maaninen@usace.army.mil

Application #: MVN-2024-00121-BMM

## **PUBLIC NOTICE**

Interested parties are hereby notified that a permit application has been received by the New Orleans District of the U.S. Army Corps of Engineers pursuant to: [ X ] Section 10 of the Rivers and Harbors Act of March 3, 1899 (30 Stat. 1151; 33 USC 403); and/or [ X ] Section 404 of the Clean Water Act (86 Stat. 816; 33 USC 1344), and/or [ X ] Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 408).

### **LOWER TCHEFUNCTE RIVER BREAKWATER PROJECT IN SAINT TAMMANY PARISH**

**NAME OF APPLICANT:** Saint Tammany Parish Government, c/o: Digital Engineering, Attn: Andrew Woodroof, 526 W. Esplanade Avenue, Kenner, Louisiana, 70065

**LOCATION OF WORK:** In Lake Pontchartrain at the mouth of the Tchefuncte River across from the Madisonville Boat Launch, approximately two miles south from the Town of Madisonville, in Saint Tammany Parish, Louisiana, (lat. 30.376226, long. - 90.158858), as shown on the attached drawings.

**CHARACTER OF WORK:** The proposed project is to construct and maintain a new riprap breakwater to protect the inside shoreline and the Madisonville Boat Launch from wave action. The proposed project would be completed in two phases. Phase 1 would consist of constructing 1,347 linear feet of breakwater. Phase 2 consists of constructing the remaining 1,606 linear feet for a total of 2,953 linear feet. A temporary flotation channel would be dredged for construction access and will be backfilled to natural grade upon completion of construction. The project as proposed would permanently impact 8.78 acres of water bottoms. It is not anticipated that there will be any impacts to wetlands.

**MITIGATION:** The applicant proposes to avoid any impacts to special aquatic sites, including wetlands, therefore no mitigation would be required.

The comment period on the requested Department of the Army Permit will close 15 days from the date of this public notice. Written comments, including suggestions for modifications or objections to the proposed work, stating reasons thereof, are being solicited from anyone having interest in this permit request, and must be submitted so as to be received before or by the last day of the comment period. Letters and/or comments concerning the subject permit application must reference the Applicant's Name and the Permit Application Number and can be preferably emailed to the Corps of Engineer's project manager listed above or forwarded to the Corps of Engineers at the address above, **ATTENTION: REGULATORY DIVISION, RGE, Michael Maaninen**. Individuals or parties may also request an extension of time in which to comment on the proposed work by mail or preferably by emailing the specified project manager listed above. Any request for an extension of time to comment must be specific and substantively supportive of the requested extension and received by this office prior to the end of the initial comment period. The Branch Chief will review the request and the requester will be promptly notified of the decision to grant or deny the request. If granted, the time extension will be continuous and inclusive of the initial comment period and will not exceed a total of 30 calendar days. This public notice is also available for review online at <https://go.usa.gov/xennJ>

### **Corps of Engineers Permit Criteria**

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

This request will also be reviewed pursuant to Section 408 and USACE Engineering Circular (EC) 1165-2-220, which provides policy and procedural guidance for processing requests to alter USACE civil works projects.

The decision whether to grant permission for the requested alteration will be based on several factors. The benefits that reasonably may be expected to accrue from the proposal will be balanced against its reasonably foreseeable detriments. Review of the requests for modification will be reviewed by a USACE technical review team considering the following factors:

1) Potential to Impair the Usefulness of the Project. Proposed alterations will be reviewed to determine whether the alteration would limit the ability of the USACE project to function as authorized, or would compromise or change any authorized project conditions, purposes or outputs. If USACE determines that the usefulness of the authorized project would be impaired, the request will be denied.

2) Potential to be Injurious to the Public Interest. Proposed alterations will be reviewed to determine the probable impacts, including cumulative impacts, on the public interest. Factors that may be relevant to the public interest depend upon the type of USACE project being altered and may include, but are not limited to, such things as conservation, economic development, historic properties, cultural resources, environmental impacts, water supply, water quality, flood hazards, floodplains, residual risk, induced damages, navigation, shore erosion or accretion, and recreation. This evaluation will consider information received from the interested parties, including tribes, agencies, and the public. The decision whether to approve an alteration will be determined by the consideration of whether benefits are commensurate with risks. If the potential detriments are found to outweigh the potential benefits, then it may be determined that the proposed alteration is injurious to the public interest.

The U.S. Army Corps of Engineers is soliciting comments from the public, federal, state, and local agencies and officials, Indian Tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the U.S. Army Corps of Engineers to determine whether to make, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. Further, all factors that may be relevant to the proposal will be considered, including the potential cumulative effects associated with the proposed project. The Section 408 review will consider the potential impact to the usefulness of the Federal project and whether the proposed alteration would be injurious to the public interest. Policy and legal compliance will also be considered.

The New Orleans District is presently unaware of properties listed on the National Register of Historic Places at or near the proposed work but is pending further review in accordance with the National Historic Preservation Act. The possibility exists that the proposed work may damage or destroy presently unknown archeological, scientific, prehistorical, historical sites, or data. As deemed necessary, copies of this public notice will be sent to the State Archeologist, State Historic Preservation Officer, and federally listed tribes regarding potential impacts to cultural resources.

Our initial finding is that the proposed work would be not likely to adversely affect any species listed as endangered by the U.S. Department of Commerce, nor affect any habitat designated as critical to the survival and recovery of any such species.

Based on the Information Planning and Consultation (IPaC) tool for Endangered Species in Louisiana, as signed on January 27, 2020, between the U.S. Army Corps of Engineers, New Orleans and the U.S. Fish and Wildlife Service, it has been determined that the project would be not likely to adversely affect any species listed as endangered by the U.S. Fish and Wildlife Service, nor affect any habitat designated as critical to the survival and recovery of any such species. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the U.S. Fish and Wildlife Service.

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The applicant's proposal may result in the destruction, alteration, and/or disturbance of 8.78 acres of EFH utilized by various life stages of reef fish, red drum, coastal migratory pelagics, and penaeid shrimp. Our initial determination is that the proposed action would not have a substantial adverse impact on EFH or federally managed fisheries in the Gulf of Mexico. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service.

If the proposed work involves deposits of dredged or fill material into navigable waters, the evaluation of the probable impacts will include the application of guidelines established by the Administrator of the Environmental Protection Agency. Also, a certification that the proposed activity will not violate applicable water quality standards will be required from the LA Department of Environmental Quality before a Department of the Army permit is issued.

Any person may request, (preferably by email to the project manager, or in writing), within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

The applicant has certified that the proposed activity described in the application complies with and will be conducted in a manner that is consistent with the Louisiana Coastal Resources Program (Louisiana Coastal Zone Application P20230728). The Department of the Army permit will not be issued unless the applicant received approval or a waiver of the Coastal Use Permit by the Department of Natural Resources.

You are invited to communicate the information contained in this notice to any other parties whom you deem likely to have interest in the matter.

Brad P. LaBorde  
Chief, Eastern Evaluation Branch  
Regulatory Division

Enclosures

# LOWER TCHEFUNCTE RIVER BREAKWATER PROJECT

## ST. TAMMANY PARISH, LA PROJECT NO. DV2100012

### UTILITY AND GOVERNING

#### AUTHORITIES CONTACT LIST:

##### TELEPHONE:

AT&T  
72337 INDUSTRY PARK  
COVINGTON, LA 70435  
CONTACT: MR. NEAL JONES  
TELEPHONE: (985) 327-6437  
E-MAIL: nj8752@att.com

##### ELECTRIC:

CLECO  
2900 E. CAUSEWAY APPROACH  
MANDEVILLE, LA 70448  
CONTACT: MR. JOE DILORENZO  
TELEPHONE: (985) 624-3236  
E-MAIL: joseph.dilorenzo@cleco.com

##### ELECTRIC:

WASHINGTON  
ST. TAMMANY ELECTRIC  
2081 EAST GAUSE BOULEVARD  
SLIDELL, LA 70459  
CONTACT: MR. JOHN BRUHL  
TELEPHONE: (985) 807-6975  
E-MAIL: jbruhl@wste.coop

##### CABLE:

SPECTRUM/CHARTER  
60097 HIGHWAY 11  
SLIDELL, LA 70458  
CONTACT: MR. KEVIN DAVID  
TELEPHONE: (985) 285-4702  
E-MAIL: kevin.david@charter.com

##### PARISH CONTACT:

ST. TAMMANY PARISH,  
ENGINEERING DEPARTMENT  
21415 KOOP DRIVE  
MANDEVILLE, LA 70471  
CONTACT: MS. LAURA GATLIN, PMP  
TELEPHONE: (985) 898-2552  
E-MAIL: lcbeach@stpgov.org

##### GAS:

ATMOS ENERGY  
68388 COMPASS WAY E.  
MANDEVILLE, LA 70471  
CONTACT: MR. KENNETH GLASS  
TELEPHONE: (985) 276-6003  
E-MAIL: kenneth.glass@atmosenergy.com

#### CONSULTANT CONTACT LIST:


DIGITAL ENGINEERING & IMAGING, INC.  
CHASE CENTER, 3500 HIGHWAY 190, SUITE 201  
MANDEVILLE, LA. 70471  
CONTACT: VICTORIA JAYE, P.E.  
TELEPHONE: (985) 334-4131  
EMAIL: VJAYE@DEII.NET

#### PARISH PRESIDENT

MICHAEL B. COOPER

#### PARISH COUNCIL MEMBERS

DISTRICT 1	MARTY DEAN
DISTRICT 2	DAVID R. FITZGERALD
DISTRICT 3	MARTHA J. CAZAUBON
DISTRICT 4	MICHAEL LORINO, JR.
DISTRICT 5	RYKERT O. TOLEDANO, JR.
DISTRICT 6	CHERYL TANNER
DISTRICT 7	JAMES J. DAVIS
DISTRICT 8	CHRIS CANULETTE
DISTRICT 9	MIKE M. SMITH
DISTRICT 10	MAUREEN "MO" O'BRIEN
DISTRICT 11	ARTHUR LAUGHLIN
DISTRICT 12	JERRY BINDER
DISTRICT 13	JAKE A. AIREY
DISTRICT 14	RON RANDOLPH

 Louisiana  
**One Call before you dig.**  
1-800-272-3020



#### VICINITY MAP

PROJECT CLASSIFICATION:  
HEAVY CONSTRUCTION OR DREDGING

GRAPHIC SCALE

GRAPHIC SCALE

#### SHEET INDEX

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26	CROSS SECTIONS

PLANS PREPARED AND SUBMITTED BY:

VICTORIA M. JAYE, P.E. DATE  
DIGITAL ENGINEERING & IMAGING INC.

APPROVED BY:

DANIEL HILL, P.E. DATE  
DIRECTOR OF ENGINEERING  
ST. TAMMANY PARISH

**PERMIT SET**

REVISION						LOWER TCHEFUNCTE RIVER BREAKWATER PROJECT ST. TAMMANY, LOUISIANA	TITLE SHEET		
REVISION	DATE	DESCRIPTION	BY				SHEET	SHEET NUMBER	DATE
							1	1 of 26	SEPT. 1, 2023

## GENERAL NOTES:

- PROJECT SITE IS NOT ACCESSIBLE BY LAND. CONTRACTOR SHALL ACCESS THE SITE FROM A NAVIGABLE WATERBODY. DREDGING FOR SITE ACCESS SHALL BE LIMITED TO THE LIMITS SHOWN FOR TEMPORARY ACCESS AND FLOTATION CHANNELS IN THESE DRAWINGS. CONTRACTOR MAY USE MADISONVILLE BOAT LAUNCH FOR ACCESS.
- SURVEY INFORMATION WAS PROVIDED BY T. BAKER SMITH, LLC BASED ON FIELD WORK CONDUCTED DURING JANUARY 2022. OTHER UNIDENTIFIED ANOMALIES AND OBSTRUCTIONS MAY EXIST. CONTRACTOR SHALL PERFORM A PRE-CONSTRUCTION HAZARD SURVEY AND LOCATE ALL UTILITIES AND OBSTRUCTIONS BEFORE STARTING WORK. REFER TO APPENDIX A IN THE SPECIFICATIONS FOR ADDITIONAL SURVEY INFORMATION. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS BEFORE STARTING CONSTRUCTION ACTIVITIES. DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO ENGINEER.
- EXISTING UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING PIPELINE/UTILITY OPERATORS AND LOUISIANA ONE CALL (1-800-272-3020) AT LEAST (5) WORKING DAYS BEFORE MOBILIZATION. ALL PIPELINES AND UNDERGROUND UTILITIES SHALL BE MARKED BY CONTRACTOR. CONTRACTOR SHALL MAINTAIN MARKERS DURING CONSTRUCTION. CONTRACTOR SHALL NOT ANCHOR, SPUD, PLACE MATERIAL OR EXCAVATE WITHIN 100 FT OF ANY PIPELINE. CONTRACTOR SHALL COORDINATE WITH OWNERS OF EXISTING PIPELINES BEFORE WORKING AROUND OR OVER SUCH PIPELINES.
- PROJECT IS WITHIN AND ADJACENT TO ENVIRONMENTALLY & ARCHAEOLOGICAL SENSITIVE AREAS. CONTRACTOR SHALL AVOID IMPACTS TO THESE AREAS DURING THE COURSE OF WORK. OWNER RESERVES THE RIGHT TO SUSPEND WORK AT ANY TIME IF IMPACTS OCCUR UNTIL SATISFACTORY CORRECTIVE MEASURES ARE IMPLEMENTED BY CONTRACTOR. REFER TO SPECIFICATION SECTION TS-3 "ENVIRONMENTAL PROTECTION MEASURES," FOR ADDITIONAL REQUIREMENTS, INCLUDING CONDITIONS TO AVOID IMPACTS TO MANATEES, STURGEON, AND EXISTING VEGETATION.
- CONTRACTOR SHALL BE FAMILIAR WITH AND ANTICIPATE EXISTING SOFT SOIL CONDITIONS AT THE WORK SITE. SOIL INVESTIGATION DATA WERE ACQUIRED BY THE BETA GROUP, LLC. AND PRESENTED IN SOIL BORING LOGS (REFER TO APPENDIX IN SPECIFICATIONS). IN PREPARING BIDS, CONTRACTOR SHALL ANTICIPATE CONSTRUCTION SETTLEMENTS OF UP TO 12 IN.
- CONTRACTOR SHALL BE AWARE OF SUBMERGED LOGS, FALLEN TREES, AND STUMPS (I.E., "NATURAL TIMBER DEBRIS") ALONG THE LAKE BOTTOM WITHIN THE PROJECT AREA. CONTRACTOR SHALL LOCATE AND REMOVE SUCH DEBRIS AS REQUIRED TO COMPLETE THE WORK. AFTER REMOVAL, NATURAL TIMBER DEBRIS SHALL BECOME PROPERTY OF CONTRACTOR AND BE DISPOSED OFFSITE IN ACCORDANCE B WITH APPLICABLE LAWS/ORDINANCES.
- CONTRACTOR SHALL TAKE PRECAUTIONS, SECURE EQUIPMENT, AND PROTECT THE WORK AGAINST ADVERSE WEATHER, MARINE CONDITIONS, AND SURGE/WAKE FROM PASSING VESSELS.
- THE LIMITS OF BREAKWATER CONSTRUCTION SHALL BE STAKED BY THE CONTRACTOR FOR CONCURRENCE BY THE ENGINEER BEFORE STARTING CONSTRUCTION. REFER TO SPECIFICATION SECTION TS-2 "CONSTRUCTION SURVEYING."
- CONTRACTOR SHALL MAKE OWN ARRANGEMENTS, OBTAIN PERMISSION FROM APPLICABLE PROPERTY OWNERS AND PAY ALL ASSOCIATED FEES FOR EQUIPMENT STAGING, MATERIAL FABRICATION, AND LOADING BARGES ON PRIVATE PROPERTY.
- WATER DEPTHS VARY AND MAY NOT ACCOMMODATE DRAFT OF FULLY-LOADED BARGES. PROVISIONS SHALL BE MADE TO ACCESS SHALLOWER AREAS THROUGH USE OF LIGHT-LOADED BARGES OR OTHER EQUIPMENT SUITED TO SHALLOWER WATER.
- AT CONTRACTOR'S OPTION, TEMPORARY ACCESS AND FLOTATION CHANNELS MAY BE DREDGED (VIA MECHANICAL SIDECASTING) TO FACILITATE ACCESS BY DEEPER DRAFT BARGES. STOCKPILES OF SIDECAST MATERIAL SHALL BE MARKED WITH TEMPORARY WARNING SIGNS AS SHOWN. NATURAL TIMBER DEBRIS SHALL BE RELOCATED AS DESCRIBED IN NOTE 6. UPON COMPLETION OF THE WORK, ACCESS AND FLOTATION CHANNELS SHALL BE BACKFILLED AND TEMPORARY WARNING SIGNS SHALL BE REMOVED. HYDRAULIC DREDGING OF FLOTATION CHANNEL IS NOT ALLOWED.
- CONTRACTOR SHALL STAKE LOCATIONS OF ALL PERMANENT WARNING SIGNS FOR APPROVAL BY ENGINEER BEFORE INSTALLATION.

## SURVEY NOTES:

- ALL ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) GEOID 12B IN U.S. SURVEY FEET (FEET). ALL HORIZONTAL COORDINATES ARE REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83), LOUISIANA STATE PLANE GRID COORDINATE SYSTEM (1702) SOUTH ZONE, IN FEET.
- MONUMENTS USED FOR HORIZONTAL/VERTICAL CONTROL:

PROJECT REFERENCE CONTROL COORDINATE LISTING			
POINT	NORTHING	EASTING	ELEVATION
10000060	685126.813	3650522.423	1.2260
- SURVEY CONTROL EMPLOYED DURING CONSTRUCTION SHALL MATCH CONTROL PUBLISHED IN THESE CONTRACT DOCUMENTS. NO OTHER SURVEY CONTROL SHALL BE CONSIDERED WITHOUT PRIOR WRITTEN APPROVAL FROM ENGINEER. TO MAINTAIN CONSISTENCY BETWEEN PROJECT DESIGN AND CONSTRUCTED WORK, UPDATES, CORRECTIONS OR OTHER CHANGES PUBLISHED BY NATIONAL GEODETIC SURVEY OR OTHER ENTITIES FOR THESE CONTROL MONUMENTS SHALL NOT BE APPLIED WITHOUT PRIOR APPROVAL FROM ENGINEER.
- EXCEPT AS NOTED OTHERWISE, SPOT ELEVATIONS AND SURVEY TRANSECTS ARE BASED ON SURVEYS CONDUCTED BY T. BAKER SMITH, LLC. IN JANUARY 2022.
- CONDITIONS AND ACCURACY OF SURVEY CONTROL MONUMENTS ARE NOT GUARANTEED. CONTRACTOR SHALL VERIFY ACCURACY OF SURVEY CONTROL MONUMENTS BEFORE CONSTRUCTION. IMMEDIATELY REPORT ANY DISCREPANCIES TO ENGINEER

## LEGEND & ABBREVIATIONS:

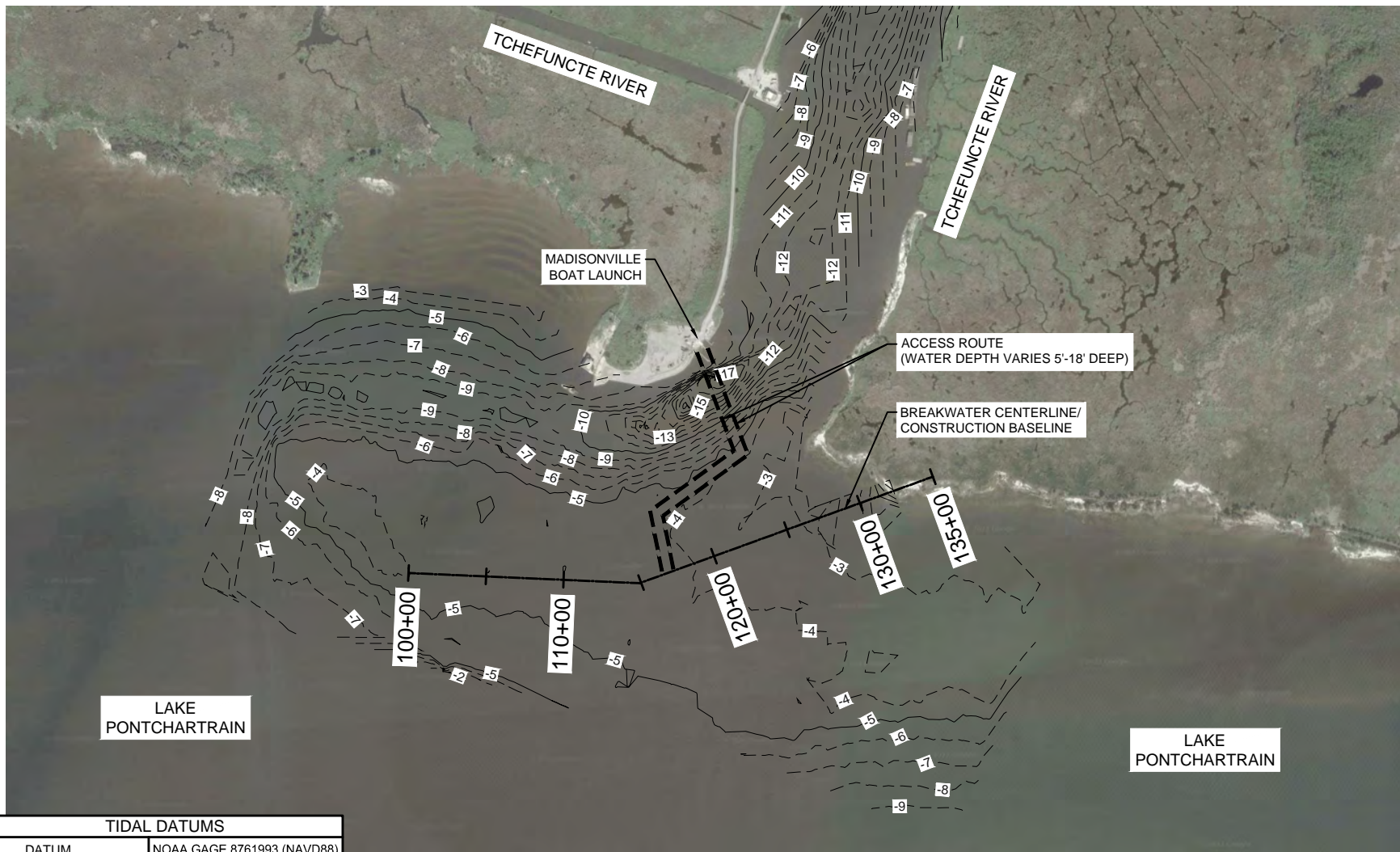
	CONSTRUCTION BASELINE		SURVEY CONTROL POINT
	PARISH LINE		SOIL BORING
	LIMITS OF CONSTRUCTION		UNIDENTIFIED MAGNETIC ANOMALY
	PROPOSED BREAKWATER FOOTPRINT		EXISTING ELEVATION, FT
	LIGHTED DAYBEACON		BREAKWATER ALIGNMENT POINT
	TEMPORARY WARNING SIGN		CENTERLINE
	SETTLEMENT PLATE (SP)		DETAIL
	EXISTING MAJOR CONTOUR		EAST, EASTING
	EXISTING MINOR CONTOUR		ELEVATION
	APPROXIMATE LOCATION OF EXISTING PIPELINE		FEET
	APPROXIMATE LOCATION OF EXISTING OVERHEAD UTILITY		HOT-DIPPED GALVANIZED
	FLOTATION CHANNEL		GRADED RIPRAP
	TEMPORARY STOCKPILE		MEAN HIGH WATER
	ARMOR STONE		MEAN TIDE LEVEL
	EXISTING GROUND / EARTHEN MATERIAL		MAXIMUM
	GEOTEXTILE COMPOSITE		MINIMUM

TIDAL DATUMS	
DATUM	NOAA GAGE 8761993 (NAVD88)
MEAN HIGH WATER (MHW)	+1.37
MEAN TIDE LEVEL (MTL)	+1.08
MEAN LOW WATER (MLW)	+0.79

PERMIT SET

								LOWER TCHEFUNCTE RIVER BREAKWATER PROJECT ST. TAMMANY, LOUISIANA		GENERAL NOTES AND LEGEND		
REVISION	DATE	DESCRIPTION	BY							SHEET	SHEET NUMBER	DATE
										2	2 of 26	SEPT. 1, 2023





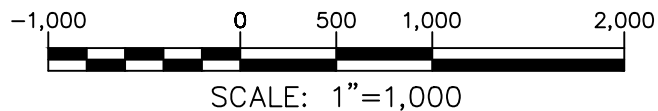
LAKE  
PONTCHARTRAIN

LAKE  
PONTCHARTRAIN

TIDAL DATUMS	
DATUM	NOAA GAGE 8761993 (NAVD88)
MEAN HIGH WATER (MHW)	+1.37
MEAN TIDE LEVEL (MTL)	+1.08
MEAN LOW WATER (MLW)	+0.79

## OVERALL EXISTING SITE PLAN

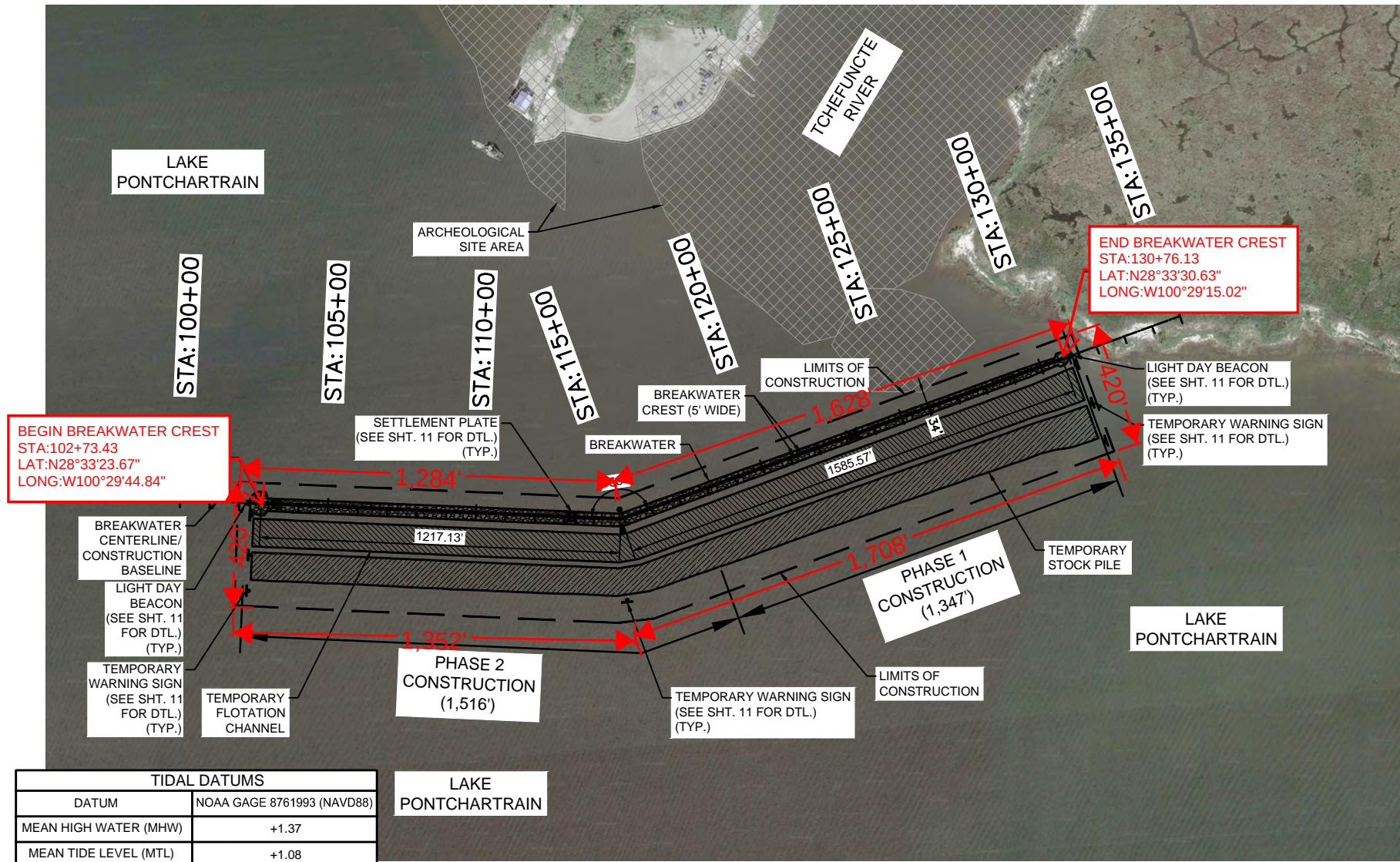
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**PERMIT SET**

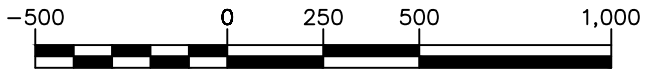
REVISION	DATE	DESCRIPTION	BY		 DIGITAL ENGINEERING & IMAGING, INC. CHASE CENTER, 3500 HWY 190, SUITE 201 MANDEVILLE LA, 70471 PH. (985) 334-4131	LOWER TCHEFUNCTE RIVER BREAKWATER PROJECT ST. TAMMANY, LOUISIANA			OVERALL EXISTING SITE PLAN		
						SHEET	SHEET NUMBER	DATE			
						3	3 of 26	SEPT. 1, 2023			





TIDAL DATUMS	
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LAKE  
PONTCHARTRAIN



SCALE: 1"=500'

# OVERALL SITE PLAN

SCALE: 1"=500"

PERMIT SET

REVISION	DATE	DESCRIPTION	BY

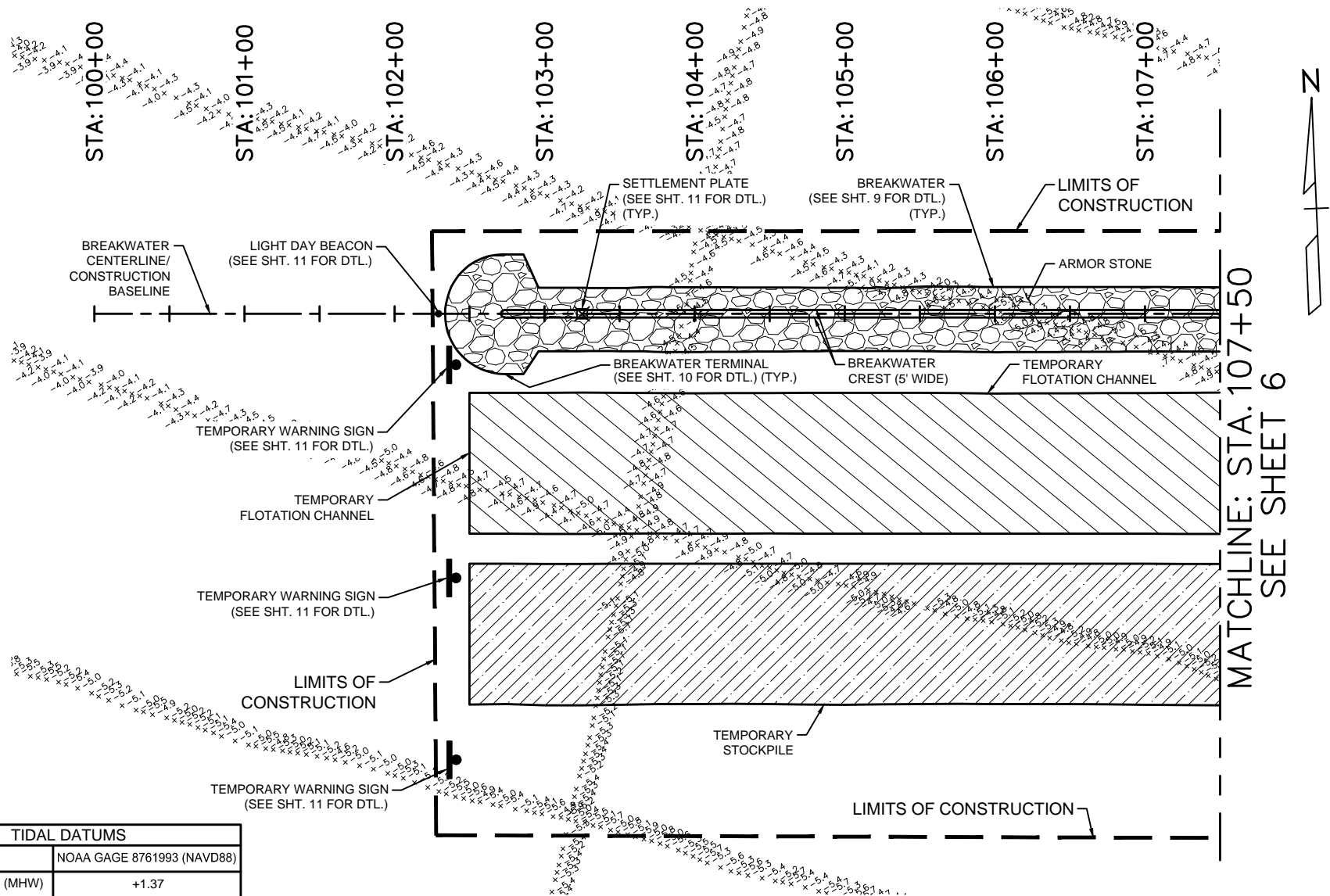


**digital  
engineering**

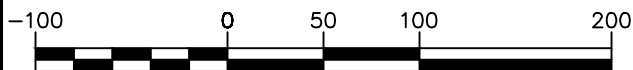
DIGITAL ENGINEERING & IMAGING, INC.  
CHASE CENTER, 3500 HWY 190, SUITE 201  
MANDERVILLE LA, 70471 PH. (985) 334-4131

LOWER TCHEFUNCTE RIVER  
BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

OVERALL PROJECT LAYOUT PLAN		
SHEET	SHEET NUMBER	DATE
4	4 of 26	SEPT. 1, 2023



TIDAL DATUMS	
DATUM	NOAA GAGE 8761993 (NAVD88)
MEAN HIGH WATER (MHW)	+1.37
MEAN TIDE LEVEL (MTL)	+1.08
MEAN LOW WATER (MLW)	+0.79



SCALE: 1"=100'

## ENLARGED PROJECT LAYOUT PLAN

SCALE: 1"=100"

**PERMIT SET**

REVISION	DATE	DESCRIPTION	BY



**digital engineering**  
DIGITAL ENGINEERING & IMAGING, INC.  
CHASE CENTER, 3500 HWY 190, SUITE 201  
MANDERLIE LA, 70471 PH. (985) 334-4131

LOWER TCHEFUNCTE RIVER  
BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

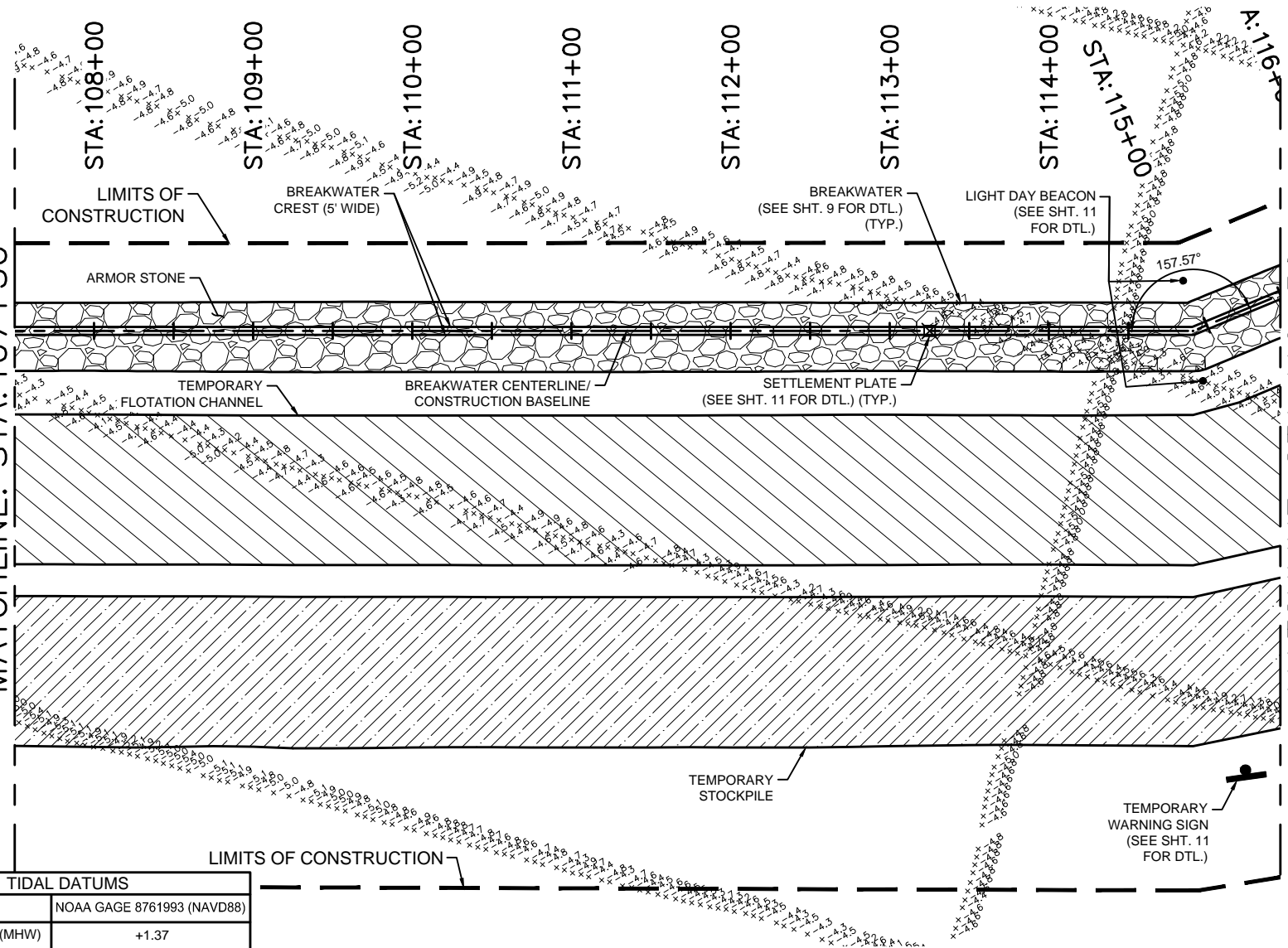
ENLARGED - PROJECT  
LAYOUT PLAN

SHEET	SHEET NUMBER	DATE
5	5 of 26	SEPT. 1, 2023



SEE SHEET 5  
MATCHLINE: STA. 107+50

MATCHLINE: STA. 116+50  
SEE SHEET 7



TIDAL DATUMS	
DATUM	NOAA GAGE 8761993 (NAVD88)
MEAN HIGH WATER (MHW)	+1.37
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SCALE: 1"=100'

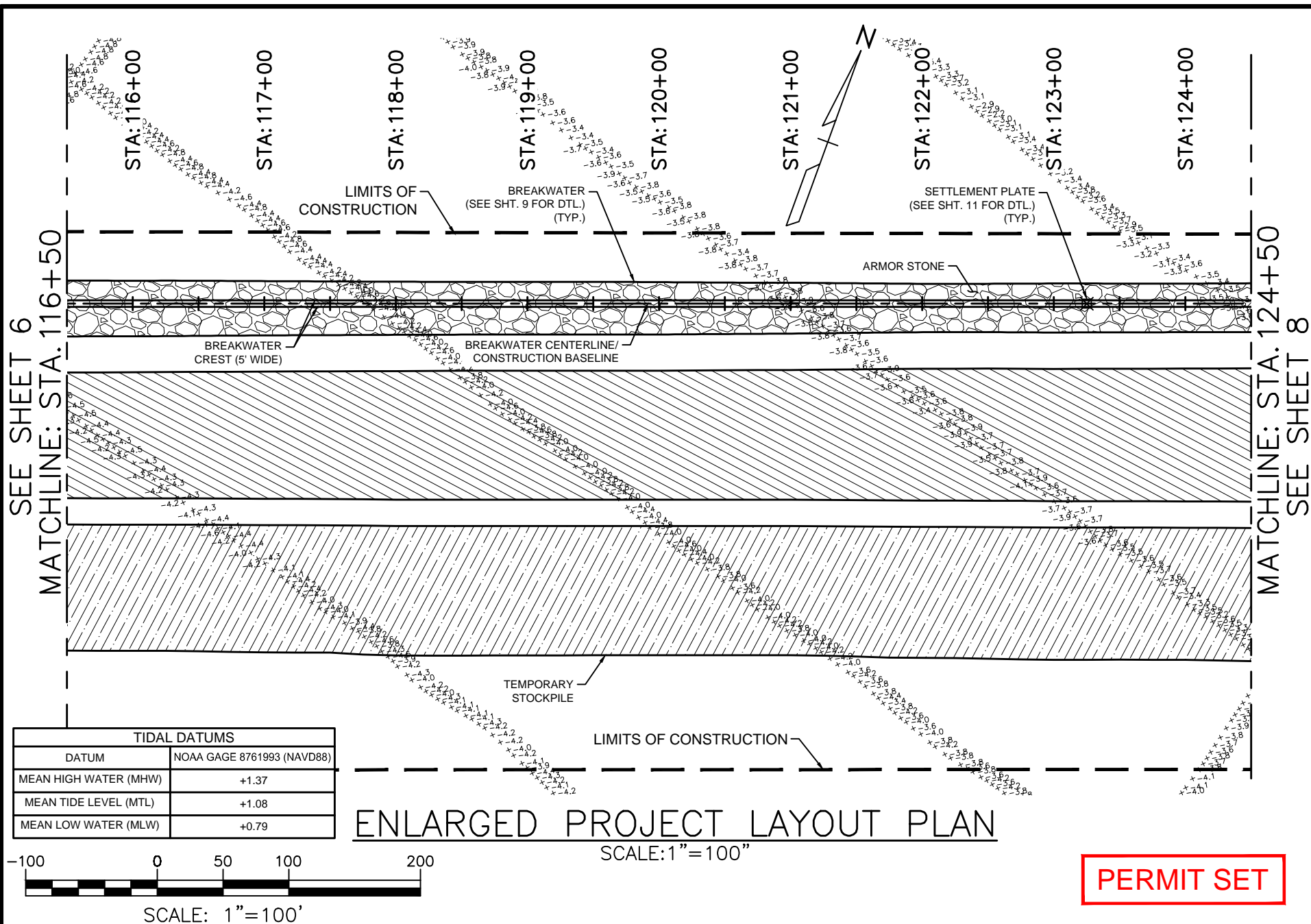
## ENLARGED PROJECT LAYOUT PLAN

SCALE: 1"=100"

**PERMIT SET**

					 DIGITAL ENGINEERING & IMAGING, INC. CHASE CENTER, 3500 HWY 190, SUITE 201 MANDEVILLE LA, 70471 PH. (985) 334-4131	LOWER TCHEFUNCTE RIVER BREAKWATER PROJECT ST. TAMMANY, LOUISIANA	ENLARGED - PROJECT LAYOUT PLAN		
REVISION	DATE	DESCRIPTION	BY				SHEET	SHEET NUMBER	DATE
							6	6 of 26	SEPT. 1, 2023





REVISION	DATE	DESCRIPTION	BY

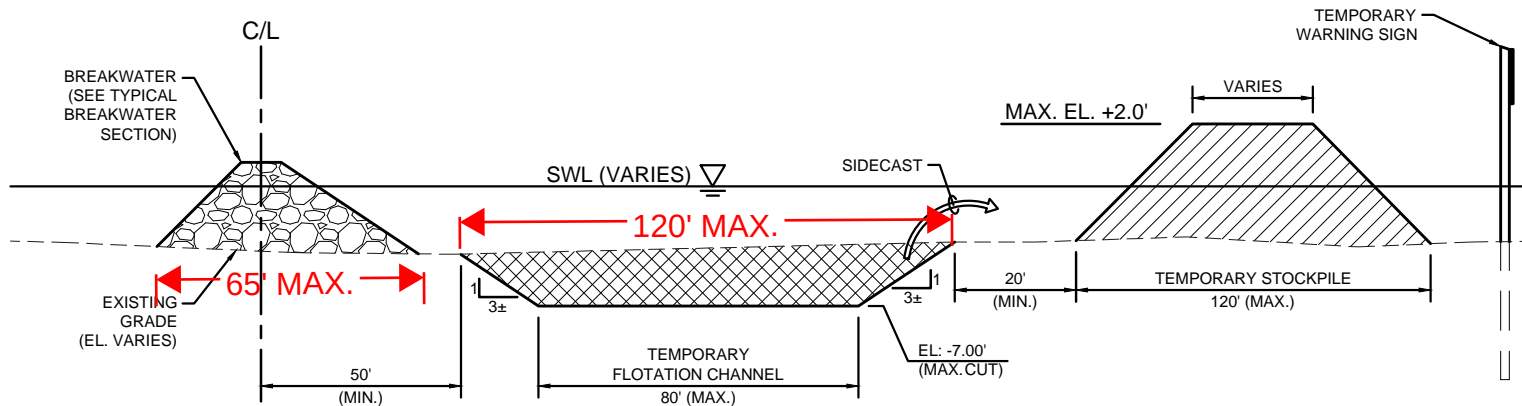


**digital  
engineering**  
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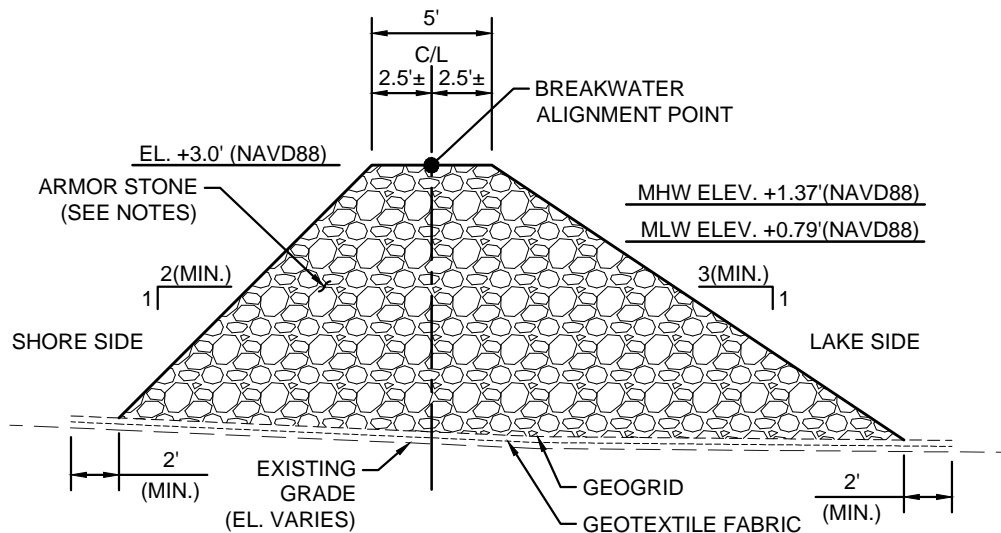
LOWER TCHEFUNCTE RIVER  
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ST. TAMMANY, LOUISIANA

ENLARGED - PROJECT LAYOUT PLAN		
SHEET	SHEET NUMBER	DATE
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**TYPICAL SECTION – BREAKWATER  
TEMPORARY FLOTATION CHANNEL**  
N.T.S.



**TYPICAL BREAKWATER SECTION**  
N.T.S.

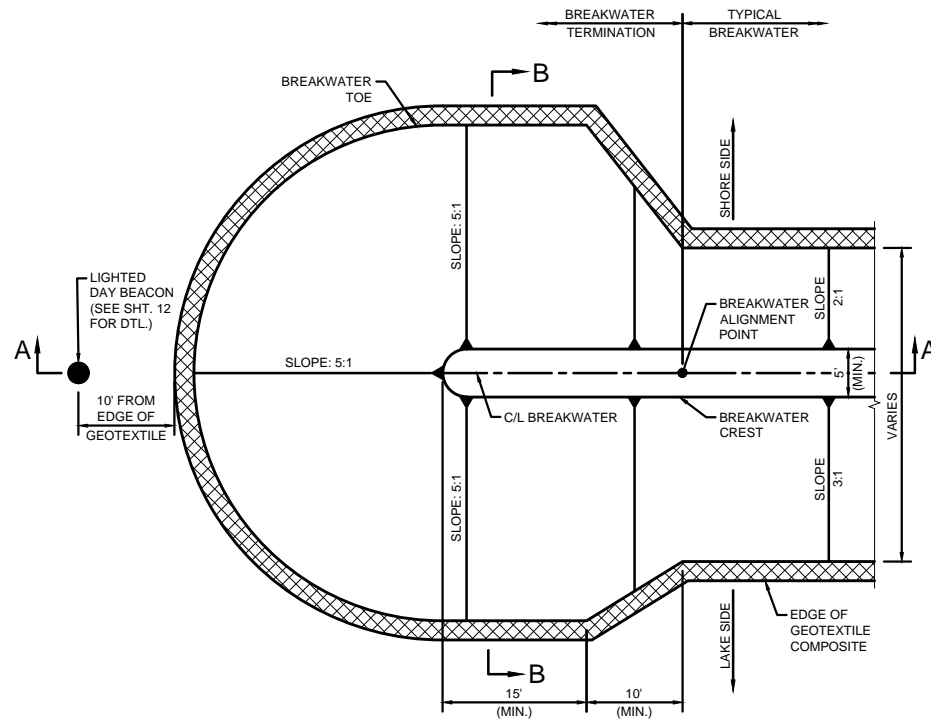
**ARMOR STONE NOTES:**

1. UNLESS OTHERWISE NOTED, PLACEMENT TOLERANCES WITH RESPECT TO FINISHED ELEVATIONS OF ARMOR STONE SHALL BE PLUS OR MINUS 0.3 FT.
2. ARMOR STONE PLACEMENT SHALL MAXIMIZE CONTACT BETWEEN INDIVIDUAL STONES ON ALL SIDES WITH EACH STONE HAVING AT LEAST THREE POINTS OF CONTACT WITH OTHER STONES.
3. DUE TO SOFT FOUNDATION SOILS, CONTRACTOR SHALL ANTICIPATE SETTLEMENT OF BREAKWATER DURING CONSTRUCTION. ACTUAL INSTANTANEOUS SETTLEMENTS MAY VARY. EXCAVATION OF BREAKWATER SUBGRADE IS NOT ALLOWED.
4. EXISTING BOTTOM CONSISTS OF SOFT SOILS. SOIL DISPLACEMENT MAY OCCUR UPON PLACEMENT OF ARMOR STONE. CONTRACTOR SHALL USE DROP HEIGHTS OF NO GREATER THAN ONE FOOT AND EMPLOY OTHER PLACEMENT TECHNIQUES TO HELP PREVENT DAMAGE TO UNDERLYING GEOTEXTILES. UNDERLYING GEOTEXTILE COMPOSITE SHALL EXTEND A MINIMUM OF 2 FT. BEYOND EDGE OF ARMOR STONE BEFORE SETTLEMENT. CONTRACTOR SHALL CONSIDER OTHER METHODS OF MINIMIZING SOIL DISPLACEMENT SUCH AS TACKING THE EDGES OF THE GEOTEXTILE COMPOSITE WITH ARMOR STONE BEFORE LOADING CENTRAL PORTIONS. ADJACENT SHEETS OF GEOGRID COMPOSITE SHALL OVERLAP A MINIMUM OF 3 FEET.
5. NATURAL TIMBER DEBRIS WITHIN BREAKWATER FOOTPRINT SHALL BE CLEARED/CUT/REMOVED TO WITHIN ± SIX (6) INCHES OF EXISTING GRADE TO ALLOW FOR A SMOOTH SURFACE BEFORE PLACING GEOTEXTILE COMPOSITE. VOIDS IN EXISTING GRADE CREATED BY REMOVAL OF SUCH NATURAL TIMBER DEBRIS SHALL BE LIMITED TO SIX (6) INCHES (MAX.) BELOW EXISTING GRADE.
6. REFER TO SPECIFICATION SECTION TS-6, "ARMOR STONE".
7. SUBGRADE BENEATH BREAKWATER SHALL BE PREPARED IN ACCORDANCE WITH SPECIFICATION SECTION TS-5, "GEOTEXTILES".
8. ARMOR STONE GRADATION SHALL BE LA DOTD 440 LB. MODIFIED, SEE SPECIFICATION SECTION TS-6.

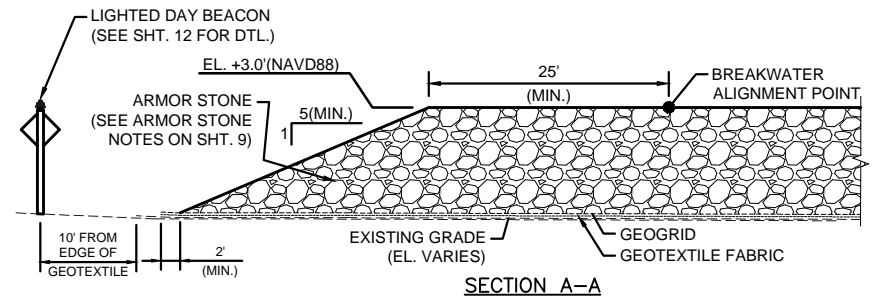
**PERMIT SET**

					 <b>digital engineering</b> DIGITAL ENGINEERING & IMAGING, INC. CHASE CENTER, 3500 HWY 190, SUITE 201 MANDEVILLE, LA, 70471 PH. (985) 334-4131	LOWER TCHEFUNCTE RIVER BREAKWATER PROJECT ST. TAMMANY, LOUISIANA	SECTIONS AND DETAILS		
REVISION	DATE	DESCRIPTION	BY				SHEET	SHEET NUMBER	DATE
					9	9 of 26	SEPT. 1, 2023		

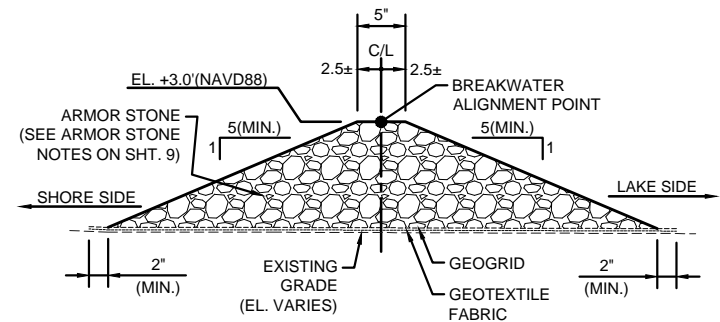




PLAN



SECTION A-A

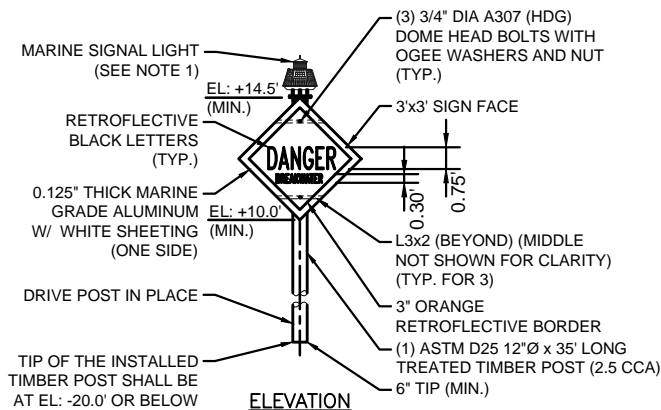


SECTION B-B

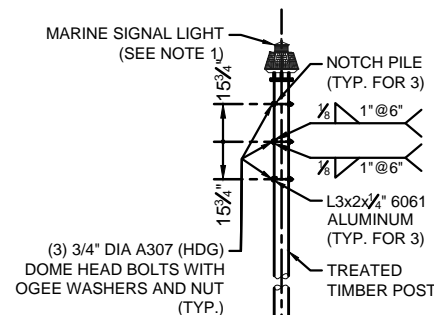
TYPICAL BREAKWATER TERMINAL DETAIL  
N.T.S.

PERMIT SET

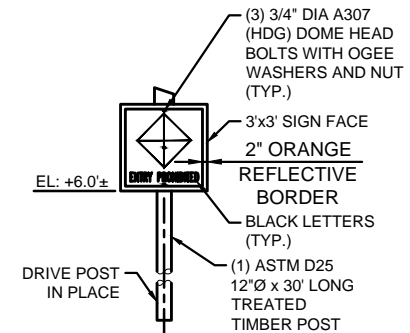
					 DIGITAL ENGINEERING & IMAGING, INC. CHASE CENTER, 3500 HWY 190, SUITE 201 MANDEVILLE LA, 70471 PH. (985) 334-4131	LOWER TCHEFUNCTE RIVER BREAKWATER PROJECT ST. TAMMANY, LOUISIANA	SECTIONS AND DETAILS		
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**LIGHTED DAYBEACON DETAIL**  
N.T.S.



**SIDE**



**TEMPORARY WARNING SIGN DETAIL**  
N.T.S.

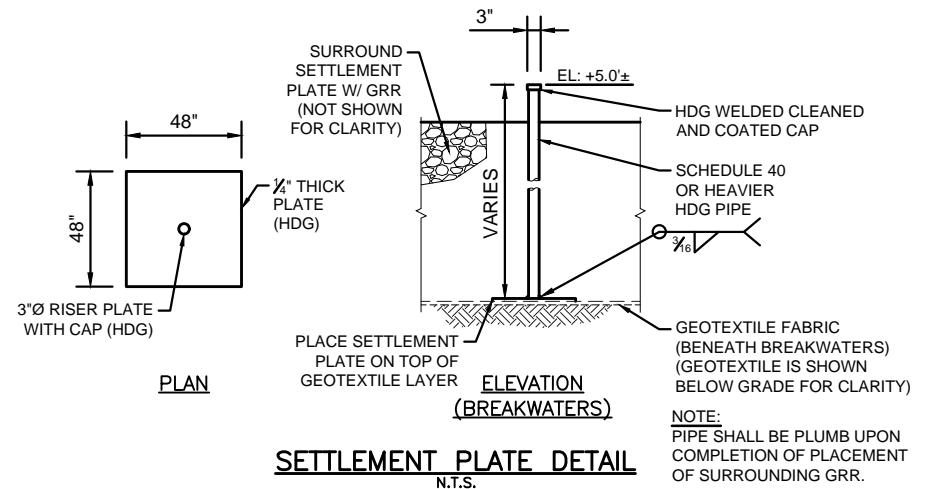
**NOTES:**

1. MARINE SIGNAL LIGHT SHALL BE PMAPI-SC35 MEDIUM INTENSITY LED MARINE LANTERN, INC. (MANUFACTURED BY PHAROS MARINE AUTOMATIC POWER, 198 TECHNOLOGY LN, GRAY, LA. 70359, 985-223-8700) OR ENGINEER-APPROVED ALTERNATE. LIGHT SHALL MEET REQUIREMENTS OF 33 CFR FOR CLASS "C" STRUCTURES AND HAVE, AS MINIMUM, THE FOLLOWING PROPERTIES:

RANGE: 1 MILE  
COLOR: WHITE  
INTENSITY: 1 CANDELLA LED  
LENS: CLEAR  
SLOW FLASH: 2.5 SEC  
VISIBILITY: 360° HORIZON  
ELECTRICAL RATING: 12V, 0.25A  
PEDESTAL LENGTH: 2.0'±  
SOLAR MODULE: 10W

LIGHTED DAY BEACON AT THE EASTERN AND WESTERN END OF THE BREAKWATER AND SHALL HAVE A RED LENS. COORDINATE WITH OWNER/ENGINEER BEFORE PLACEMENT.

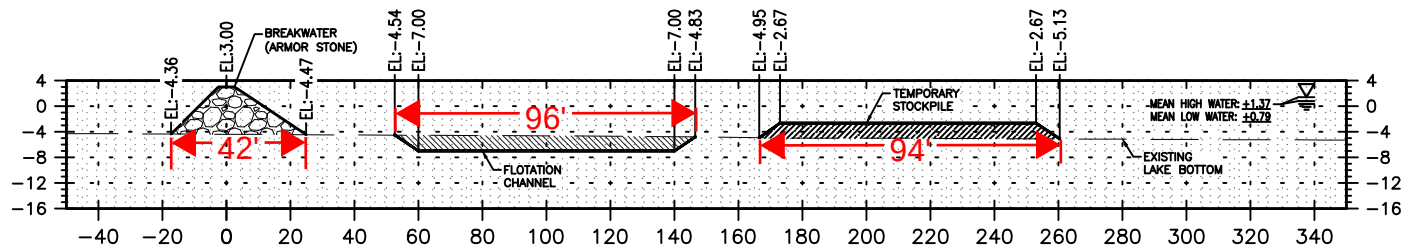
2. CONTRACTOR SHALL MAINTAIN TEMPORARY WARNING SIGNS UNTIL REMOVAL OF TEMPORARY STOCKPILES. REFER TO SPECIFICATION SECTION TS-7 "ACCESS AND FLOTATION CHANNEL" REGARDING PERMITS FOR TEMPORARY WARNING SIGNS.
3. ALL SIGN FACES SHALL BE ORIENTED TO FACE PREDOMINANT APPROACH DIRECTION OF ONCOMING BOAT TRAFFIC.
4. CONTRACTOR SHALL COORDINATE WITH U.S. COAST GUARD TO VERIFY REQUIREMENTS OF LIGHTED DAY BEACON AND WARNING SIGNS BEFORE INSTALLATION. ANY CHANGES SHALL BE COORDINATED WITH ENGINEER BEFORE INSTALLATION. REFER TO SPECIFICATION SECTION TS-8, "LIGHTED DAY BEACON," FOR ADDITIONAL REQUIREMENTS REGARDING LIGHTED DAY BEACON AND WARNING SIGNS.
5. SETTLEMENT PLATE LOCATIONS SHOWN ON SHEETS 4 - 9 ARE SCHEMATIC. SETTLEMENT PLATES SHALL BE PLACED ALONG BREAKWATER CENTERLINE (CENTERLINE OF BREAKWATER CREST). MAXIMUM SPACING OF SETTLEMENT PLATES SHALL BE 1,000 FEET. TOTAL NUMBER OF SETTLEMENT PLATES SHALL BE AS IDENTIFIED IN THE BID DOCUMENTS. CONTRACTOR SHALL PROVIDE SETTLEMENT PLATE COORDINATES TO ENGINEER FOR APPROVAL AT LEAST 14 DAYS BEFORE INSTALLATION.



**SETTLEMENT PLATE DETAIL**  
N.T.S.

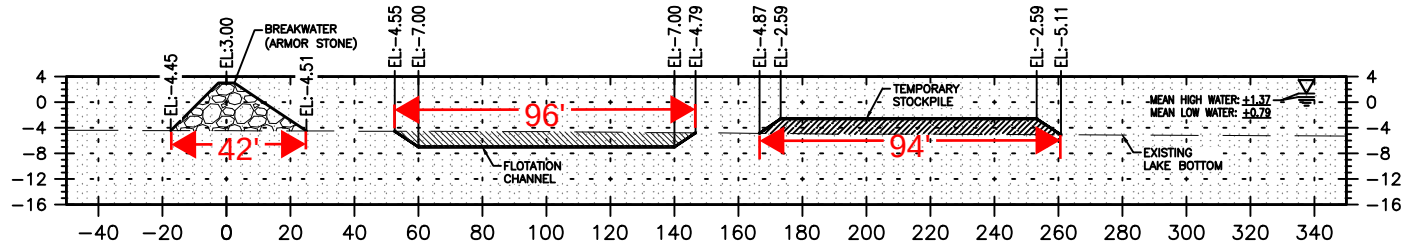
**PERMIT SET**

REVISION	DATE	DESCRIPTION	BY			<b>LOWER TCHEFUNCTE RIVER BREAKWATER PROJECT ST. TAMMANY, LOUISIANA</b>	<b>SECTIONS AND DETAILS</b>		
							SHEET	SHEET NUMBER	DATE
							11	11 of 26	SEPT. 1, 2023



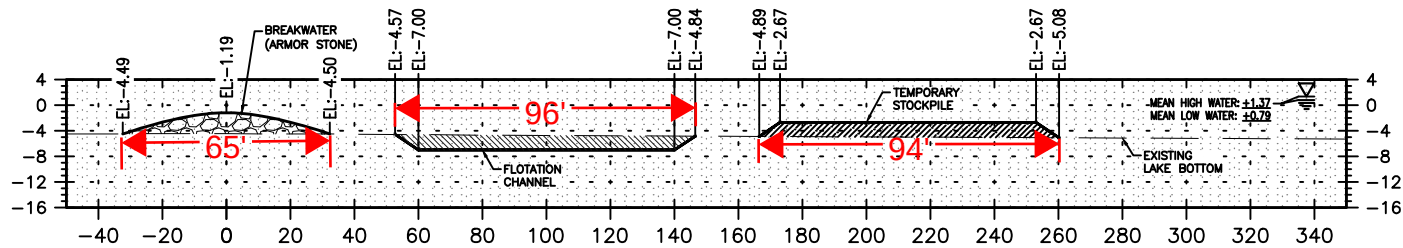
BREAKWATER BL  
STA. 103+50

ARMOR FILL: 326 CU. YDS.  
CHANNEL CUT: 379 CU. YDS.  
STOCKPILE FILL: 386 CU. YDS.



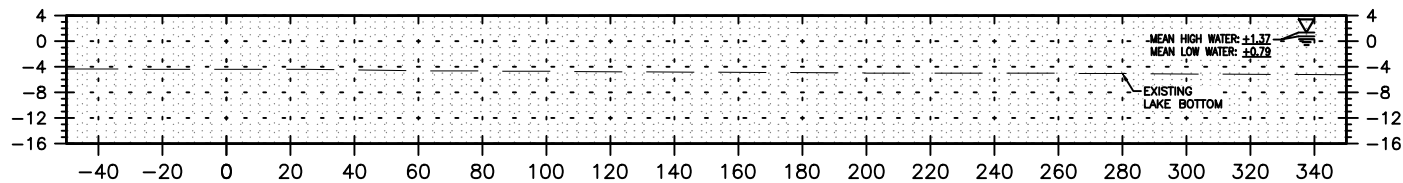
BREAKWATER BL  
STA. 103+00

ARMOR FILL: 288 CU. YDS.  
CHANNEL CUT: 374 CU. YDS.  
STOCKPILE FILL: 382 CU. YDS.



BREAKWATER BL  
STA. 102+50

ARMOR FILL: 123 CU. YDS.  
CHANNEL CUT: 184 CU. YDS.  
STOCKPILE FILL: 186 CU. YDS.



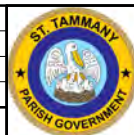
BREAKWATER BL  
STA. 102+00

ARMOR FILL: 0 CU. YDS.  
CHANNEL CUT: 0 CU. YDS.  
STOCKPILE FILL: 0 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

PERMIT SET

REVISION	DATE	DESCRIPTION	BY

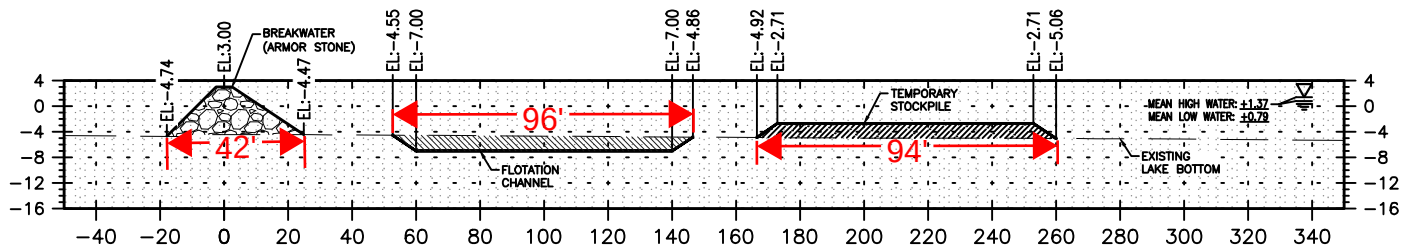


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LOWER TCHEFUNCTE RIVER  
BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

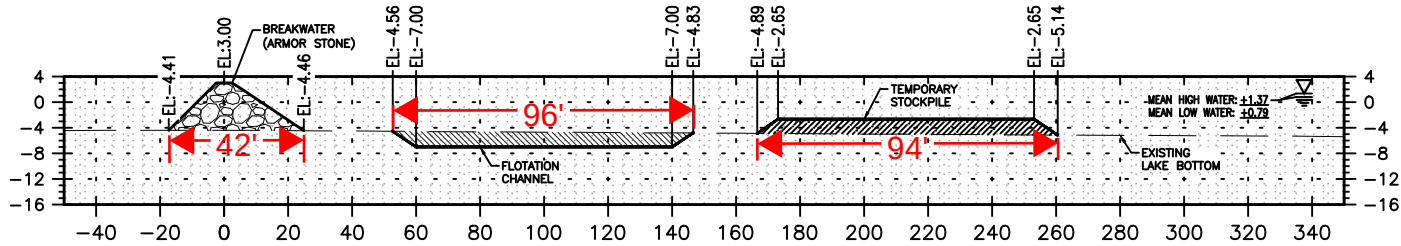
CROSS SECTIONS

SHEET	SHEET NUMBER	DATE
401	12 of 26	SEPT. 1, 2023



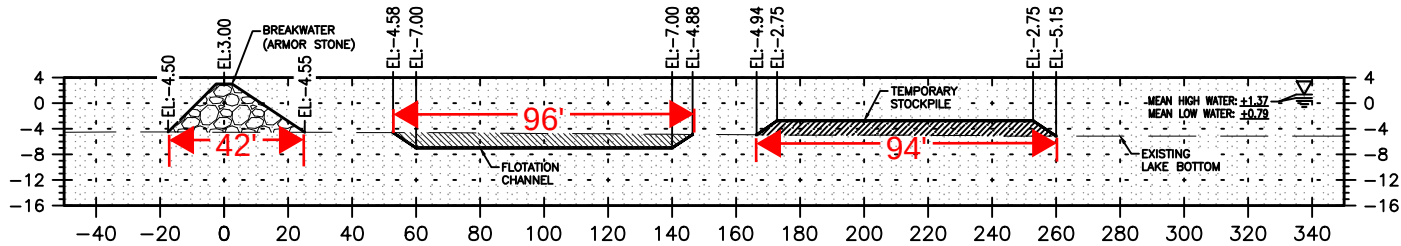
BREAKWATER BL  
STA. 105+50

ARMOR FILL: 327 CU. YDS.  
CHANNEL CUT: 371 CU. YDS.  
STOCKPILE FILL: 374 CU. YDS.



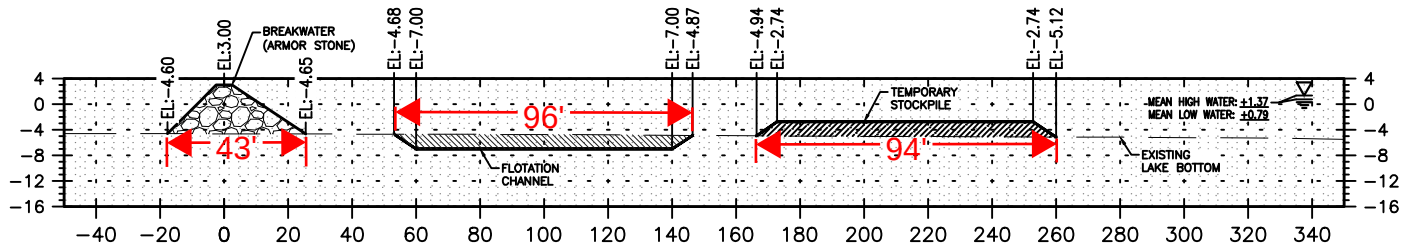
BREAKWATER BL  
STA. 105+00

ARMOR FILL: 328 CU. YDS.  
CHANNEL CUT: 370 CU. YDS.  
STOCKPILE FILL: 374 CU. YDS.



BREAKWATER BL  
STA. 104+50

ARMOR FILL: 336 CU. YDS.  
CHANNEL CUT: 365 CU. YDS.  
STOCKPILE FILL: 368 CU. YDS.



BREAKWATER BL  
STA. 104+00

ARMOR FILL: 332 CU. YDS.  
CHANNEL CUT: 370 CU. YDS.  
STOCKPILE FILL: 376 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

PERMIT SET

REVISION	DATE	DESCRIPTION	BY

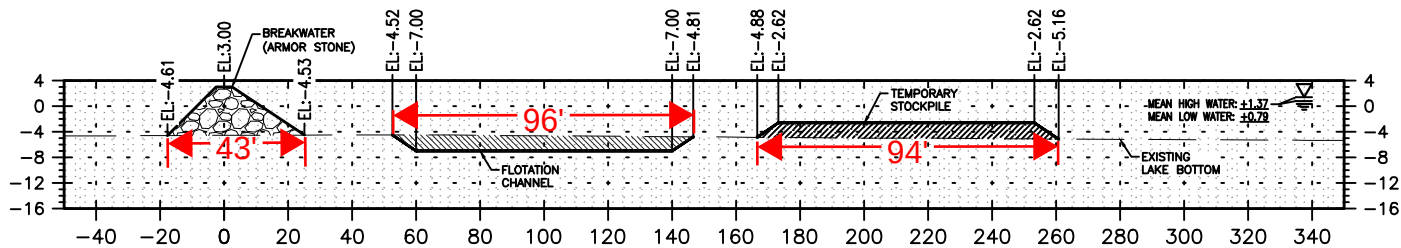


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LOWER TCHEFUNCTE RIVER  
BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

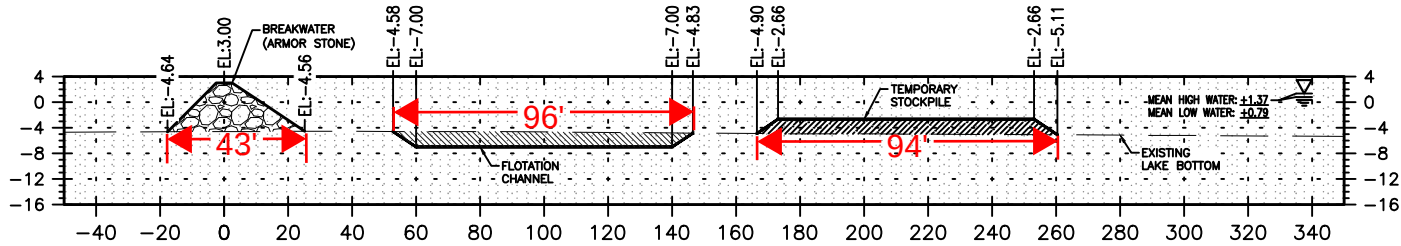
CROSS SECTIONS

SHEET	SHEET NUMBER	DATE
402	13 of 26	SEPT. 1, 2023



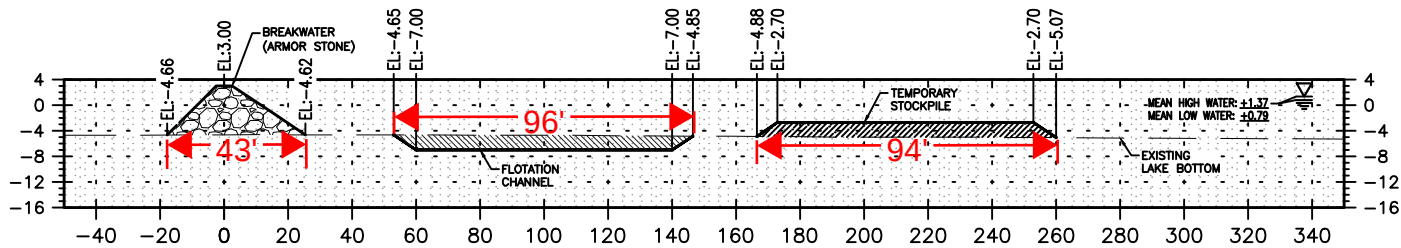
BREAKWATER BL  
STA. 107+50

ARMOR FILL: 337 CU. YDS.  
CHANNEL CUT: 378 CU. YDS.  
STOCKPILE FILL: 382 CU. YDS.



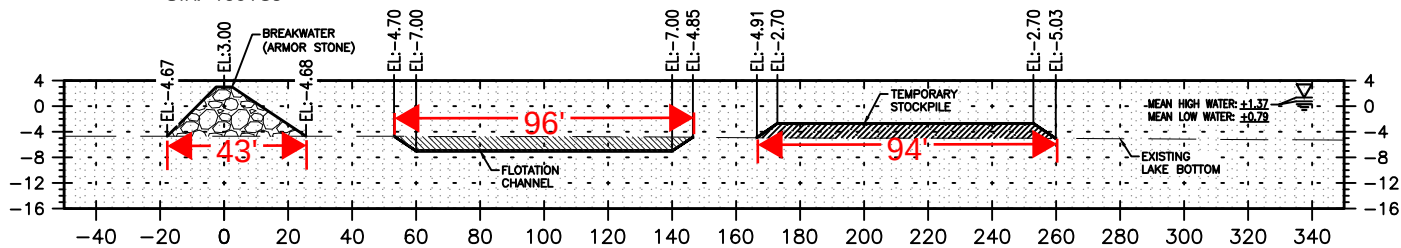
BREAKWATER BL  
STA. 107+00

ARMOR FILL: 339 CU. YDS.  
CHANNEL CUT: 371 CU. YDS.  
STOCKPILE FILL: 373 CU. YDS.



BREAKWATER BL  
STA. 106+50

ARMOR FILL: 342 CU. YDS.  
CHANNEL CUT: 364 CU. YDS.  
STOCKPILE FILL: 368 CU. YDS.



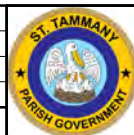
BREAKWATER BL  
STA. 106+00

ARMOR FILL: 337 CU. YDS.  
CHANNEL CUT: 366 CU. YDS.  
STOCKPILE FILL: 368 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

PERMIT SET

REVISION	DATE	DESCRIPTION	BY

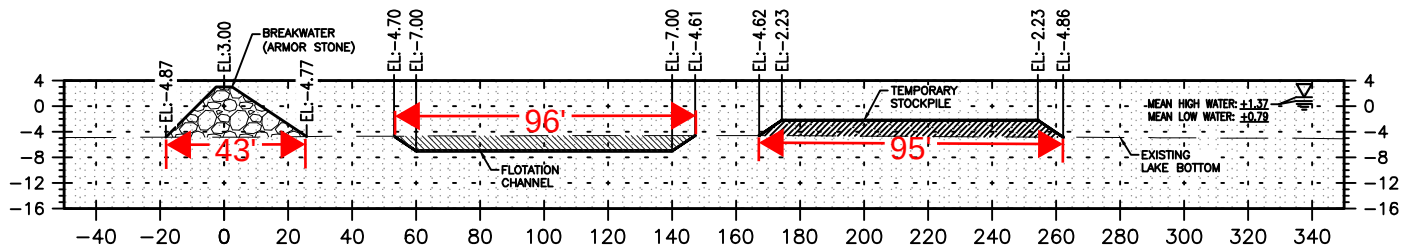


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LOWER TCHEFUNCTE RIVER  
BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

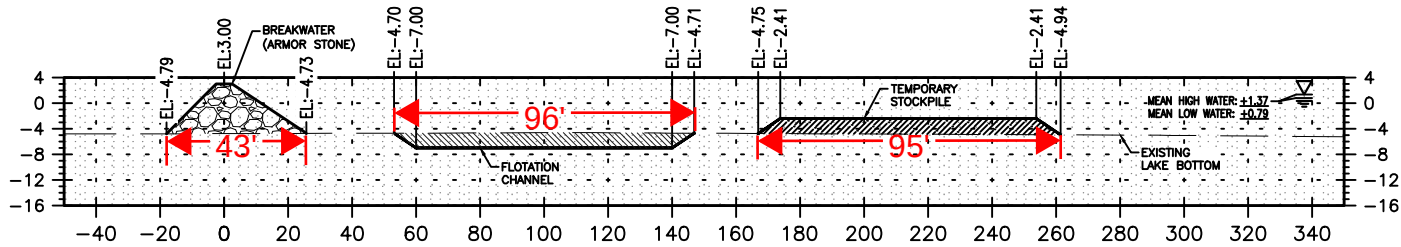
CROSS SECTIONS

SHEET	SHEET NUMBER	DATE
403	14 of 26	SEPT. 1, 2023



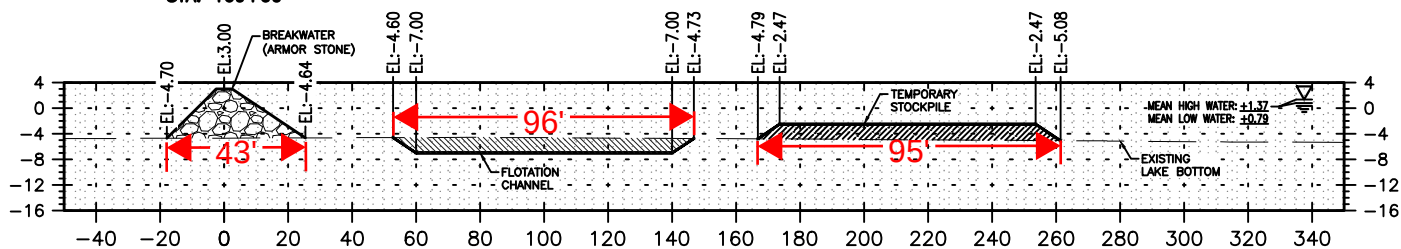
BREAKWATER BL  
STA. 109+50

ARMOR FILL: 354 CU. YDS.  
CHANNEL CUT: 380 CU. YDS.  
STOCKPILE FILL: 400 CU. YDS.



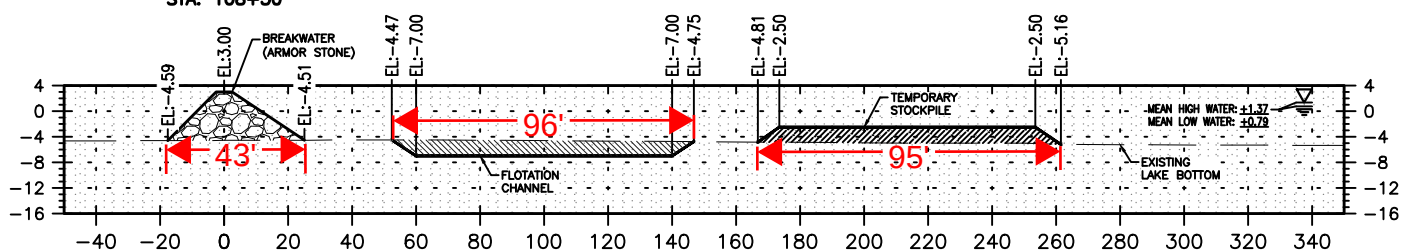
BREAKWATER BL  
STA. 109+00

ARMOR FILL: 348 CU. YDS.  
CHANNEL CUT: 381 CU. YDS.  
STOCKPILE FILL: 395 CU. YDS.



BREAKWATER BL  
STA. 108+50

ARMOR FILL: 339 CU. YDS.  
CHANNEL CUT: 386 CU. YDS.  
STOCKPILE FILL: 397 CU. YDS.



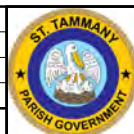
BREAKWATER BL  
STA. 108+00

ARMOR FILL: 335 CU. YDS.  
CHANNEL CUT: 385 CU. YDS.  
STOCKPILE FILL: 392 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

PERMIT SET

REVISION	DATE	DESCRIPTION	BY



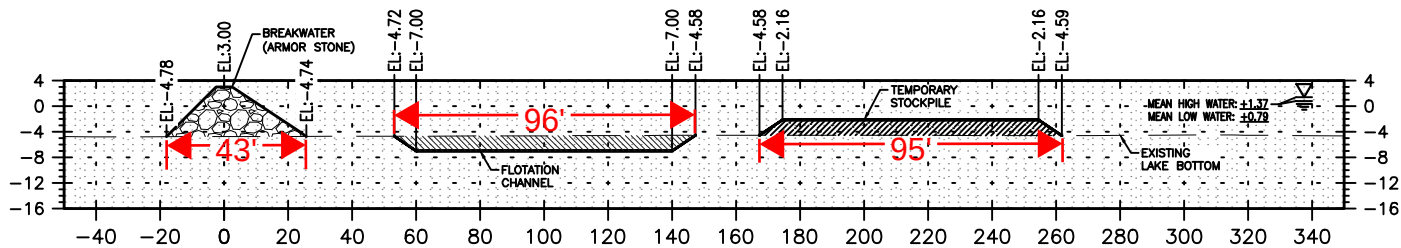
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LOWER TCHEFUNCTE RIVER  
BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

CROSS SECTIONS

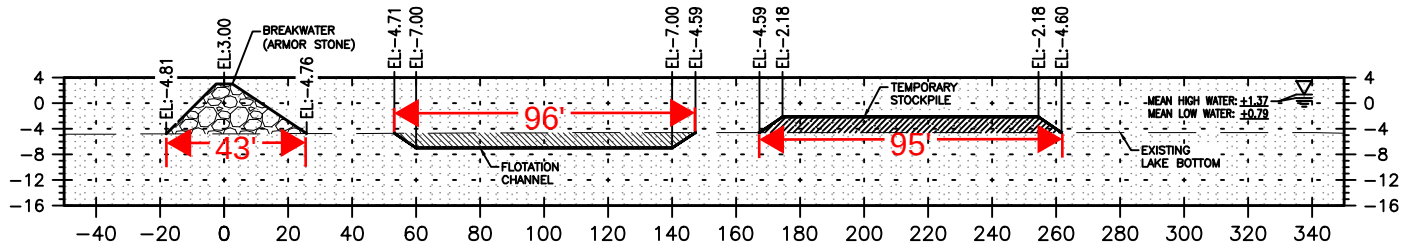
SHEET	SHEET NUMBER	DATE
404	15 of 26	SEPT. 1, 2023





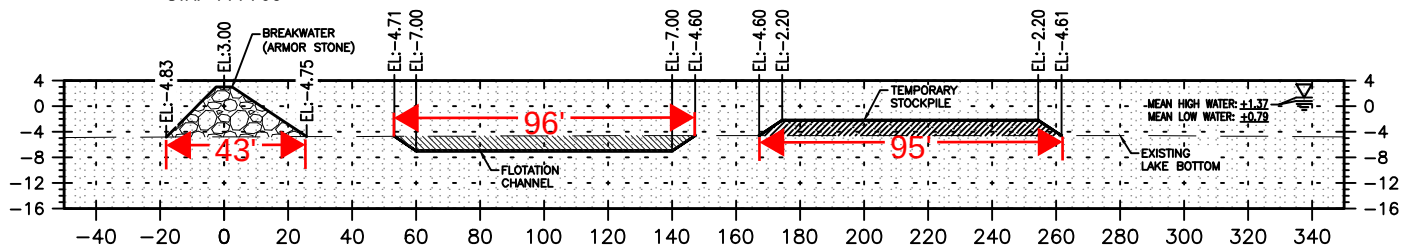
BREAKWATER BL  
STA. 111+50

ARMOR FILL: 352 CU. YDS.  
CHANNEL CUT: 381 CU. YDS.  
STOCKPILE FILL: 392 CU. YDS.



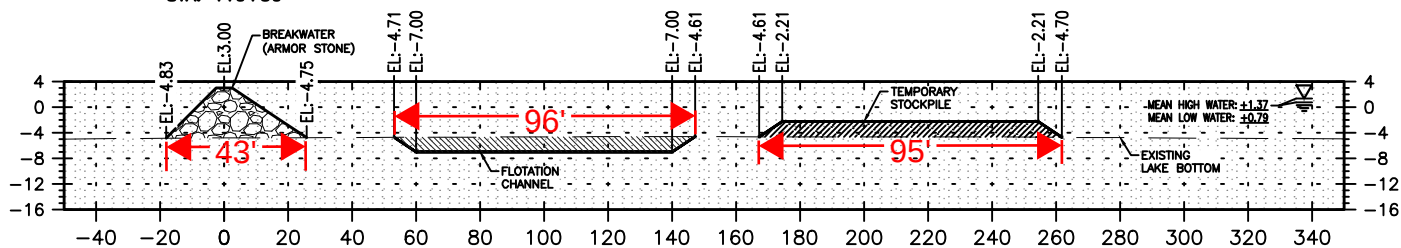
BREAKWATER BL  
STA. 111+00

ARMOR FILL: 354 CU. YDS.  
CHANNEL CUT: 381 CU. YDS.  
STOCKPILE FILL: 390 CU. YDS.



BREAKWATER BL  
STA. 110+50

ARMOR FILL: 353 CU. YDS.  
CHANNEL CUT: 381 CU. YDS.  
STOCKPILE FILL: 390 CU. YDS.



BREAKWATER BL  
STA. 110+00

ARMOR FILL: 355 CU. YDS.  
CHANNEL CUT: 381 CU. YDS.  
STOCKPILE FILL: 398 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

PERMIT SET

REVISION	DATE	DESCRIPTION	BY

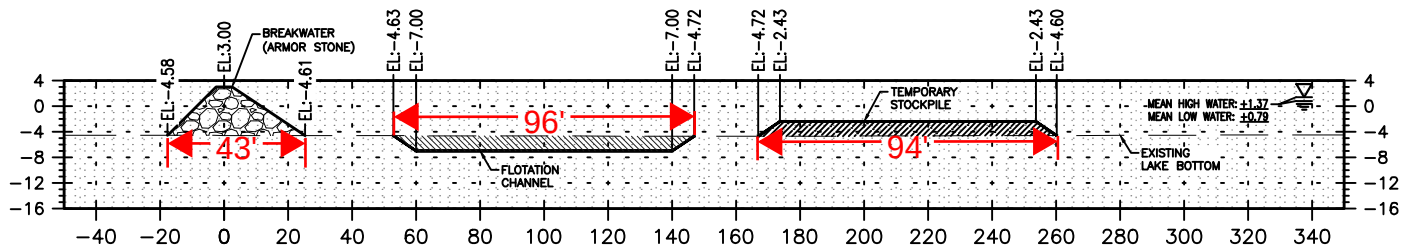


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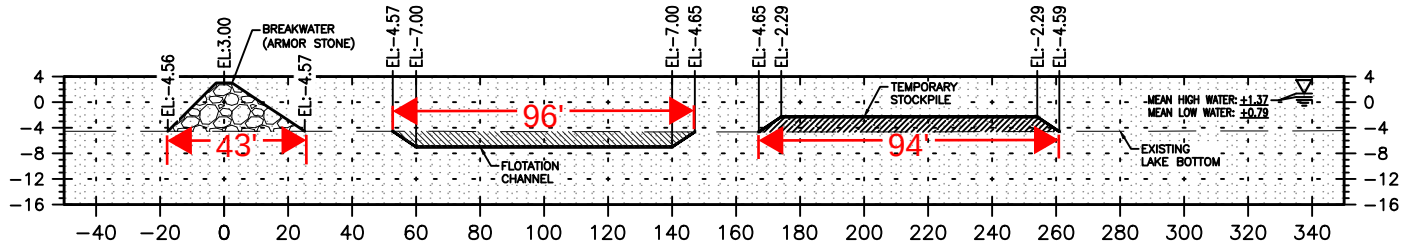
CROSS SECTIONS

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405	16 of 26	SEPT. 1, 2023



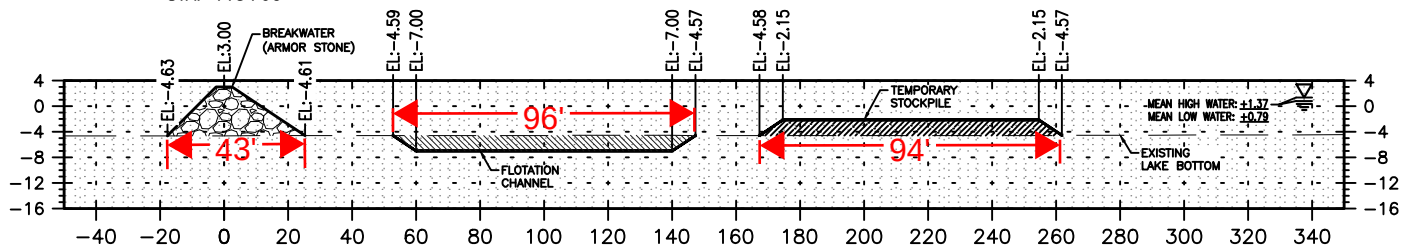
BREAKWATER BL  
STA. 113+50

ARMOR FILL: 336 CU. YDS.  
CHANNEL CUT: 381 CU. YDS.  
STOCKPILE FILL: 369 CU. YDS.



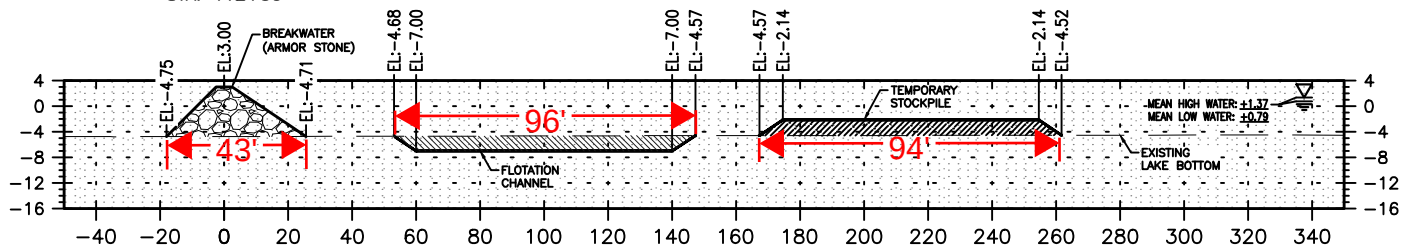
BREAKWATER BL  
STA. 113+00

ARMOR FILL: 337 CU. YDS.  
CHANNEL CUT: 390 CU. YDS.  
STOCKPILE FILL: 386 CU. YDS.



BREAKWATER BL  
STA. 112+50

ARMOR FILL: 344 CU. YDS.  
CHANNEL CUT: 387 CU. YDS.  
STOCKPILE FILL: 392 CU. YDS.



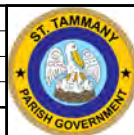
BREAKWATER BL  
STA. 112+00

ARMOR FILL: 350 CU. YDS.  
CHANNEL CUT: 381 CU. YDS.  
STOCKPILE FILL: 391 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

PERMIT SET

REVISION	DATE	DESCRIPTION	BY

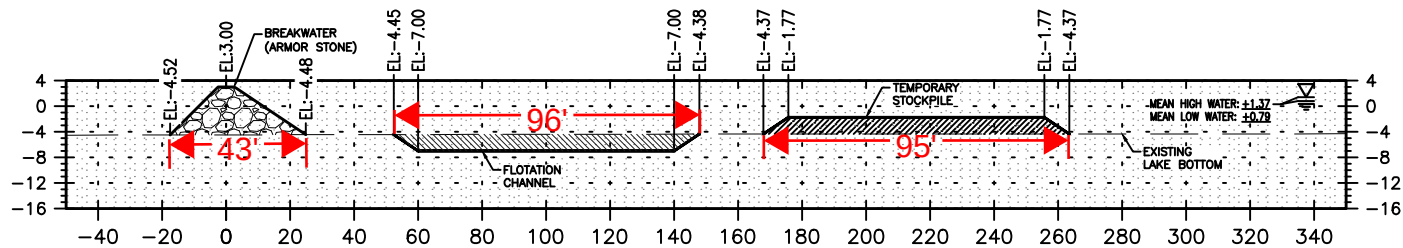


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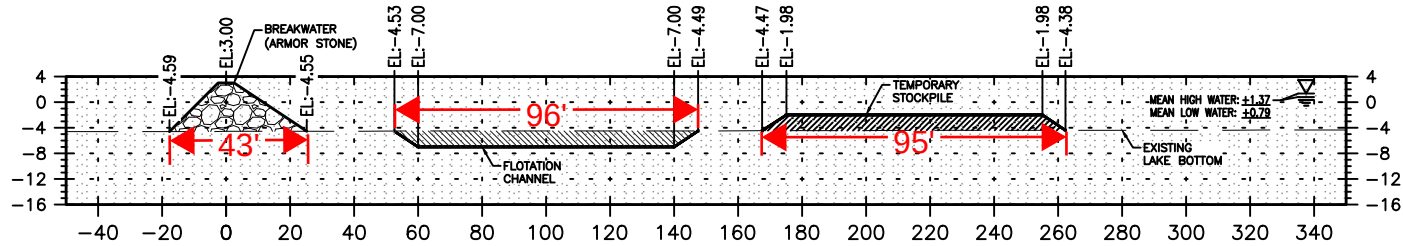
CROSS SECTIONS

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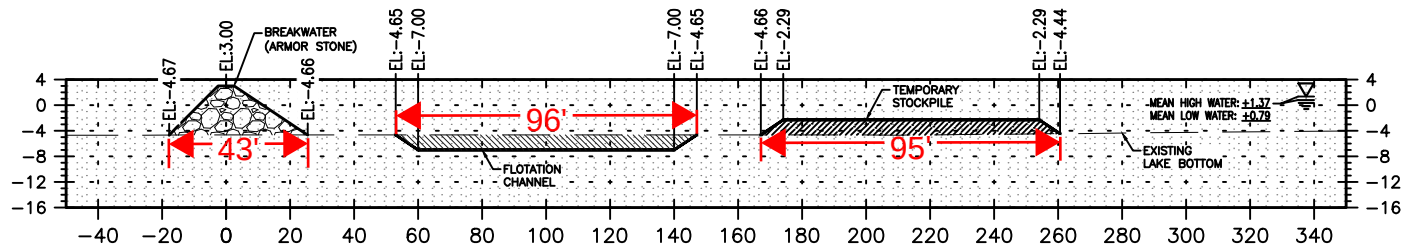
BREAKWATER BL  
STA. 115+50

ARMOR FILL: 333 CU. YDS.  
CHANNEL CUT: 412 CU. YDS.  
STOCKPILE FILL: 410 CU. YDS.



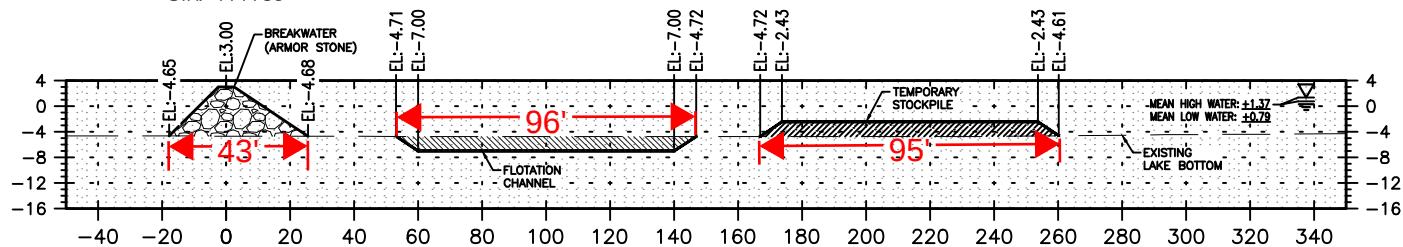
BREAKWATER BL  
STA. 115+00

ARMOR FILL: 346 CU. YDS.  
CHANNEL CUT: 701 CU. YDS.  
STOCKPILE FILL: 1027 CU. YDS.



BREAKWATER BL  
STA. 114+50

ARMOR FILL: 343 CU. YDS.  
CHANNEL CUT: 374 CU. YDS.  
STOCKPILE FILL: 370 CU. YDS.



BREAKWATER BL  
STA. 114+00

ARMOR FILL: 341 CU. YDS.  
CHANNEL CUT: 371 CU. YDS.  
STOCKPILE FILL: 363 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

PERMIT SET

REVISION	DATE	DESCRIPTION	BY

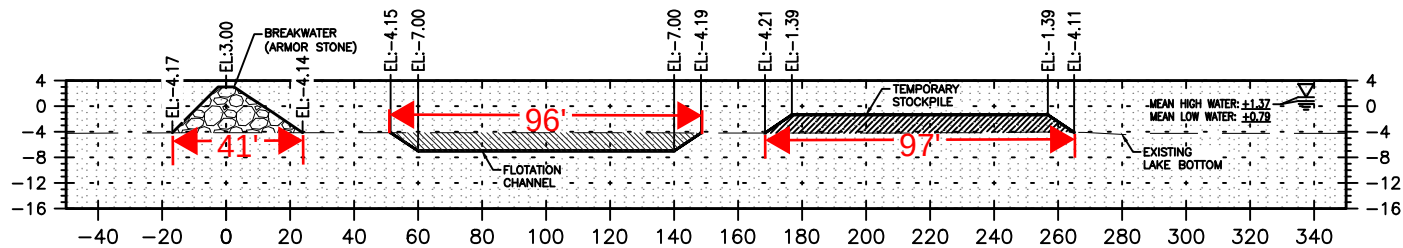


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BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

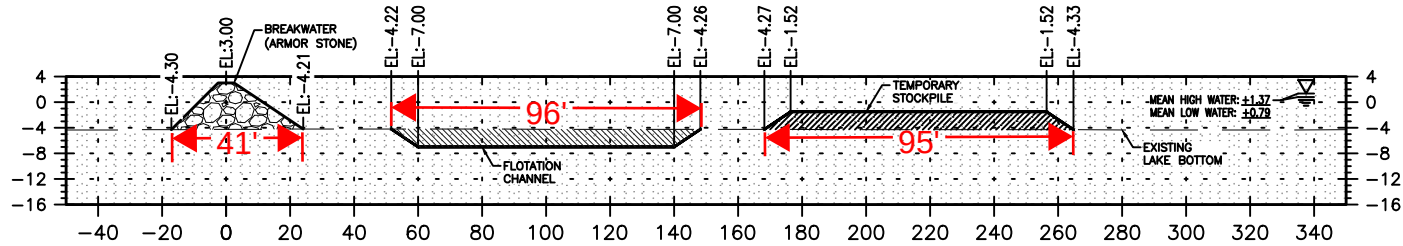
CROSS SECTIONS

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407	18 of 26	SEPT. 1, 2023



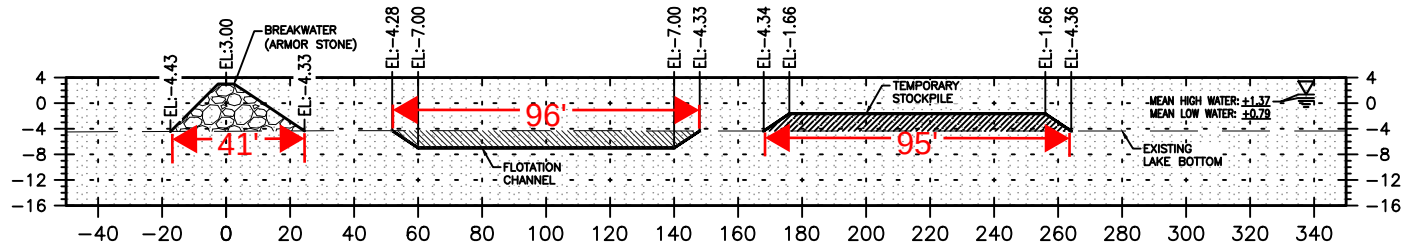
BREAKWATER BL  
STA. 117+50

ARMOR FILL: 307 CU. YDS.  
CHANNEL CUT: 459 CU. YDS.  
STOCKPILE FILL: 455 CU. YDS.



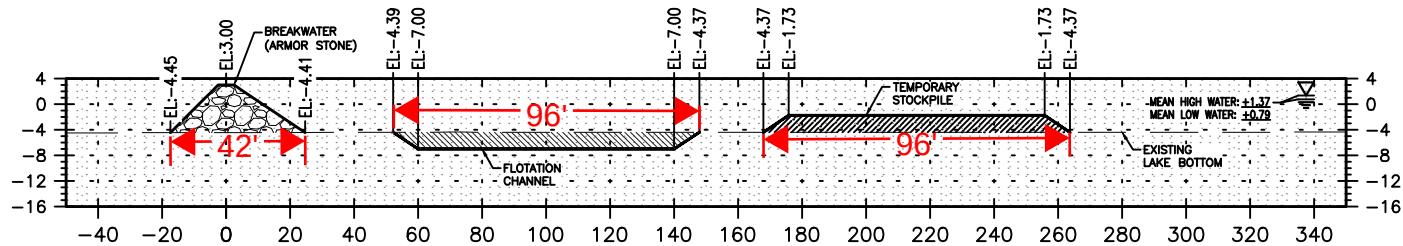
BREAKWATER BL  
STA. 117+00

ARMOR FILL: 316 CU. YDS.  
CHANNEL CUT: 446 CU. YDS.  
STOCKPILE FILL: 448 CU. YDS.



BREAKWATER BL  
STA. 116+50

ARMOR FILL: 323 CU. YDS.  
CHANNEL CUT: 435 CU. YDS.  
STOCKPILE FILL: 435 CU. YDS.



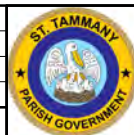
BREAKWATER BL  
STA. 116+00

ARMOR FILL: 328 CU. YDS.  
CHANNEL CUT: 424 CU. YDS.  
STOCKPILE FILL: 427 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

PERMIT SET

REVISION	DATE	DESCRIPTION	BY

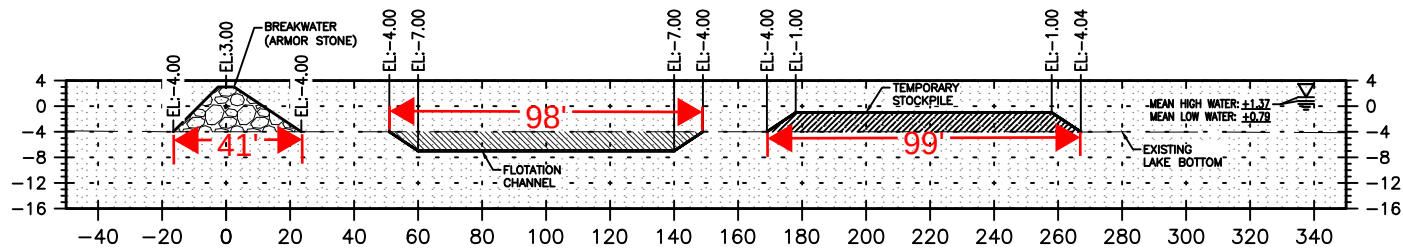


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LOWER TCHEFUNCTE RIVER  
BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

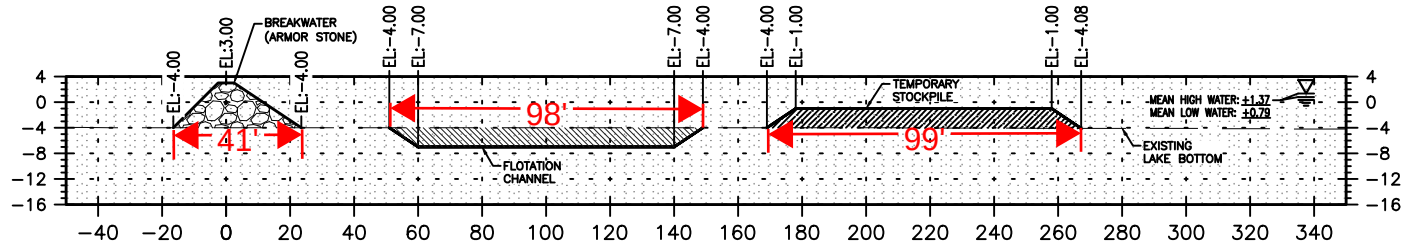
CROSS SECTIONS

SHEET	SHEET NUMBER	DATE
408	19 of 26	SEPT. 1, 2023



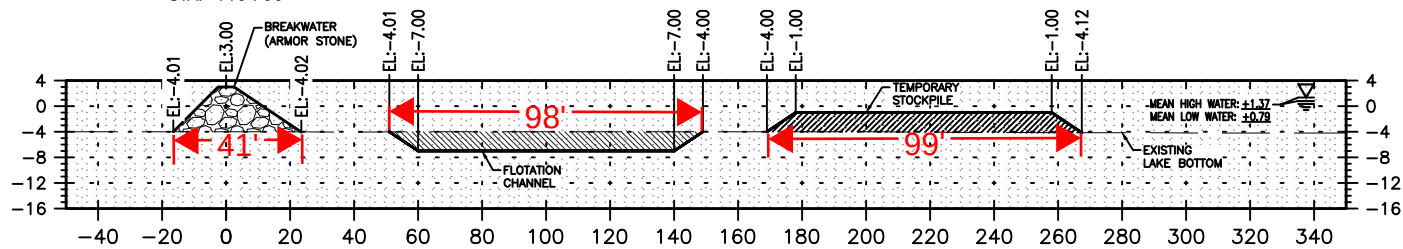
BREAKWATER BL  
STA. 119+50

ARMOR FILL: 292 CU. YDS.  
CHANNEL CUT: 495 CU. YDS.  
STOCKPILE FILL: 500 CU. YDS.



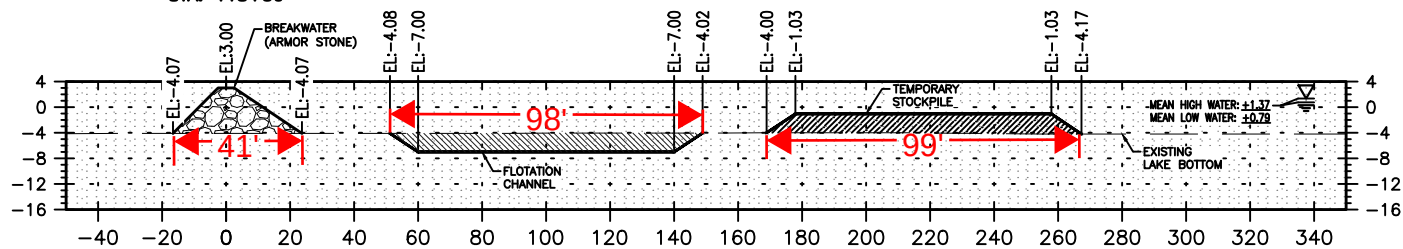
BREAKWATER BL  
STA. 119+00

ARMOR FILL: 293 CU. YDS.  
CHANNEL CUT: 495 CU. YDS.  
STOCKPILE FILL: 504 CU. YDS.



BREAKWATER BL  
STA. 118+50

ARMOR FILL: 295 CU. YDS.  
CHANNEL CUT: 490 CU. YDS.  
STOCKPILE FILL: 502 CU. YDS.



BREAKWATER BL  
STA. 118+00

ARMOR FILL: 300 CU. YDS.  
CHANNEL CUT: 475 CU. YDS.  
STOCKPILE FILL: 477 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

PERMIT SET

REVISION	DATE	DESCRIPTION	BY

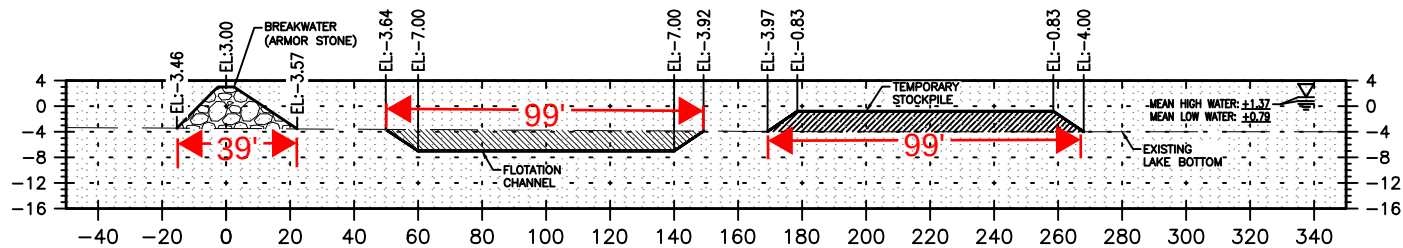


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BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

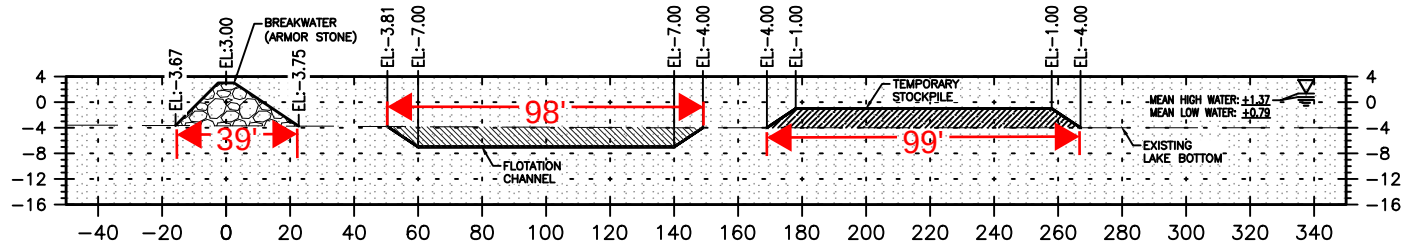
CROSS SECTIONS

SHEET	SHEET NUMBER	DATE
409	20 of 26	SEPT. 1, 2023



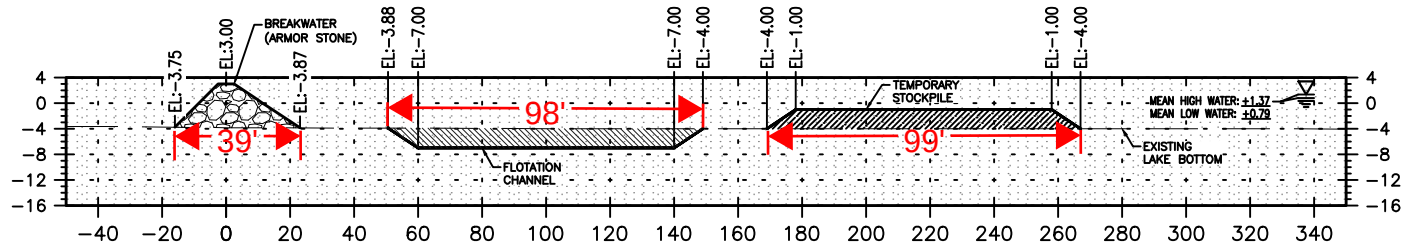
BREAKWATER BL  
STA. 121+50

ARMOR FILL: 264 CU. YDS.  
CHANNEL CUT: 523 CU. YDS.  
STOCKPILE FILL: 510 CU. YDS.



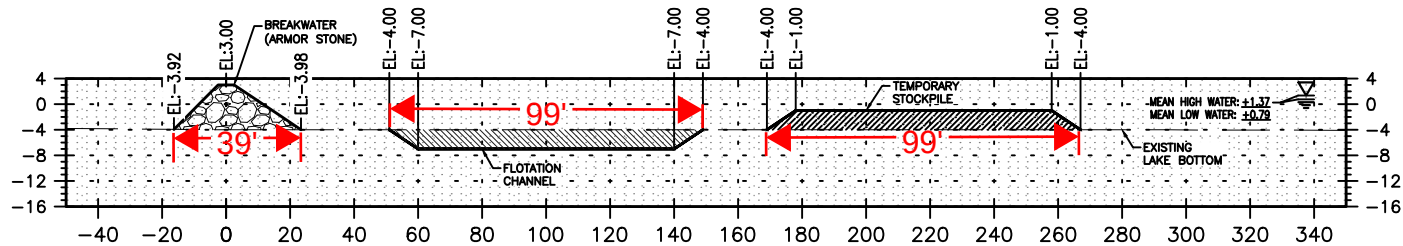
BREAKWATER BL  
STA. 121+00

ARMOR FILL: 275 CU. YDS.  
CHANNEL CUT: 506 CU. YDS.  
STOCKPILE FILL: 495 CU. YDS.



BREAKWATER BL  
STA. 120+50

ARMOR FILL: 284 CU. YDS.  
CHANNEL CUT: 498 CU. YDS.  
STOCKPILE FILL: 495 CU. YDS.



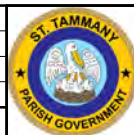
BREAKWATER BL  
STA. 120+00

ARMOR FILL: 291 CU. YDS.  
CHANNEL CUT: 495 CU. YDS.  
STOCKPILE FILL: 496 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

PERMIT SET

REVISION	DATE	DESCRIPTION	BY



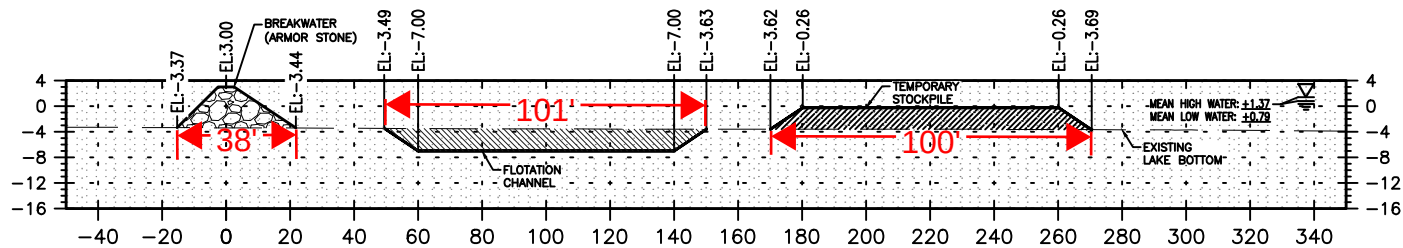
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LOWER TCHEFUNCTE RIVER  
BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

CROSS SECTIONS

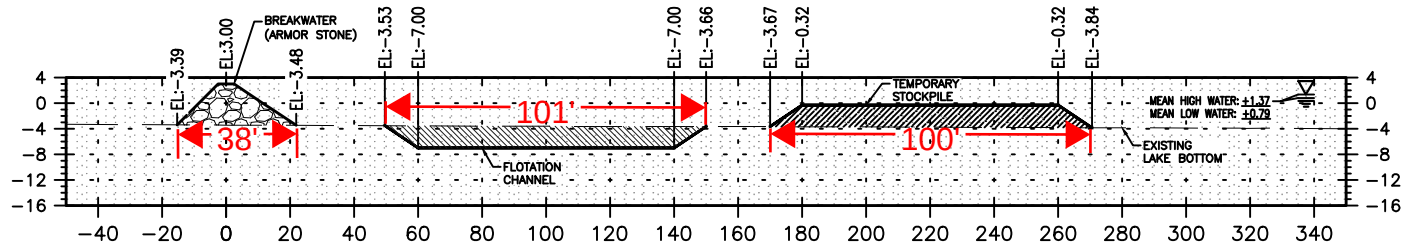
SHEET	SHEET NUMBER	DATE
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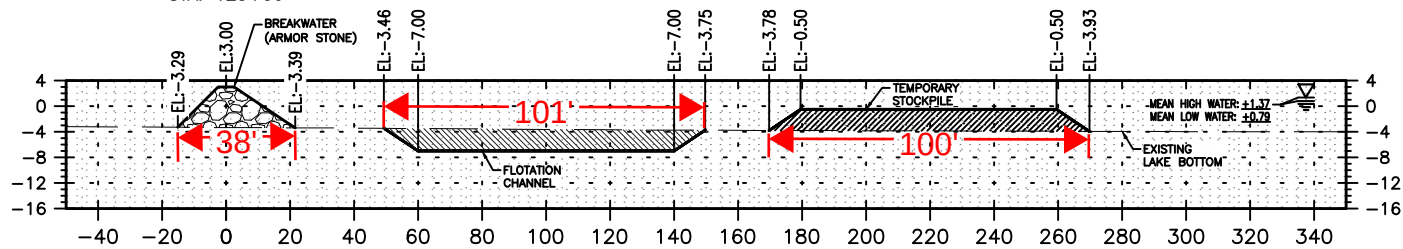
BREAKWATER BL  
STA. 123+50

ARMOR FILL: 251 CU. YDS.  
CHANNEL CUT: 570 CU. YDS.  
STOCKPILE FILL: 569 CU. YDS.



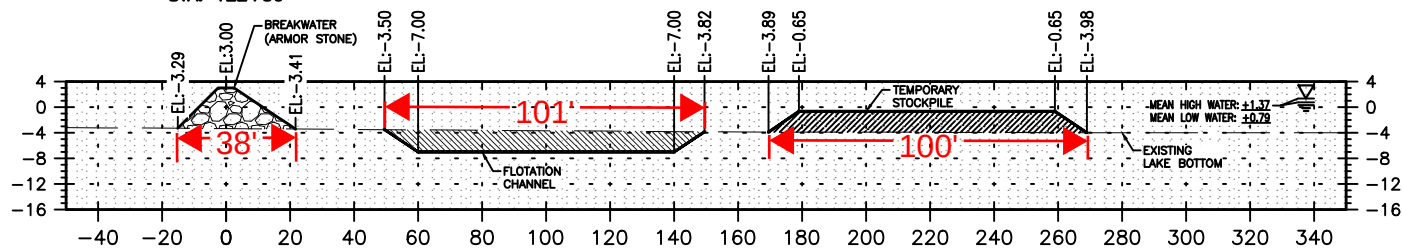
BREAKWATER BL  
STA. 123+00

ARMOR FILL: 249 CU. YDS.  
CHANNEL CUT: 566 CU. YDS.  
STOCKPILE FILL: 568 CU. YDS.



BREAKWATER BL  
STA. 122+50

ARMOR FILL: 246 CU. YDS.  
CHANNEL CUT: 561 CU. YDS.  
STOCKPILE FILL: 553 CU. YDS.



BREAKWATER BL  
STA. 122+00

ARMOR FILL: 252 CU. YDS.  
CHANNEL CUT: 546 CU. YDS.  
STOCKPILE FILL: 535 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

PERMIT SET

REVISION	DATE	DESCRIPTION	BY

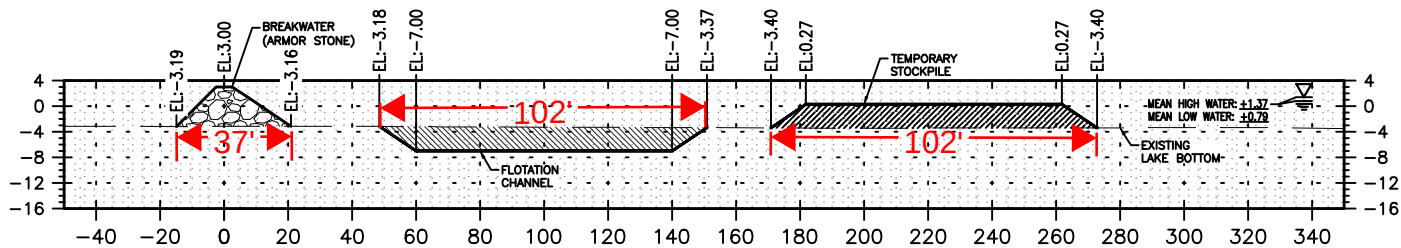


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BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

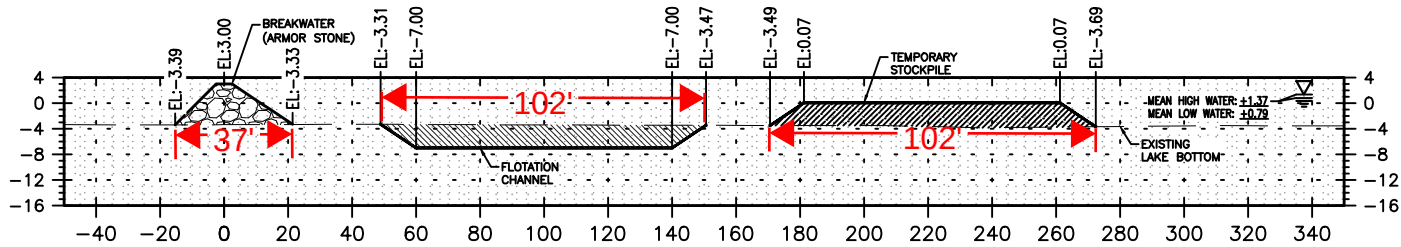
CROSS SECTIONS

SHEET	SHEET NUMBER	DATE
411	22 of 26	SEPT. 1, 2023



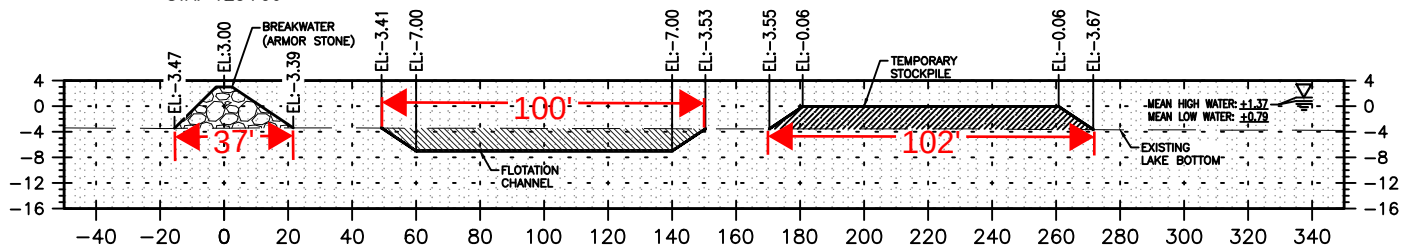
BREAKWATER BL  
STA. 125+50

ARMOR FILL: 240 CU. YDS.  
CHANNEL CUT: 617 CU. YDS.  
STOCKPILE FILL: 626 CU. YDS.



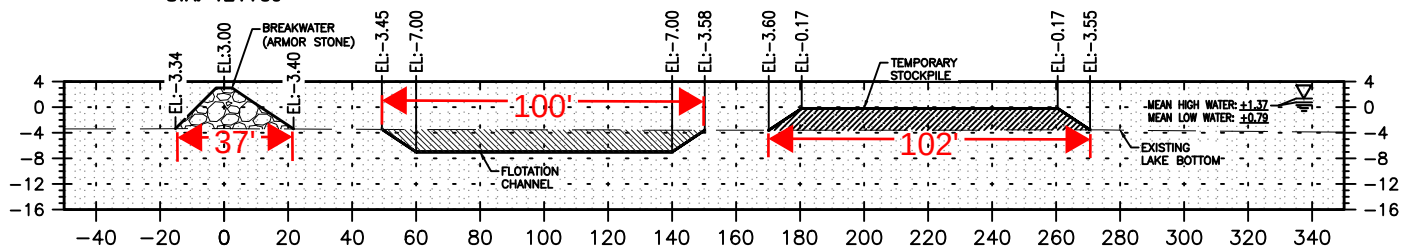
BREAKWATER BL  
STA. 125+00

ARMOR FILL: 249 CU. YDS.  
CHANNEL CUT: 600 CU. YDS.  
STOCKPILE FILL: 608 CU. YDS.



BREAKWATER BL  
STA. 124+50

ARMOR FILL: 249 CU. YDS.  
CHANNEL CUT: 588 CU. YDS.  
STOCKPILE FILL: 579 CU. YDS.



BREAKWATER BL  
STA. 124+00

ARMOR FILL: 248 CU. YDS.  
CHANNEL CUT: 579 CU. YDS.  
STOCKPILE FILL: 566 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

PERMIT SET

REVISION	DATE	DESCRIPTION	BY

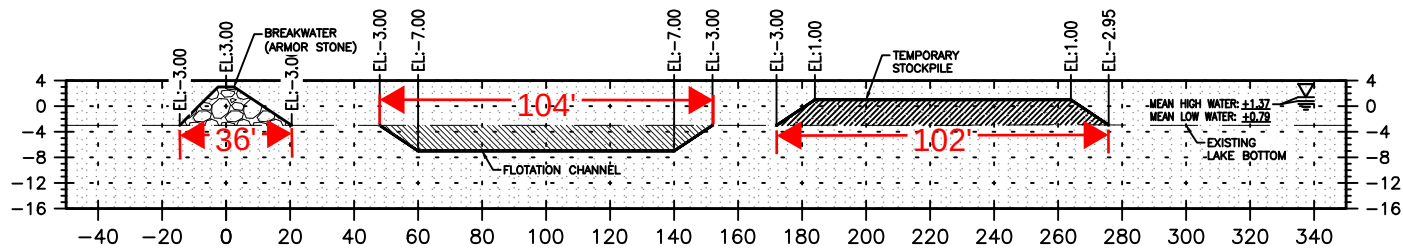


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LOWER TCHEFUNCTE RIVER  
BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

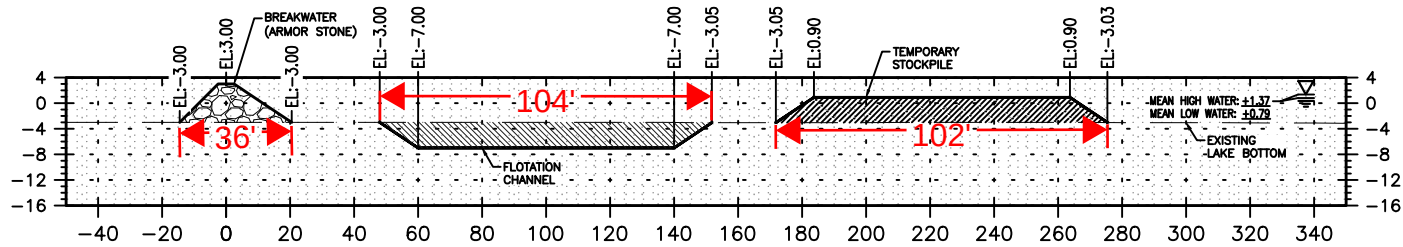
CROSS SECTIONS

SHEET	SHEET NUMBER	DATE
412	23 of 26	SEPT. 1, 2023



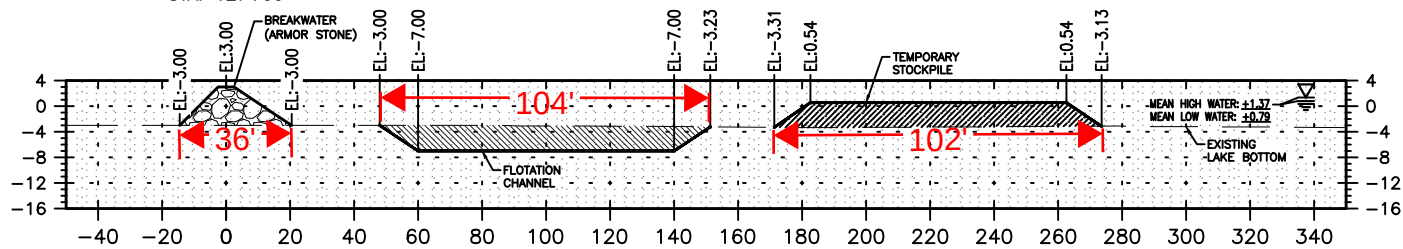
BREAKWATER BL  
STA. 127+50

ARMOR FILL: 223 CU. YDS.  
CHANNEL CUT: 681 CU. YDS.  
STOCKPILE FILL: 671 CU. YDS.



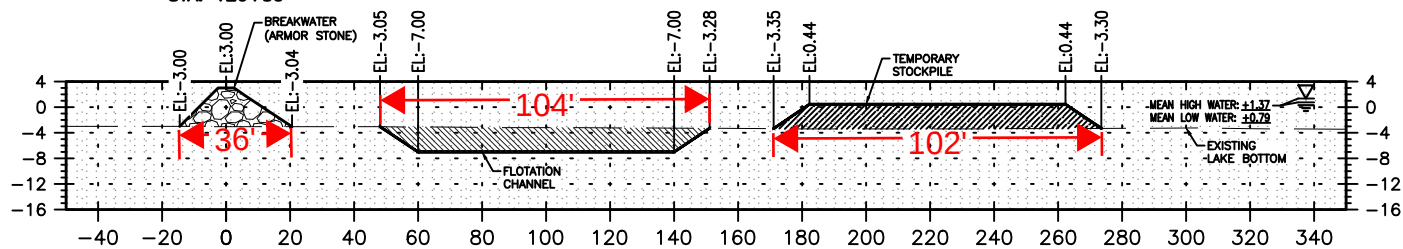
BREAKWATER BL  
STA. 127+00

ARMOR FILL: 223 CU. YDS.  
CHANNEL CUT: 673 CU. YDS.  
STOCKPILE FILL: 654 CU. YDS.



BREAKWATER BL  
STA. 126+50

ARMOR FILL: 223 CU. YDS.  
CHANNEL CUT: 657 CU. YDS.  
STOCKPILE FILL: 643 CU. YDS.



BREAKWATER BL  
STA. 126+00

ARMOR FILL: 229 CU. YDS.  
CHANNEL CUT: 637 CU. YDS.  
STOCKPILE FILL: 634 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

PERMIT SET

REVISION	DATE	DESCRIPTION	BY

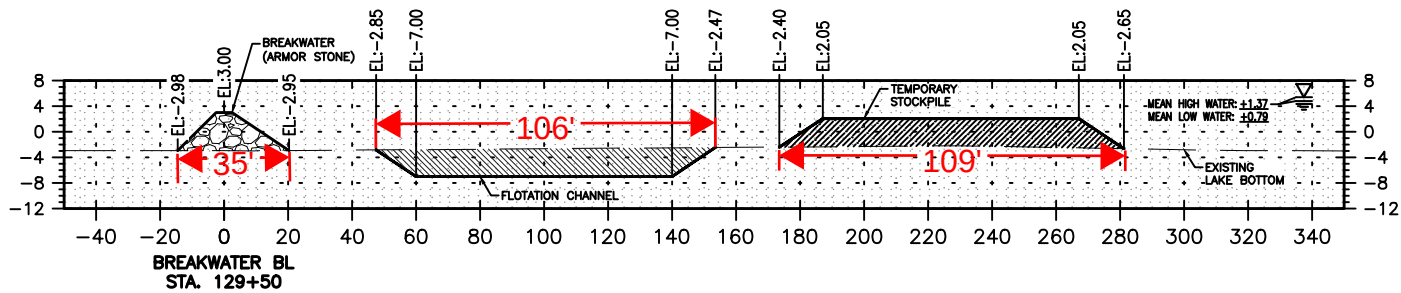


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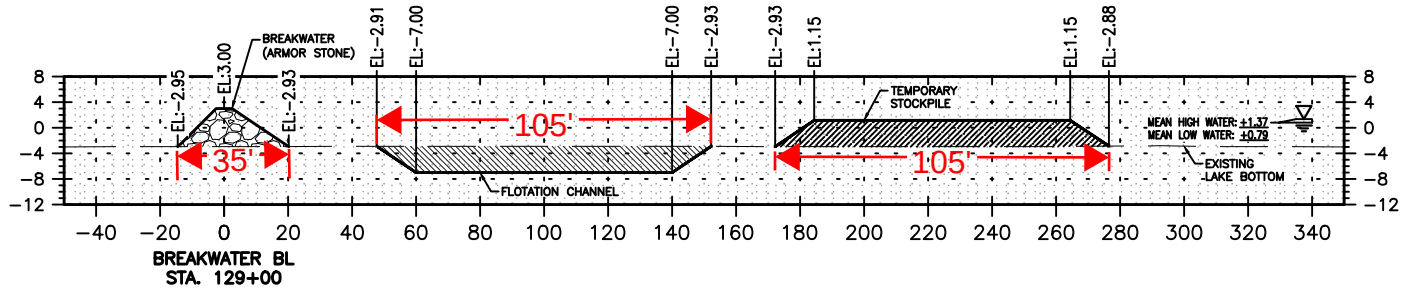
LOWER TCHEFUNCTE RIVER  
BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

CROSS SECTIONS

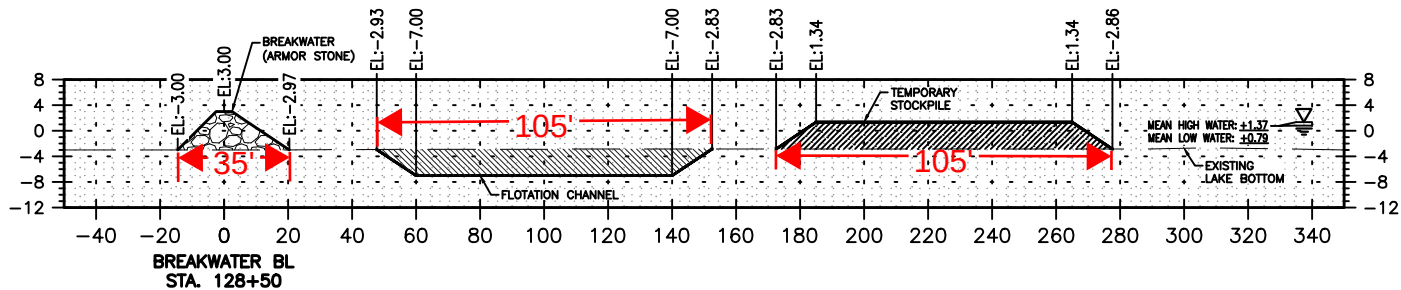
SHEET	SHEET NUMBER	DATE
413	24 of 26	SEPT. 1, 2023



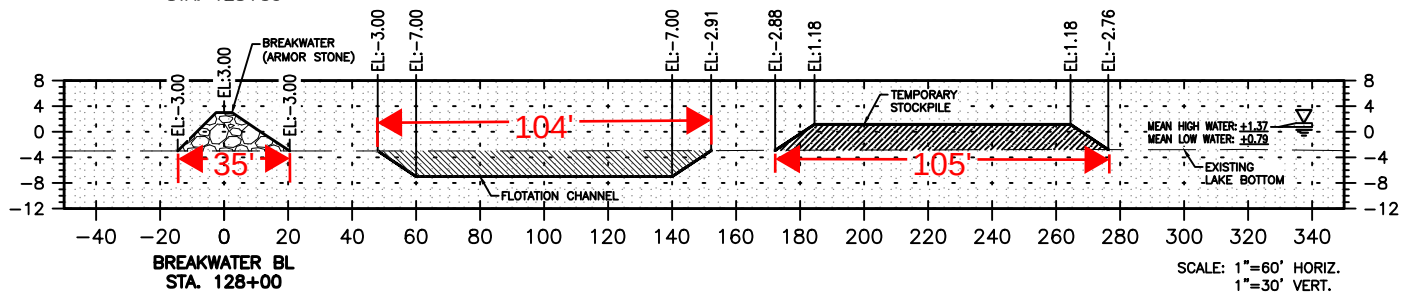
ARMOR FILL: 220 CU. YDS.  
CHANNEL CUT: 723 CU. YDS.  
STOCKPILE FILL: 731 CU. YDS.



ARMOR FILL: 221 CU. YDS.  
CHANNEL CUT: 703 CU. YDS.  
STOCKPILE FILL: 708 CU. YDS.



ARMOR FILL: 222 CU. YDS.  
CHANNEL CUT: 697 CU. YDS.  
STOCKPILE FILL: 698 CU. YDS.



ARMOR FILL: 223 CU. YDS.  
CHANNEL CUT: 684 CU. YDS.  
STOCKPILE FILL: 678 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

**PERMIT SET**

REVISION	DATE	DESCRIPTION	BY

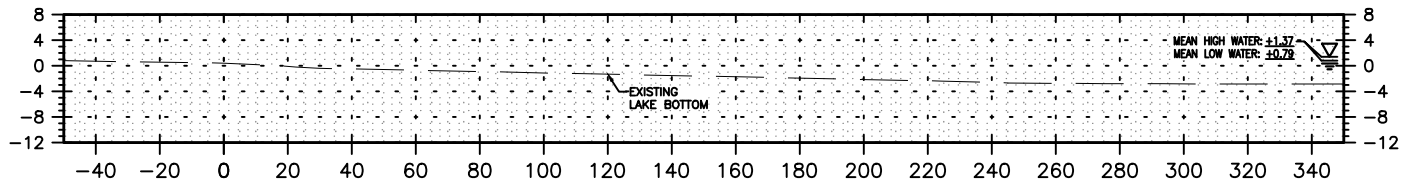


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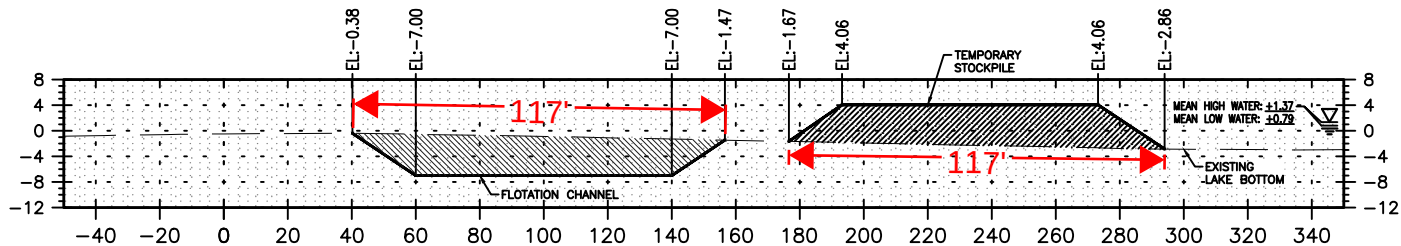
LOWER TCHEFUNCTE RIVER  
BREAKWATER PROJECT  
ST. TAMMANY, LOUISIANA

CROSS SECTIONS

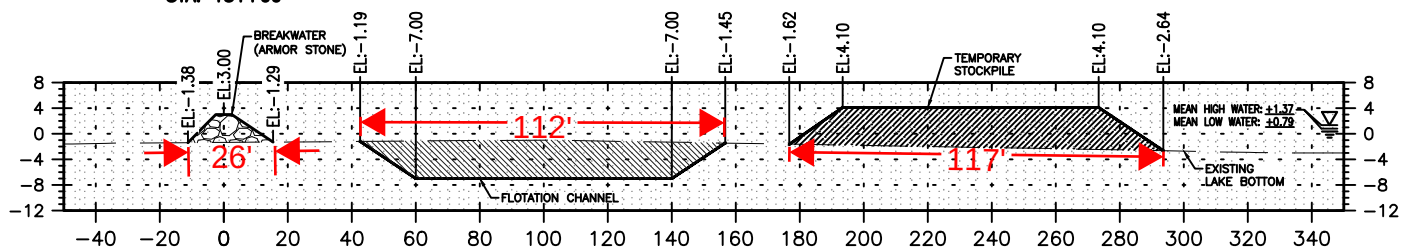
SHEET	SHEET NUMBER	DATE
414	25 of 26	SEPT. 1, 2023



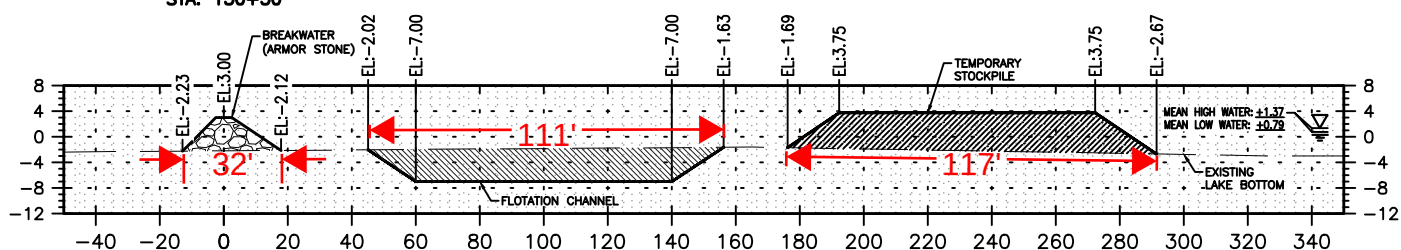
ARMOR FILL: 0 CU. YDS.  
CHANNEL CUT: 555 CU. YDS.  
STOCKPILE FILL: 579 CU. YDS.



ARMOR FILL: 64 CU. YDS.  
CHANNEL CUT: 1083 CU. YDS.  
STOCKPILE FILL: 1145 CU. YDS.



ARMOR FILL: 150 CU. YDS.  
CHANNEL CUT: 987 CU. YDS.  
STOCKPILE FILL: 1102 CU. YDS.



ARMOR FILL: 197 CU. YDS.  
CHANNEL CUT: 832 CU. YDS.  
STOCKPILE FILL: 917 CU. YDS.

SCALE: 1"=60' HORIZ.  
1"=30' VERT.

**PERMIT SET**

					 <b>digital engineering</b> DIGITAL ENGINEERING & IMAGING, INC. CHASE CENTER, 3500 HWY 190, SUITE 201 MANDEVILLE, LA, 70471 PH. (985) 334-4131	LOWER TCHEFUNCTE RIVER BREAKWATER PROJECT ST. TAMMANY, LOUISIANA	CROSS SECTIONS		
REVISION	DATE	DESCRIPTION	BY				SHEET	SHEET NUMBER	DATE
							415	26 of 26	SEPT. 1, 2023