

**OPERATION, MAINTENANCE AND REHABILITATION PLAN**  
**FOR THE**  
**PENCHANT BASIN NATURAL RESOURCE PLAN, INCREMENT 1**  
**PROJECT (TE-34)**



**January 8, 2019**



Coastal Protection and  
Restoration Authority of Louisiana



## **OPERATION, MAINTENANCE, AND REHABILITATION PLAN FOR THE PENCHANT BASIN NATURAL RESOURCE PLAN, INCREMENT 1 (TE-34)**

The Coastal Protection and Restoration Authority (CPRA) of Louisiana and the Natural Resources Conservation Service (NRCS) agree to carry out the terms of the this Operation, Maintenance and Rehabilitation Plan (hereinafter referred to as the “Plan”) of the accepted, completed project features in accordance with Cost Share Cooperative Agreement No. CWPPRA-02-02, DNR Agreement No. 2511-02-15 dated April 23, 2002, and a letter dated January 25, 2007, to adjust funding categories to meet projected charges (Attachment I – Cost Share Agreement/ Letter Agreement).

Construction of the Penchant Basin Natural Resource Plan, Increment 1 (TE-34) was authorized by Section 303(a) of Title III Public Law 101-646 the Coastal Wetlands Planning Protection and Restoration Act (CWPPRA) enacted on November 29, 1990, as amended. Increment 1 of the Penchant Basin Natural Resource Plan was approved on the 6<sup>th</sup> Priority Project List.

CPRA intends to use this plan to maintain the project in a condition that will generally provide the anticipated benefits on which the project was based. There is no requirement that this project function to any standard beyond the 20-year project life, except that it is not left as a hazard to navigation or a detriment to the environment.

The property associated with the Penchant Basin Natural Resource Plan, Increment 1 (TE-34) is owned by Apache Louisiana Minerals, Inc., Continental Land and Fur Co., and Louisiana Land and Exploration Co.

### **1. PROJECT LOCATION, DESCRIPTION AND PURPOSE**

The Penchant Basin Natural Resource Plan, Increment 1 (TE-34) is located in Terrebonne Parish, Louisiana and is bounded on the north by the Gulf Intracoastal Waterway (GIWW), the east by a north/south line from Lake DeCade to the GIWW, the south by Lake Mechant and Lost Lake, and to the west by a north/south line from Lost Lake to Avoca Island (CWWPRA, February 2008). (Attachment II – Project Features Map)

The Penchant Basin consists of a dynamic and variable-component landscape shaped by deltaic abandonment, initiation of a new delta via the Atchafalaya River and anthropogenic landscape alterations (NRCS, April 2007). To the north, a vast area of freshwater floating marshes transitions south to intermediate and brackish marshes, all of which have experienced some of the highest land loss rates in the state. While the freshwater floating marshes have been studied extensively, the exact cause of the high rates of deterioration remain somewhat elusive although the losses have been attributed to a combination of elevated water levels, increase flows from the Atchafalaya and GIWW and associated water quality impacts, hydrologic alterations, stagnation in some areas that have been isolated from riverine influence and nourishment, and herbivory (O’Neil 1949, Sassar 1994. Coastal

Environments, Inc. 1997, Swarzenski 2003). To the south, loss to intermediate and brackish marshes can be contributed to natural deltaic abandonment process of subsidence accelerated by channelization and alteration of hydrology, sea level rise, saltwater intrusion (USDA-SCS, 1986).

The Penchant Basin Natural Resource Plan, Increment 1 (TE-34) is intended to potentially reduce water levels in the northwestern portion of the project by diverting freshwater southeastward to where it is needed (CWWPRA, 2008). The goals of the project are to eliminate erosion and re-establish emergent marsh along the southern bank of Bayou Chene at the intersection of Bayou Penchant, transfer water, sediment and nutrients from the Atchafalaya River to the lower Penchant Basin tidal marshes to offset saltwater intrusion and subsidence, to maintain the integrity of the northern bank of Bayou Decade and increase nourishment to the deteriorating upper Penchant Basin marshes by providing an exchange of freshwater through the system (NRCS and CPRA, April 2007).

Increment 1 of the Penchant Basin Natural Resource Plan has a twenty-year (20 year) project life, which began in August 2011.

## **2. CONSTRUCTION COMPLETION**

The Penchant Basin Natural Resource Plan, Increment 1 project completion report is included in Attachment III of this Plan and “As-Built” drawings are included in Attachment IV. Within the Completion Report is a summary of information and significant events including: project personnel, final as-built project features and benefited acres, construction cost and CWWPRA project estimates, construction oversight costs, construction activities and change orders, pipeline and utility crossing owner information, and other significant milestone dates and comments. The project as-built drawings contain construction drawings updated to include all field changes and modifications that occurred during the construction of the project.

## **3. PROJECT PERMITS**

Project permit applications for the Penchant Basin Natural Resource Plan, Increment 1 were completed and submitted to appropriate agencies and permits were received prior to construction. These permits and permit amendments are included in Attachment V – Project Permits and Amendments.

## **4. ITEMS REQUIRING MAINTENANCE AND REHABILITATION**

The following completed project features of the Penchant Basin Natural Resource Plan, Increment 1 shall be jointly accepted by CPRA and NRCS will require operation, maintenance and rehabilitation throughout the twenty (20) year life of the project.

- Approximately 6,667 linear feet of foreshore rock dike along the southern bank of Bayou Chene at the mouth of Bayou Penchant. The rock dike was constructed to an maximum overbuild elevation of 4.0' NAVD88 and target elevation of +3.5' NAVD88; with 4 (H):1(V) side slopes from Station 0+00 to 07+50 along east dike, and 3(H):1(V) from Station 08+00 to the end, and a top width of 3.0'.
- Approximately 30 acres of marsh creation along the southern bank of Bayou Chene at the mouth of Bayou Penchant. The target marsh elevation in this location is approximately 2.0' NAVD 88.
- 92 ft. steel sheet pile weir with a ten (10) ft. wide boat bay and six (6) - 5' x 5' flap gated openings at the intersection of Brady Canal and Bayou Penchant. In addition to the weir, a Floating Debris Barrier System was constructed on the Bayou Penchant side of the structure to collect vegetation and debris and prevent obstruction of the flap gates. The Floating Debris Barrier System consisted of a PVC floating body with an underwater hanging debris screen connected by stainless steel strength members. Each end of the barrier system was anchored to timber piles on each end of the protected areas.
- 85 ft. long steel sheet pile weir with six (6) - 5' x 5' flap gated openings along Superior Canal. In addition to the weir, a Floating Debris Barrier System was constructed on the north side of the structure to collect vegetation and debris and prevent obstruction of the flap gates. The Floating Debris Barrier System consisted of a PVC floating body with an underwater hanging debris screen connected by stainless steel strength members. Each end of the barrier system was anchored to timber piles on each end of the protected areas.
- Approximately 14,500 linear feet of earthen embankment armored with rock riprap along the north bank of Bayou Decade from Voss Canal to the mouth of Lost Lake. The earthen embankment was constructed to an elevation of +4.0' NAVD 88 with 6:1 side slopes and a 10 ft. wide earthen embankment crest and 6 ft. rock revetment crest. The rock riprap revetment is approximately 2' thick, 10' wide base and 6:1 side slopes along the canal face of the earthen embankment.
- Structure No.5 – 139 linear foot steel bulkhead weir with 10' wide boat bay. The top elevation of the bulkhead was constructed to an elevation of 0.9' NAVD 88. The crest of the boat bay was constructed to -4.0' NAVD 88. A rock scour pad above a geotextile fabric was constructed along both sides of the steel bulkhead to an elevation of -4.0' NAVD with 3:1 side slopes.
- Structure No.4 – 120 linear foot steel bulkhead with 10' wide boat bay. The top elevation of the bulkhead will be constructed to an elevation of 0.9' NAVD 88. The



crest of the boat bay will be constructed to -4.0' NAVD 88. A rock scout pad above a geotextile fabric will be constructed along both sides of the bulkhead to an elevation of -4.0' NAVD with 3:1 side slopes.

**5. OPERATION AND MAINTENANCE BUDGET**

The cost associated with the Operations, Maintenance and Rehabilitation of the Penchant Basin Natural Resource Plan (TE-34), Increment 1 is included and summarized in Attachment VI.

**6. STRUCTURE OPERATIONS**

No structure operations are necessary for this project. (Attachment VII intentionally blank)

**7. RESPONSIBILITIES – MAINTENANCE, OPERATIONS AND REHABILITATION**

**A. CPRA will:**

1. In accordance with the Cost Sharing Agreement, assume all responsibilities for maintenance and rehabilitation of the accepted and completed project features identified in Section 4.
2. Conduct joint project site inspections with NRCS and the landowners at least annually and after major storm events if determined to be necessary by CPRA and/or NRCS. CPRA will submit to NRCS a report detailing the condition of the project features and recommendations for any corrective action. If CPRA recommends that corrective actions are needed, the report will include the entire estimated cost for engineering and design, supervision and inspection, construction, contingencies, and an assessment of the urgency of such action.
3. Perform or have performed any corrective actions needed, if such corrections have been approved by CPRA and NRCS. NRCS will participate with CPRA, or its appointed representative, in the engineering and design phases of the corrective actions for the project. Oversight of engineering and construction of the corrective actions for the project will be the responsibility of CPRA or its appointed representative. At least 30 calendar days prior to the date of formal request for construction bids, CPRA or its appointed representative shall provide NRCS with final copies of all project corrective action design and specifications for review and concurrence by NRCS. NRCS or its appointed representative shall approve the final designs and specifications prior to proceeding with bid solicitations. Any plan and/or specification change both before and after award of construction contracts,

shall be approved by CPRA in coordination with NRCS.

4. Provide a total contribution equal to the amount outlined in the Cost Share Agreement for the operation, maintenance and rehabilitation cost needed for the life of the project.

**B. NRCS will:**

1. Conduct joint project site inspections with CPRA and the landowners at least annually and after major storm events if determined to be necessary by CPRA or NRCS.
2. Provide guidance for the development of plans and implementation of the project, review final copies of any maintenance and rehabilitation project designs and specifications, and provide review and approval of all planning and construction details prior to formal request for construction bids or any corrective actions for the project.
3. Provide a total contribution equal to the amount outlined in the Cost Share Agreement for operation, maintenance and rehabilitation cost needed for the life of the project.

## References:

- Coastal Environments, Inc. 1997. Watershed plan and environmental assessment for the Lower Penchant Basin, Terrebonne Parish, Louisiana. Report to USDA – Natural Resource Conservation Service. 49pp.
- CWWPRA, 2008. fact sheet for the Penchant Basin Natural Resources Plan, Increment 1 (TE-34). Louisiana Coastal Wetlands Conservation and Restoration Task Force. Prepared by Natural Resources Conservation Service. Alexandria, La. and the Louisiana Department of Natural Resources. Baton Rouge, La. 1 pp.
- O’Neil, T. 1949. The muskrat in the Louisiana coastal marshes. Louisiana Department of Wildlife and Fisheries. New Orleans, La. 152 pp.
- NRCS and CPRA. 2007. Penchant Basin Natural Resource Plan (TE-34) – Project Information Sheet for Wetland Value Assessment. U.S. Department of Agriculture – Natural Resource Conservation Service. Alexandria, La., Louisiana Department of Natural Resources. Baton Rouge, La. 22 pp.
- Swarzenski, C. M. 2003. Surface-water hydrology of the Gulf Intracoastal Waterway in south-central Louisiana, 1996-99. U.S. Geological Survey. Reston, Virginia. 51 pp.
- U.S. Department of Agriculture – Soil Conservation Service. 1986. Lafourche – Terrebonne Cooperative river basin study report. Lafourche – Terrebonne Soil and Water Conservation District. Alexandria, La. 69pp.

The undersigned parties, acting on behalf of their respective agencies, agree to operate, maintain, and rehabilitate the Penchant Basin Natural Resource Plan, Increment 1 (TE-34) project according to this document, referenced Cost Sharing Agreement, plans, and all applicable permits and laws.

NATURAL RESOURCES CONSERVATION SERVICE

By: W. A. /

Date: 2-22-19

Title: A312/WR

COASTAL PROTECTION AND RESTORATION AUTHORITY

By: [Signature]

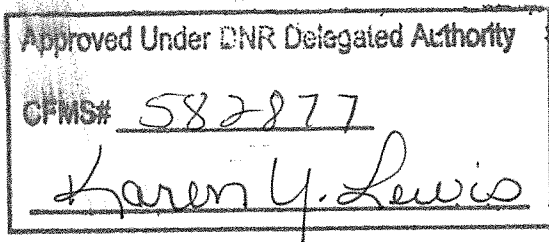
Date: 2/20/2019

Title: REGIONAL OPERATIONS MANAGER

ATTACHMENT I

PENCHANT BASIN NATURAL RESOURCE PLAN, INCREMENT 1  
(TE-34)

**COST SHARING AGREEMENT**



Cooperative Agreement No. CWPPRA-02-02  
DNR Agreement No. 2511-02-15  
Approved Format No. 16

**COST SHARE AGREEMENT**

**BETWEEN**

**USDA-NATURAL RESOURCES CONSERVATION SERVICE**

**AND**

**THE STATE OF LOUISIANA**

**FOR CONSTRUCTION, OPERATION, MAINTENANCE, REHABILITATION**

**AND MONITORING OF THE**

**PENCHANT BASIN HYDROLOGIC RESTORATION PROJECT**

**TE-34**

**THIS AGREEMENT**, entered into this 23rd day of April, 2002 by and between the U.S. Department of Agriculture, represented by the Natural Resources Conservation Service, (hereinafter referred to as "NRCS"), acting by and through the State Conservationist, and the State of Louisiana, acting by and through the Secretary, Department of Natural Resources, (hereinafter referred to as "DNR").

**WITNESSETH, THAT:**

**WHEREAS**, implementation of the Penchant Basin Hydrologic Restoration Project (TE-34) was authorized by the Coastal Wetlands Planning, Protection, and Restoration Act (hereinafter referred to as "CWPPRA") of 1990, 16 U.S.C. Section 3951 *et seq.*, (Public Law 101-646, Title III), and for local sponsorship by the Louisiana Coastal Wetlands Conservation and Restoration Plan, by the State of Louisiana in May 1997; and,

**WHEREAS**, the State's Coastal Wetlands Conservation Plan was approved on November 30, 1997; all costs incurred on or after December 1, 1997 are shared at ninety percent (90%) Federal and ten percent (10%) non-Federal;

**WHEREAS**, Section 303(e) of CWPPRA states that the Secretary of the Army shall not fund the identified project unless said project is subject to such terms and conditions necessary to ensure that wetlands restored, enhanced, or managed through the project will be administered for the long-term conservation of such lands and waters and dependent fish and wildlife populations; and,

**WHEREAS**, NRCS is authorized by federal law to enter a cost-sharing agreement with DNR to provide financial cost-share assistance for the construction, operation, maintenance, rehabilitation, and monitoring of the project; and,

**WHEREAS**, La. R.S. 49:213 and La. R.S. 49:214 state that the Secretary of DNR may enter into cost-sharing agreements with the federal government in order to conserve, restore, create, and enhance vegetated wetlands in coastal Louisiana in accordance with prescribed legislative oversight; and,

**WHEREAS**, DNR has agreed to pay 5% of the total Project(s) cost in actual cash and the remaining balance of its share in the form of in-kind contributions; and,

**WHEREAS**, DNR is willing to participate in cost-sharing and financing in accordance with the terms of this Agreement;

**NOW, THEREFORE**, the parties agree as follows:

## **ARTICLE I - DEFINITIONS AND GENERAL PROVISIONS**

For the purposes of this Agreement:

a. The term **"Project"** shall mean that work authorized by Congress as specified above for the construction of the TE-34 Penchant Basin Hydrologic Restoration Project. The TE-34 Project is located in Terrebonne Parish, LA. The Project objective is to combine the long term realignment of the Penchant Basin hydrology with restoration and protective measures with the intent of protecting the physical integrity of the basin during the transition toward greater riverine influence.

b. The term **"total Project costs"** shall mean all costs incurred by DNR and NRCS directly related to implementation of the Project. Such costs shall be those costs incurred after April 24, 1997; and which shall include, but not necessarily be limited to, the following: actual costs of applicable geotechnical investigations, detailed engineering and design; actual construction costs; construction management, supervision and inspection costs; operation costs; monitoring costs; the cost of land rights acquisition, easements, servitudes, rights-of-way; utility and facility alterations or relocations; maintenance; and rehabilitation for the Project.

c. The term **"total first costs"** shall mean all costs incurred by DNR and NRCS directly related to completion of the construction phase of the project as identified in the official CWPPRA authorization document prepared by the CWPPRA Task Force April 24, 1997 and submitted to Congress.

d. The term “**period of construction**” shall mean the time from the advertisement of the first construction contract to the time that the Contracting Officer certifies to DNR that construction of the entire project is complete. The Contracting Officer shall furnish to DNR copies of the Government’s written Notice of Acceptance of Complete Work furnished to contractor(s) for all contracts for the Project.

e. The term “**Contracting Officer**” shall mean the warranted Contracting Officer of NRCS awarding the contract.

f. The term “**relocations**” shall mean the preparation of plans and specifications for, and the accomplishment of any alteration, modification, lowering or raising in place, and/or new construction related to, but not limited to, existing: buildings, pipelines, public utilities (such as municipal water and sewer lines, telephone lines, and storm drains), aerial utilities, cemeteries, and other facilities, structures, and improvements determined by NRCS and DNR to be necessary for the construction, operation, maintenance, monitoring, and rehabilitation of the Project.

g. The term “**utility**” shall mean pipelines, cables, and similar facilities.

h. The term “**fiscal year**” shall mean one fiscal year of the United States Government, unless otherwise specifically indicated. The Government fiscal year begins on October 1 and ends on September 30.

i. The term “**construction management costs**” shall mean costs incurred by NRCS directly supervising and administering construction contracts, to include related overhead costs, as specified in applicable contracting regulations.

j. The term “**Project Monitoring Plan**” shall mean a plan jointly developed and approved by DNR and NRCS specifically for the Project which identifies all monitoring requirements, parameters and procedures. DNR will be responsible for collection of monitoring data and assimilation as part of the local cost-share responsibilities. Monitoring will be conducted for the expected life of the Project or as agreed by NRCS and DNR.

k. The term “**maintenance**” shall mean any action completed after the construction period that is required to maintain the Project at “as built” standards, and costing less than twenty percent (20%) of original construction cost.

l. The term “**rehabilitation**” shall mean any action completed after the construction period that is required to maintain the Project at “as built” standards, and costing twenty percent (20%) or more of the original construction cost.



- m. The term "**Operation, Maintenance, and Rehabilitation Plan**" shall be a plan jointly developed and approved by NRCS and DNR upon completion of the Project and prior to acceptance by DNR of the completed Project or functional portion of the Project. The Operation, Maintenance, and Rehabilitation Plan will address specific items, with estimated costs, to be performed throughout the expected life-span of the Project and will be revised periodically to reflect actual needs.
- n. The term "**operations, maintenance, and rehabilitation costs**" shall mean all costs incurred by DNR and NRCS related to operating, maintaining, and rehabilitating the final accepted Project. Specific requirements and responsibilities shall be identified and mutually accepted by both parties in an "Operations, Maintenance, and Rehabilitation Plan".
- o. The term "**obligation**" refers to amount of orders placed, contracts awarded, services rendered, or other commitments made during a given period which will require outlay during the same or some future period.
- p. The term "**engineering and design costs**" shall mean all costs incurred by DNR and NRCS related to the development, approval, and acceptance of detailed engineering and design plans, specifications, and Project bid documents. This will also include all supervision and administrative costs associated with the engineering and design phase of the Project and will terminate with the award of a Project construction contract.
- q. The term "**monitoring costs**" shall mean all costs by DNR and NRCS in developing and implementing the Project Monitoring Plan to evaluate the effectiveness of the Project in reaching Project objectives. This shall include, but not be limited to, such items as plan development and review, conducting pre- and post- construction monitoring procedures, collection and evaluation of data, and preparation of monitoring reports.
- r. The term "**functional portion of the Project**" shall mean a completed portion of the Project as determined by the Contracting Officer and DNR in writing to be suitable for tender to DNR for operation and maintenance in advance of completion of the entire Project. To be suitable for tender, the Contracting Officer must determine that the completed portion of the Project can function independently and for a useful purpose, although the balance of the Project is not complete.
- s. The term "**life of the Project**" shall mean the next twenty (20) years starting at the date of acceptance of the final Project, or functional portion of the Project, as provided in Article V.e. of this Agreement.

## ARTICLE II - OBLIGATIONS OF THE PARTIES

a. No federal funds may be used to meet the DNR share of Project costs under this Agreement unless the expenditure of such funds is expressly authorized by statute as verified in writing by the granting agency.

b. DNR shall:

1. Over the life of the Project, fund a total contribution equal to the non-federal share of the total Project costs, including a minimum cash contribution of five percent (5%) of the total Project costs. Said contribution will include cash and/or credit granted from land rights, easements, servitudes, and rights-of-way obtained through or owned by DNR, or relocations credit granted for Project features furnished by DNR, and all administrative and management costs required by DNR to fulfill the obligations specified in this Agreement including pre- and post- construction Project monitoring, permitting coordination, geotechnical investigation, some engineering services, maintenance, operation, and/or rehabilitation responsibilities accepted by DNR.

2. Prior to the advertisement of each construction contract, and as further specified in Article VI.b.2. hereof, DNR shall provide a minimum cash contribution of five percent (5%) of that portion of total first costs incurred to date and anticipated to be expended through completion of that construction contract.

3. Prior to the advertisement of each construction contract, and as further specified in Article VI.b.2. hereof, DNR shall provide a contribution equal to the non-federal share of that portion of total first costs incurred to date and anticipated to be expended through completion of that construction contract. Said contribution will include cash and/or credit granted from land rights, easements, servitudes, and rights-of-way obtained through or owned by DNR, or relocations credit granted for Project features furnished by DNR, and administrative and management costs required by DNR to fulfill the obligations specified in this Agreement.

4. Implement the Project Monitoring Plan in accordance with procedures jointly developed with NRCS and, as further specified in Article VIII., to assure the performance of the long-term monitoring requirements.

5. Provide specific engineering services associated with the Project, subject to the cost-sharing provisions, and as mutually agreeable to both DNR and NRCS, or its engineering representative. Specific engineering services to be provided by DNR may include design surveys, plan preparation, post-construction surveys, etc. All such services will be approved by and subject to the supervision and guidance of NRCS engineering representatives.

6. Acquire all land rights, servitudes, rights-of-way, easements, and material borrow and disposal areas associated with the Project which are determined to be necessary, subject to cost-sharing terms previously identified.

7. Jointly develop an Operation, Maintenance, and Rehabilitation Plan with NRCS which will identify specific long-term maintenance, operation, and rehabilitation requirements. Said plan will be developed upon completion of the Project features in accordance with Article I.m., and will be reviewed and modified as necessary after an evaluation conducted by DNR, with NRCS participation, within 12-18 months following completion of construction.

8. Provide for non-federal share of costs identified in the Operation, Maintenance, and Rehabilitation Plan, according to Article VIII.a.

9. Assume all responsibilities (including engineering, design, and construction services) for operation, maintenance, and rehabilitation of the Project upon acceptance of the completed Project, limited only by the provisions of Article XVI. NRCS will reimburse DNR using electronic funds transfer (EFT) procedures in accordance with 31 CFR 208 for the federal share of such costs, subject to availability of funds.

c. NRCS shall:

1. Over the life of the Project, fund a total contribution equal to the federal share of the total Project costs, including any relocation costs associated with the Project.

2. Prior to the advertisement of each construction contract, NRCS shall provide a contribution equal to the federal share of that portion of total first costs incurred to date and anticipated to be expended through completion of that construction contract, including any relocation costs associated with the Project.

3. Except as limited by the provisions of Article VIII.b., and subject to the availability of appropriations, reimburse DNR for the federal share of the approved cost of pre- and post-construction monitoring of the Project upon receipt of the request for reimbursement.

4. Reimburse DNR using electronic funds transfer (EFT) procedures in accordance with 31 CFR 208 for the federal share of the actual costs incurred by DNR for all geotechnical and engineering services provided for the Project, permitting coordination, and acquiring all land rights (easements, servitudes, and rights-of-way, including suitable borrow material and disposal areas) as determined by NRCS to be necessary for Project construction, operation, monitoring, maintenance, and rehabilitation.

5. Provide all engineering, design, land services, and construction services, except those mutually agreed as specified in Article II. b. 5. and Article II b. 9 associated with the Project, subject to the cost-sharing provisions identified.

6. Provide the federal share of costs identified in the Operation, Maintenance, and Rehabilitation Plan and actually incurred by DNR, subject to the limitations on expenditures set forth in Article XIX.

7. Comply with the Federal Acquisition Regulation (FAR), Agriculture Acquisition Regulation (AGAR), and Natural Resources Conservation Service Acquisition Regulation (NRCSAR) for all federal contracts associated with the Project.

8. Provide authorized technical services including, but not limited to, obtaining basic information; preparation of drawings, design, and specifications; and performance of layout, inspection services, and quality assurance during construction. Preliminary and final plans must be reviewed and approved by the DNR Project Manager prior to advertisement.

9. Arrange for and conduct final inspection of the completed works of improvement with DNR to determine whether all work has been performed in accordance with the contractual requirements. Based on this determination, accept work from the contractor and notify DNR of acceptance.

10. Participate, with DNR, in an evaluation within 12 -18 months following the completion of construction to assess maintenance, operation, and rehabilitation needs. NRCS will also participate with DNR in any subsequent evaluations as the parties deem necessary to address long-term maintenance, operation, and rehabilitation of the Project.

11. Ensure that all National Environmental Policy Act (NEPA) and regulatory requirements, including permits, for the Project, are met.

### **ARTICLE III - LAND RIGHTS, FACILITIES, AND PUBLIC LAW 91-646 RELOCATION ASSISTANCE**

a. On Non-Federal Lands, DNR shall acquire all land rights, easements, servitudes, rights-of-way, and material borrow and disposal areas determined to be necessary for construction of the Project and as mutually agreed-to by DNR and NRCS. Prior to the advertisement of any construction contract, DNR shall provide certification to NRCS that all land rights, easements, servitudes, rights-of-way and material borrow and disposal areas required, have been acquired as part of this Agreement and shall furnish to NRCS evidence supporting actual rights-of-way acquired by DNR for Project construction, operation, monitoring, and maintenance.

b. The State shall comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646) as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR part 24, in acquiring lands, easements, and rights-of-way for construction and subsequent operation, maintenance, and rehabilitation of the Project.

c. No title to the property or minerals affected herein are transferred with any easements, servitudes, rights-of-way, and material borrow and disposal areas provided by DNR pursuant to this Agreement. No public rights of ownership shall be transferred and vested in private parties as a result of the Project. Further, any easements, servitudes, rights-of-way, and material borrow and disposal areas shall provide for reasonable access for mineral exploration and development.

#### **ARTICLE IV - VALUE OF LAND RIGHTS AND FACILITIES**

a. The value of the land rights, easements, servitudes, and rights-of-way to be included in total Project costs and credited towards DNR's share of total Project costs will be determined in accordance with the following procedures:

1. The costs associated with securing all land rights, easements, servitudes, and rights-of-way to be acquired by DNR (Article III.a.) shall be the actual costs including, but not limited to, expenses associated with securing legal land rights instruments from all sources (legal reviews, recording fees, etc.) associated with Project activities. An estimate of such costs will be prepared by DNR and approved by NRCS for credit allowance as part of the DNR cost-share. Credit allowance for any costs above this estimate must be approved by NRCS.

2. Any costs incurred for relocations will be included in total Project costs and will be accomplished as part of Project construction through the agreed cost-share arrangement.

#### **ARTICLE V - CONSTRUCTION PHASING AND MANAGEMENT**

a. To provide for consistent and effective communication between DNR and NRCS during the period of construction, DNR and NRCS shall appoint representatives to coordinate scheduling, plans, specifications, modifications, contract costs, and other matters relating to construction of the Project.

b. DNR will participate with NRCS, or its appointed representative, in the engineering and design phases of the Project. Oversight of engineering and construction of the Project will be the responsibility of NRCS or its appointed representative. At least thirty (30) calendar days prior to the date of formal request for construction bids, NRCS, or its appointed representative, shall provide DNR with final copies of all Project designs and specifications for review and concurrence by DNR. NRCS,

or its appointed representative, and DNR shall approve the final designs and specifications prior to proceeding with bid solicitations on all project construction contracts. Any plan and/or specification(s) changes, both before and after award of construction contracts, shall be jointly approved by NRCS and DNR.

c. The representatives appointed above shall meet as necessary during the period of construction and shall make such recommendations as they deem warranted to the Contracting Officer.

d. The Contracting Officer shall consider the recommendations of the representatives in all matters relating to construction of the Project; but the Contracting Officer, having ultimate responsibility for construction of the Project, has complete discretion to accept, reject, or modify the recommendations.

e. Following completion of the Project, or functional portion of the Project, final acceptance of the Project, or functional portion of the Project, will be jointly made by NRCS and DNR. Should the Project, or functional portion of the Project, not meet plan specification objectives, then DNR will have the option to approve modification of the Operation, Maintenance, and Rehabilitation Plan, or to terminate this Agreement. However, both DNR and NRCS shall endeavor to modify the Project and/or its Operation, Maintenance, and Rehabilitation Plan to ensure that the original plan specification objectives are achieved.

## **ARTICLE VI - METHOD OF PAYMENT**

a. DNR shall provide the contributions required under Article II of this Agreement. The PL 101-646 Task Force has estimated a total Project cost of \$14,103,051.00 and authorized a maximum total Project cost of \$17,628,814.00 for this particular Project. To meet its share, DNR will contribute, through in-kind services or in cash, the non-federal share of the total Project costs. The maximum amount of DNR's contribution is \$1,762,881.00. This figure is subject to modification as provided for in Section 303(f) of CWPPRA. Any costs in excess of the maximum total Project cost of \$17,628,814.00 are subject to amendment of this Agreement and Task Force approval, as provided in Article XIX. The maximum amount of DNR's required minimum five percent (5%) cash contribution is \$881,441.00.

b. DNR shall provide its required cash contribution in proportion to the rate of federal expenditures in accordance with the following provisions:

1. For purposes of budget planning, NRCS shall notify DNR by October 1 of each year of the estimated funds that will be required from DNR to meet its share of total Project costs for the subsequent fiscal year.

2. No later than sixty (60) calendar days prior to the advertisement of each construction contract, NRCS shall notify DNR of DNR's share of that portion of total first costs incurred to date and anticipated to be expended through completion of that construction contract. This amount will include the non-federal share of total first costs in cash and/or credit as described in Article II.b.3., and the minimum cash contribution of five percent (5%) of total first costs as described in Article II.b.2. No later than 30 calendar days thereafter, DNR shall verify to the satisfaction of NRCS or its representative, that it has deposited the requisite amount in an escrow account with interest accruing to DNR.

3. For the second and subsequent fiscal years of Project implementation, no later than sixty (60) calendar days prior to the beginning of the fiscal year, DNR shall make the necessary funds available to NRCS through the funding mechanism specified in Article VI.b.2. of this Agreement. As construction of the Project proceeds, NRCS shall adjust the amounts required to be provided under this paragraph to reflect actual costs.

4. If, at any time during the period of construction, NRCS determines that additional funds will be needed from DNR to meet DNR's required share, NRCS shall so notify DNR, and DNR, no later than 45 calendar days from receipt of such notice, shall make the necessary funds available through the funding mechanism specified in Article VI.b.2. of this Agreement.

c. NRCS will draw on the escrow account such sums as NRCS deems necessary to cover contractual and in-house fiscal obligations attributable to the Project on an annual basis, as well as costs incurred by NRCS prior to the initiation of construction but after December 1, 1994, according to Article I.b.

d. The escrow account will be managed for NRCS by the New Orleans District, U.S. Army Corps of Engineers. Funds will be withdrawn from the account and disbursed to NRCS as requested.

e. Upon completion of the Project, or termination of this Agreement in accordance with Article XV. of this Agreement, and resolution of all relevant contract claims and appeals, NRCS shall compute the total Project costs and tender to DNR a final accounting of DNR's share of total Project costs. In the event that the total contribution by DNR is less than its minimum required share of total Project costs, DNR shall, no later than ninety (90) calendar days after receipt of written notice, make a cash payment to NRCS of whatever sum is required to meet its minimum required non-federal share of total Project costs, subject to the availability of appropriations.

f. In the event DNR has made cash contributions in excess of five percent (5%) of total Project costs which result in DNR having provided more than its required share of total Project costs, NRCS shall, no later than ninety (90) calendar days after the final accounting is complete, subject to the availability of appropriations, return said excess to DNR; however, DNR shall not be entitled to any refund of the five percent (5%) cash contribution required pursuant to Article II.b.2. of this Agreement.

g. If DNR's total contribution under this Agreement (including land rights, easements, rights-of-way, relocations, material borrow and disposal areas, and work-in-kind provided by DNR and approved by NRCS) exceeds DNR's required non-federal share of total Project costs, NRCS shall verify the actual exceeded costs and direct the U.S. Army Corps of Engineers, subject to the availability of appropriations for that purpose, and the minimum five percent (5%) cash requirement, refund the excess to DNR no later than 90 calendar days after the final accounting is complete.

#### **ARTICLE VII - DISPUTES**

Before any party to this Agreement may bring suit in any court concerning an issue relating to this Agreement, such party must first seek in good faith to resolve the issue through negotiation or other forms of non-binding alternative dispute resolution mutually acceptable to the parties.

#### **ARTICLE VIII - MONITORING, OPERATING, MAINTENANCE, AND REHABILITATION**

a. After NRCS has accepted, with the concurrence of DNR, the completed Project, or the functional portion of the Project, DNR shall assume long-term monitoring responsibilities in accordance with the Project Monitoring Plan defined in Article I.j. of this Agreement. At this same time, DNR will also assume responsibilities for operation, maintenance and rehabilitation of the completed Project, or functional portion of the Project, following the recommendations jointly developed and approved by DNR and NRCS in the Project Operation, Maintenance, and Rehabilitation Plan defined in Article I.m. of this Agreement. These responsibilities will remain in effect for the expected life of the Project which is twenty (20) years from the date of acceptance of the completed Project unless otherwise agreed to by NRCS and DNR.

b. DNR grants NRCS the right to enter, at reasonable times and in a reasonable manner, upon land which it owns or maintains access easements to the Project, for the purpose of inspection related to monitoring, operating, maintaining, replacing, or rehabilitating the Project. If an inspection shows that DNR, for any reason, is failing to fulfill its obligations under this Agreement, NRCS will send a written notice to DNR concerning a need for compliance. If DNR persists in such failure for ninety (90) calendar days after receipt of the notice, then NRCS shall have a right to cancel the federal assistance portion of this Agreement for any additional expenses related to monitoring, operation, maintenance, and rehabilitation costs of the Project.

#### **ARTICLE IX - MAINTENANCE OF RECORDS**

NRCS and DNR shall keep books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to this Agreement to the extent and in such detail as will properly reflect total Project costs. NRCS and DNR shall maintain such books, records, documents and other evidence



for a minimum of three (3) years after completion of construction, operation, maintenance, repair, replacement, rehabilitation, and monitoring of the Project and resolution of all relevant claims arising therefrom, and shall make available at their offices at reasonable times, such books, records, documents, and other evidence for inspection and audit by authorized representatives of the parties to this Agreement.

#### **ARTICLE X - GOVERNMENT REVIEW OF RECORDS**

NRCS shall have the right to conduct an audit, when appropriate, of DNR's records for the Project to ascertain the reasonableness and allowability of its costs for inclusion as credit against the non-federal share of Project costs.

#### **ARTICLE XI - STATE REVIEW OF RECORDS**

DNR shall have the right to conduct an audit, when appropriate, of NRCS's records for the Project to ascertain the reasonableness and allowability of its costs for inclusion as credit against the federal share of Project costs.

#### **ARTICLE XII - RELATIONSHIP OF PARTIES**

The parties to this Agreement act in an independent capacity in the performance of their respective functions under this Agreement, and neither party is to be considered the officer, agent, or employee of the other.

#### **ARTICLE XIII - OFFICIALS NOT TO BENEFIT**

No member of, or delegate to, the Congress, or resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise therefrom.

#### **ARTICLE XIV - COVENANT AGAINST CONTINGENT FEES**

DNR warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by DNR for the purpose of securing business. For breach or violation of this warranty, NRCS shall have the right to annul this Agreement without liability, or, in its discretion, to add to the Agreement or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

## **ARTICLE XV - TERMINATION OR SUSPENSION**

a. If NRCS or DNR fails to receive annual appropriations for the Project in amounts sufficient to meet Project expenditure for the then-current or upcoming fiscal year, NRCS or DNR shall so notify the other Party. After sixty (60) calendar days from such notification either party may elect, without penalty, to terminate this Agreement pursuant to this Article or to defer future performance hereunder; however, deferral of future performance under this Agreement shall not affect existing obligations or relieve the parties of liability for any obligation previously incurred. In the event that either party elects to terminate this Agreement pursuant to this Article, both parties shall conclude their activities relating to the Project and proceed to a final accounting in accordance with Article VI of this Agreement. In the event that either party elects to defer future performance under this Agreement pursuant to this Article, such deferral shall remain in effect until such time as NRCS or DNR receives sufficient appropriations or until either party elects to terminate this Agreement.

b. Except as provided in paragraph (a) above, if at any time DNR fails to make the payments required under this Agreement, NRCS shall terminate or suspend work on the Project until DNR is no longer in arrears, unless NRCS determines that continuation of work on the Project is in the best interest of the United States or is necessary in order to satisfy agreements with any other non-federal interests in connection with the Project. DNR shall not be liable for any future payments should NRCS continue work on the Project, but shall remain liable for obligations previously incurred.

## **ARTICLE XVI - OBLIGATIONS OF FUTURE APPROPRIATIONS**

Nothing herein shall constitute, or be deemed to constitute, an obligation of future appropriations by the legislature of the State of Louisiana when obligating future appropriations would be inconsistent with the State's constitutional or statutory limitations.

## **ARTICLE XVII - NOTICES**

a. All notices, requests, demands, and other communications required or permitted to be given under this Agreement shall be deemed to have been duly given if in writing and delivered personally, given by prepaid telegram, or mailed by first-class (postage pre-paid), registered, or certified mail, as follows:

If to DNR:

Secretary, Department of Natural Resources  
P.O. Box 94396  
Baton Rouge, LA 70804-9396

If to NRCS:

State Conservationist  
USDA-Natural Resources Conservation Service  
3737 Government Street  
Alexandria, LA 71302

b. A party may change the address to which such communications are to be directed by giving written notice to the other party in the manner provided in this Article.

c. Any notice, request, demand, or other communication made pursuant to this Article shall be deemed to have been received by the addressee at such time as it is personally delivered or seven (7) calendar days after it is mailed, as the case may be.

#### **ARTICLE XVIII - CONFIDENTIALITY**

To the extent permitted by the laws governing each party, the parties agree to maintain the confidentiality of exchanged information when requested to do so by the providing party.

#### **ARTICLE XIX - PROJECT COST LIMITS**

a. The PPL 101-646 Task Force estimated that the total project cost for this Project to be \$14,103,051.00. That estimated total Project cost includes the following Project phases and associated estimated costs.

1. Engineering and design costs (also including supervision and administration, and lands) of	\$1,654,556.00
2. Construction and related contingency, and supervision and inspection of	\$9,723,048.00
3. Operation, maintenance and rehabilitation costs of	\$1,855,804.00
4. Monitoring costs of	\$ 855,145.00
5. U.S. Army Corps of Engineers Admin. Cost	\$ 14,498.00

b. To provide flexibility in the planning and construction of coastal restoration projects, the PL 101-646 Task Force authorized a maximum total Project cost of 125% of the estimated Project cost, or \$17,628,814.00, for this particular Project.

c. If, at any time during the performance of a particular Project phase, the actual or anticipated cost of that phase exceeds the estimated cost of that phase as set forth in Article XIX. a. of this Agreement, all work in that particular Project phase shall cease. NRCS and DNR may agree to increase the cost of completing that particular phase of the Project, but only if such increase would not result in the total Project costs exceeding the maximum total Project cost defined in Article XIX.b. of this Agreement. Such agreement regarding cost increases for the cost of a particular Project phase shall be made by letter agreement confirmed by the mutual written approval of both the NRCS State Conservationist and the DNR Secretary. Work on that particular Project phase shall thereafter resume.

d. Any costs in excess of \$17,628,814.00 shall be subject to review and approval by the Task Force and shall require an amendment to this Agreement approved by NRCS and the State. All work on the Project, including the award of contracts, shall cease until amendment of this Agreement and, review and approval by the Task Force. DNR's maximum contribution under the terms of this Agreement is \$1,762,881.00; any contribution in excess of that amount shall be subject to written amendment to this Agreement, including review and approval by the Division of Administration, State of Louisiana.

#### **ARTICLE XX- AMENDMENTS TO BE IN WRITING**

This Agreement may be modified by agreement of the parties, in accordance with the provisions of CWPPRA and applicable federal and state regulations. All such amendments, modifications, revisions, and/or changes to this Agreement must be made in writing and acknowledged by signature of the authorized representatives of all parties of this Agreement. All such amendments, modifications, revisions, and/or changes to this Agreement shall be subject to review and approval by the Division of Administration, State of Louisiana.

#### **ARTICLE XXI - EQUAL OPPORTUNITY AND CIVIL RIGHTS**

a. The program or activities conducted under this Agreement will be in compliance with the nondiscrimination provision contained in the Titles VI and VII of the Civil Rights Act of 1964, as amended; the Civil Rights Restoration Act of 1987 (Public Law 100-259); and other nondiscrimination statutes: namely, Section 504 of the Rehabilitation Act of 1973, Title IX of the education Amendments of 1972, and the Age discrimination Act of 1975. They will also be in accordance with regulations of the Secretary of Agriculture (7 CFR-15, Subparts A & B), which provide that no person in the United States shall on the grounds of race, color, national origin, age, sex, religion, marital status, or handicap be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving federal financial assistance from the Department of Agriculture or any agency thereof.

b. The Contracting Party shall not discriminate on the basis of sexual orientation.

## **ARTICLE XXII - SURVEY**

Prior to commencement of any construction activities, NRCS or the Office of Coastal Restoration and Management of DNR, at the option of DNR, shall (1) cause to be conducted, a survey to determine the highest tide during winter season or such other time which will indicate the extent of State ownership existing prior to commencement of any restoration activities, or (2) obtain aerial photographs or satellite images of the project area taken within one year prior to commencement of the restoration activity, or (3) acquire such other information as is acceptable to DNR to indicate the extent of State ownership. Any costs associated with this Article are considered a part of total Project costs and shall be cost-shared according to the terms previously identified.

## **ARTICLE XXIII - FEDERAL AND STATE LAWS**

- a. In the exercise of DNR's rights and obligations hereunder, DNR agrees to comply with all applicable federal and State laws and regulations.
- b. NRCS agrees to comply with all applicable federal and State of Louisiana laws and/or regulations, unless state law and regulations are preempted by federal law.

## **ARTICLE XXIV – FISCAL FUNDING**

The continuation of this contract is contingent upon the appropriation of funds to fulfill the requirements of the contract by the Louisiana legislature. If the Louisiana legislature fails to appropriate sufficient monies to provide for the continuation of the contract, or if such appropriation is reduced by the veto of the governor or by any means provided in the appropriations act to prevent the total appropriation for the year from exceeding revenues for that year, or for any other lawful purpose, and the effect of such reduction is to provide insufficient monies for the continuation of the contract, the contract shall terminate on the date of the beginning of the first fiscal year for which funds are not appropriated.

Cooperative Agreement No. CWPPRA-02-02  
DNR Agreement No. 2511-02-15  
Approved Format No. 16

**PENCHANT BASIN HYDROLOGIC RESTORATION PROJECT (TE-34)**

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed on the 23rd day of April, 2002, before the undersigned witnesses.

**USDA  
NATURAL RESOURCES CONSERVATION  
SERVICE**

BY: Donald W. Gohmert  
Donald W. Gohmert  
State Conservationist

**THE STATE OF LOUISIANA**

BY: Jack C. Caldwell  
Jack C. Caldwell, Secretary  
Louisiana Department of  
Natural Resources

**WITNESSES:**

Cheryl Watters  
Mitch Gallypau  
Bruce Lee

**WITNESSES:**


Suzanne Terrell  
Julia Rayford  
Karen Y. Lewis

Cooperative Agreement No. CWPPRA-02-02  
DNR Agreement No. 2511-02-15  
Approved Format No. 16

CERTIFICATE OF AUTHORITY

I, WARREN A. FLEET, do hereby certify that I am the principal legal officer of the Department of Natural Resources for the State of Louisiana, that the Department of Natural Resources for the State of Louisiana is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the Natural Resources Conservation Service and the State of Louisiana in connection with the **Penchant Basin Hydrologic Restoration Project (TE-34)**, Terrebonne Parish, LA, and that the persons who have executed this Agreement on behalf of the State have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this 24th day of April, 2002.

  
\_\_\_\_\_  
Warren A. Fleet  
General Counsel

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

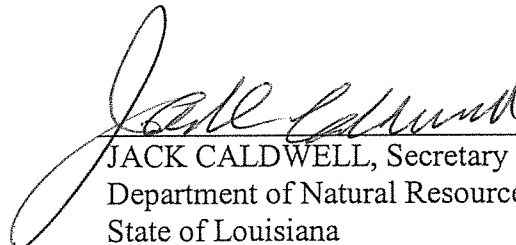
(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

DATE: 4/23/02

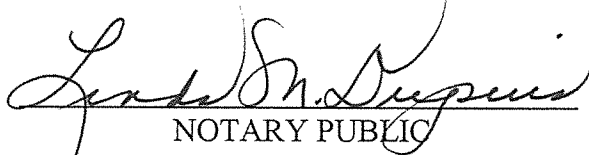
  
JACK CALDWELL, Secretary  
Department of Natural Resources  
State of Louisiana



STATE OF LOUISIANA

PARISH OF RAPIDES

BEFORE ME, the undersigned authority, duly commissioned and qualified in and for said Parish and State aforesaid, on this 1<sup>st</sup> day of May, 2002, personally came and appeared Donald W. Gohmert, to me known, who declared that he is the State Conservationist of the **USDA - Natural Resources Conservation Service**, that he executed the foregoing instrument on behalf of said Federal Agency and that the instrument was signed pursuant to the authority granted to him by said Federal Agency and that he acknowledged the instrument to be the free act and deed of said Federal Agency.

  
NOTARY PUBLIC

My commission expires: life time  
(SEAL)

STATE OF LOUISIANA

PARISH OF EAST BATON ROUGE

BEFORE ME, the undersigned authority, duly commissioned and qualified in and for said Parish and State aforesaid, on this 23<sup>rd</sup> day of April, 2002, personally came and appeared Jack C. Caldwell, to me known, who declared that he is the Secretary of the **Department of Natural Resources, State of Louisiana**, that he executed the foregoing instrument on behalf of said State Agency and that the instrument was signed pursuant to the authority granted to him by said State Agency and that he acknowledged the instrument to be the free act and deed of said State Agency.

  
NOTARY PUBLIC

My commission expires: with 1/2  
(SEAL)

United States Department of Agriculture



Natural Resources Conservation Service  
3737 Government Street  
Alexandria, LA 71302

January 25, 2007

Mr. Scott A. Angelle  
Secretary  
Department of Natural Resources  
State of Louisiana  
P.O. Box 94396  
Baton Rouge, Louisiana 70804-9396

Re: Penchant Basin Natural Resources Plan (TE-34)

Dear Mr. Angelle:

The Natural Resources Conservation Service (NRCS) and the Louisiana Department of Natural Resources (LDNR) entered into a cost sharing agreement on April 23, 2002 (Cooperative Agreement No. CWPPRA-02-02, DNR Agreement No. 2511-02-15) for the Penchant Basin Natural Resources Plan Project (TE-34), Terrebonne Parish, Louisiana. It is necessary that we adjust some of the funding categories to meet projected charges. The following adjustments are required:

	<u>-FROM</u>	<u>TO</u>
1. Engineering & Design (including supervision & administration and lands)	\$ 1,654,556.00	\$ 2,004,556.00
2. Construction (including supervision & inspection)	\$ 9,723,048.00	\$ 9,723,048.00
3. Operation, Maintenance, and Rehabilitation	\$ 1,855,804.00	\$ 1,855,804.00
4. Monitoring	\$ 855,145.00	\$ 855,145.00
5. USACE Project Management	\$ 14,498.00	\$ 16,998.00
6. Contingency	\$ 3,525,763.00	\$ 3,173,263.00
Total Project Cost	\$17,628,814.00	\$17,628,814.00

These increases do not cause the total Project cost to exceed the maximum total Project cost as defined in Article XIX.b. of the subject Agreement, nor does it require approval of the CWPPRA Task Force.

According to Article XIX.c. of the Agreement, confirmation and written approval of this type of funding arrangement is required by both NRCS and LDNR. Therefore, by this letter, I am requesting your agreement and concurrence to make this funding adjustment so we can complete the project work requirements. If you concur with this request, please indicate such by your signature in the space provided and returning one original signed copy back to me.


*Helping People Help the Land*


An Equal Opportunity Provider and Employer

Mr. Scott A. Angelle  
Page 2  
January 25, 2007

I look forward to the continuation of the amicable working relationships and partnering efforts between NRCS and LDNR called for by this Project and other CWPPRA projects.

Sincerely,

  
Donald W. Gohmert  
State Conservationist

Concurred: 

Scott A. Angelle  
Secretary

Date: 2/13/07

ATTACHMENT II

PENCHANT BASIN NATURAL RESOURCE PLAN, INCREMENT 1  
(TE-34)

**PROJECT FEATURES**

ATTACHMENT III

PENCHANT BASIN NATURAL RESOURCE PLAN, INCREMENT 1  
(TE-34)

**PROJECT COMPLETION REPORT**

# PROJECT COMPLETION REPORT<sup>1</sup>

**PROJECT NAME**

**Penchant Basin Natural Resources Plan,  
Increment 1**

**CWPPRA/STATE PROJECT NO.**

**TE-34**

**Report Date:** July 19, 2012

**BY:** Charles Slocum

## 1. Project Managers/Contracting Officer:

<b>CPRA Project Manager</b>	<b>Bill Feazel</b>	<b>Telephone</b>	<b>(225) 247-2089</b>
<b>CPRA Construction Project Manager</b>	<b>Brian Babin</b>	<b>Telephone</b>	<b>(985) 447-0956</b>
<b>CPRA Monitoring Manager</b>	<b>Jason Curole</b>	<b>Telephone</b>	
<b>Federal Agency Project Manager</b>	<b>John Jurgensen/ Quin Kinler</b>	<b>Telephone</b>	<b>(318) 473 7694 (225) 382-2047</b>
<b>Federal Agency Contracting Officer</b>	<b>Ralph Broome</b>	<b>Telephone</b>	<b>(318) 473-7781</b>

## 2. Location and description of projects as approved for construction by Task Force.

The project is bounded on the north by the Gulf Intracoastal Waterway (GIWW), the east by a north/south line from Lake DeCade to the GIWW, the south by Lake Merchant and Lost Lake, and to the west by a north/south line from Lost Lake to Avoca Island in Terrebonne Parish, Louisiana.

The project includes about 6,529 feet of foreshore rock dike (shoreline protection) along the southern bank of Bayou Chene at its intersection with Bayou Penchant and approximately 35 acres of marsh creation. Two freshwater introduction structures, consisting of a) sheet pile structure with 10-48" flap gates in Superior Canal and b) sheet pile weir with 10' boat bay opening and six 5' x 5' flap gated at Brady Canal, will be constructed to improve freshwater conveyance from Bayou Penchant into the central Terrebonne marshes. On the north bank of Bayou Decade extending from Lake decade to Turtle Bayou (12,000ft) an earthen embankment will be maintained and from Voss Canal to Lost Lake (14,000 ft) an earthen embankment will be constructed to 4.0 feet NAVD88 with 6:1 side slopes and rock armoring on the south-face. Within the embankment, a sheet pile weir with a 10 ft wide boat bay, will be constructed at each of two existing channels that intersect Bayou Decade.

## 3. Final, as-built features, boundaries and resulting acreage (use attachments if necessary).

Approximately 14,500 linear feet of earthen embankment armored with rock riprap along with an access floatation channel along the north bank of Bayou DeCade. Within this reach of Bayou DeCade, two sheet pile water control structures were installed at sites #4, #5, each with boat bays. Two sheet pile water control structures with 6 Aluminum flap gates each was installed, one at Brady Canal with a 10' boat bay and the other at Superior Canal without a boat bay. Additionally approximately 30 acres of marsh creation was included in the project at the Mouth of Penchant Bayou. This consists of construction of approximately 4,813 linear feet of containment dikes and 187,000 cubic yards of hydraulic dredged fill placement for marsh creation. Protecting the marsh creation area and acting as containment for the dredge fill, 6,667 linear feet of rock dike was installed at the Mouth of Penchant.

The exact location and construction dimensions of the project can be seen in the attached "As-Built" drawings

<sup>1</sup>To be filled out at construction completion by either the CPRA Construction Project Manager or the Federal Agency Contracting Officer depending on which organization had lead role for construction of project. (Except for some items under # 13).

Actual Benefitted Acres 675 acres

#### 4. Key project cost elements

(MIPR # = 83179326)	CWPPRA Project Cost Estimates**	Cost Incurred as of Construction Completion
<b>Construction</b>	<b>\$ 9,723,048.00</b>	<b>\$ 10,020,307.91</b>
<b>E &amp; D</b>	<b>\$ 1,977,131.92</b>	<b>\$ 1,977,131.92</b>
<b>Landrights</b>	<b>\$ 56,148.72</b>	<b>\$ 56,148.72</b>
<b>Monitoring</b>	<b>\$ 855,145.00</b>	<b>\$ 582,568.57</b>
<b>O &amp; M</b>	<b>\$ 1,855,804.00</b>	<b>\$ 3,533.13</b>
<b>Total</b>	<b>\$ 14,467,277.64</b>	<b>\$ 12,639,690.25</b>

As of 6-16-2014

\*\* Most recent estimate from Cost Share Agreement.

#### 5. Item of Work

Item No.	Work	Estimated Quantity	Unit	Estimated Unit Price	Estimated Amount	Unit Bid Price	Bid Amount	Final Quantity	Final Amount	% Over/ Under
1	Mobilization and Demobilization	1	Job	\$750,000.00	\$750,000.00	\$160,000.00	\$160,000.00	1	\$160,000.00	100.00%
2	Pollution Control	1	Job	\$40,000.00	\$40,000.00	\$50,000.00	\$50,000.00	1	\$50,000.00	100.00%
3	Construction Surveys	1	Job	\$90,000.00	\$90,000.00	\$195,000.00	\$195,000.00	1	\$195,000.00	100.00%
4	Piling, Steel Sheets	13,642	SF	\$47.50	\$647,995.00	\$41.00	\$559,322.00	13,642	\$559,322.00	100.00%
5	Piling, Round Timber, 50 ft	77	EA	\$1,500.00	\$115,500.00	\$1,200.00	\$92,400.00	77	\$92,400.00	100.00%
6	Excavation, Site Work	1	Job	\$25,000.00	\$25,000.00	\$90,000.00	\$90,000.00	1	\$90,000.00	100.00%
7	Excavation, Access Flootation , Mouth of Penchant	1	Job	\$550,000.00	\$550,000.00	\$350,000.00	\$350,000.00	1	\$350,000.00	100.00%
8	Excavation, Marsh Creation	220,000	CY	\$6.00	\$1,320,000.00	\$7.00	\$1,540,000.00	187,000.47	\$1,309,003.29	85.00%
9	Earthfill, Earthen Embankment, Bayou DeCade	14,285	LF	\$60.00	\$857,100.00	\$52.00	\$742,820.00	14,285	\$742,820.00	100.00%
10	Earthfill, Containment Dike	4,813	LF	\$30.00	\$144,390.00	\$25.00	\$120,325.00	4,813	\$120,325.00	100.00%
11	Rock Riprap, R150	32,090	Tons	\$65.00	\$2,085,850.00	\$61.00	\$1,957,490.00	32,090	\$1,957,490.00	100.00%
12	Rock Riprap, R300	42,409	Tons	\$65.00	\$2,756,585.00	\$62.00	\$2,629,358.00	41,576	\$2,577,712.00	98.04%
13	Water Control Gates, 5 ft by 5 ft	12	EA	\$15,000.00	\$180,000.00	\$9,000.00	\$108,000.00	12	\$108,000.00	100.00%
14	Metal Fabrication, Settlement Plates	7	EA	\$2,500.00	\$17,500.00	\$2,500.00	\$17,500.00	7	\$17,500.00	100.00%
15	Metal Fabrication and Installation, Sheet Pile Cap, Rails, & Appurtenances	1	Job	\$80,000.00	\$80,000.00	\$150,000.00	\$150,000.00	1	\$150,000.00	100.00%
16	Identification Markers or Plaques, Permanent Warning Signs	45	EA	\$2,800.00	\$126,000.00	\$2,000.00	\$90,000.00	45	\$90,000.00	100.00%
17	Identification Markers or Plaques, Staff Gages	18	EA	\$2,000.00	\$36,000.00	\$600.00	\$10,800.00	18	\$10,800.00	100.00%
18	Contractor Quality Control	1	Job	\$75,000.00	\$75,000.00	\$40,000.00	\$40,000.00	1	\$40,000.00	100.00%
19	Geotextile	69,501	SY	\$8.00	\$556,008.00	\$7.50	\$521,257.50	69,501	\$521,257.50	100.00%
			Total Estimate		\$10,452,928.00	Total Bid	\$9,424,272.50	Sub-Total	\$9,141,629.79	
M 1	Includes buy American Act into the Contract - NO COST									
							Total Modification #1		\$0.00	
M 2	To change vendors code for payment processing - NO COST									
							Total Modification #2		\$0.00	
M 3	Purpose to eliminate the geotextile from face of rock dike and to change work limits from 10' to 20'									
20	Geotextile Removed	1	Job			\$20,539.66	\$20,539.66	1	\$20,539.66	100.00%
							Total Modification #3		\$20,539.66	

M 4	needed as a result of rock riprap below the required excavation limits on the Brady Canal site hindering installation of the sheet pile									
6A	Excavation, Site Work	1	Job			\$2,784.08	\$2,784.08	1	\$2,784.08	100.00%
							Total Modification #4		\$2,784.08	
M 5	this mod allows for government provided signs to be installed at the Mouth of Penchant and the marsh creation area.									
21	Sign Installation	1	Job			\$1,992.00	\$1,992.00	1	\$1,992.00	100.00%
							Total Modification #5		\$1,992.00	
M 6	To remove unforeseen wooden structure at the Superior Canal site hindering installation of the sheet pile structure									
6B	Excavation, Site Work	1	Job			\$26,999.00	\$26,999.00	1	\$26,999.00	100.00%
							Total Modification #6		\$26,999.00	
M 7	To install PVC pipe markers at the mouth of Penchant and the marsh creation area									
22	Mod #7 Install PVC Post	1	Job			\$5,176.44	\$5,176.44	1	\$5,176.44	100.00%
							Total Modification #7		\$5,176.44	
M 8	To add CLIN item to allow for payment of delay claim and to allow for overrun and underrun quantities for contract close out									
11A	Rock Riprap R150	2,338	Tons			\$61.00	\$142,618.00	2,338	\$142,618.00	100.00%
19A	Geotextile	9,674	SY			\$7.50	\$72,555.00	9,674	\$72,555.00	100.00%
23	Checklist Delay Claim	1	Job			\$17,635.48	\$17,635.48	1	\$17,635.48	100.00%
							Total Modification #8		\$232,808.48	
							Final Contract Price		\$9,431,929.45	

## 6. Construction and construction oversight

<b>Prime construction contractor</b>	<b>The Delaney Group, Inc.</b>
<b>Subcontractor</b>	<b>Luhr Bros</b>
<b>Subcontractor</b>	<b>Frisco</b>
<b>Subcontractor</b>	<b>Inland Marine</b>
<b>Subcontractor</b>	<b>BS Equipment</b>
<b>Subcontractor</b>	<b>Frogco</b>
<b>Subcontractor</b>	<b>Southwind Dredging</b>
<b>Original construction contract</b>	<b>\$ 9,424,272.50</b>
<b>Change orders</b>	<b>\$ 290,299.66</b>
<b>Under runs</b>	<b>(\$ - 282,642.71)</b>
<b>Final construction contract</b>	<b>\$ 9,431,929.45</b>

<b>Const. oversight contractor</b>	<b>N/A</b>	<b>Const. amt.</b>	<b>\$ N/A</b>
<b>Cons. O.S./Admin. agency</b>	<b>NRCS</b>	<b>Est. amt.</b>	<b>\$ N/A</b>

## 7. Major equipment used.

Manitowoc 4600  
 Linkbelt 240 Track Hoe Excavator  
 Cat 320 LL Marsh Buggy Excavator  
 Cat 324 LL Marsh Buggy Excavator  
 American HC60 Terex Crane  
 Caterpillar 345D Excavator  
 Kobelcosk 160LC Excavator  
 Linkbelt 318 Crane  
 John Deere 240D Marsh Buggy Excavator

ALBOB Tug Boat  
 Tug Danny Joe  
 Bayou Lady Tug Boat  
 S/V I Tug Boat  
 Ellicott 570 12" Suction Dredge  
 Frisco II Spud Barge  
 Frisco III Spud Barge  
 Frisco IV Spud Barge  
 Frisco V Deck Barge

JMC Spud Barge  
 RG-426 Spud Barge  
 GD-2012 Spud Barge  
 L-401 Spud Barge  
 Rooster Spud Barge  
 LIL JB Spud Barge  
 LL-101 Supply Barge



## **8. Discuss construction sequences and activities, problems encountered, solutions to problems, etc.**

Excavate floatation and place spoil as required for access floatation on Bayou Penchant then Construct approximately 4,813 linear feet of earth containment for marsh creation areas.

Place about 6,667 linear feet of rock containment dike for approximately 30 acres of marsh creation and dredge approximately 187,000 cubic yards.

Excavate and place spoil as required for access floatation on Bayou Decade and construct approximately 14,500 linear feet of earthen embankment armored with rock riprap.

Install a water control structures at site # 5 then site # 4, each with boat bays, Construct a sheet pile water control structure with 6 aluminum flap gates and a 10' boat bay at Brady Canal and a sheet pile water control structure with 6 aluminum flap gates at Superior Canal, with no boat bay.

## **9. Construction change orders and field changes.**

Modification #1: The purpose of this mod is to include the Buy American Act clause in the contract. Changes the Contract FAR clause 52.225.9 Buy American Act–Construction Materials (Feb 2009) to 52.225-11, Buy American Act Construction Materials under Trade Agreements Act (Aug 2009) . No additional cost due to this modification.

Modification #2: The purpose of this mod is to changes the contractors Vendor Code for payment processing. No additional cost for this modification

Modification #3: The purpose of this mod is to change the work limits on the rock dike along Bayou Decade from 10 feet to 20 feet and eliminates the geotextile on the face of the rock dike at the Mouth of Penchant. Add bid item 20 geotextile removal to the contract. The net cost increases this modification by \$20,539.66.

Modification #4: The purpose of this mod is to remove unknown rock structure below the excavation limits in the work area hindering the installation of the sheet piling at Brady Canal site. The net increase to bid item 6 for this modification is \$2,784.08.

Modification #5: The purpose of this mod is to install NRCS provided signs in the work area at the Mouth of Penchant and the marsh creation area. New bid item 21 increases the net contract amount by \$1,992.00 for this modification.

Modification #6: The purpose of this mod is needed as a result of removal unknown wooden structure in the work area at Superior Canal site hindering the installation of the sheet piling structure. The net increase to bid item 6 for this modification is \$26,999.00.

Modification #7: The purpose of this mod is to install additional PVC warning post, between the permanent warning signs, in the work area at the Mouth of Penchant and the marsh creation area. New bid item 22 increases the net contract amount by \$5,176.44 for this modification.

Modification #8: The purpose of this mod is to add line item to the contract to allow for billing of cost incurred due to claim of government delay and to zero out line items which have remaining quantity that will not be billed or had a quantity overrun to allow for contract closeout.

CLIN #8, quantity is decreased from 220,000 cy to 187,000.47 cy and value of this item is decreased from \$1,540,000.00 to \$1,309,003.29.

CLIN #11, quantity is increased from 32,090 tons to 34,428 tons and the value of this item is increased from \$1,957,490.00 to \$2,100,108.00.

CLIN #12, quantity is decreased from 42,409 tons to 41,576 tons and the value for this item is decreased from \$2,629,358.00 to \$2,577,712.00.

CLIN #19, is increased from 69,501 sy to 79,175 sy and the value of this item is increased from \$521,257.50 to \$593,812.50.

CLIN 23, is added to the contract to allow for claim payment, value is \$17,635.48.

The total contract value is decreased from \$9,481,763.68 to \$9,431,929.45.

**10. Pipeline and other utility crossings.**

<u>Structure</u>	<u>Owner</u>	<u>Rep. To Contact</u>
16" and 22" Pipelines	Shell	Mr. Kevin Arceneaux Office (985) 873-3429 Cell (985) 790-2868

**11. Safety and Accidents.**

NONE

**12. Additional comments pertaining to construction, completed project, etc.**

NONE

**13. Significant Construction Dates: To be filled out by CPRA Construction Project Manager or Contracting Officer for construction for Agency responsible for construction.**

	<b>Date</b>	<b>Bid I.D.</b>
<b>Bid I.D. (Construction, Vegetation, etc.)</b>	<b>11/24/2009</b>	<b>AG-7217-S-10-0003</b>
<b>Bid Opening</b>	<b>2/12/2010</b>	
<b>Construction Contract Award</b>	<b>4/6/2010</b>	<b>AG-7217-C-10-0005</b>
<b>Preconstruction Conference</b>	<b>5/24/2010</b>	
<b>Notice to Proceed</b>	<b>5/25/2010</b>	
<b>Mobilization</b>	<b>6/2/2010</b>	
<b>Construction Start</b>	<b>6/9/2010</b>	
<b>Construction Completion</b>	<b>8-29-2011</b>	
<b>Final Acceptance</b>	<b>9/7/2010</b>	

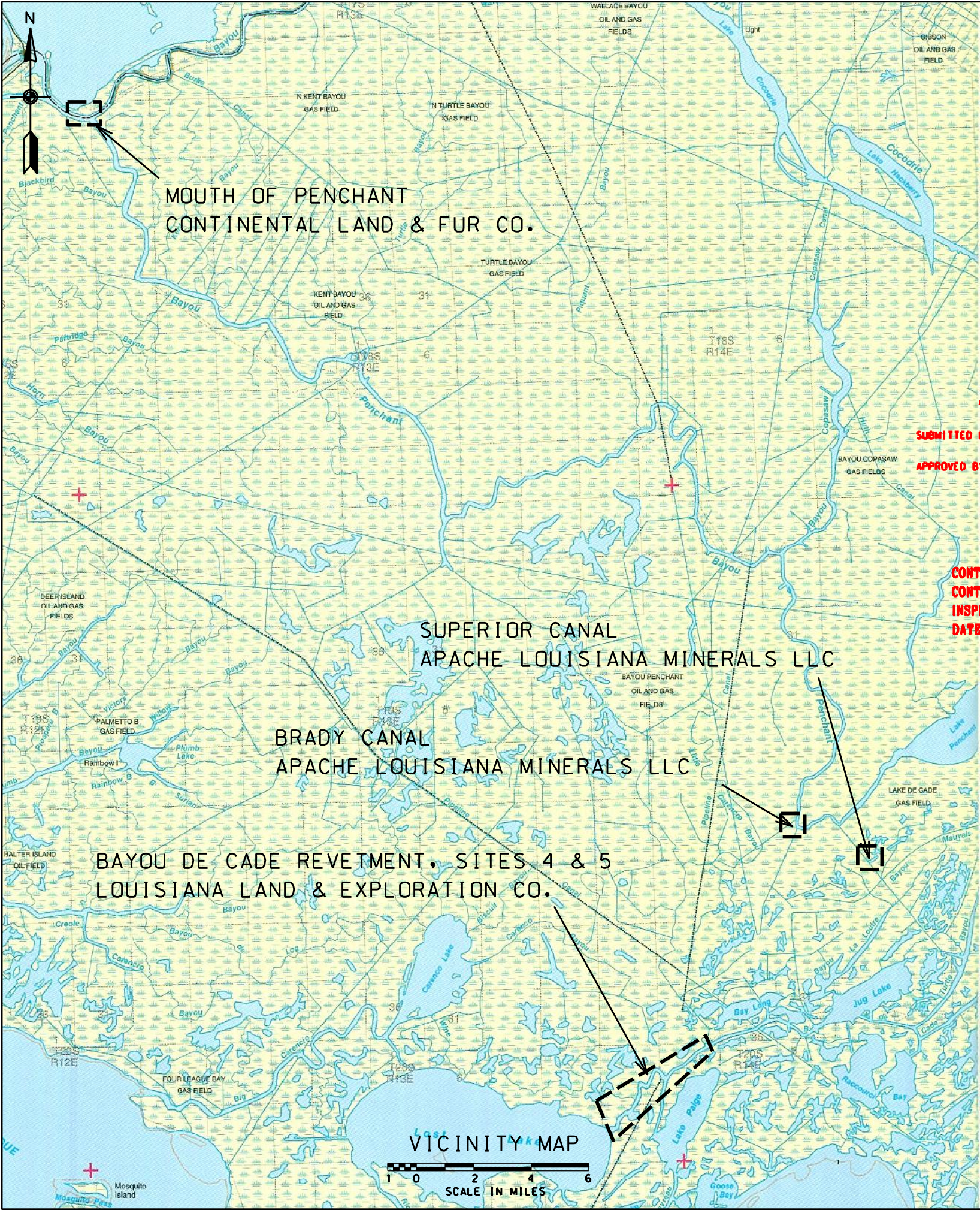
**If different bids are taken, repeat this table to individually reflect each bid and attach tables.**

ATTACHMENT IV

PENCHANT BASIN NATURAL RESOURCE PLAN, INCREMENT 1  
(TE-34)

**AS-BUILT DRAWINGS**





TE-34 PENCHANT BASIN  
NATURAL RESOURCES PLAN  
INCREMENT 1  
BUILT UNDER  
COASTAL WETLANDS, PLANNING, PROTECTION AND RESTORATION ACT  
PUBLIC LAW 101-646  
BY  
COASTAL PROTECTION AND RESTORATION  
AUTHORITY OF LOUISIANA  
WITH THE ASSISTANCE OF  
NATURAL RESOURCES CONSERVATION SERVICE  
OF THE  
UNITED STATES DEPARTMENT OF AGRICULTURE  
2009

"AS-BUILT PLANS"

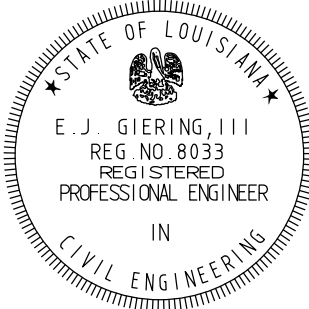
SUBMITTED BY: BARRAN BLANCHARD 12/9/11  
GOVERNMENT REPRESENTATIVE DATE  
APPROVED BY: BRANDON SANSON 07/16/14  
ASSISTANT STATE CONSERVATION ENGINEER DATE  
MARI GILFORD 07/16/14  
STATE CONSERVATION ENGINEER DATE

CONTRACT NO. 46721.76100005 DATE 12/9/2011  
CONTRACTOR THE DELANEY GROUP INC  
INSPECTOR ROBERT PAYTON  
DATE OF COMPLETION 8/29/2011



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02	PLAN MAP - BAYOU DE CADE	40	EXCAVATION SECTIONS - SUPERIOR CANAL
03	REVIEW PLAN - REACH 1 - B. DE CADE	41	GATE ATTACHMENT DETAILS - SUPERIOR CANAL
04	REVIEW PLAN - REACH 1 - B. DE CADE	42	GATE ATTACHMENT DETAILS - SUPERIOR CANAL
05	REVIEW PLAN - REACH 1 & 2 - B. DE CADE	43	PLAN MAP - WEIR ALIGNMENT - BRADY CANAL
06	REVIEW PLAN - REACH 2 & 3 - B. DE CADE	44	SHEETPILE - ISOMETRIC VIEW - BRADY CANAL
07	REVIEW PLAN - REACH 3 - B. DE CADE	45	SHEETPILE - ELEVATION VIEW - BRADY CANAL
08	TYPICAL SECTION - REACH 1 - B. DE CADE	46	EXCAVATION & SCOUR PAD - BRADY CANAL
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REVISIONS

DATE	APPROVED	TITLE

COVER SHEET  
TE-34 - PENCHANT BASIN  
TERREBONNE PARISH, LA.



Date	Designed	Drawn	Checked	Approved
04/06	S. GARNER	D. WILMORE	R. FAULKNER, B. STICKER	E. J. GIERING, III



N315000



E3380000

LANDOWNER  
LOUISIANA LAND AND EXPLORATION CO.

E3385000

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

E3390000

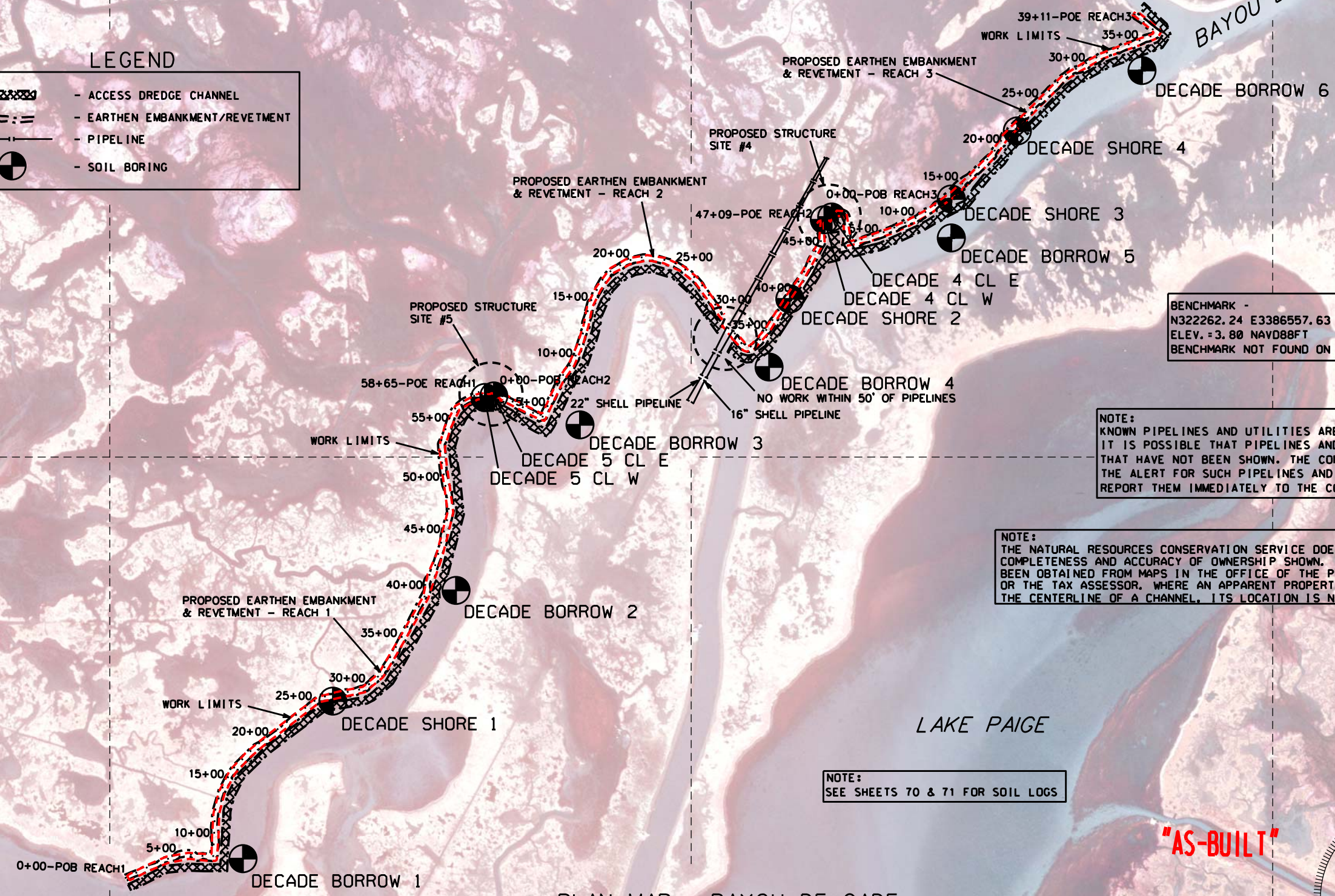
NOTE:  
AERIAL PHOTO DATE - 2005

LEGEND

- ACCESS DREDGE CHANNEL
- EARTHEN EMBANKMENT/REVTMENT
- PIPELINE
- SOIL BORING

N310000

N305000



BENCHMARK -  
N322262.24 E3386557.63 NAD83FT  
ELEV. = 3.80 NAVD88FT  
BENCHMARK NOT FOUND ON THIS DRAWING.

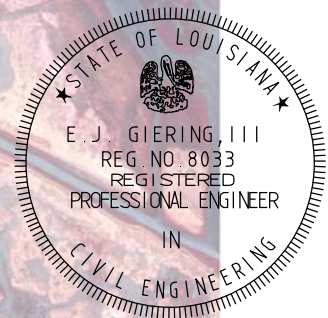
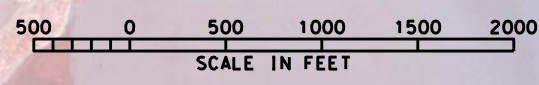
NOTE:  
KNOWN PIPELINES AND UTILITIES ARE SHOWN ON THE PLANS.  
IT IS POSSIBLE THAT PIPELINES AND UTILITIES MAY EXIST  
THAT HAVE NOT BEEN SHOWN. THE CONTRACTOR SHALL BE ON  
THE ALERT FOR SUCH PIPELINES AND UTILITIES, AND SHALL  
REPORT THEM IMMEDIATELY TO THE CONTRACTING OFFICER.

NOTE:  
THE NATURAL RESOURCES CONSERVATION SERVICE DOES NOT GUARANTEE THE  
COMPLETENESS AND ACCURACY OF OWNERSHIP SHOWN. APPARENT OWNERSHIP HAS  
BEEN OBTAINED FROM MAPS IN THE OFFICE OF THE PARISH CLERK OF COURT  
OR THE TAX ASSESSOR. WHERE AN APPARENT PROPERTY LINE IS SHOWN NEAR  
THE CENTERLINE OF A CHANNEL, ITS LOCATION IS NOT DEFINITE.

NOTE:  
SEE SHEETS 70 & 71 FOR SOIL LOGS

"AS-BUILT"

PLAN MAP - BAYOU DE CADE



DATE	07/07
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING, III

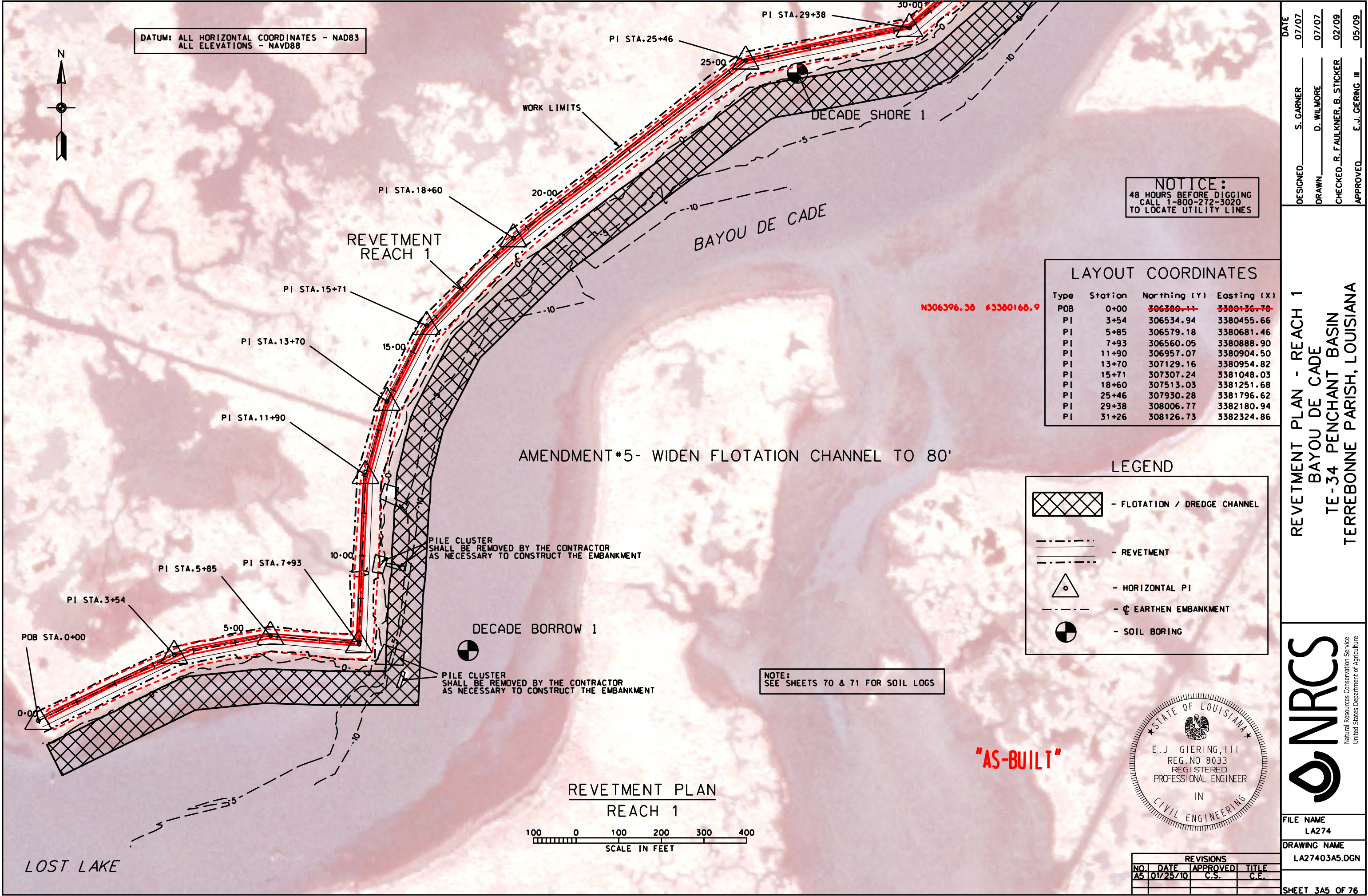
PLAN MAP  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME	LA274
DRAWING NAME	LA27402.DGN

REVISIONS		
NO.	DATE	TITLE









DATUM: ALL HORIZONTAL COORDINATES - NAD83  
ALL ELEVATIONS - NAVD88

LAYOUT COORDINATES

Type	Station	Northing (Y)	Easting (X)
PI	29+38	308006.77	3382180.94
PI	31+26	308126.73	3382324.86
PI	38+99	308798.91	3382706.49
PI	40+53	308952.65	3382716.30
PI	41+53	309024.71	3382786.76
PI	46+76	309530.38	3382918.27
PI	52+53	310101.62	3382835.29

DATE	07/07
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING III

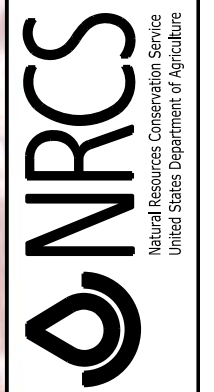
AMENDMENT#5- WIDEN FLOTATION CHANNEL TO 80'

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

LEGEND

	- FLOTATION / DREDGE CHANNEL
	- REVETMENT
	- HORIZONTAL PI
	- EARTHEN EMBANKMENT
	- SOIL BORING

REVETMENT PLAN - REACH 1  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

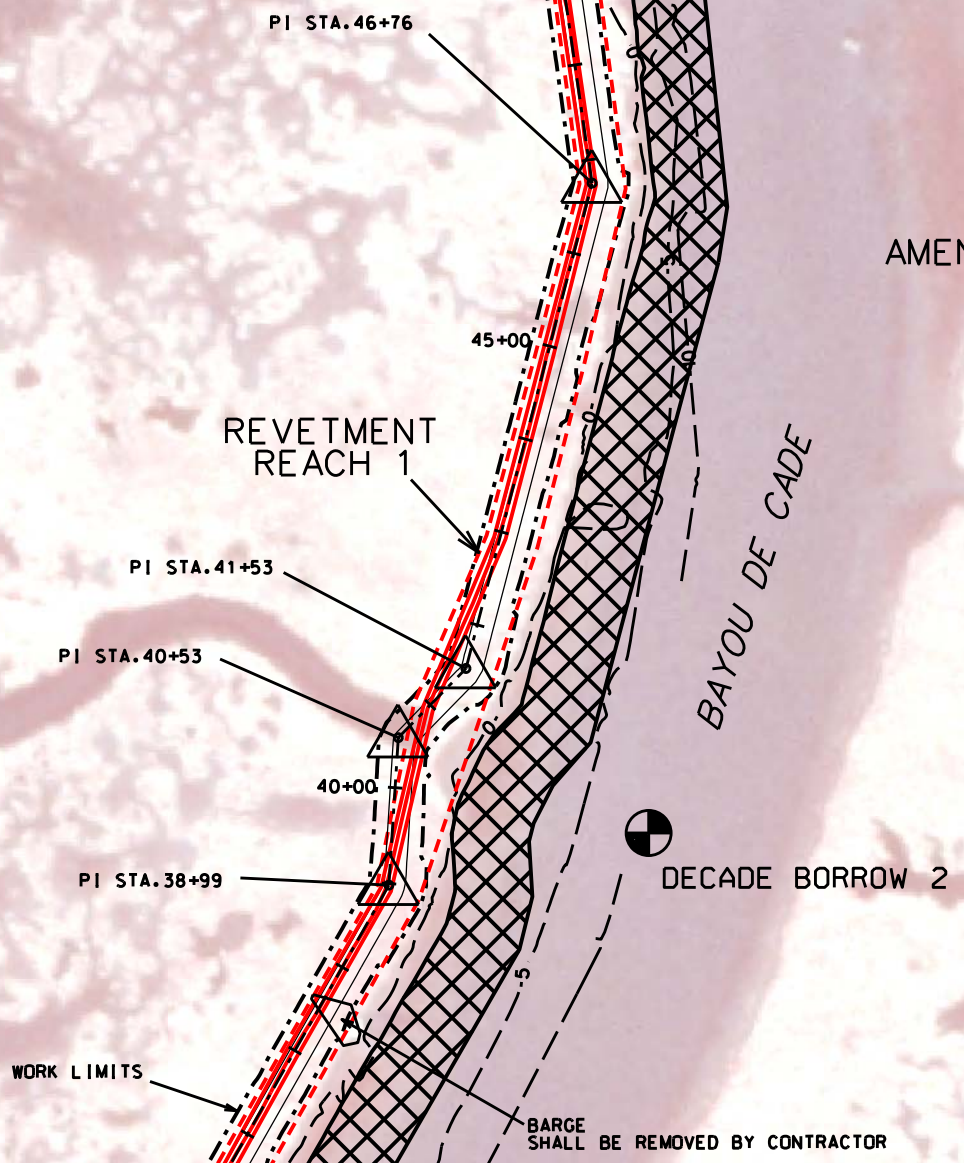


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DRAWING NAME	LA27404A5.DGN
SHEET	4A5 OF 76

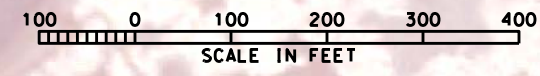
"AS-BUILT"



NOTE:  
SEE SHEET 70 FOR SOIL LOG



REVETMENT PLAN  
REACH 1





LAYOUT COORDINATES

Type	Station	Northing (Y)	Easting (X)
PI	46+76	309530.38	3382918.27
PI	52+53	310101.62	3382835.29
PI	55+63	310391.93	3382943.12
PI	56+84	310477.38	3383028.97
PI	57+86	310525.19	3383119.54
POE	58+65	<del>310536.61</del>	<del>3383197.80</del>
POB	0+00	<del>310525.45</del>	<del>3383376.27</del>
PI	3+89	310338.28	3383717.60
PI	7+64	310677.65	3383876.84
PI	9+71	310846.22	3383997.10
PI	12+65	311125.49	3384088.68
PI	12+98	311157.49	3384081.86
PI	14+72	311325.94	3384127.45
PI	16+98	311524.02	3384234.61
PI	18+22	311614.85	3384319.89
PI	20+39	311713.71	3384512.82
PI	21+99	311725.80	3384672.38
PI	23+93	311670.45	3384858.56
PI	25+38	311592.45	3384980.34
PI	26+86	311489.11	3385086.31
PI	33+36	310951.61	3385451.52

DATUM: ALL HORIZONTAL COORDINATES - NAD83  
ALL ELEVATIONS - NAVD88

N310537.2 #3383194.15  
N310525.61 #3383387.0

LEGEND

- FLOTATION / DREDGE CHANNEL
- REVETMENT
- HORIZONTAL PI
- EARTHEN EMBANKMENT
- SOIL BORING

NOTE:  
SEE SHEET 70 FOR SOIL LOG

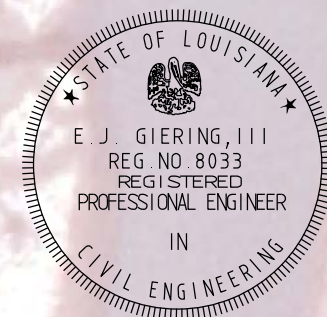
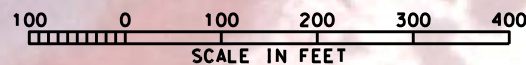
NOTE:  
FACE OF ROCK REVETMENT SHALL TIE INTO  
THE EXISTING ROCK LOCATED OVER THE SHELL PIPELINE  
AS CONCURRED IN BY THE COTR.

NOTE:  
NO EXCAVATION ALLOWED WITHIN 50'  
OF SHELL PIPELINES

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

"AS-BUILT"

REVETMENT PLAN  
REACH 1 & 2



REVISIONS			
NO.	DATE	APPROVED	TITLE
A5	01/25/10	C.S.	C.E.

DATE	07/07
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING III

REVETMENT PLAN - REACH 1 & 2  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

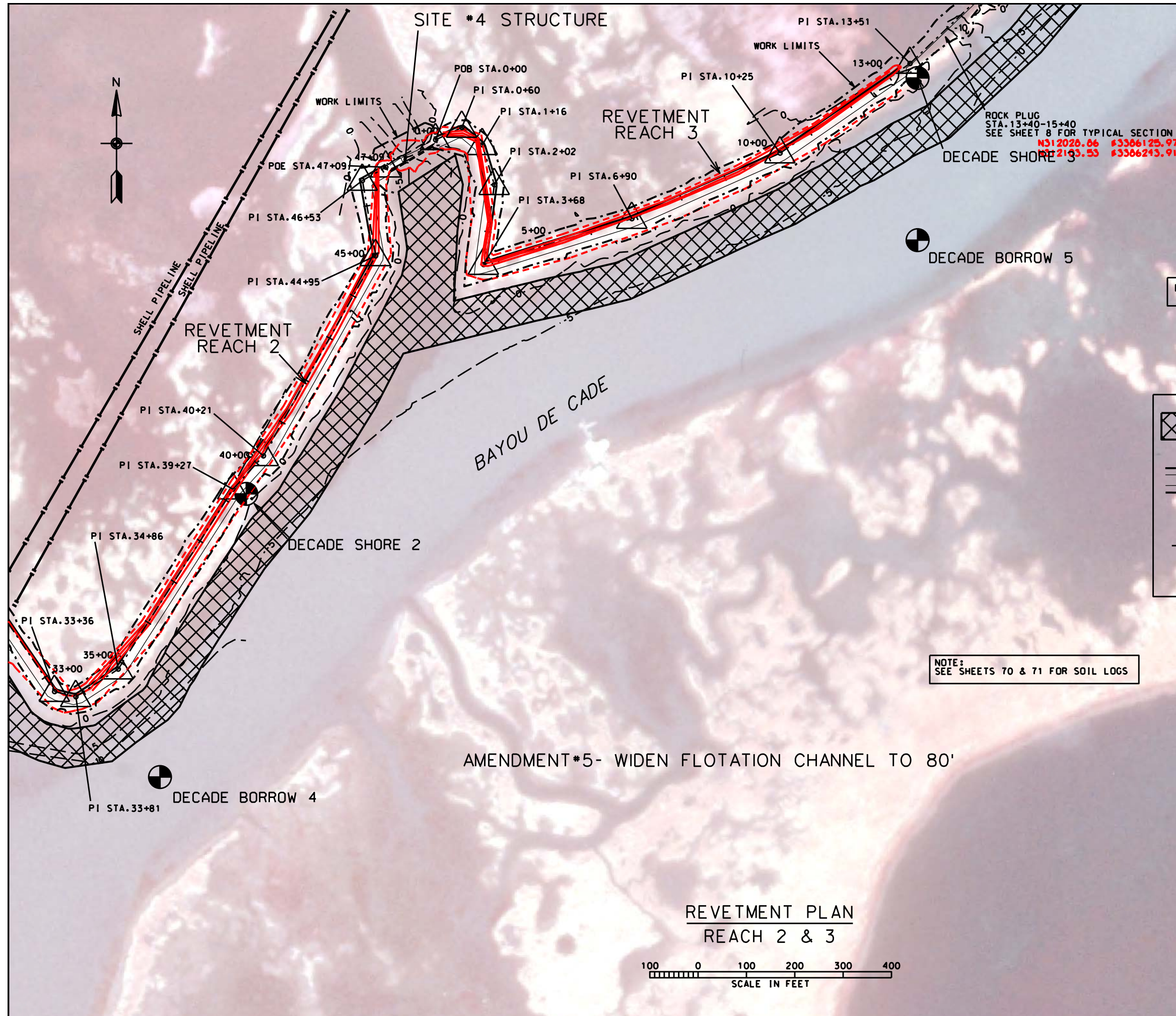
Natural Resources Conservation Service  
United States Department of Agriculture

FILE NAME  
LA274

DRAWING NAME  
LA27405A5.DGN

SHEET 5A5 OF 76





LAYOUT COORDINATES			
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PI	33+81	310941.05	3385495.67
PI	34+86	310998.19	3385583.16
PI	39+27	311370.55	3385820.66
PI	40+21	311439.48	3385883.56
PI	44+95	311853.36	3386115.72
PI	46+53	312009.34	3386088.36
POE	47+09	312036.79	3386136.84
POB	0+00	312093.52	3386239.77
PI	0+60	312119.06	3386294.06
PI	1+16	312083.14	3386336.47
PI	2+02	312000.49	3386361.29
PI	3+68	311835.35	3386338.98
PI	6+90	311930.40	3386645.85
PI	10+25	312066.03	3386952.32
PI	13+51	312251.49	3387221.14

DATUM: ALL HORIZONTAL COORDINATES - NAD83  
ALL ELEVATIONS - NAVD88

LEGEND

- FLOTATION / DREDGE CHANNEL

- REVETMENT

- HORIZONTAL PI

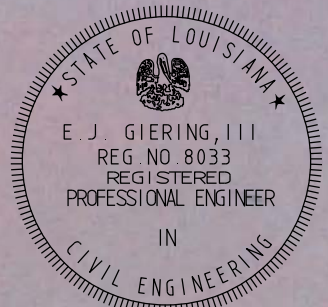
- EARTHEN EMBANKMENT

- SOIL BORING

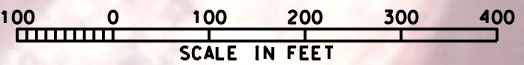
NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

NOTE:  
SEE SHEETS 70 & 71 FOR SOIL LOGS

"AS-BUILT"



REVETMENT PLAN  
REACH 2 & 3



DATE

07/07

07/07

02/09

05/09

DESIGNED

S. GARNER

DRAWN

D. WILMORE

CHECKED

R. FAULKNER, B. STICKER

APPROVED

E.J. GIERING III

REVETMENT PLAN - REACH 2 & 3  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

NRCS  
Natural Resources Conservation Service  
United States Department of Agriculture

FILE NAME  
LA274

DRAWING NAME  
LA27406A5.DGN

SHEET 6A5 OF 76

REVISIONS			
NO.	DATE	APPROVED	TITLE
A5	01/25/10	C.S.	C.E.





# LAYOUT COORDINATES

Type	Station	Northing (Y)	Easting (X)
PI	10+25	312066.03	3386952.32
PI	13+51	312251.49	3387221.14
PI	18+51	312596.27	3387582.92
PI	20+45	312759.15	3387688.73
PI	27+94	313289.96	3388216.08
PI	31+59	313466.72	3388535.31
PI	36+35	313632.42	3388982.16
PI	36+66	313659.59	3388996.04
POE	39+11	<del>313812.69</del>	<del>3388804.32</del>

DATUM: ALL HORIZONTAL COORDINATES - NAD83  
ALL ELEVATIONS - NAVD88

## LEGEND

	- FLOTATION / DREDGE CHANNEL
	- REVETMENT
	- HORIZONTAL PI
	- EARTHEN EMBANKMENT
	- SOIL BORING

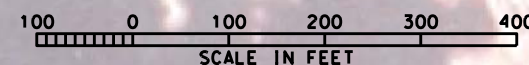
NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

NOTE:  
SEE SHEETS 70 & 71 FOR SOIL LOGS

"AS-BUILT"

AMENDMENT#5- WIDEN FLOTATION CHANNEL TO 80'

## REKETMENT PLAN REACH 3



REVISIONS			
NO.	DATE	APPROVED	TITLE
A5	01/25/10	C.S.	C.E.

REKETMENT PLAN - REACH 3  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

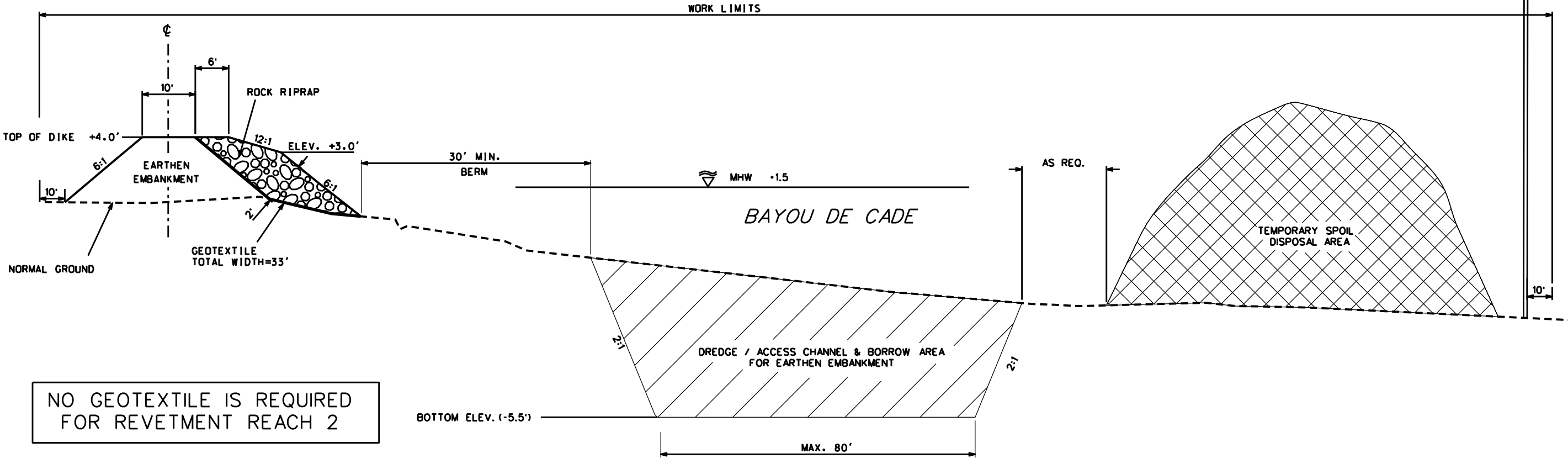


FILE NAME  
LA274  
DRAWING NAME  
LA27407A5.DGN  
SHEET 7A5 OF 76

DESIGNED	DRAWN	CHECKED	APPROVED
S. GARNER	D. WILMORE	R. FAULKNER, B. STICKER	E.J. GIERING III
DATE	07/07	07/07	02/09



- NOTES:
- 1. EXCAVATION IS REQUIRED TO CONSTRUCT THE EARTHEN EMBANKMENT TO THE LINES AND GRADES SHOWN.
  - 2. EXCAVATION FOR FLOTATION IN EXCESS OF THE MATERIAL REQUIRED FOR CONSTRUCTING THE EARTHEN FILL EMBANKMENT IS OPTIONAL TO THE CONTRACTOR.
  - 3. SURPLUS MATERIAL MAY BE PLACED ON THE BAYOU SIDE OF THE FLOTATION CHANNEL. SUCH MATERIAL SHALL BE PLACED BACK INTO THE ACCESS CHANNEL AT THE END OF CONSTRUCTION.
  - 4. ADDITIONAL MATERIAL SHALL BE TAKEN FROM A DEEPER CUT WITHIN BAYOU DE CADE AT SECTIONS WHERE ACCESS CHANNEL EXCAVATION QUANTITIES ARE NOT SUFFICIENT FOR CONSTRUCTING THE REQUIRED EARTHFILL FOR THE EARTHEN EMBANKMENT.
  - 5. TEMPORARY WARNING SIGNS SHALL BE PLACED AS SHOWN AT A MAXIMUM DISTANCE OF 500' C-C.

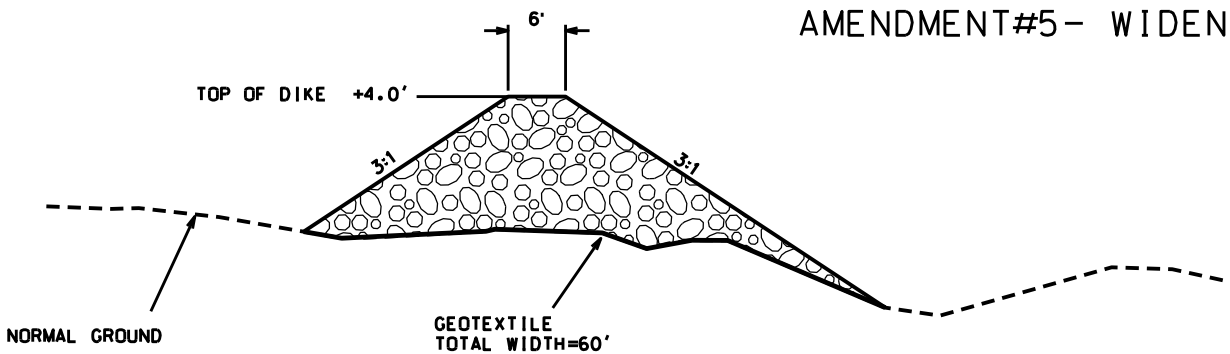


NO GEOTEXTILE IS REQUIRED FOR REVETMENT REACH 2

TYPICAL SECTION - REVETMENT  
BAYOU DE CADE SHORELINE

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

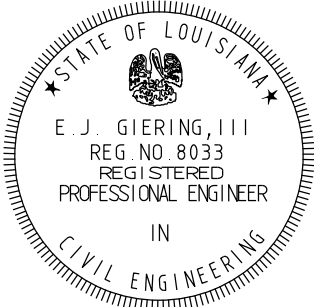
AMENDMENT#5- WIDEN FLOTATION CHANNEL TO 80'



ROCK PLUG - STA. 13+40 TO STA. 15+40  
BAYOU DE CADE -REACH 3

NOT TO SCALE

"AS-BUILT"



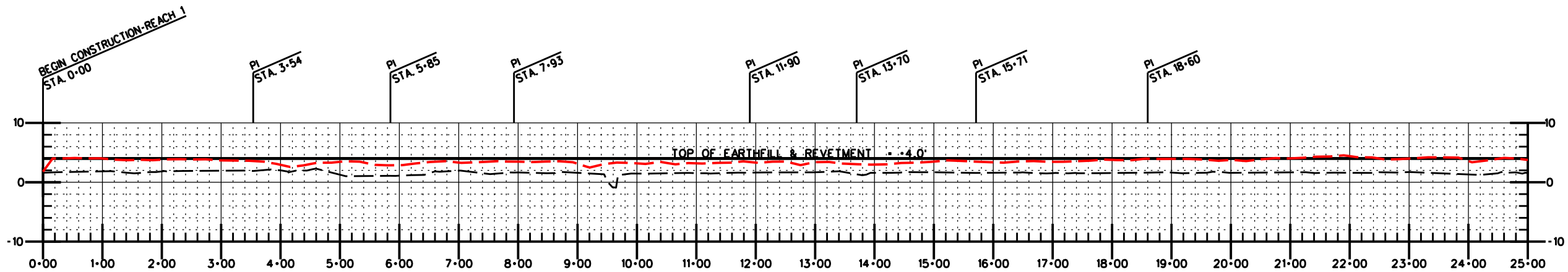
REVISIONS			
NO.	DATE	APPROVED	TITLE
AS	01/25/10	C.S.	C.E.

TYPICAL SECTION - REVETMENT  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

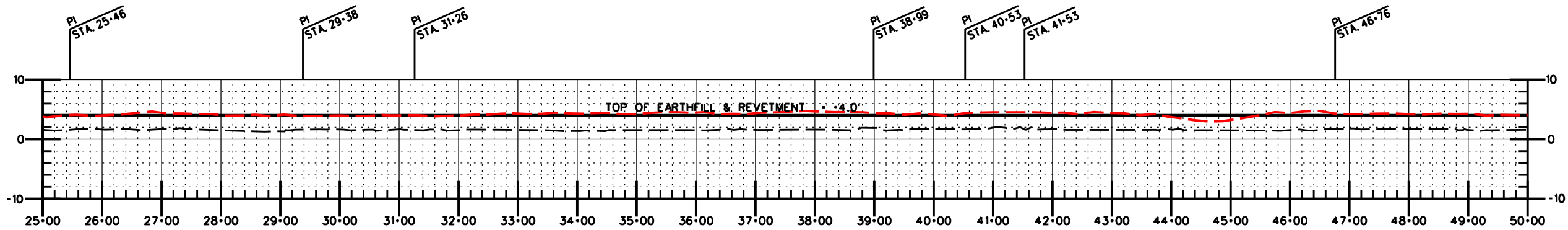


FILE NAME  
LA274  
DRAWING NAME  
LA27408A5.DGN

DATE	DESIGNED	DRAWN	CHECKED	APPROVED
07/07	S. GARNER	D. WILMORE	R. FAULKNER, B. STICKER	E.J. GIERING III
07/07				
02/09				
05/09				

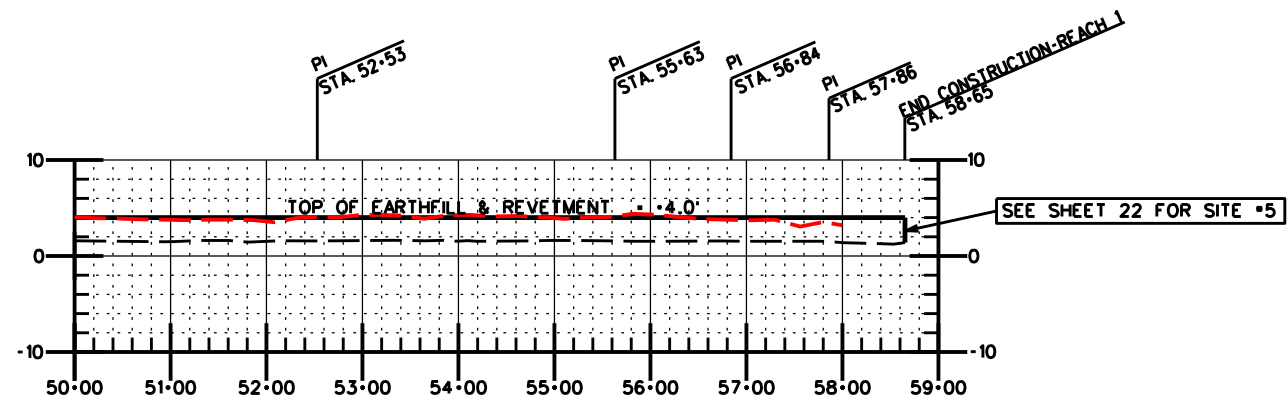


⌀ EARTHEN EMBANKMENT PROFILE - REACH 1  
STA. 0+00 - STA. 25+00



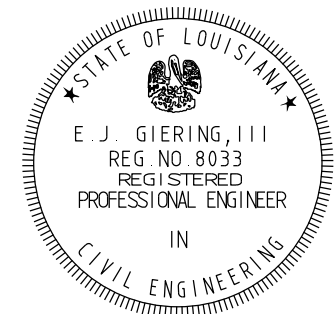
⌀ EARTHEN EMBANKMENT PROFILE - REACH 1  
STA. 25+00 - STA. 50+00

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES



⌀ EARTHEN EMBANKMENT PROFILE - REACH 1  
STA. 50+00 - STA. 58+65

"AS-BUILT"



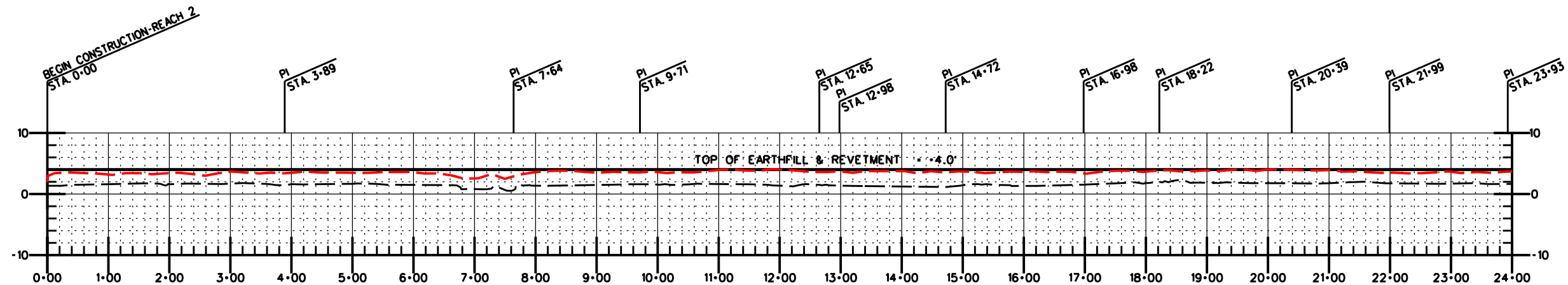
REVISIONS			
NO.	DATE	APPROVED	TITLE

DESIGNED	DRAWN	CHECKED	APPROVED	DATE
S. GARNER	D. WILMORE	R. FAULKNER, B. STICKER	E.J. GIERING III	07/07
				07/07
				02/09
				05/09

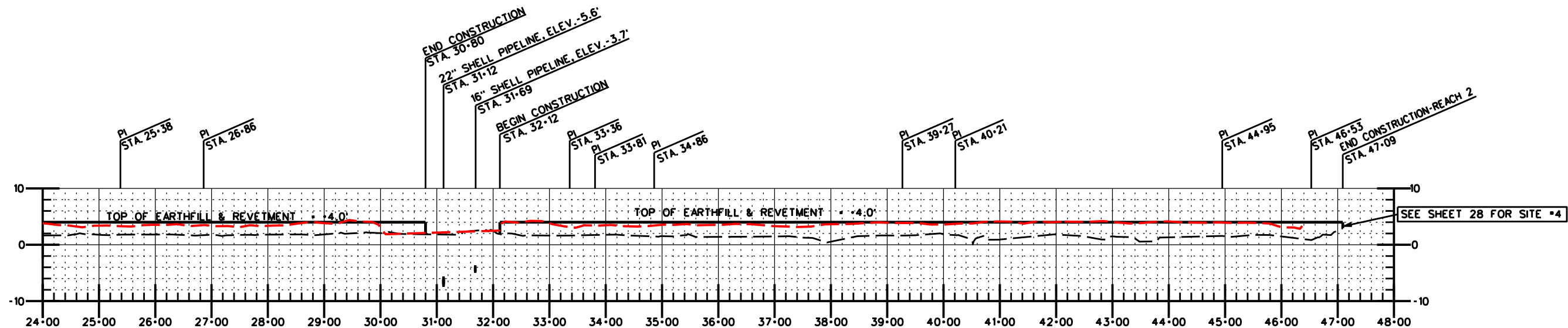
REVETMENT PROFILE - REACH 1  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME	LA274
DRAWING NAME	LA27409.DGN
SHEET 9 OF 76	



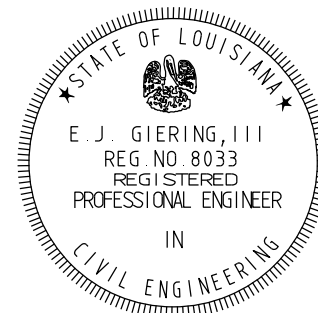
⌀ EARTHEN EMBANKMENT PROFILE - REACH 2  
STA. 0+00 - STA. 24+00



⌀ EARTHEN EMBANKMENT PROFILE - REACH 2  
STA. 24+00 - STA. 47+09

**NOTICE:**  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

**"AS-BUILT"**



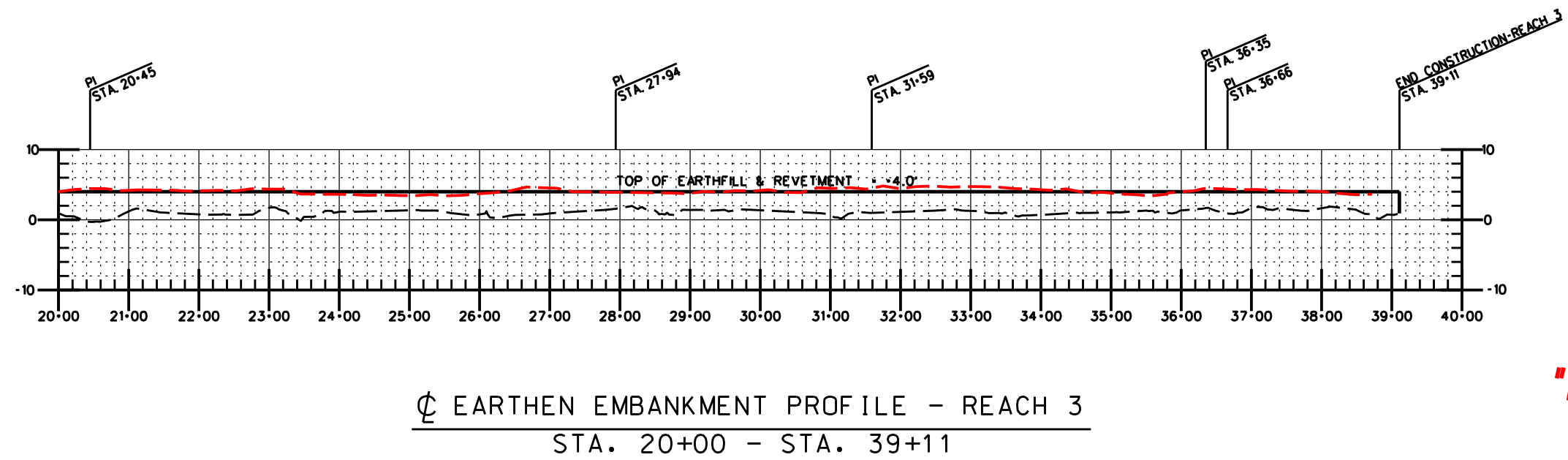
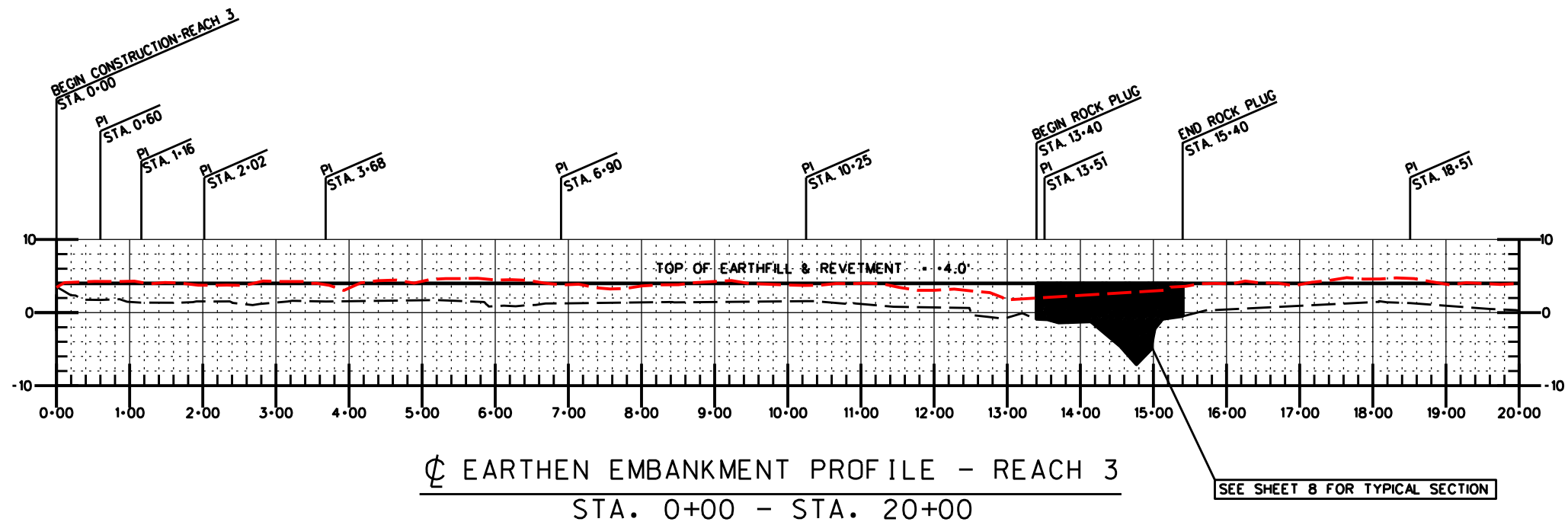
REVISIONS			
NO.	DATE	APPROVED	TITLE

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING III		05/09

REVETMENT PROFILE - REACH 2  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

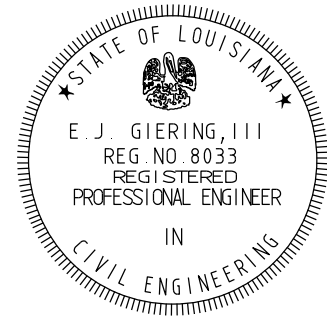


FILE NAME	LA274
DRAWING NAME	LA27410.DGN
SHEET	10 OF 76



**NOTICE:**  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

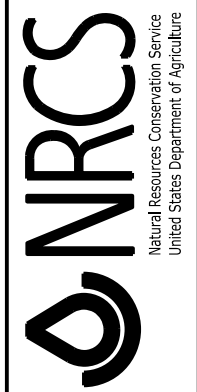
**"AS-BUILT"**



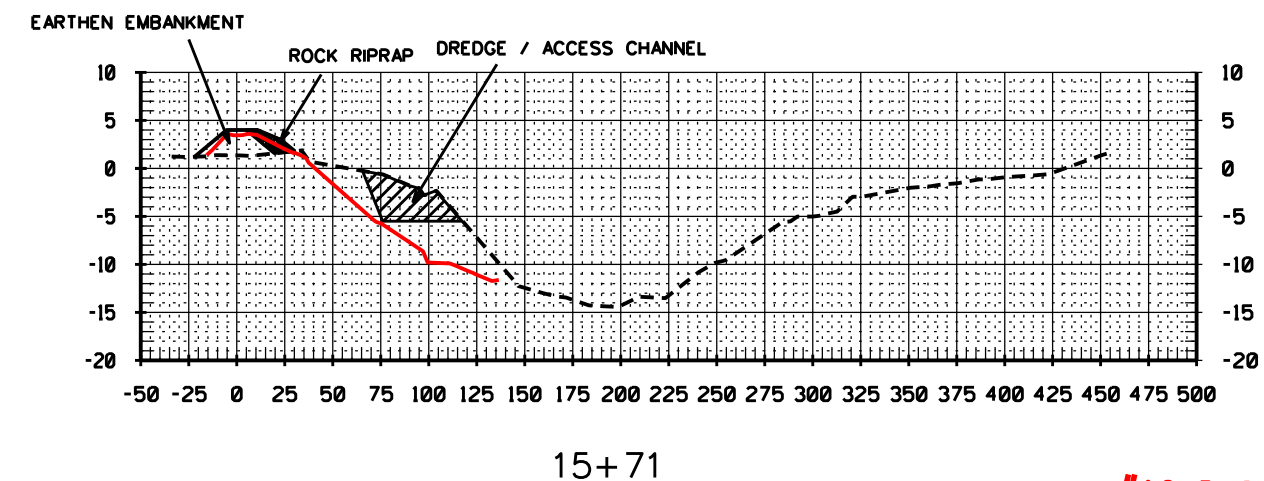
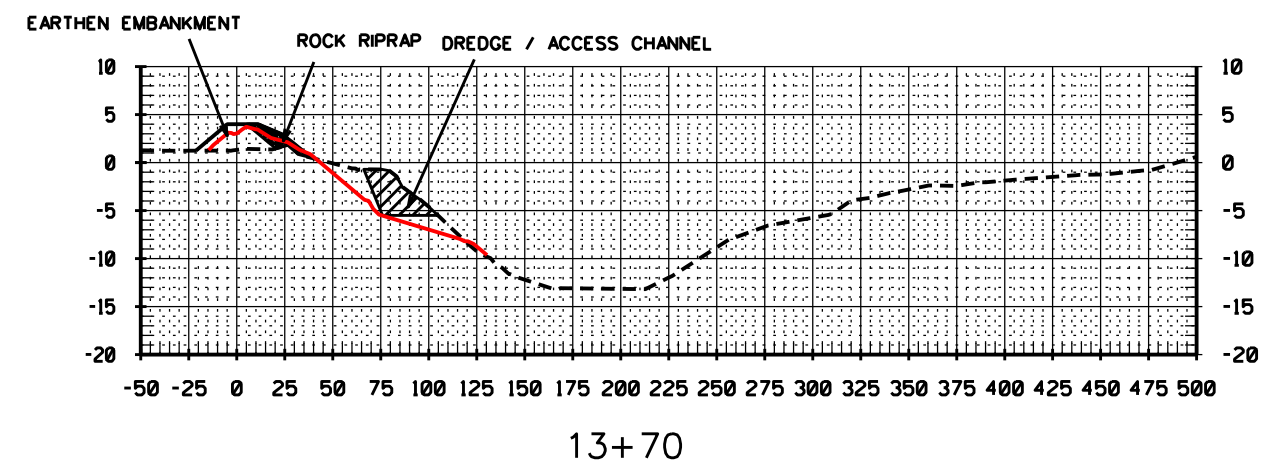
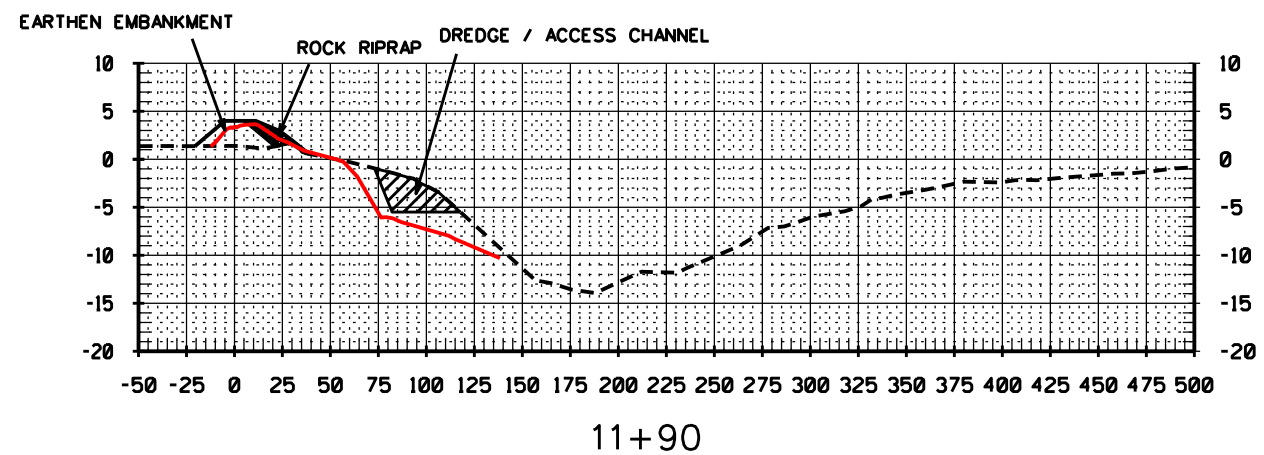
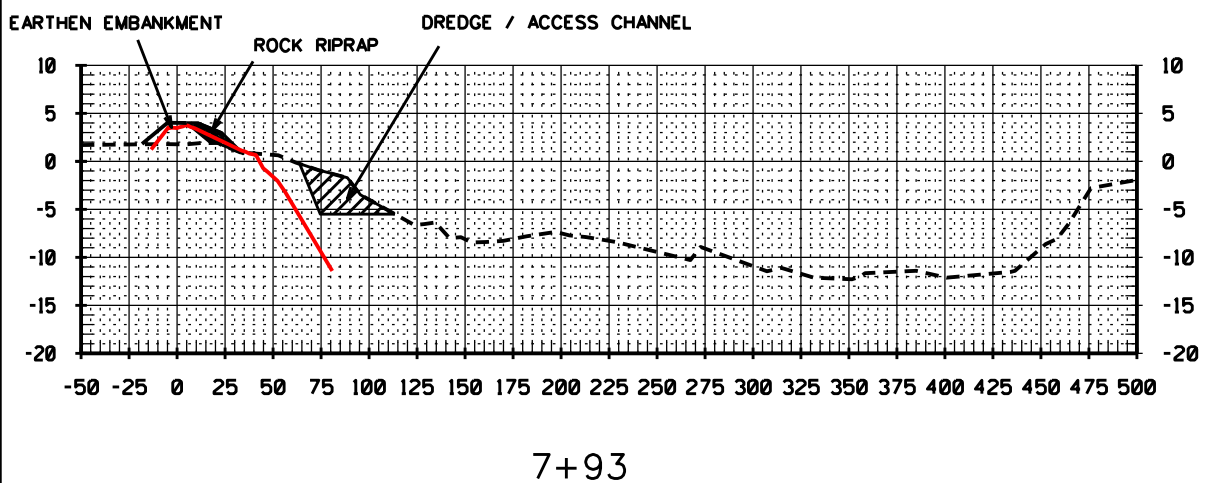
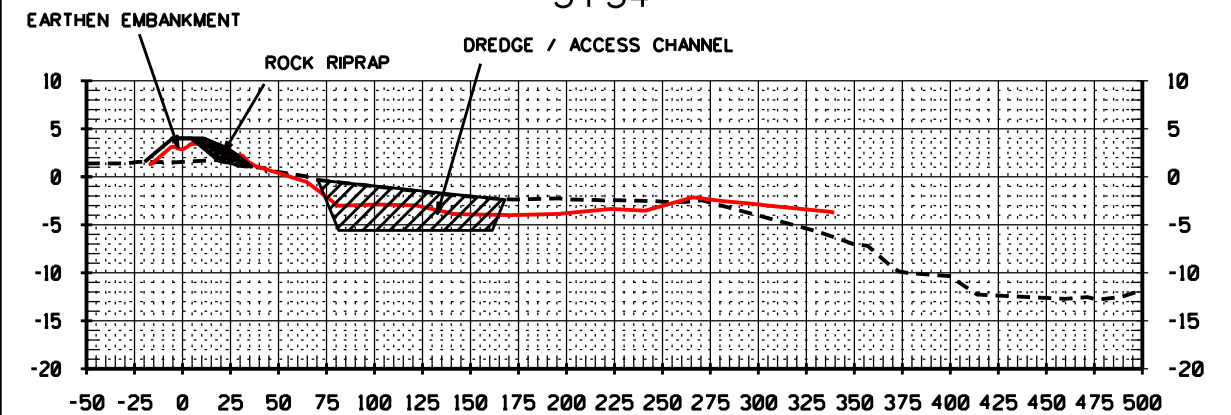
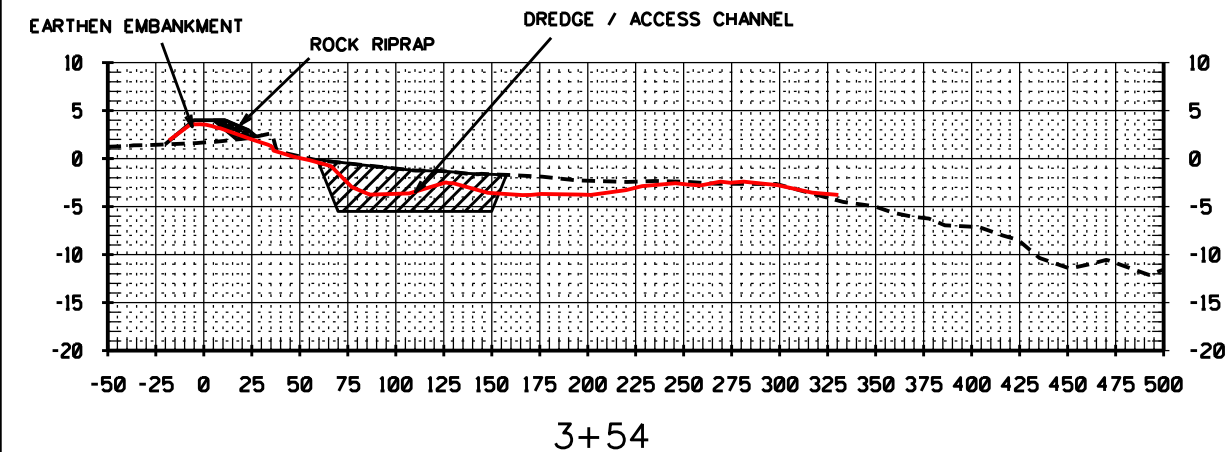
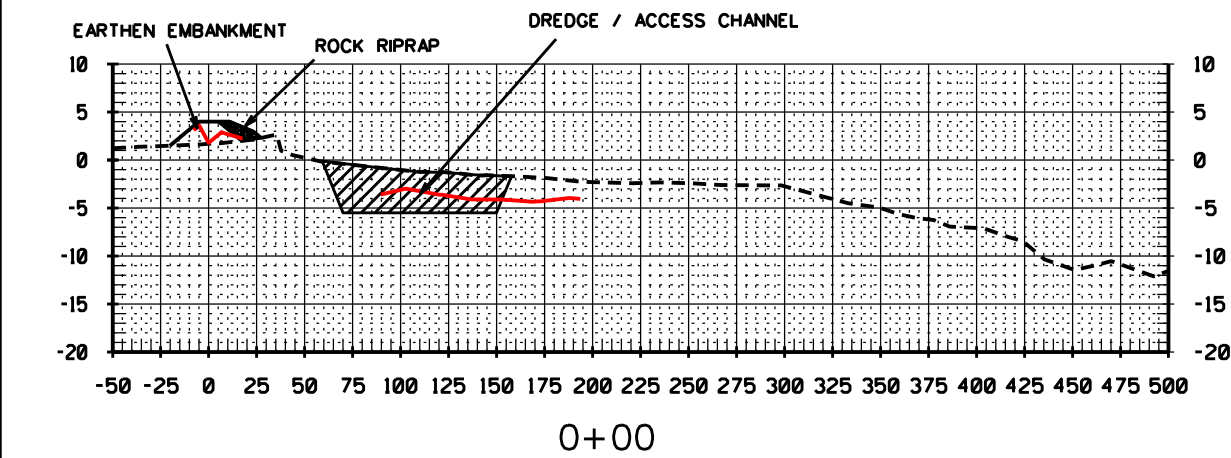
REVISIONS			
NO.	DATE	APPROVED	TITLE

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING III		05/09

REVETMENT PROFILE - REACH 3  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME	LA274
DRAWING NAME	LA27411.DGN
SHEET	11 OF 76

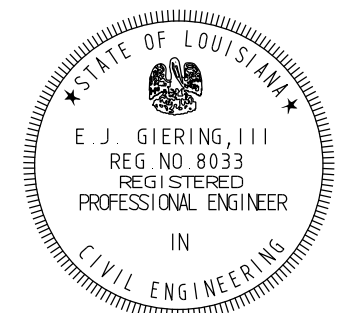


AMENDMENT #5- WIDEN FLOTATION CHANNEL TO 80'

NOTE:  
CONTRACTOR SHALL EXCAVATE BEYOND EXCAVATION TEMPLATE  
WHEN BORROW QUANTITY IS LESS THAN REQUIRED FOR EARTHEN  
EMBANKMENT CONSTRUCTION. THIRTY FOOT BERM BETWEEN REVETMENT  
AND EXCAVATION IS NOT TO BE DISTURBED.

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE
A5	01/25/10	C.S.	C.E.

SECTIONS - REACH 1  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



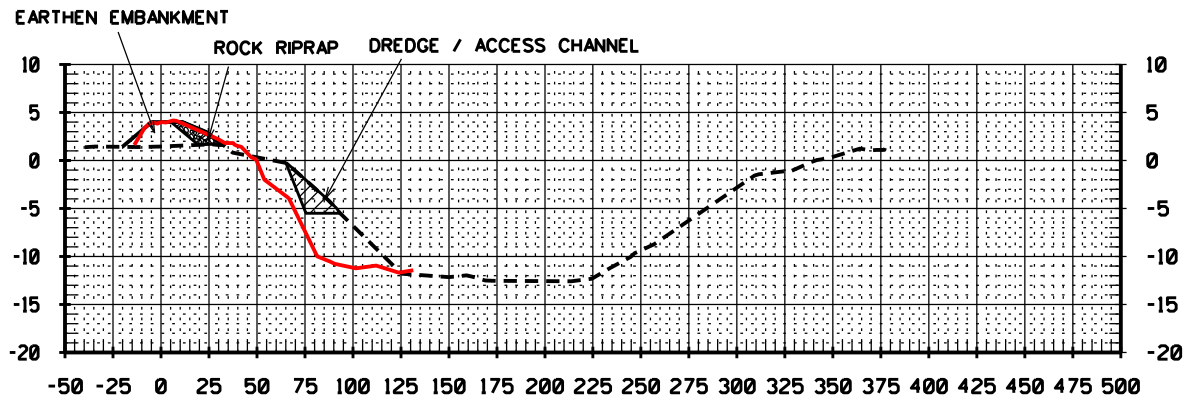
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DRAWING NAME  
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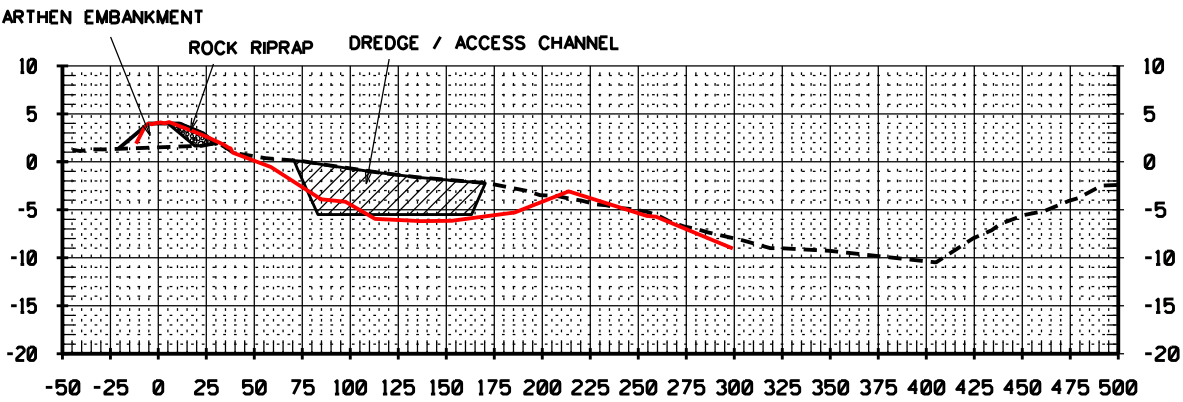
SHEET 12A5 OF 76

DESIGNED	S. GARNER	DATE	02/08
DRAWN	D. WILMORE	DATE	02/08
CHECKED	R. FAULKNER, B. STICKER	DATE	02/09
APPROVED	E.J. GIERING III	DATE	05/09

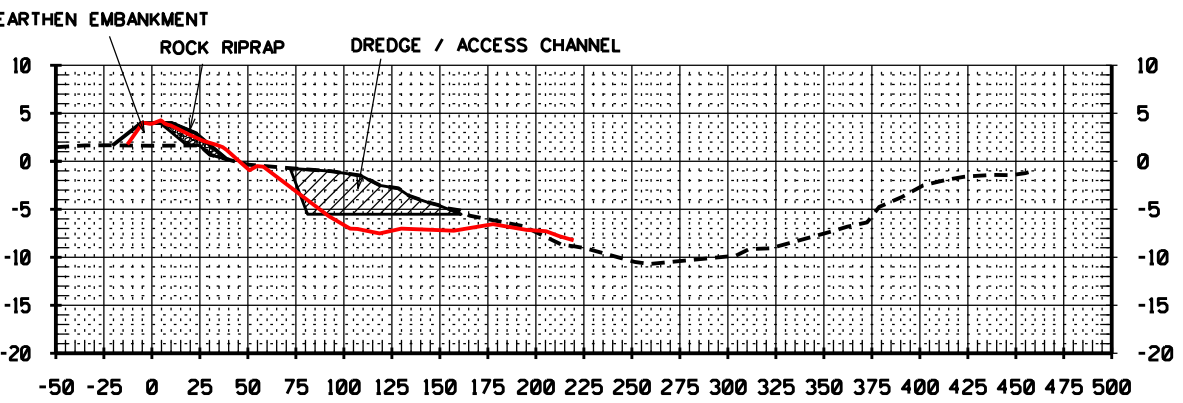




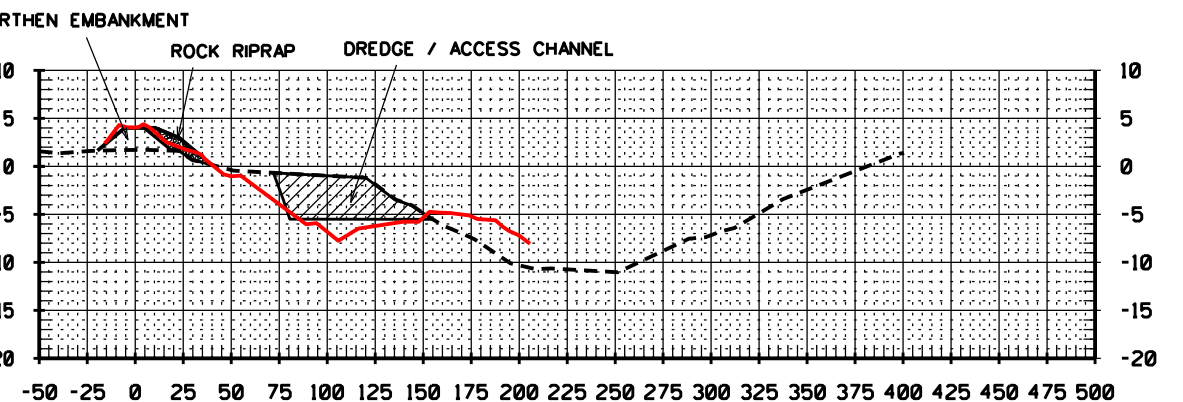
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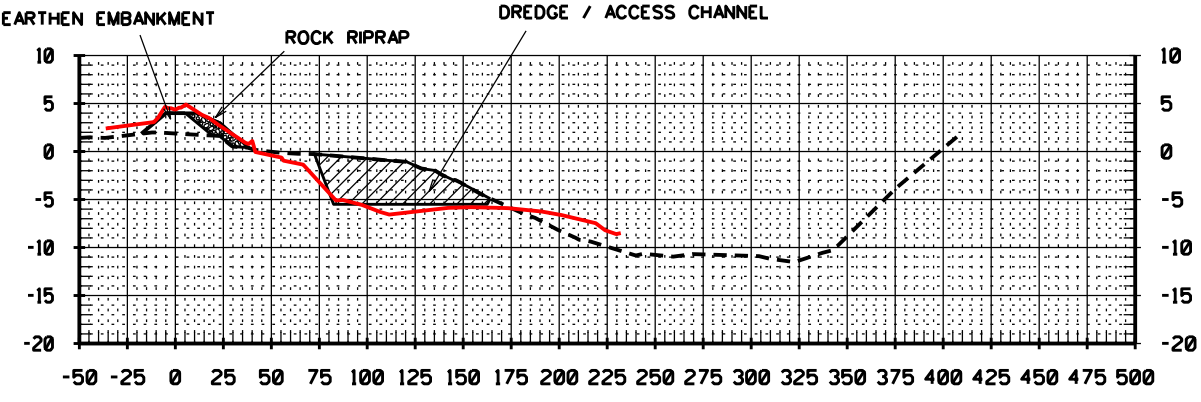
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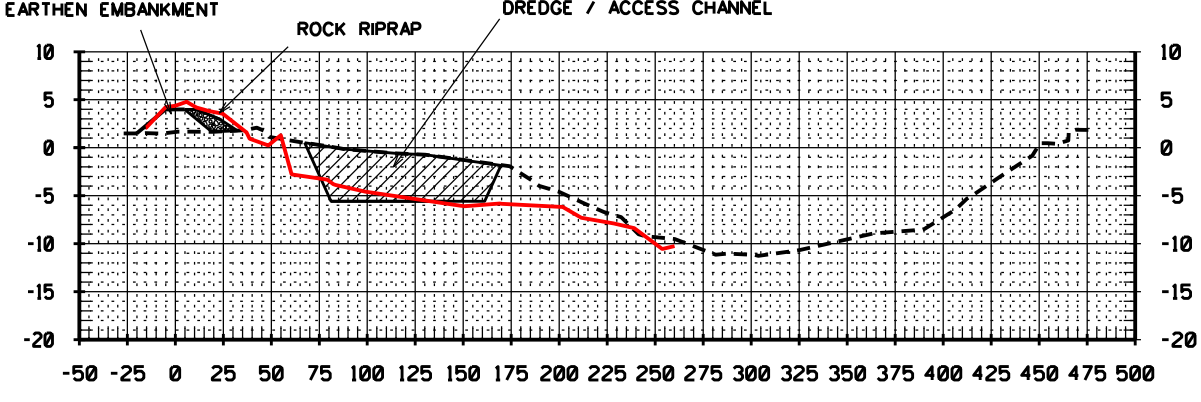
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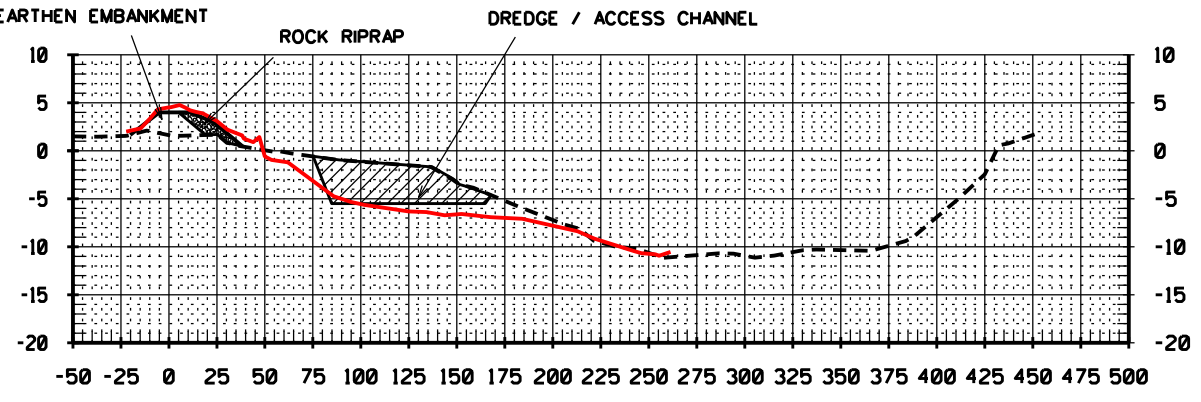
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38+99



40+53



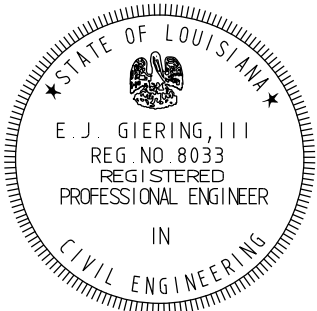
41+53

AMENDMENT #5- WIDEN FLOTATION CHANNEL TO 80'

NOTE:  
CONTRACTOR SHALL EXCAVATE BEYOND EXCAVATION TEMPLATE  
WHEN BORROW QUANTITY IS LESS THAN REQUIRED FOR EARTHEN  
EMBANKMENT CONSTRUCTION. THIRTY FOOT BERM BETWEEN REVETMENT  
AND EXCAVATION IS NOT TO BE DISTURBED.

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE
A5	01/25/10	C.S.	C.E.

SECTIONS - REACH 1  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



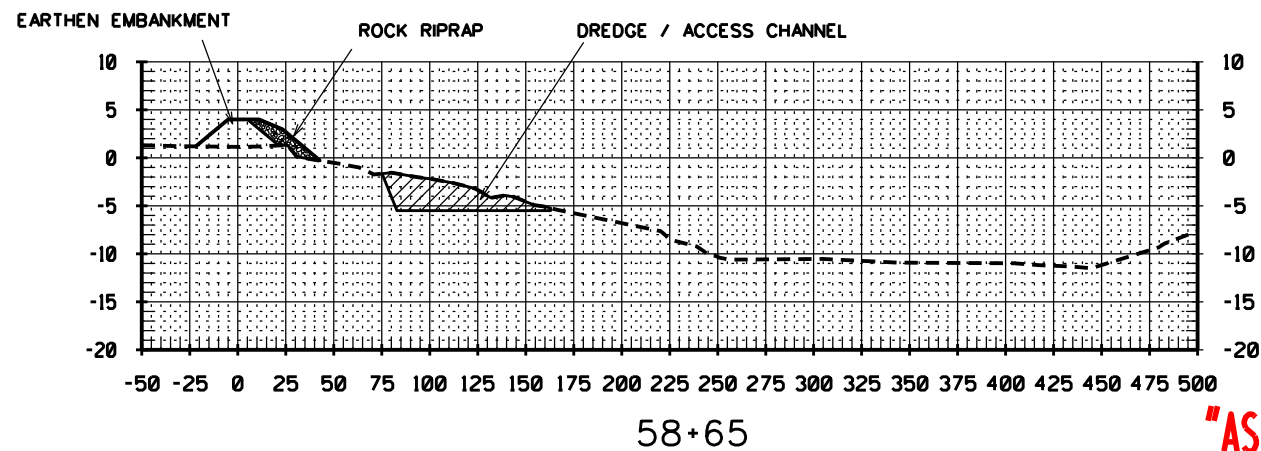
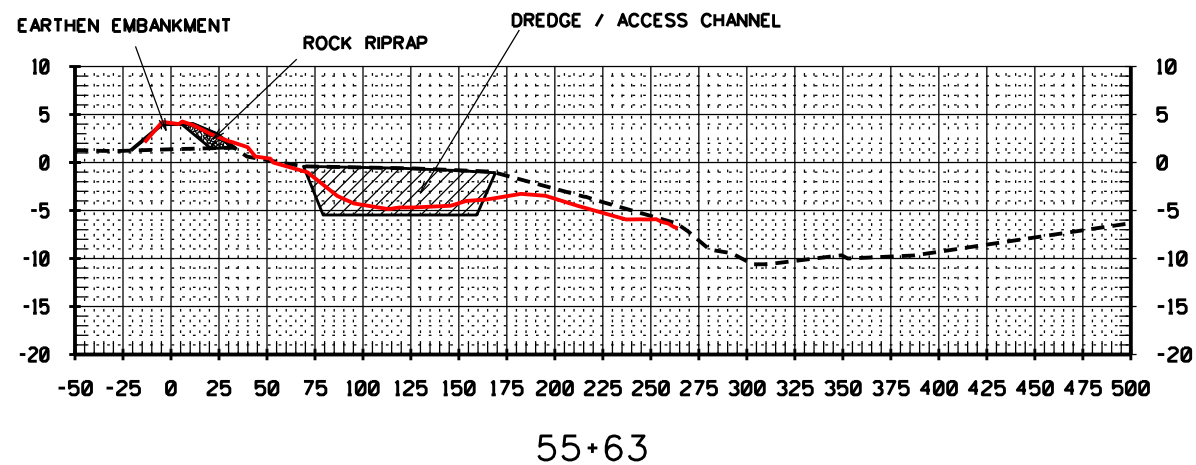
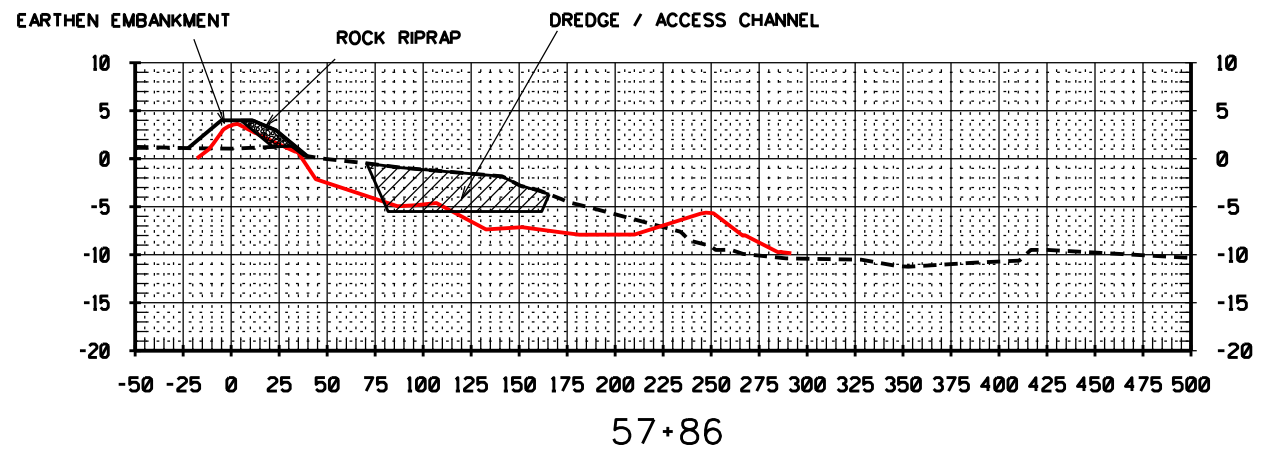
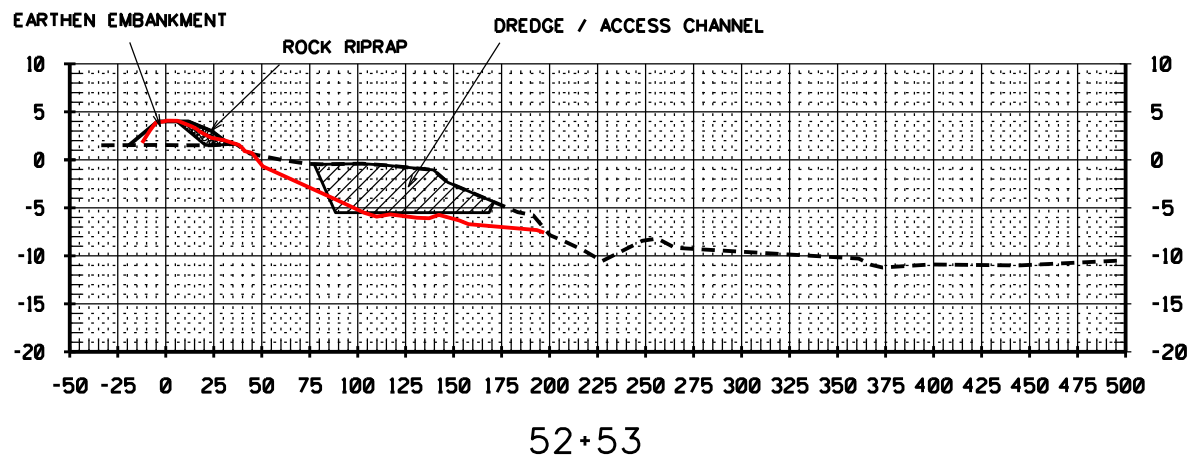
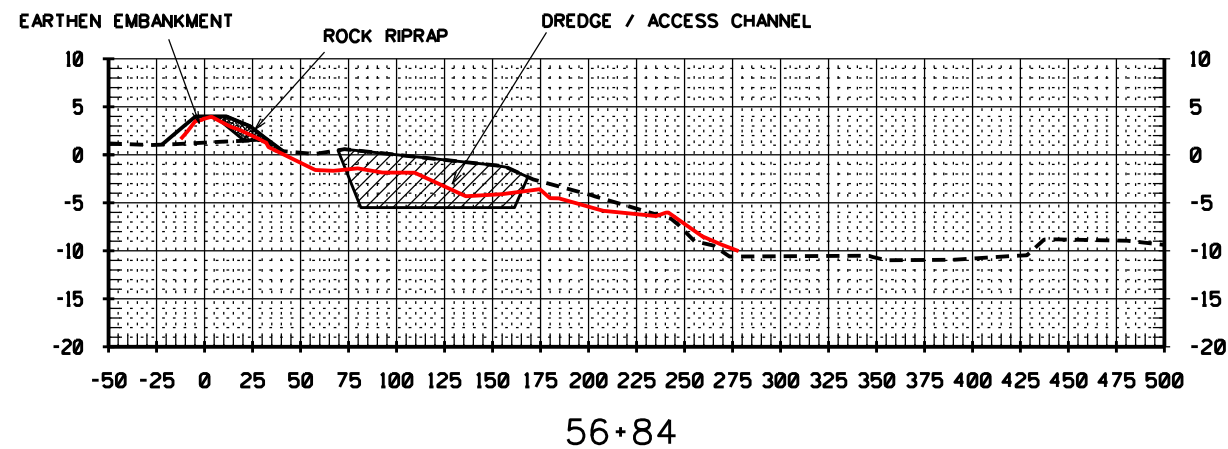
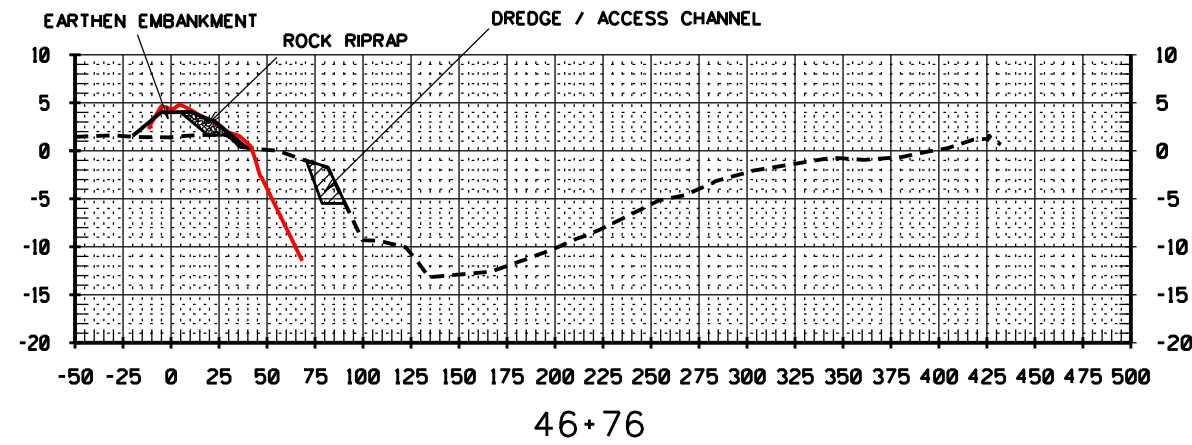
FILE NAME  
LA274

DRAWING NAME  
LA27413A5.DGN

SHEET 13A5 OF 76

DATE	02/08
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING, III



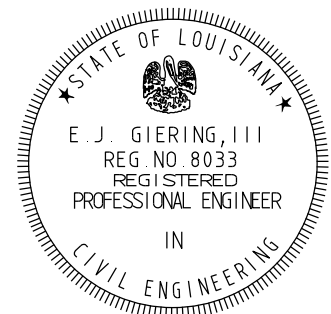


AMENDMENT#5- WIDEN FLOTATION CHANNEL TO 80'

NOTE:  
CONTRACTOR SHALL EXCAVATE BEYOND EXCAVATION TEMPLATE  
WHEN BORROW QUANTITY IS LESS THAN REQUIRED FOR EARTHEN  
EMBANKMENT CONSTRUCTION. THIRTY FOOT BERM BETWEEN REVETMENT  
AND EXCAVATION IS NOT TO BE DISTURBED.

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE
A5	01/25/10	C.S.	C.E.

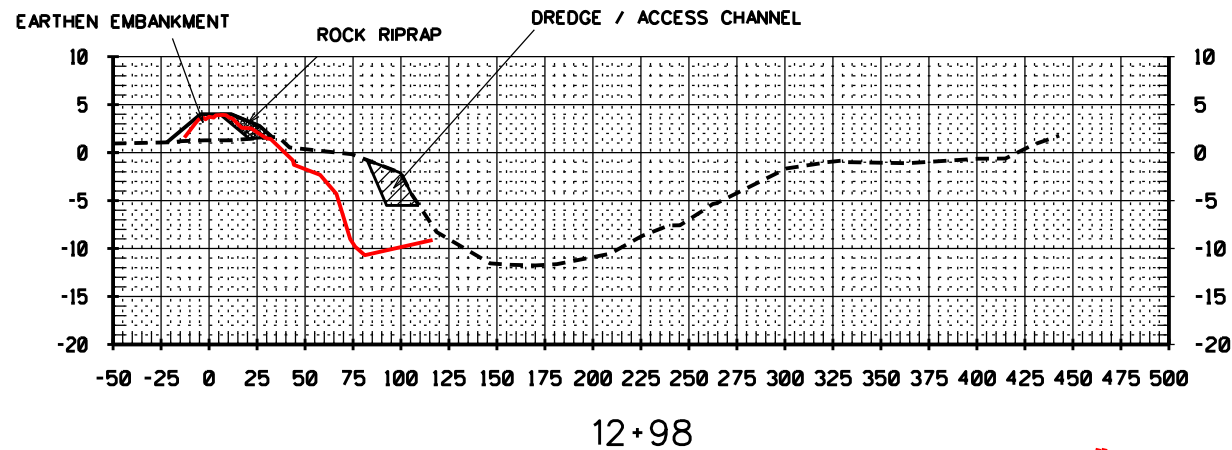
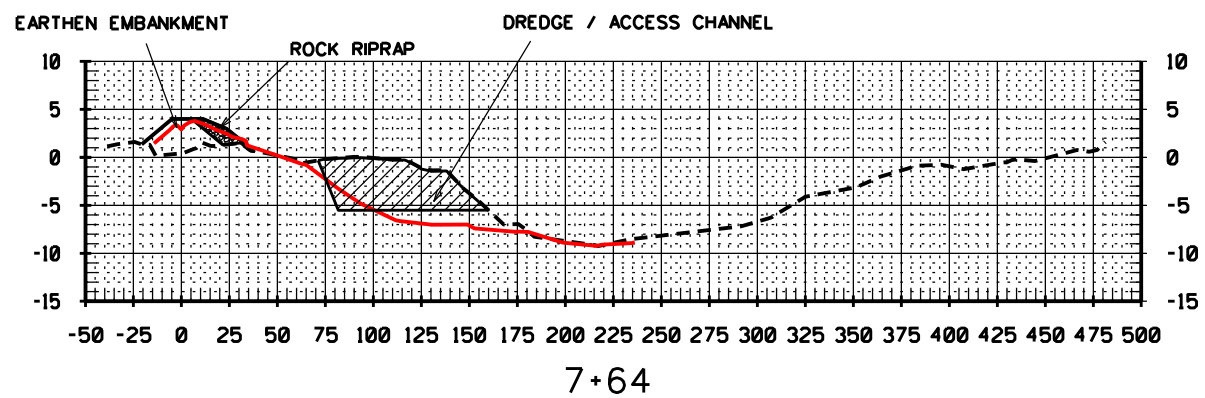
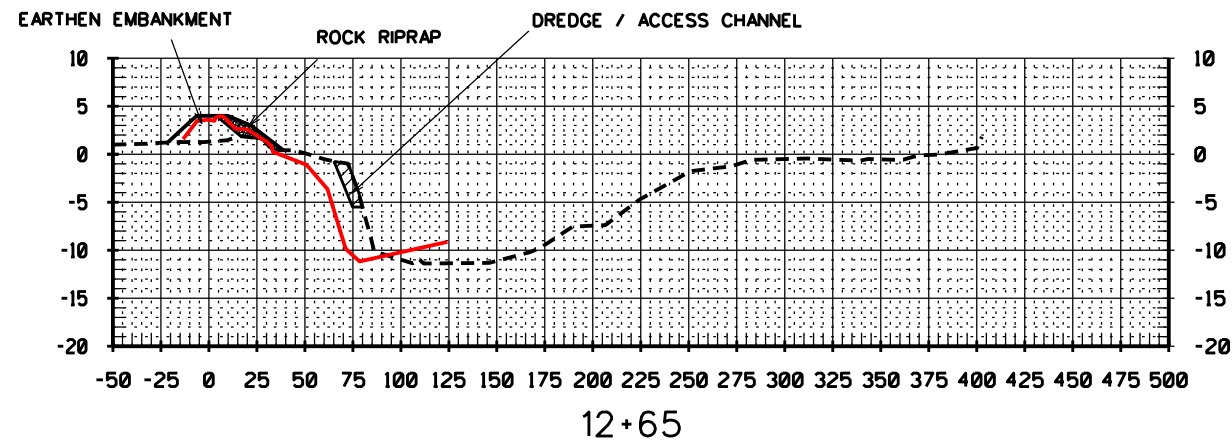
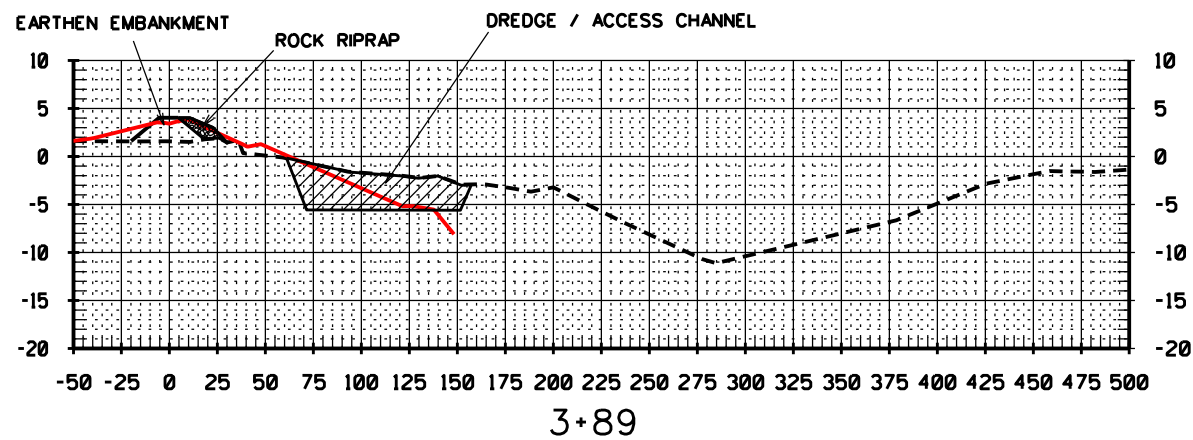
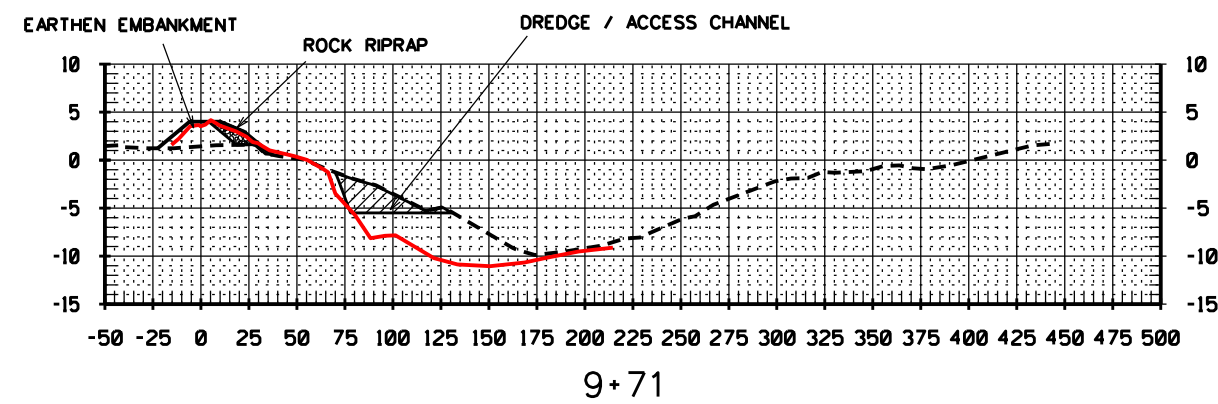
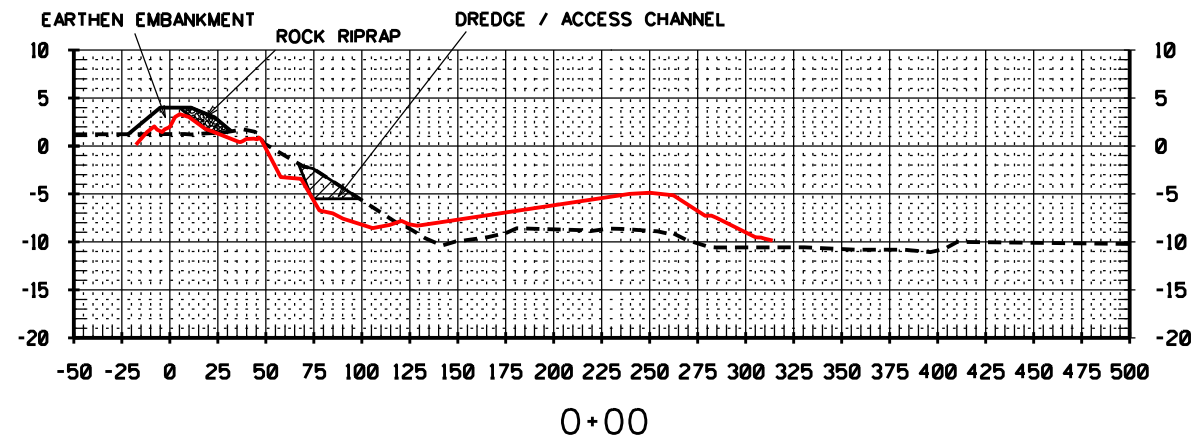
SECTIONS - REACH 1  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME  
LA274  
DRAWING NAME  
LA27414A5.DGN

SHEET 14A5 OF 76

DATE  
DESIGNED S. GARNER 02/08  
DRAWN D. WILMORE 02/08  
CHECKED R. FAULKNER, B. STICKER 02/09  
APPROVED E. J. GIERING, III 05/09

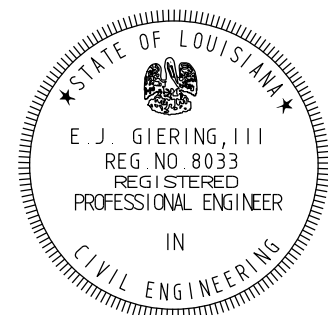


AMENDMENT#5- WIDEN FLOTATION CHANNEL TO 80'

NOTE:  
CONTRACTOR SHALL EXCAVATE BEYOND EXCAVATION TEMPLATE  
WHEN BORROW QUANTITY IS LESS THAN REQUIRED FOR EARTHEN  
EMBANKMENT CONSTRUCTION. THIRTY FOOT BERM BETWEEN REVETMENT  
AND EXCAVATION IS NOT TO BE DISTURBED.

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE
A5	01/25/10	C.S.	C.E.

SECTIONS - REACH 2  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

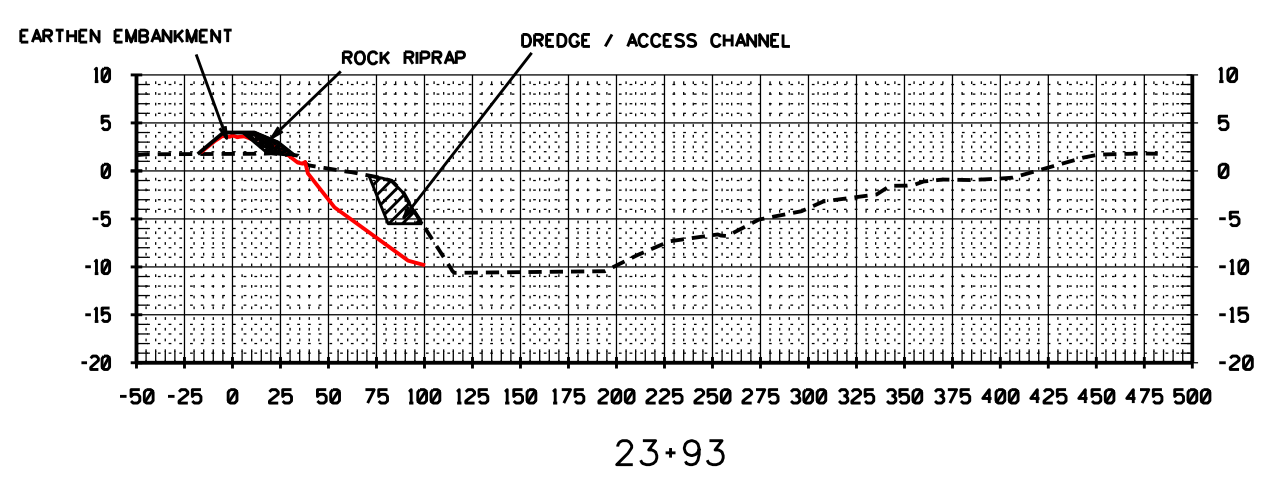
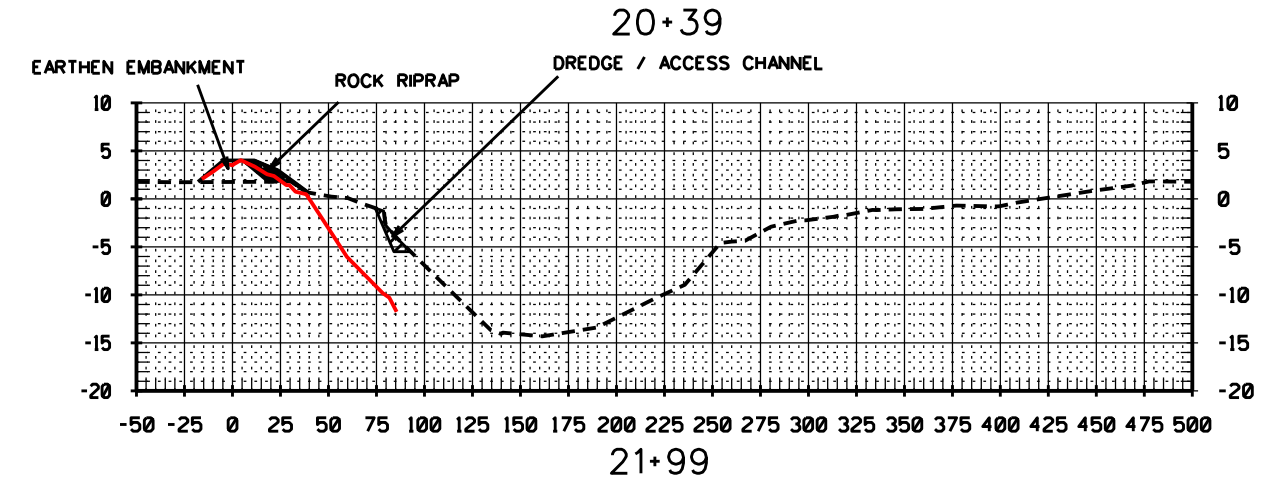
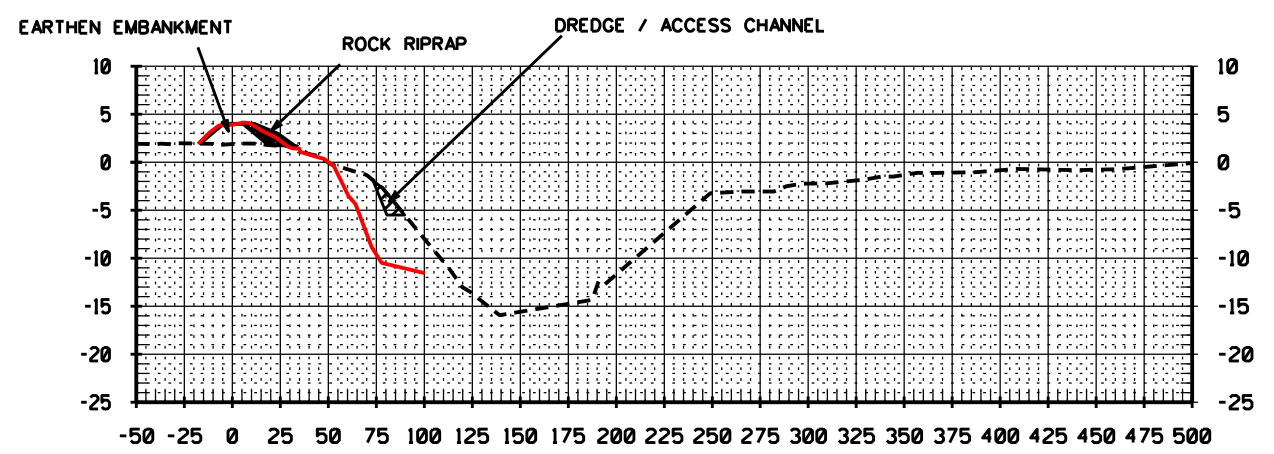
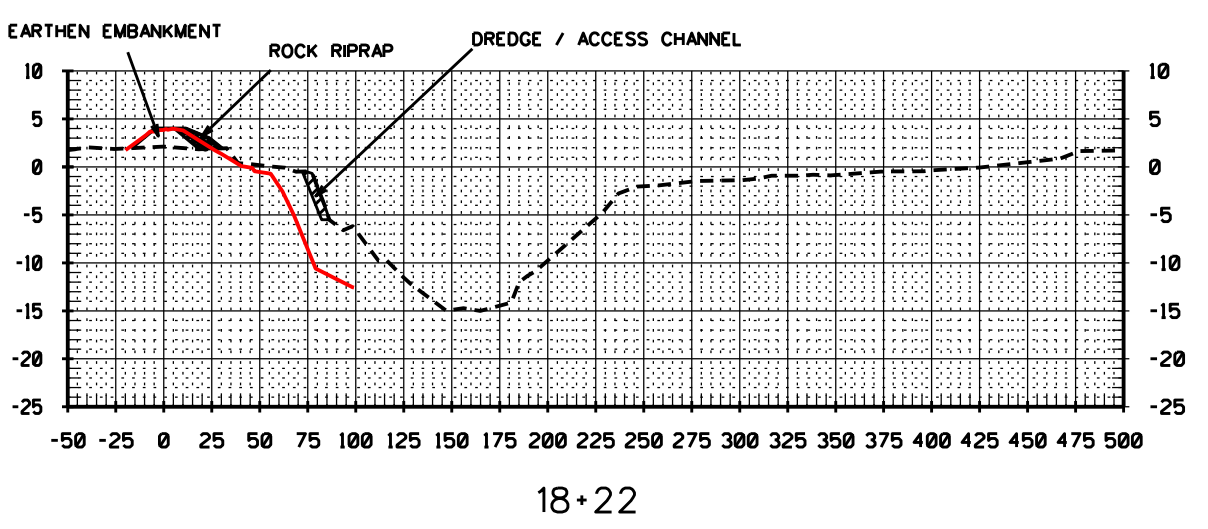
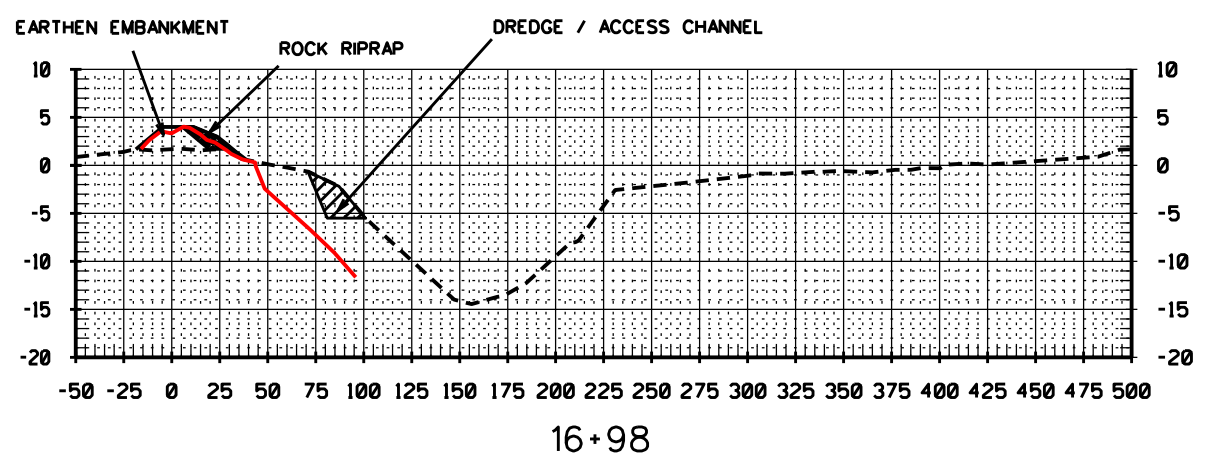
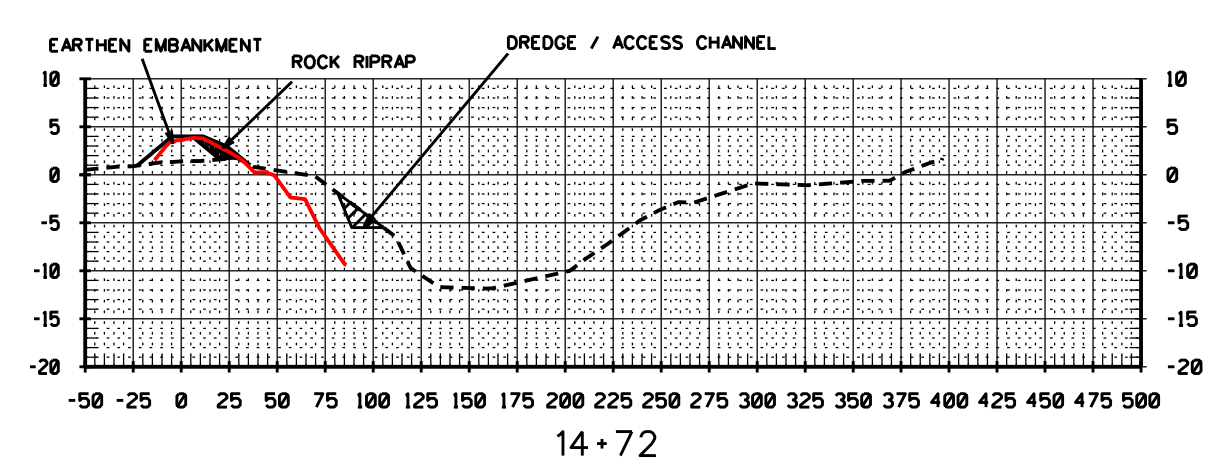


FILE NAME  
LA274

DRAWING NAME  
LA27415A5.DGN

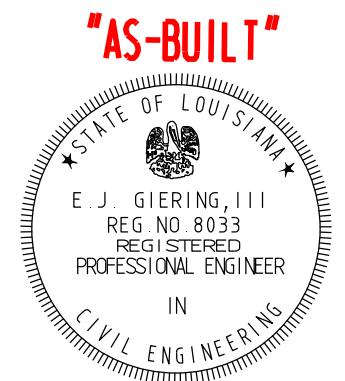
SHEET 15A5 OF 76

DATE	02/08
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E. J. GIERING III



NOTE:  
CONTRACTOR SHALL EXCAVATE BEYOND EXCAVATION TEMPLATE  
WHEN BORROW QUANTITY IS LESS THAN REQUIRED FOR EARTHEN  
EMBANKMENT CONSTRUCTION. THIRTY FOOT BERM BETWEEN REVETMENT  
AND EXCAVATION IS NOT TO BE DISTURBED.

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES



REVISIONS			
NO.	DATE	APPROVED	TITLE

DATE  
DESIGNED S. GARNER 02/08  
DRAWN D. WILMORE 02/08  
CHECKED R. FAULKNER, B. STICKER 02/09  
APPROVED E.J. GIERING III 05/09

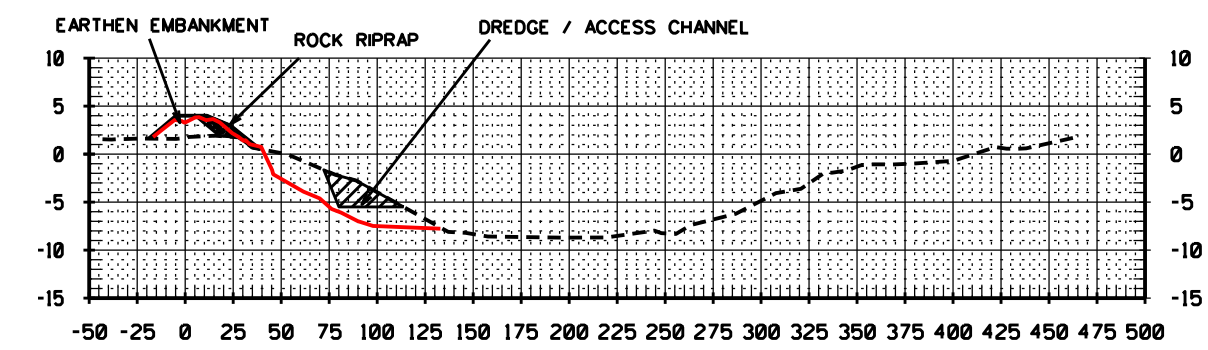
SECTIONS - REACH 2  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

Natural Resources Conservation Service  
United States Department of Agriculture

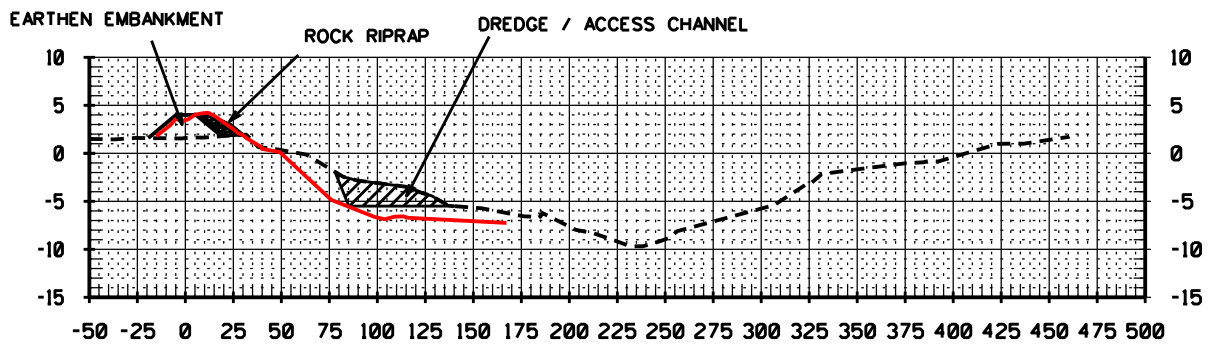
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LA274

DRAWING NAME  
LA27416.DGN

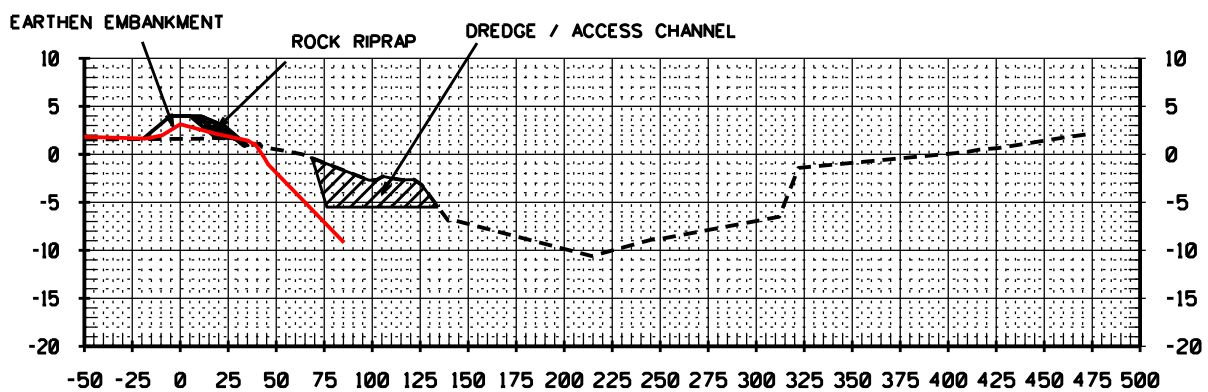
SHEET 16 OF 76



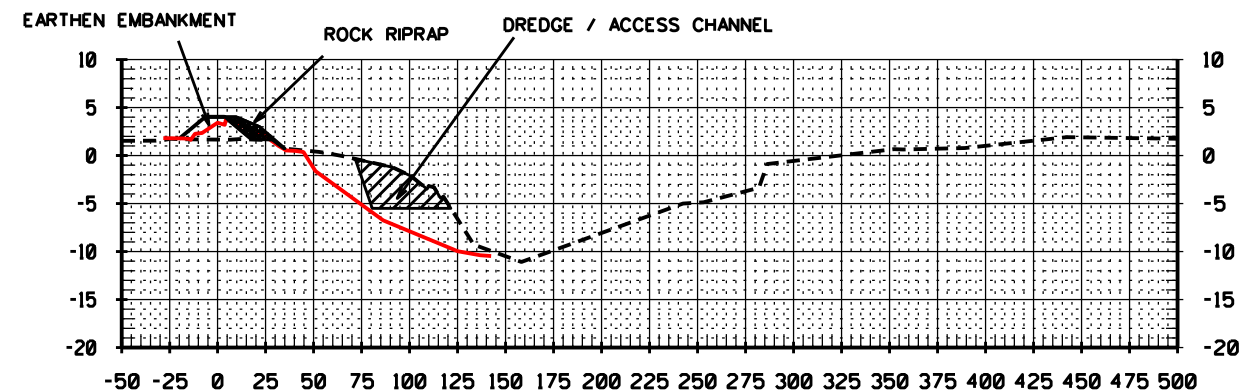
25+38



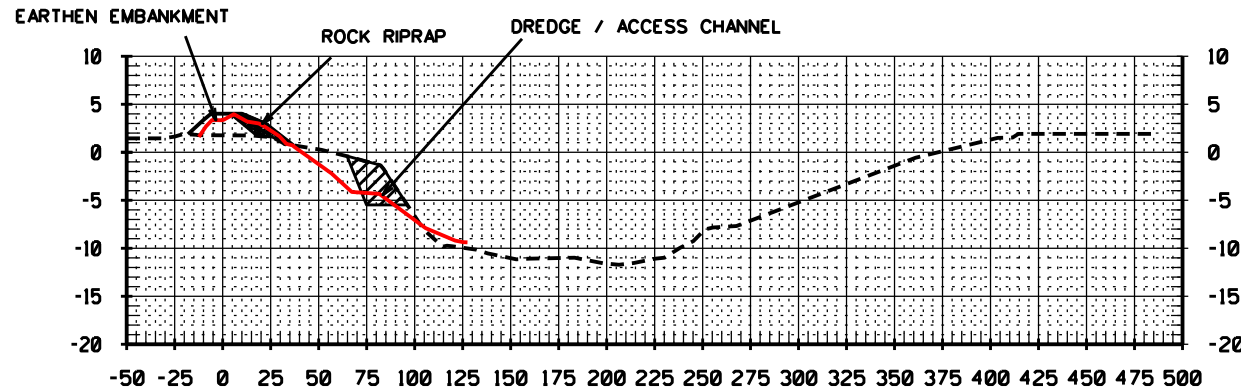
26+86



33+36



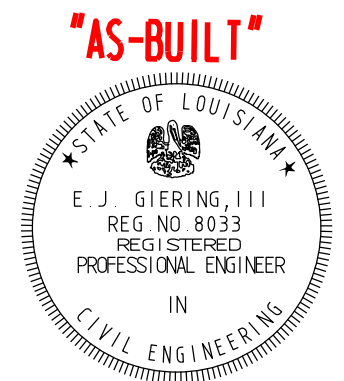
33+81



34+86

NOTE:  
CONTRACTOR SHALL EXCAVATE BEYOND EXCAVATION TEMPLATE  
WHEN BORROW QUANTITY IS LESS THAN REQUIRED FOR EARTHEN  
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TO LOCATE UTILITY LINES



REVISIONS			
NO.	DATE	APPROVED	TITLE

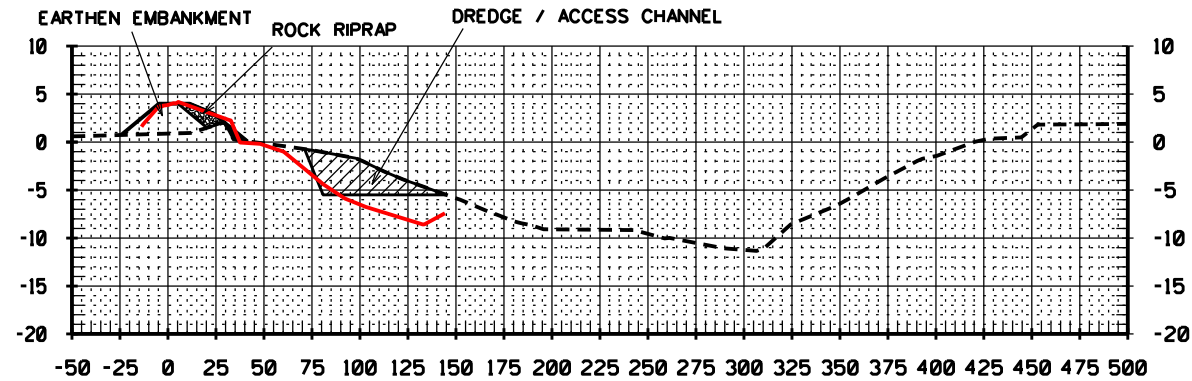
DATE	02/08
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING III

SECTIONS - REACH 2  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

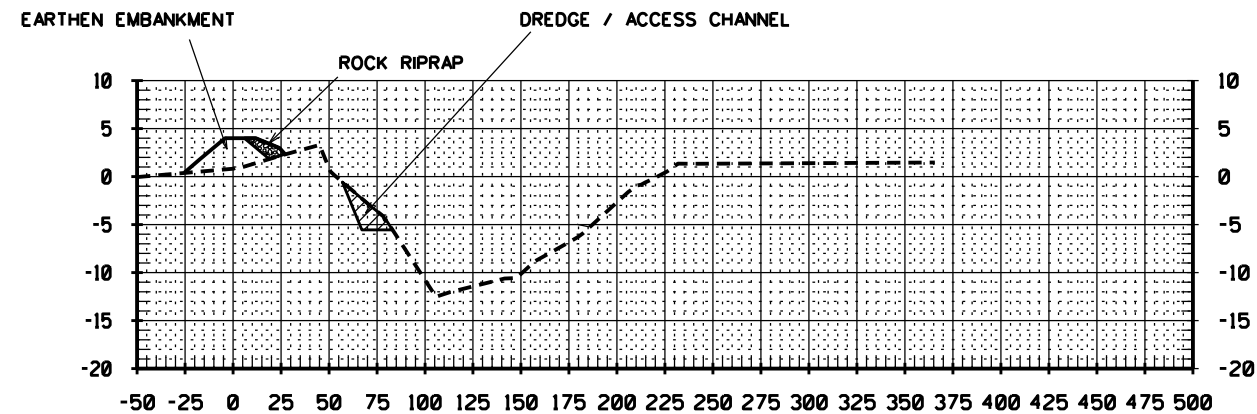


FILE NAME	LA274
DRAWING NAME	LA27417.DGN
SHEET	17 OF 76

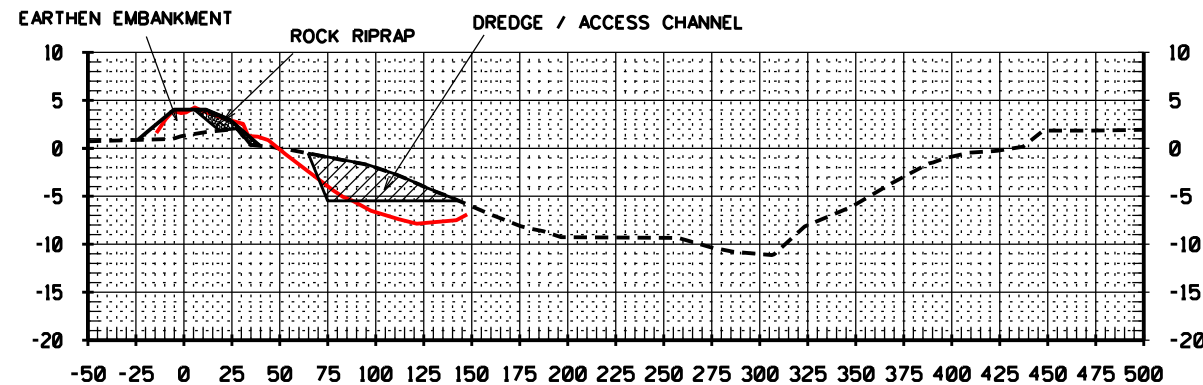




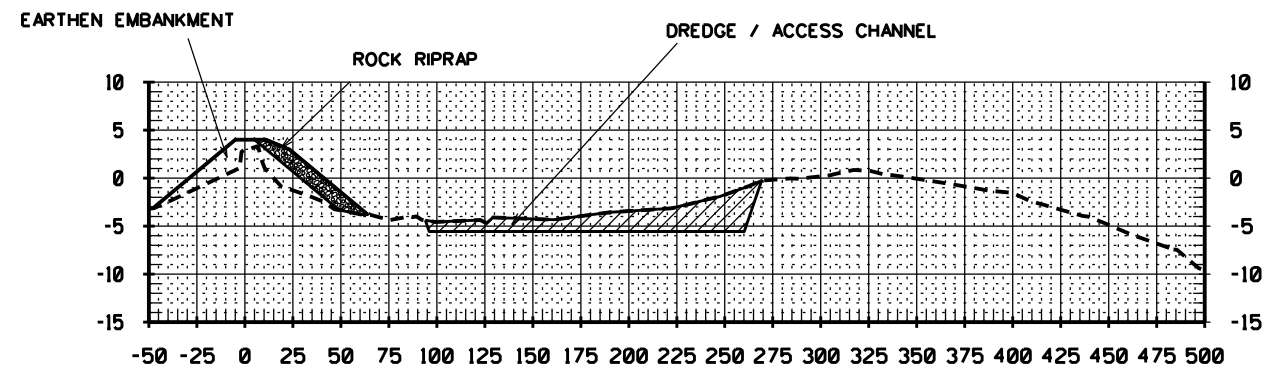
39+27



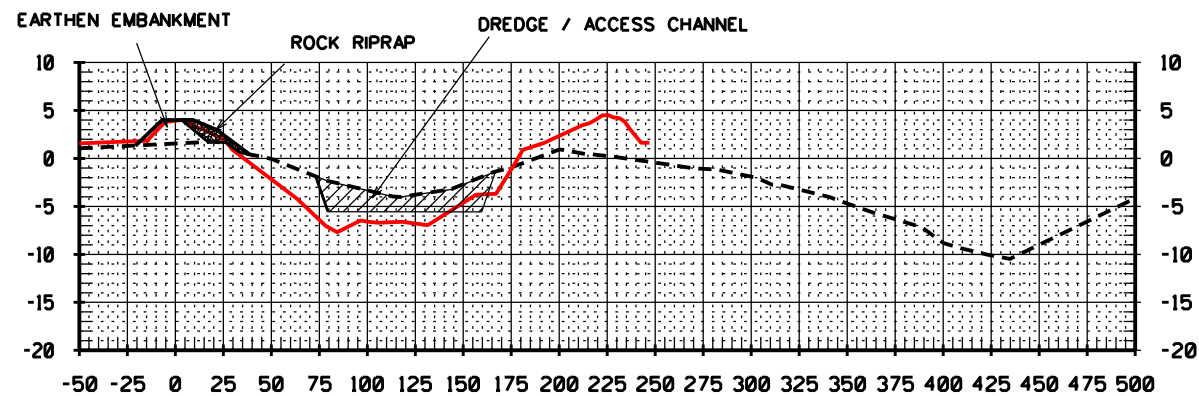
46+53



40+21



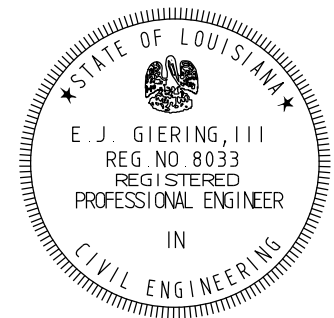
47+09



44+95

NOTE:  
CONTRACTOR SHALL EXCAVATE BEYOND EXCAVATION TEMPLATE  
WHEN BORROW QUANTITY IS LESS THAN REQUIRED FOR EARTHEN  
EMBANKMENT CONSTRUCTION. THIRTY FOOT BERM BETWEEN REVETMENT  
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NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES



"AS-BUILT"

REVISIONS			
NO.	DATE	APPROVED	TITLE
A5	01/25/10	C.S.	C.E.

SECTIONS - REACH 2  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

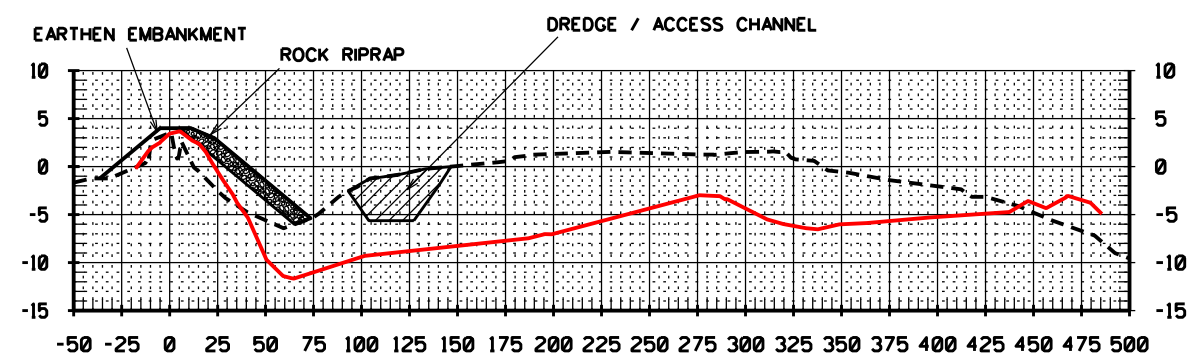


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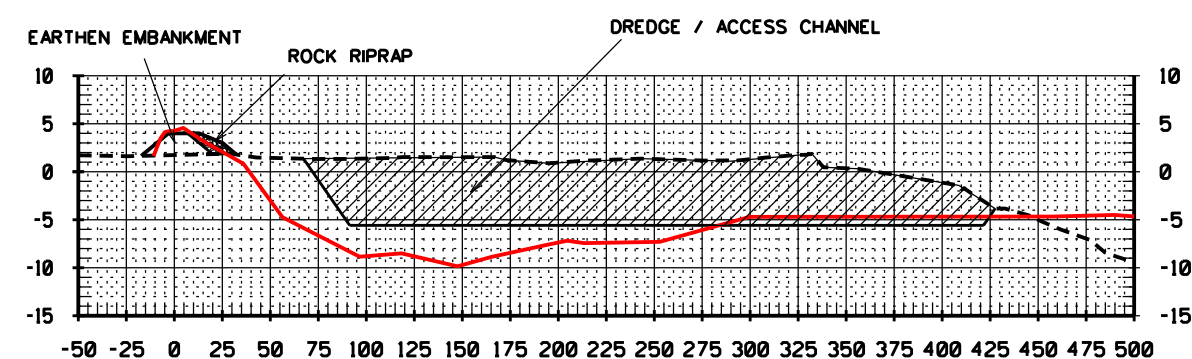
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SHEET 18A5 OF 76

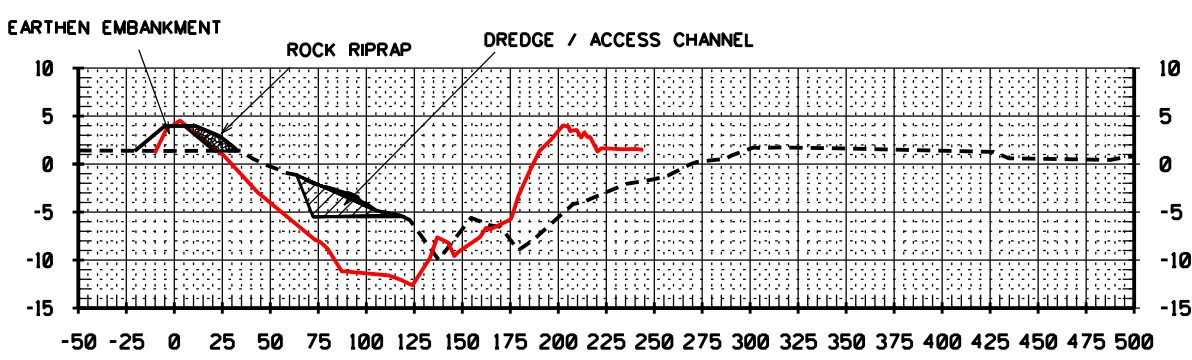
DATE	02/08
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING III



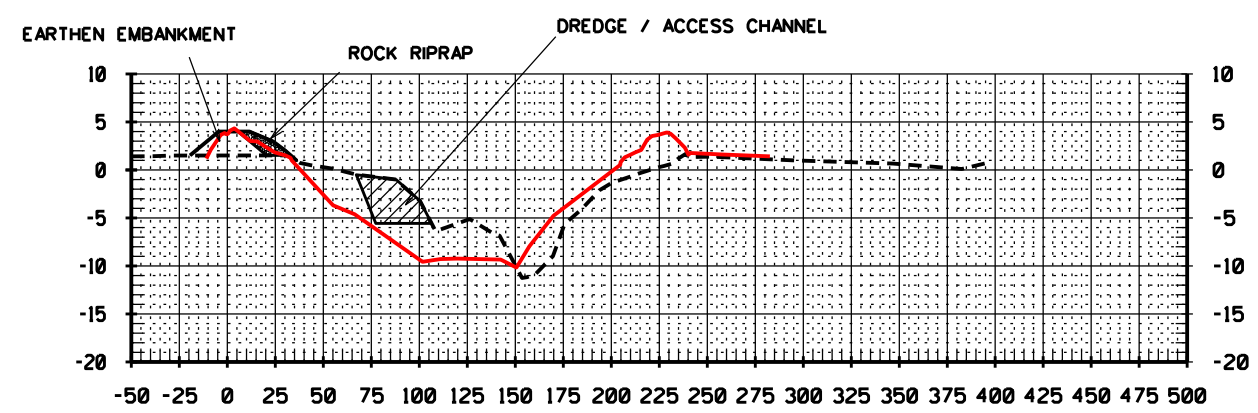
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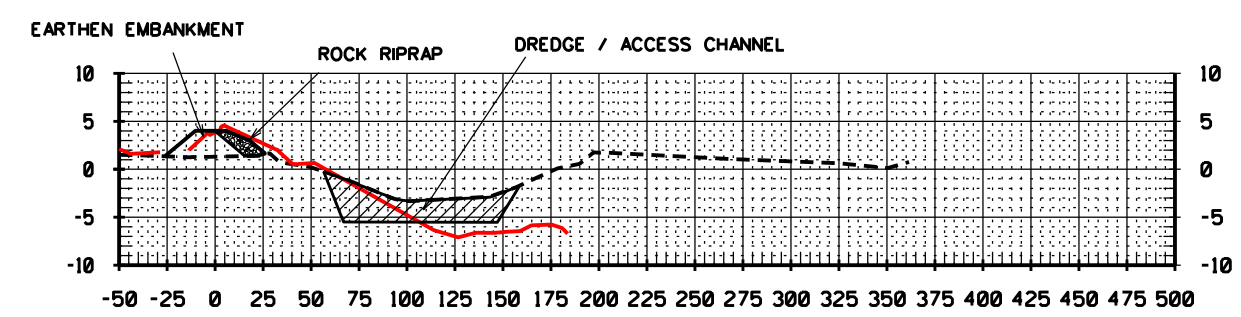
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1+16



2+02



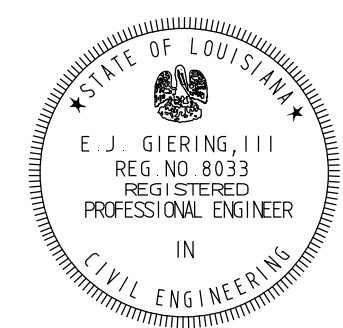
3+69

AMENDMENT\*5- WIDEN FLOTATION CHANNEL TO 80'

"AS-BUILT"


NOTE:  
CONTRACTOR SHALL EXCAVATE BEYOND EXCAVATION TEMPLATE  
WHEN BORROW QUANTITY IS LESS THAN REQUIRED FOR EARTHEN  
EMBANKMENT CONSTRUCTION. THIRTY FOOT BERM BETWEEN REVETMENT  
AND EXCAVATION IS NOT TO BE DISTURBED.

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES



DATE	02/08
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING III

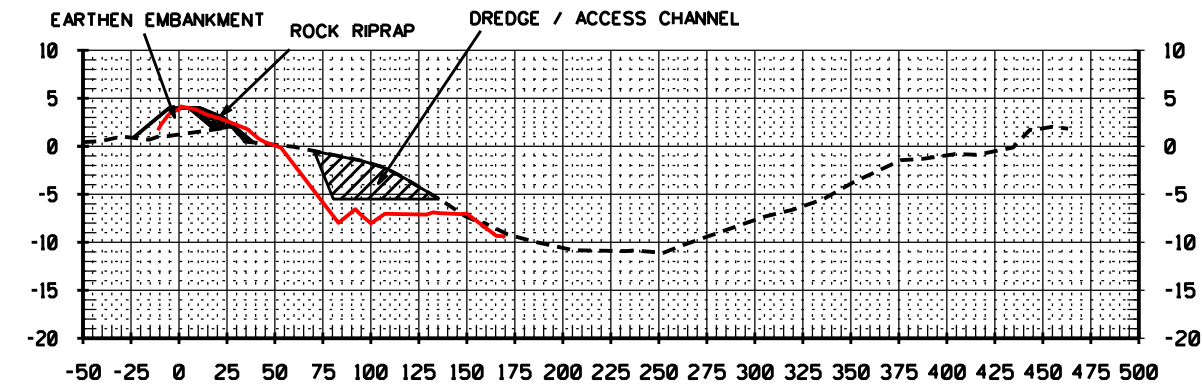
SECTIONS - REACH 3  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



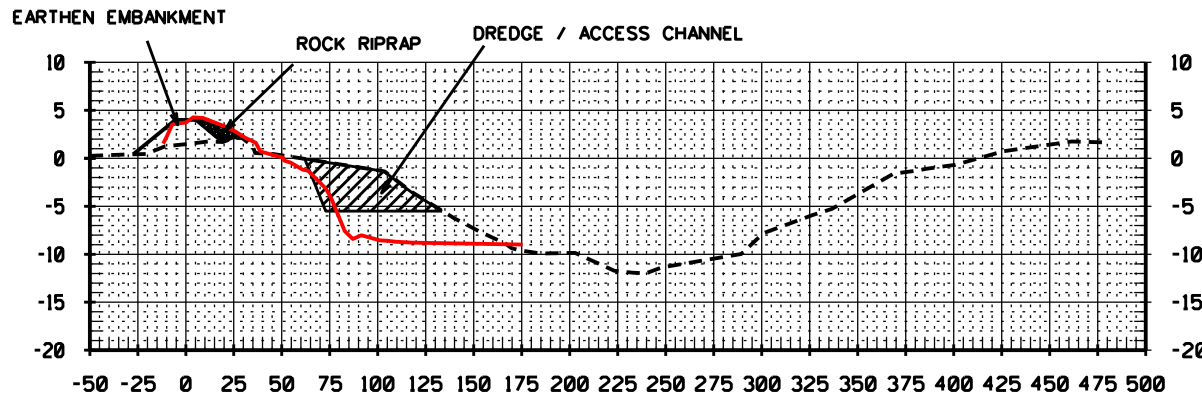
Natural Resources Conservation Service  
United States Department of Agriculture

FILE NAME	LA274
DRAWING NAME	LA27419A5.DGN
SHEET	19A5 OF 76

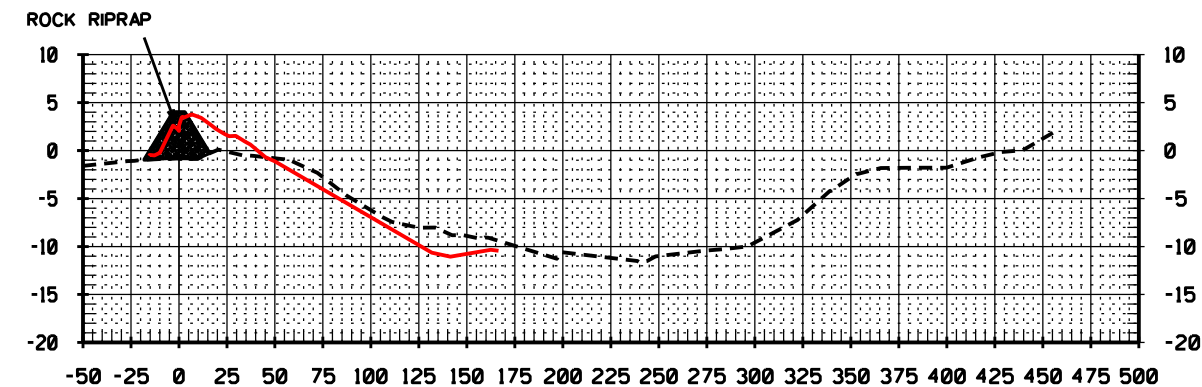
REVISIONS			
NO.	DATE	APPROVED	TITLE
A5	01/25/10	C.S.	C.E.



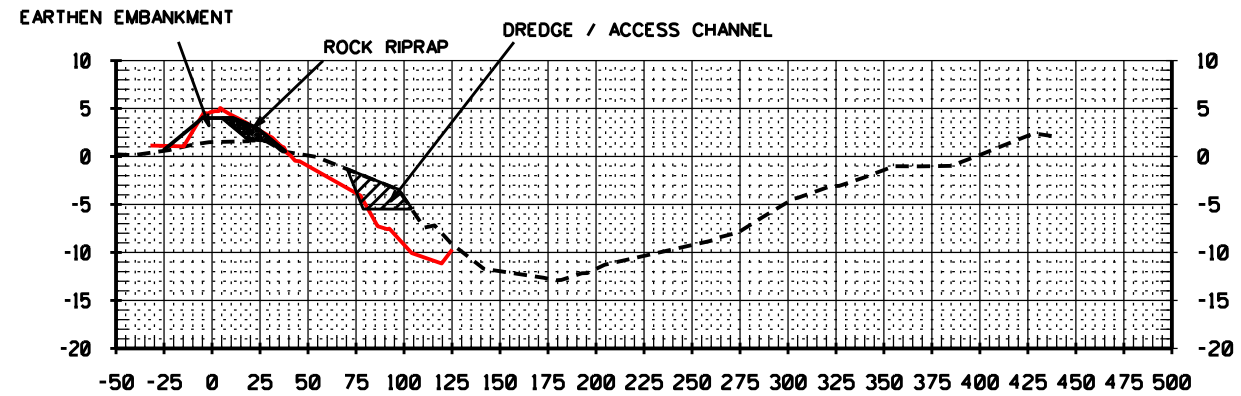
6+90



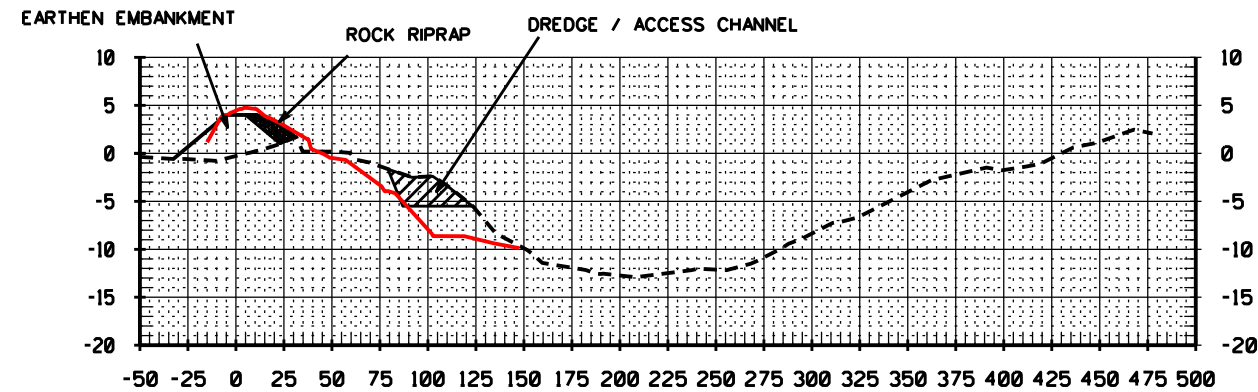
10+25



13+51



18+51

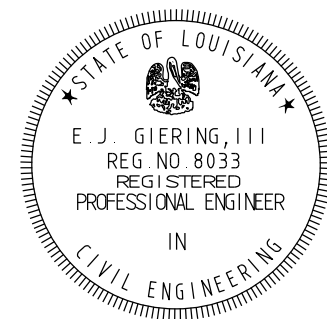


20+45

NOTE:  
CONTRACTOR SHALL EXCAVATE BEYOND EXCAVATION TEMPLATE  
WHEN BORROW QUANTITY IS LESS THAN REQUIRED FOR EARTHEN  
EMBANKMENT CONSTRUCTION. THIRTY FOOT BERM BETWEEN REVETMENT  
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NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

SECTIONS - REACH 3  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

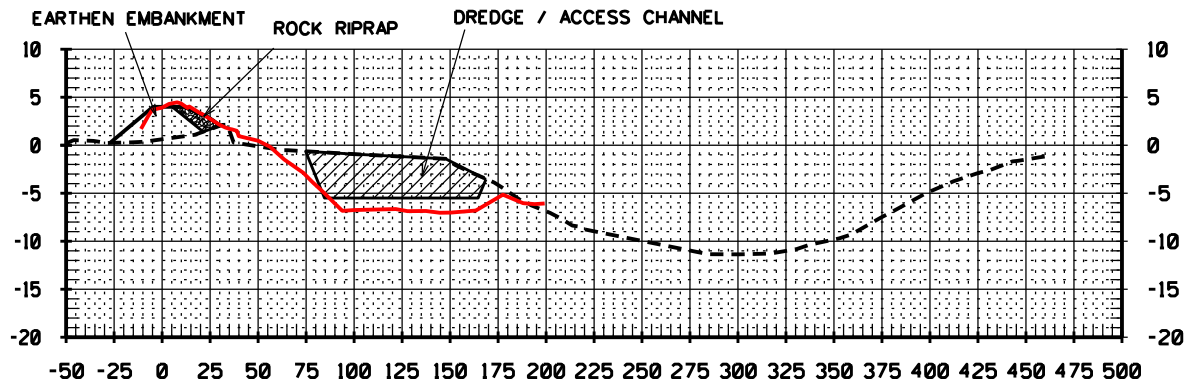


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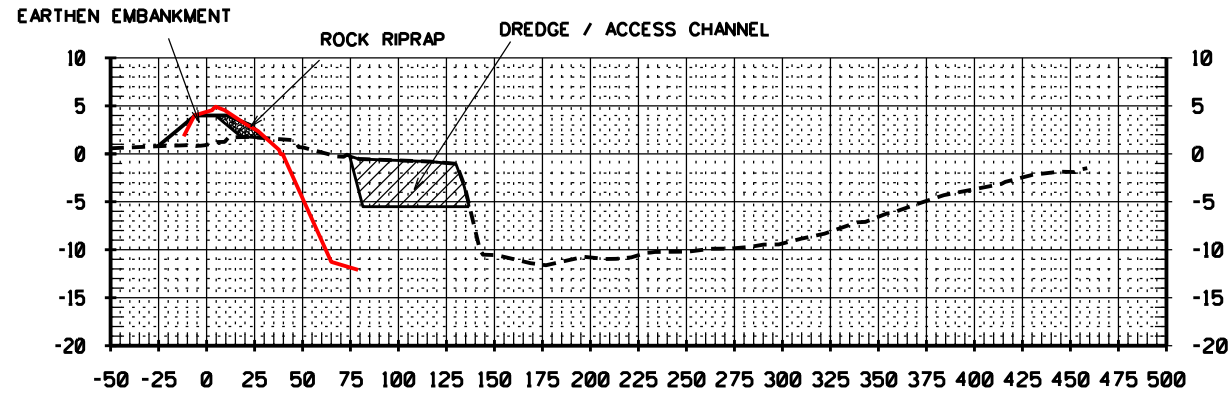
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SHEET 20 OF 76

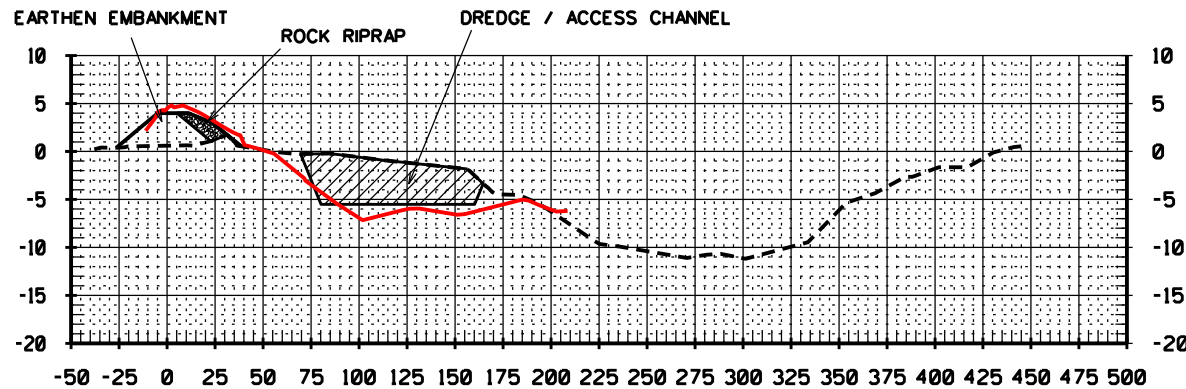
DATE	02/08
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING III



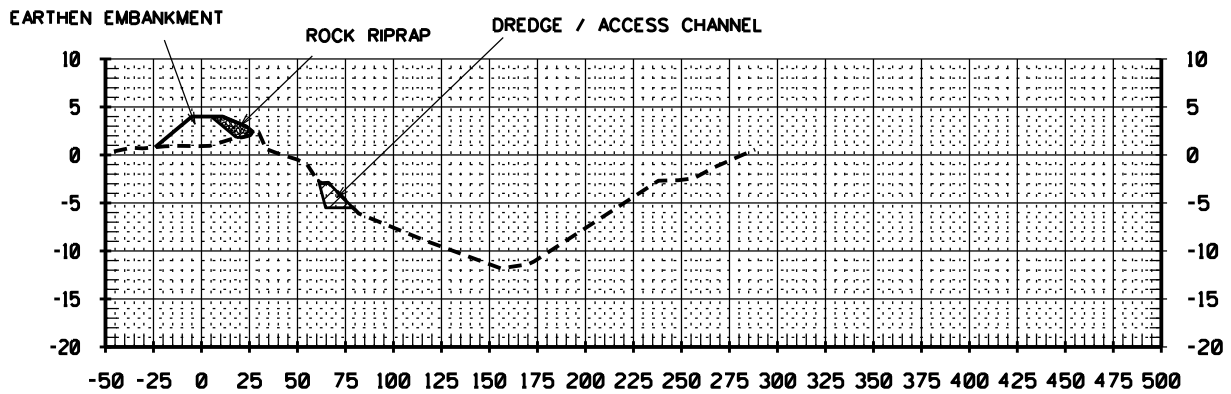
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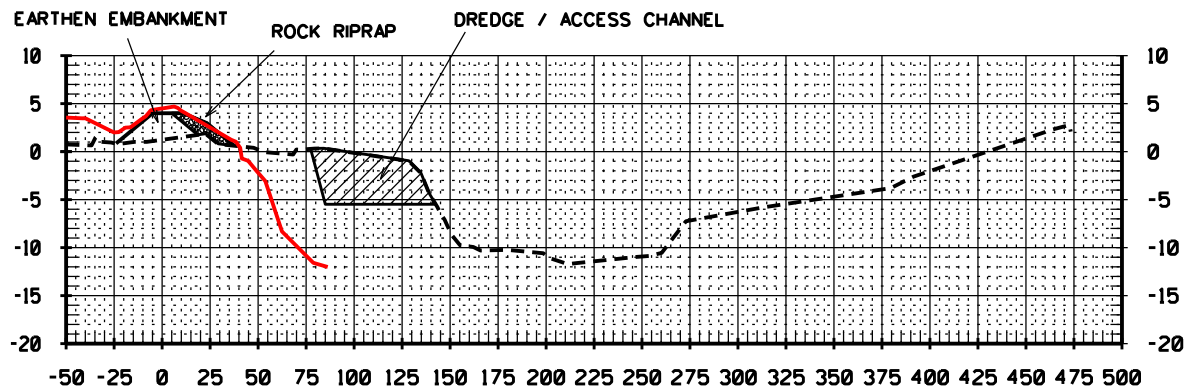
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31+59



39+11



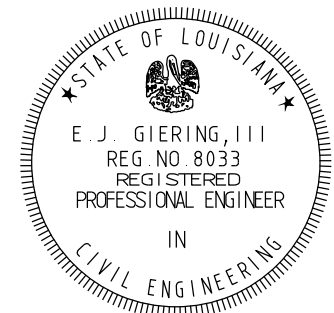
36+35

AMENDMENT\*5- WIDEN FLOTATION CHANNEL TO 80'

NOTE:  
CONTRACTOR SHALL EXCAVATE BEYOND EXCAVATION TEMPLATE  
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NOTICE:  
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CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE
A5	01/25/10	C.S.	C.E.

SECTIONS - REACH 3  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



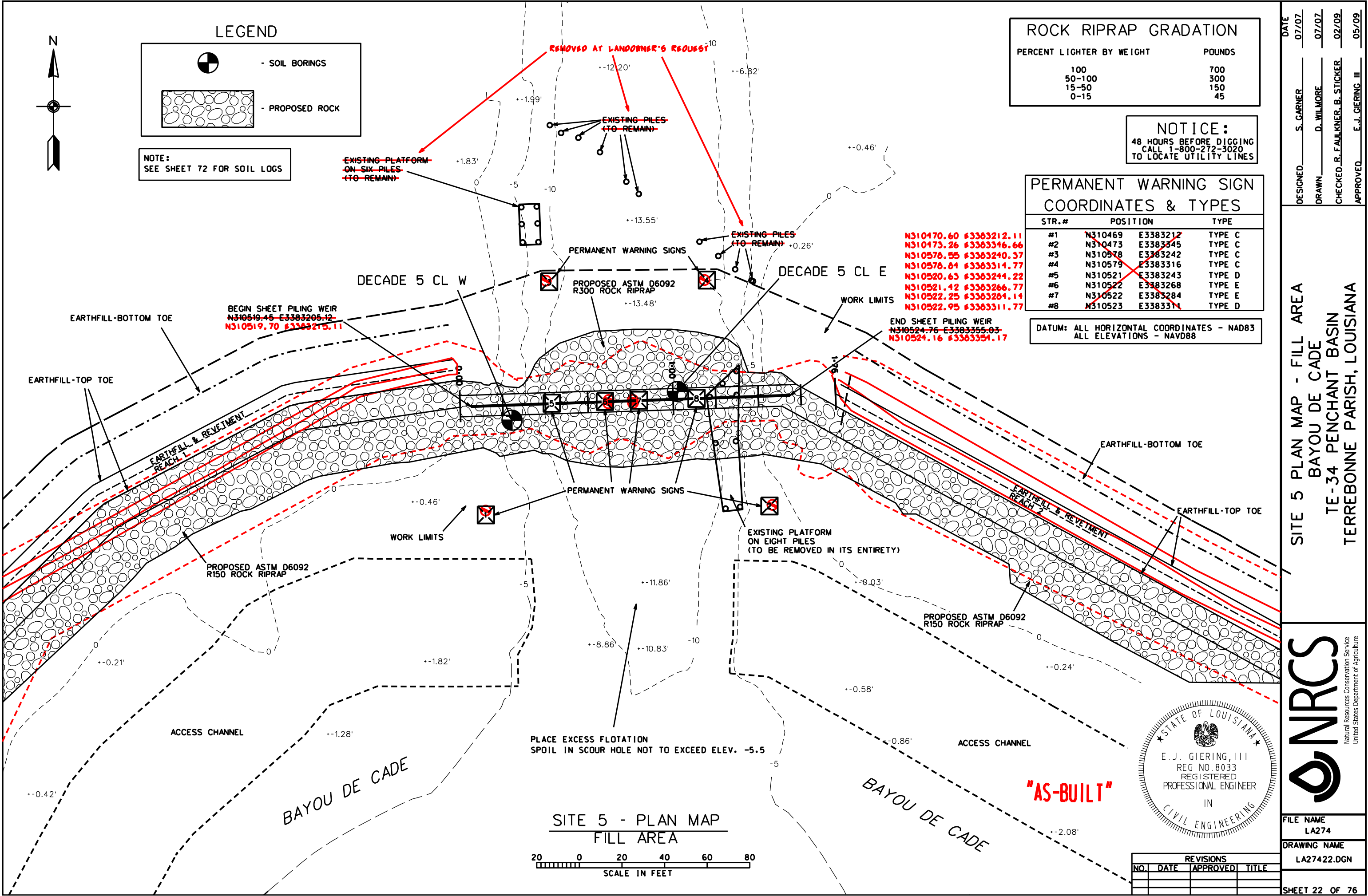
FILE NAME  
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DRAWING NAME  
LA27421A5.DGN


SHEET 21A5 OF 76

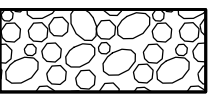
DESIGNED	S. GARNER	DATE	02/08
DRAWN	D. WILMORE	DATE	02/08
CHECKED	R. FAULKNER, B. STICKER	DATE	02/09
APPROVED	E.J. GIERING III	DATE	05/09





LEGEND

 - SOIL BORINGS

 - PROPOSED ROCK

NOTE:  
SEE SHEET 72 FOR SOIL LOGS

ROCK RIPRAP GRADATION	
PERCENT LIGHTER BY WEIGHT	POUNDS
100	700
50-100	300
15-50	150
0-15	45

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

PERMANENT WARNING SIGN  
COORDINATES & TYPES

STR.#	POSITION	TYPE
#1	N310469 E3383212	TYPE C
#2	N310473 E3383345	TYPE C
#3	N310578 E3383242	TYPE C
#4	N310579 E3383316	TYPE C
#5	N310521 E3383243	TYPE D
#6	N310522 E3383268	TYPE E
#7	N310522 E3383284	TYPE E
#8	N310523 E3383311	TYPE D

DATUM: ALL HORIZONTAL COORDINATES - NAD83  
ALL ELEVATIONS - NAVD88

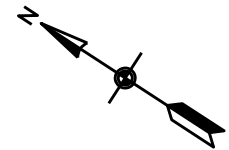
SITE 5 PLAN MAP - FILL AREA  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME  
LA274

DRAWING NAME  
LA27422.DGN

NOTE:  
SEE SHEET 55 FOR SHEETPILE DETAIL



STEEL SHEETPILE CAP  
ELEV. +0.9' NAVD88

STEEL SHEETPILE

WARNING SIGN  
(BOTH SIDES)

RAILING

12" X 50' TIMBER BATTER PILE @ 15° BATTER

WARNING SIGN  
(BOTH SIDES)

RAILING

BOAT BAY

WARNING SIGN  
(BOTH SIDES)

12" X 50' TIMBER BATTER PILE @ 15° BATTER

STEEL SHEETPILE

WARNING SIGN  
(BOTH SIDES)

RAILING

STEEL SHEETPILE CAP  
ELEV. +0.9' NAVD88

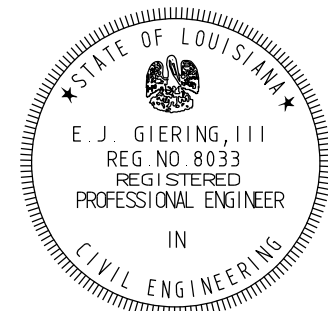
RAILING

STEEL SHEETPILE

STEEL SHEETPILE:  
MINIMUM THICKNESS = 0.375 INCHES  
MINIMUM MOMENT OF INERTIA = 76.8 IN<sup>4</sup> / FT. WALL  
ASTM A 572 GRADE 50

"AS-BUILT"

ISOMETRIC VIEW  
SITE 5 - SHEETPILE WALL



REVISIONS			
NO.	DATE	APPROVED	TITLE

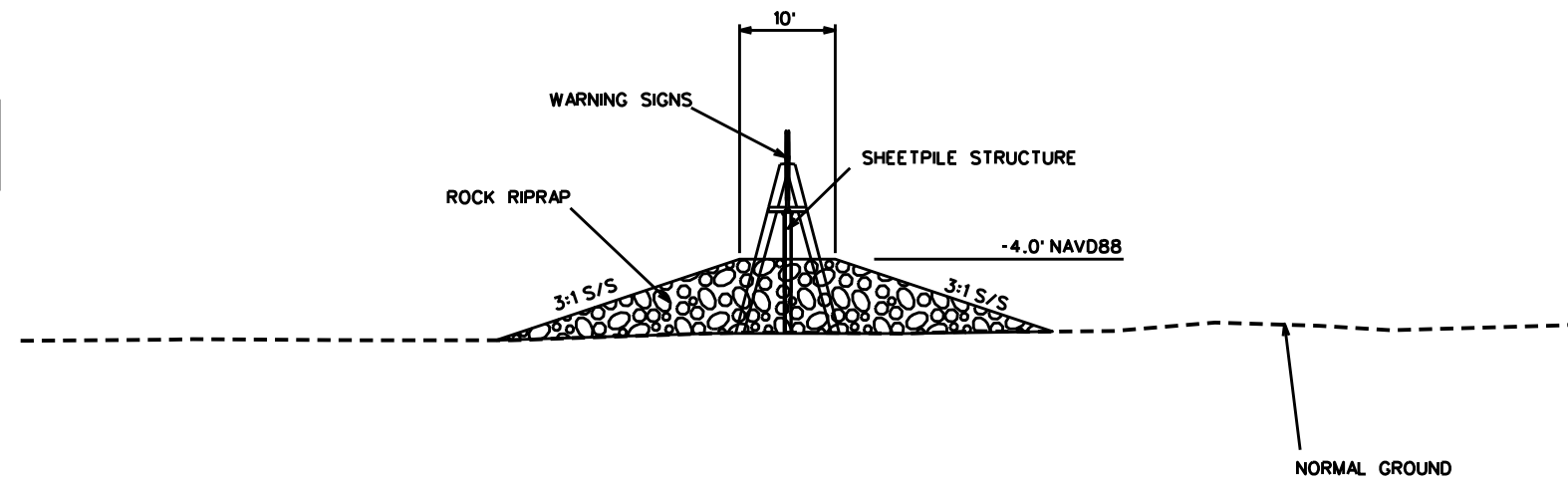
SITE 5 - ISOMETRIC VIEW  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



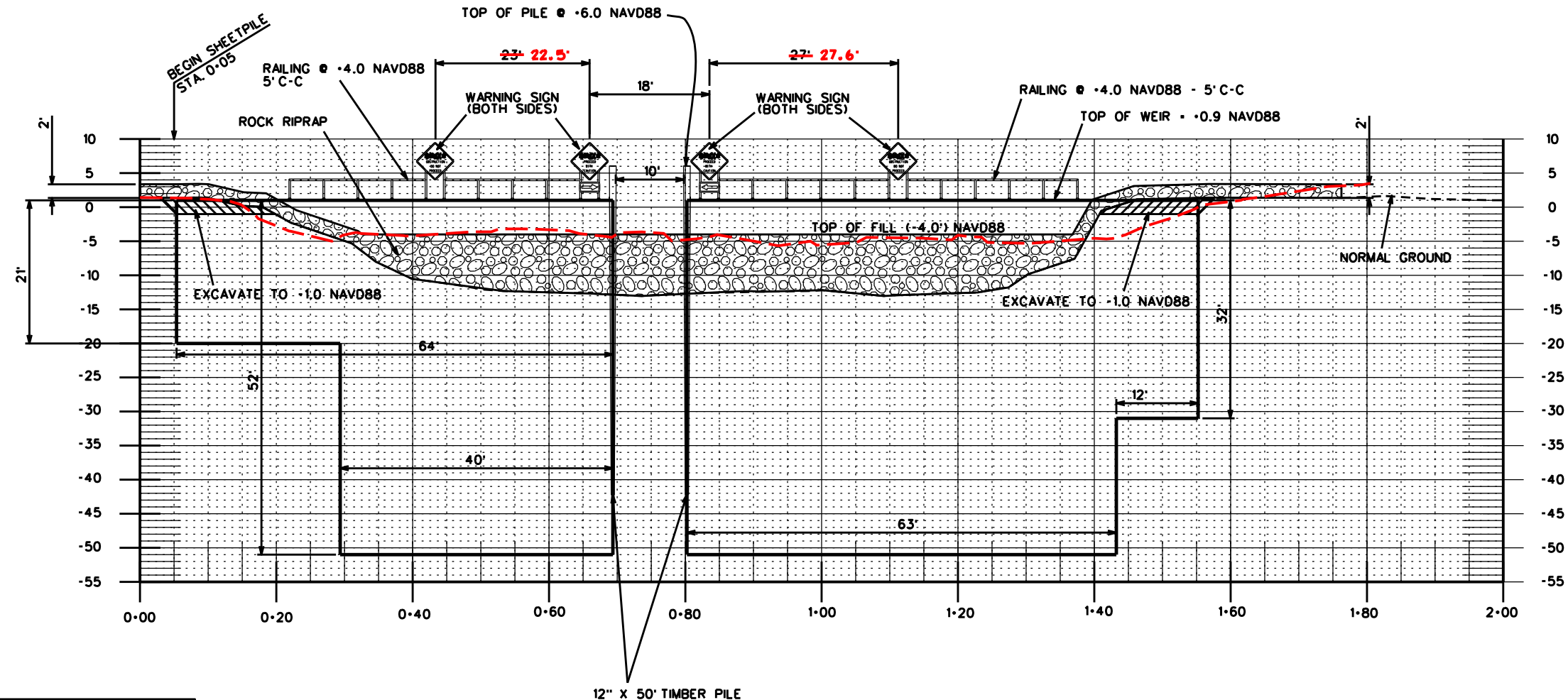
FILE NAME  
LA274  
DRAWING NAME  
LA27423.DGN

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE	DATE	07/07
CHECKED	R. FAULKNER, B. STICKER	DATE	02/09
APPROVED	E.J. GIERING, III	DATE	05/09

NOTE:  
SEE SHEET 22 FOR RIPRAP SPECIFICATIONS  
SEE SHEET 55 FOR SHEETPILE DETAIL  
SEE SHEET 67 FOR SIGN AND BATTER PILE DETAILS



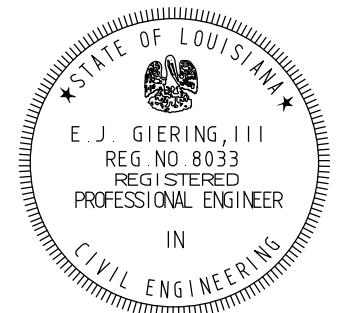
SITE 5 - TYPICAL ROCK RIPRAP SECTION  
BAYOU DE CADE



BACKFILL EXCAVATED AREAS WITH ROCK RIPRAP

SITE 5 - SHEETPILE CENTERLINE PROFILE VIEW  
BAYOU DE CADE

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

SITE 5 - SECTION VIEW  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

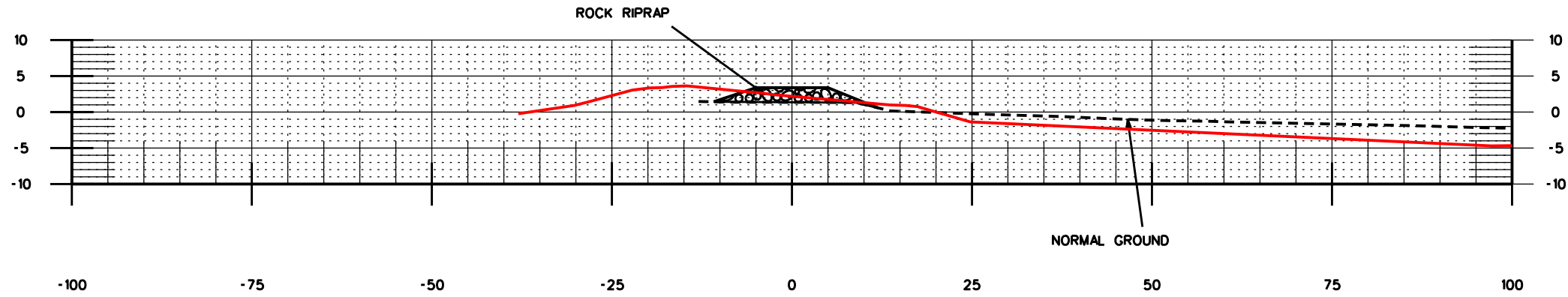


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LA274

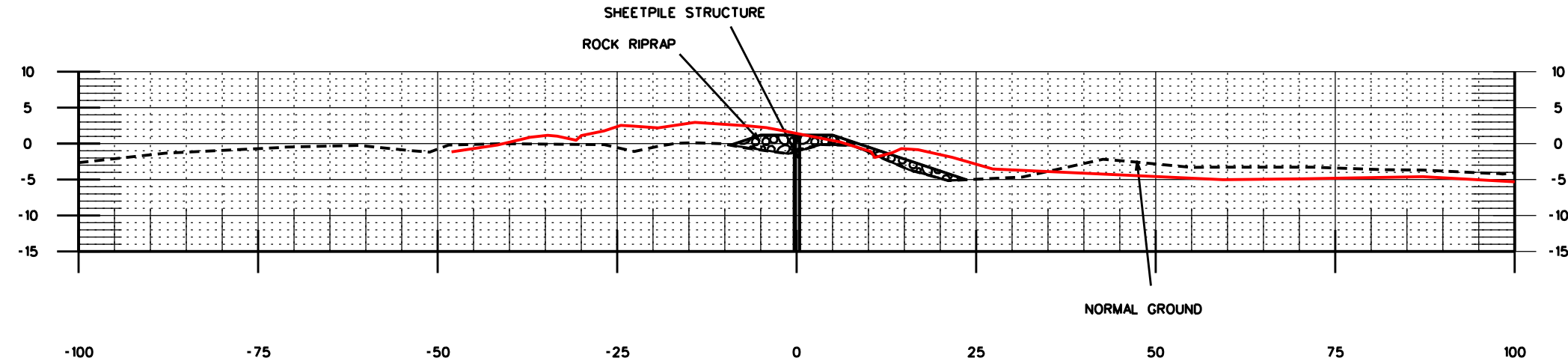
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SHEET 24 OF 76

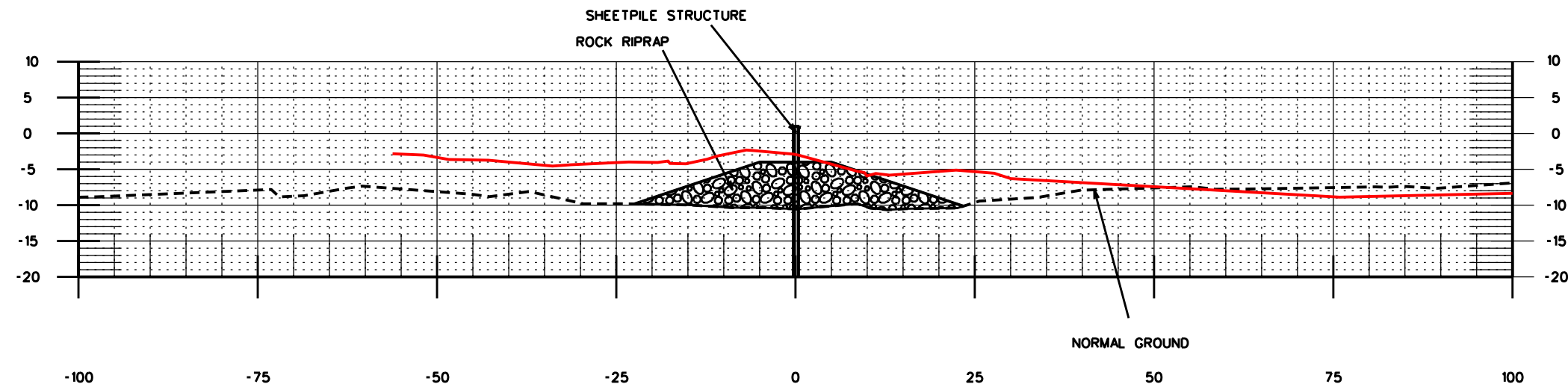
DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE	DATE	07/07
CHECKED	R. FAULKNER, B. STICKER	DATE	02/09
APPROVED	E.J. GIERING III	DATE	05/09



0+00

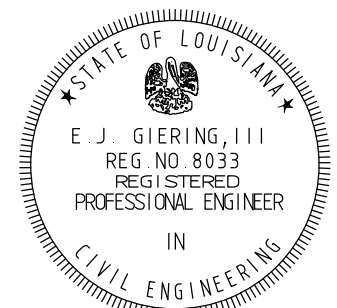


0+20



0+40

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

SITE 5 - FILL SECTIONS  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

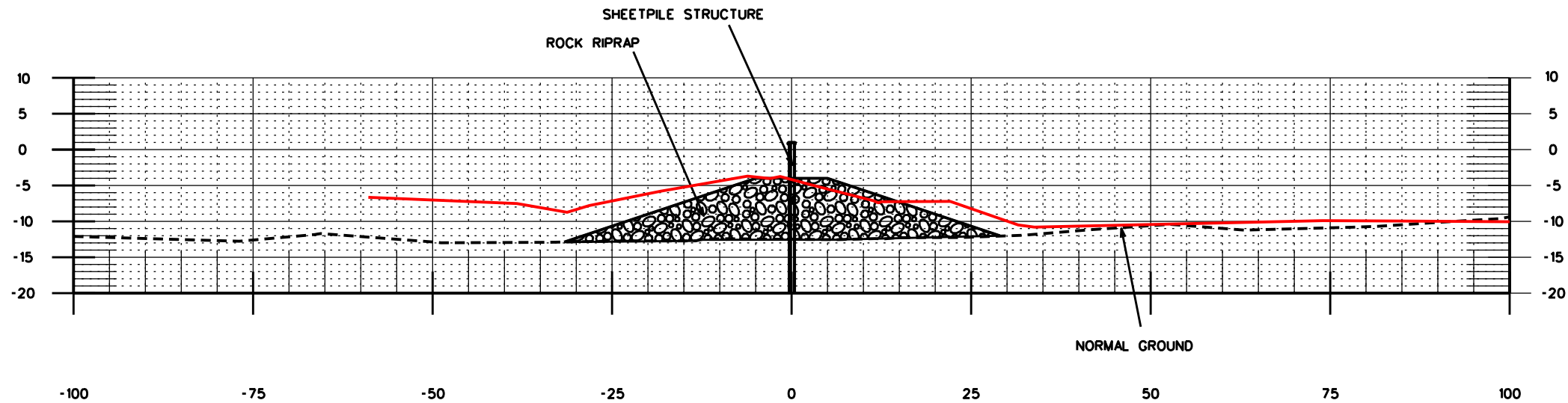


FILE NAME  
LA274

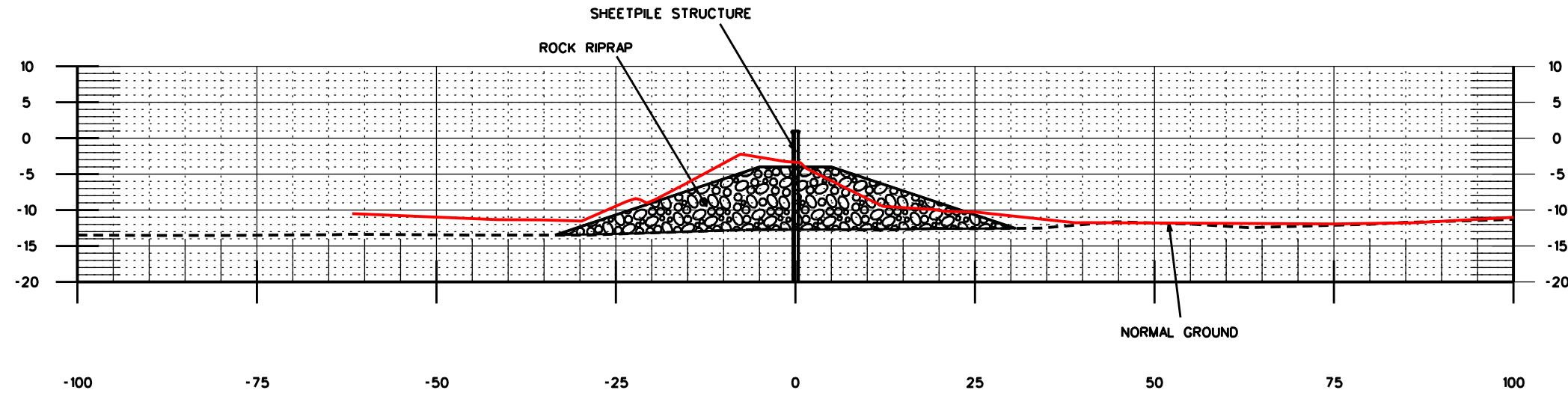
DRAWING NAME  
LA27425.DGN

SHEET 25 OF 76

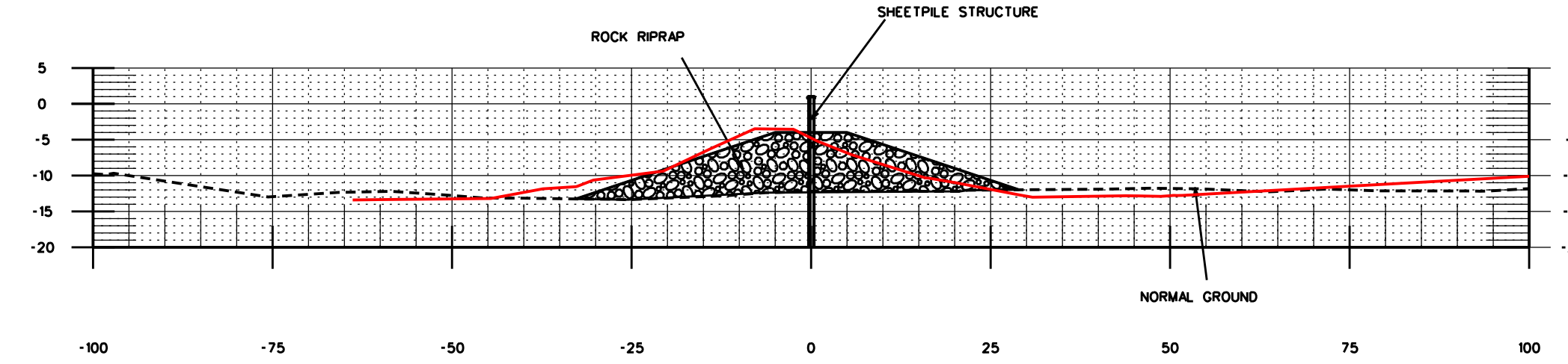
DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE	DATE	07/07
CHECKED	R. FAULKNER, B. STICKER	DATE	02/09
APPROVED	E.J. GIERING III	DATE	05/09



0+60

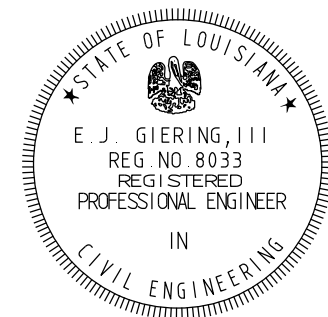


0+80



1+00

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

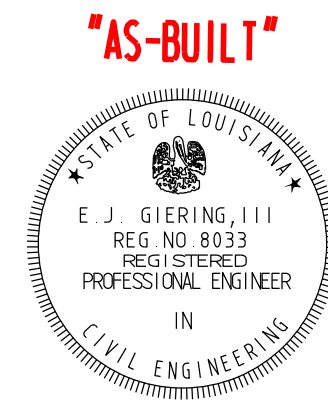
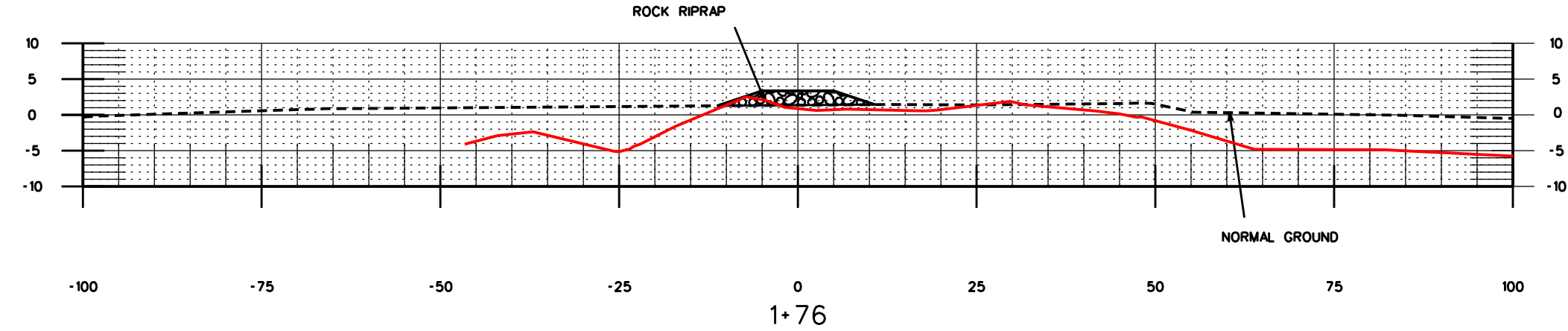
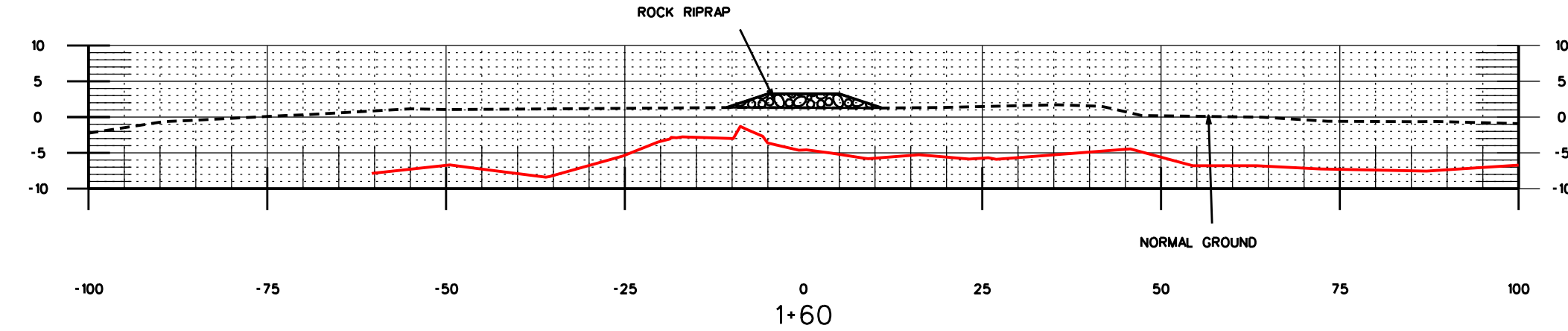
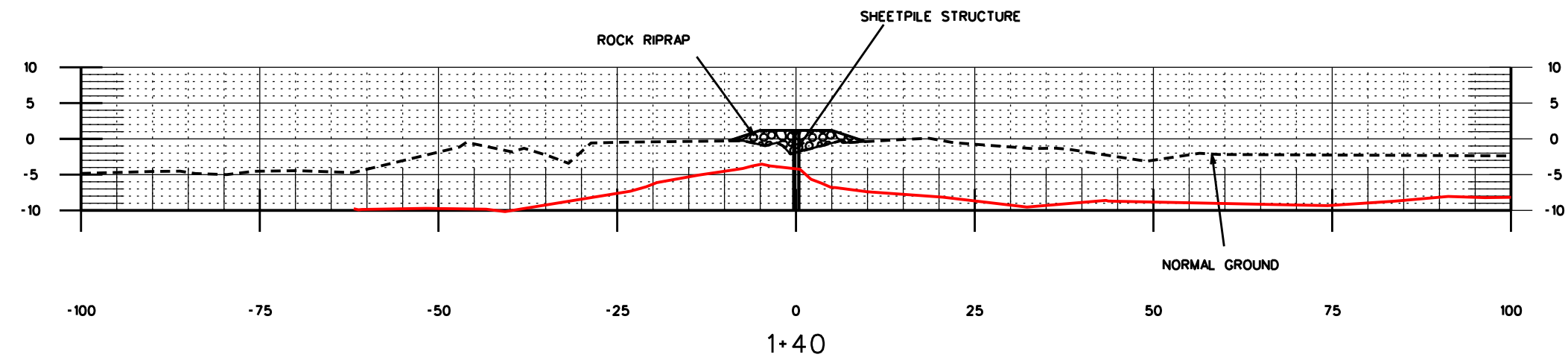
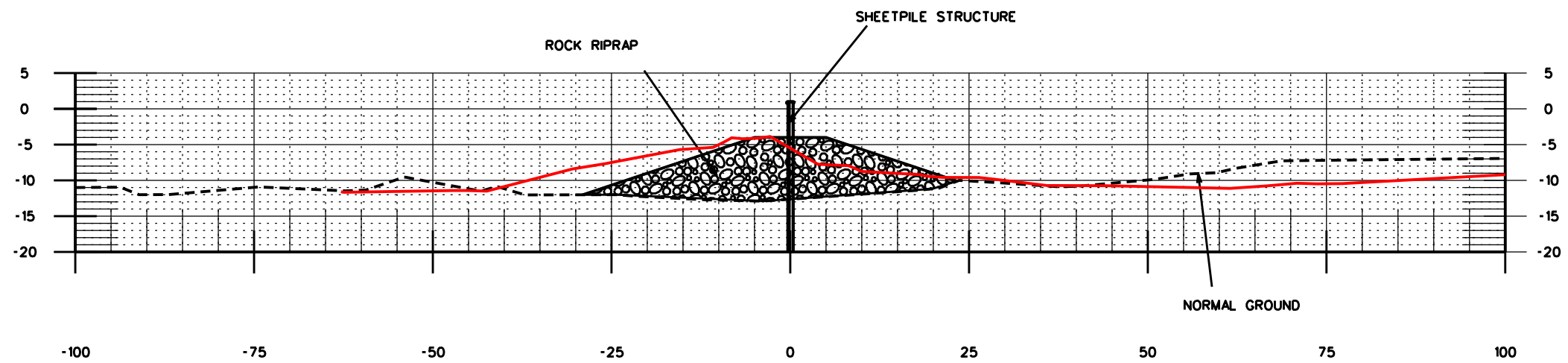
SITE 5 - FILL SECTIONS  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME LA274
DRAWING NAME LA27426.DGN
SHEET 26 OF 76

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE	DATE	07/07
CHECKED	R. FAULKNER, B. STICKER	DATE	02/09
APPROVED	E.J. GIERING III	DATE	05/09





REVISIONS			
NO.	DATE	APPROVED	TITLE

DESIGNED	DATE
S. GARNER	07/07
DRAWN	DATE
D. WILMORE	07/07
CHECKED	DATE
R. FAULKNER, B. STICKER	02/09
APPROVED	DATE
E. J. GIERING III	05/09

SITE 5 - FILL SECTIONS  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME
LA274
DRAWING NAME
LA27427.DGN
SHEET 27 OF 76



NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

DATUM: ALL HORIZONTAL COORDINATES - NAD83  
ALL ELEVATIONS - NAVD88

LEGEND

- SOIL BORINGS

- PROPOSED ROCK

ROCK RIPRAP GRADATION	
PERCENT LIGHTER BY WEIGHT	POUNDS
100	700
50-100	300
15-50	150
0-15	45

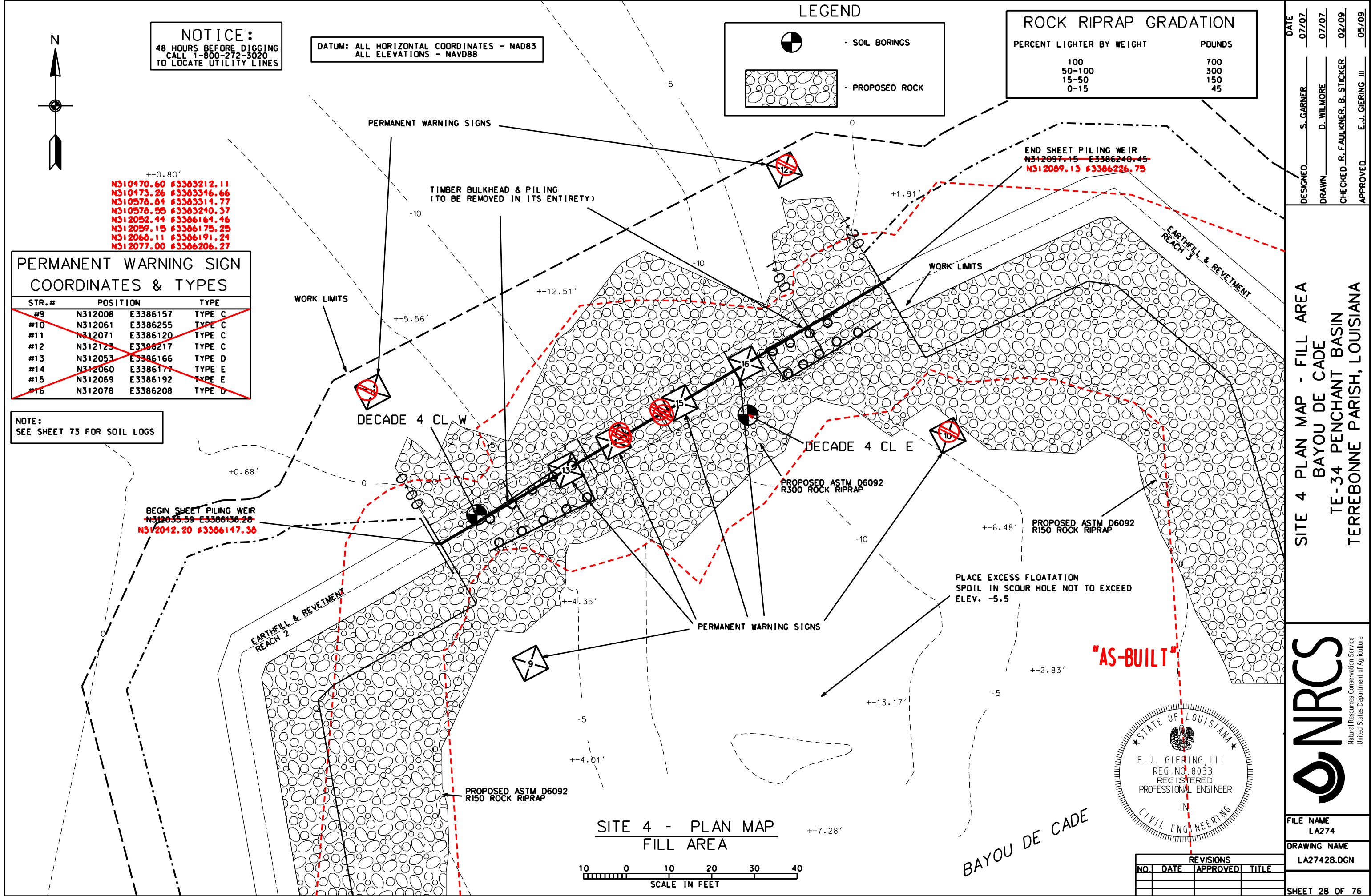
DATE	07/07
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING III

PERMANENT WARNING SIGN  
COORDINATES & TYPES

STR.#	POSITION	TYPE
#9	N312008 E3386157	TYPE C
#10	N312061 E3386255	TYPE C
#11	N312071 E3386120	TYPE C
#12	N312123 E3386217	TYPE C
#13	N312053 E3386166	TYPE D
#14	N312060 E3386177	TYPE E
#15	N312069 E3386192	TYPE E
#16	N312078 E3386208	TYPE D

NOTE:  
SEE SHEET 73 FOR SOIL LOGS

~~N310470.60 #3383212.11~~  
~~N310473.26 #3383346.66~~  
~~N310578.61 #3383314.77~~  
~~N310578.55 #3383240.37~~  
~~N312052.44 #3386164.46~~  
~~N312059.15 #3386175.25~~  
~~N312068.11 #3386191.24~~  
~~N312077.00 #3386206.27~~



SITE 4 PLAN MAP - FILL AREA  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

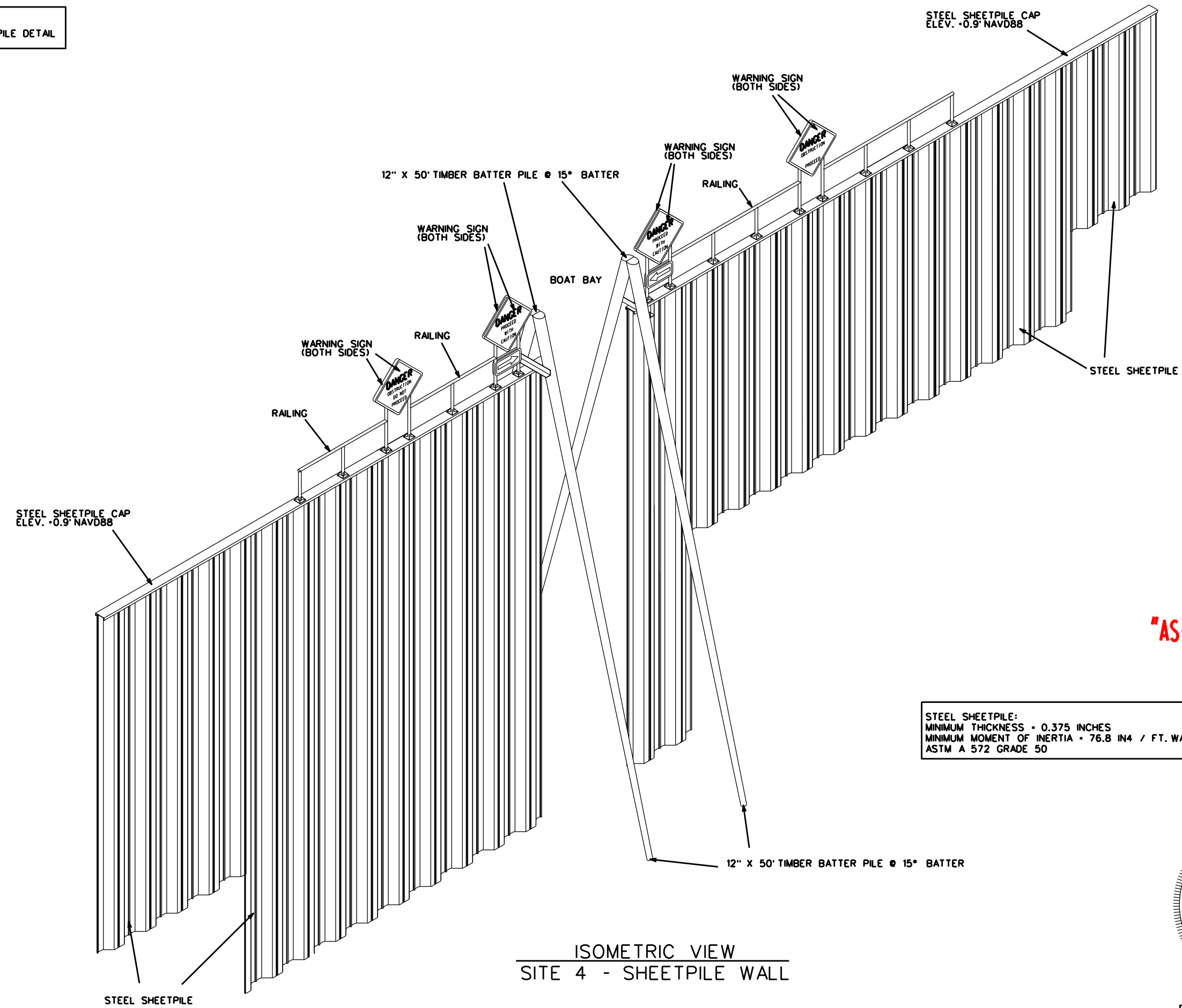
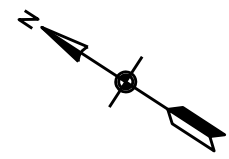


FILE NAME  
LA274

DRAWING NAME  
LA27428.DGN

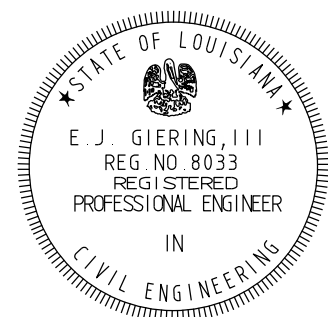
REVISIONS		
NO.	DATE	TITLE

NOTE:  
SEE SHEET 55 FOR SHEETPILE DETAIL



"AS-BUILT"


STEEL SHEETPILE:  
MINIMUM THICKNESS • 0.375 INCHES  
MINIMUM MOMENT OF INERTIA • 76.8 IN4 / FT. WALL  
ASTM A 572 GRADE 50



ISOMETRIC VIEW  
SITE 4 - SHEETPILE WALL

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING III		05/09

SITE 4 - ISOMETRIC VIEW  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



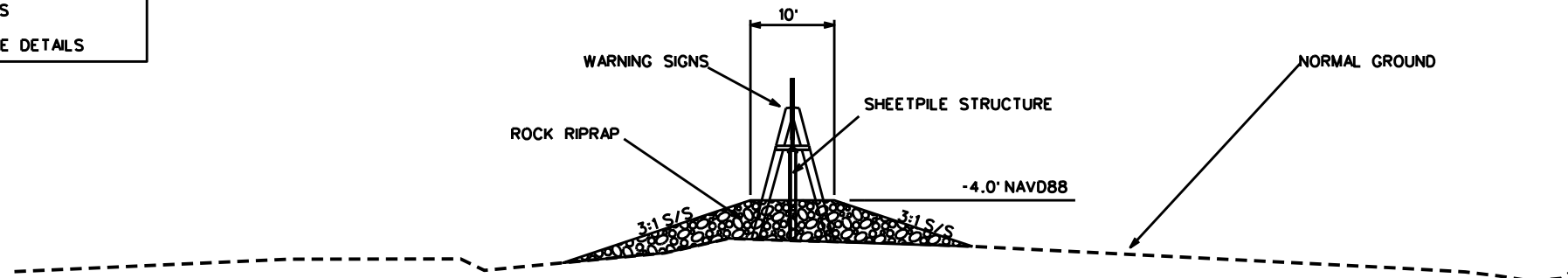
NRCS  
Natural Resources Conservation Service  
United States Department of Agriculture

FILE NAME	LA274
DRAWING NAME	LA27429.DGN
SHEET 29 OF 76	

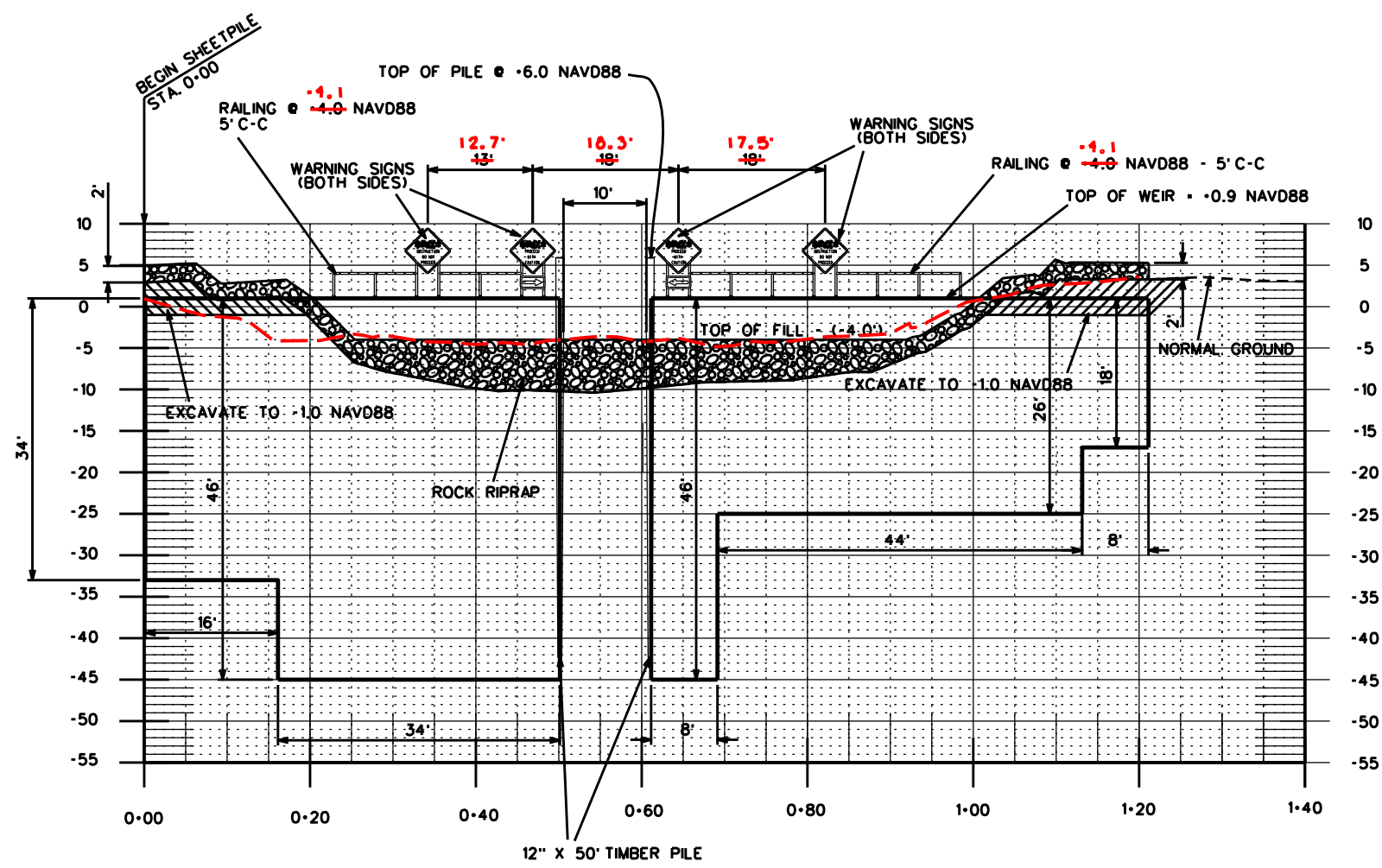
REVISIONS			
NO.	DATE	APPROVED	TITLE



NOTE:  
SEE SHEET 28 FOR RIPRAP SPECIFICATIONS  
SEE SHEET 55 FOR SHEETPILE DETAIL  
SEE SHEET 67 FOR SIGN AND BATTER PILE DETAILS



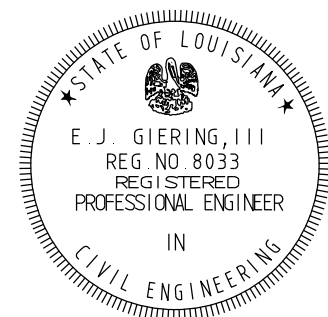
SITE 4 - TYPICAL SHEETPILE SECTION  
BAYOU DE CADE



BACKFILL EXCAVATED AREAS WITH ROCK RIPRAP

SITE 4 - SHEETPILE CENTERLINE PROFILE VIEW  
BAYOU DE CADE

"AS-BUILT"



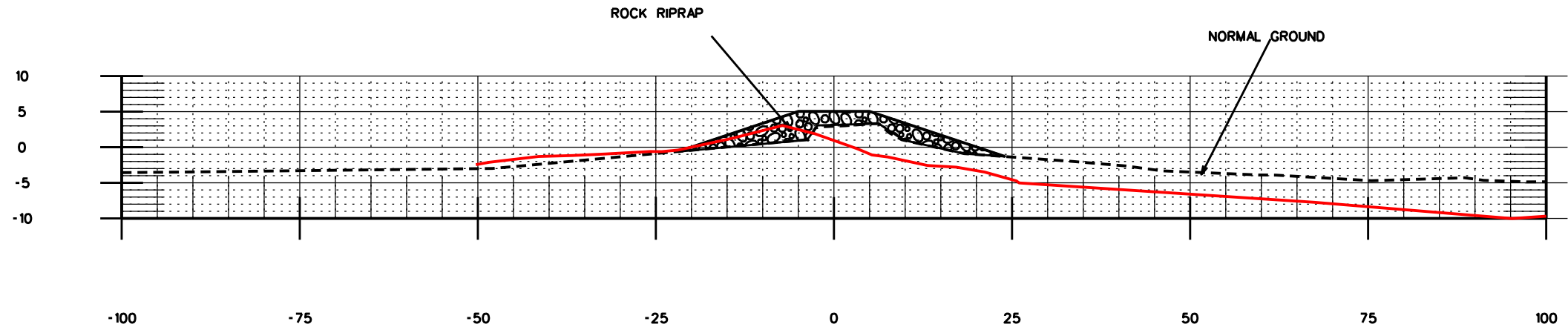
REVISIONS			
NO.	DATE	APPROVED	TITLE

SITE 4 - SECTION VIEW  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TEREBONNE PARISH, LOUISIANA

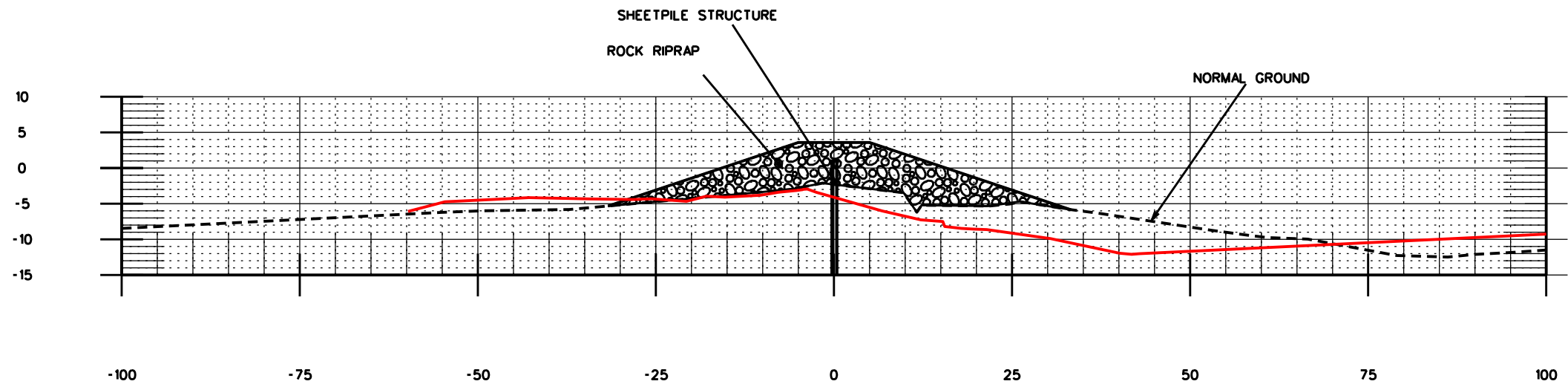


FILE NAME	LA274
DRAWING NAME	LA27430.DGN
SHEET	30 OF 76

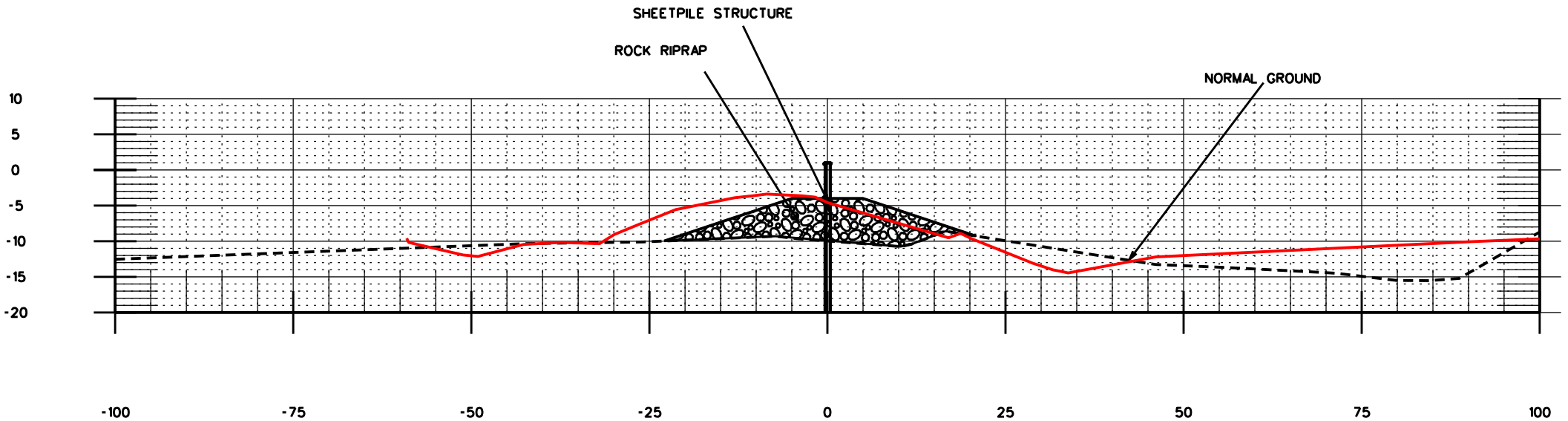
DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING III		05/09



0+00

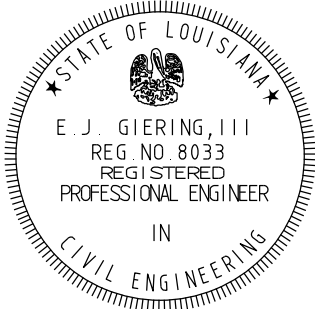


0+20



0+40

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

SITE 4 - FILL SECTIONS  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

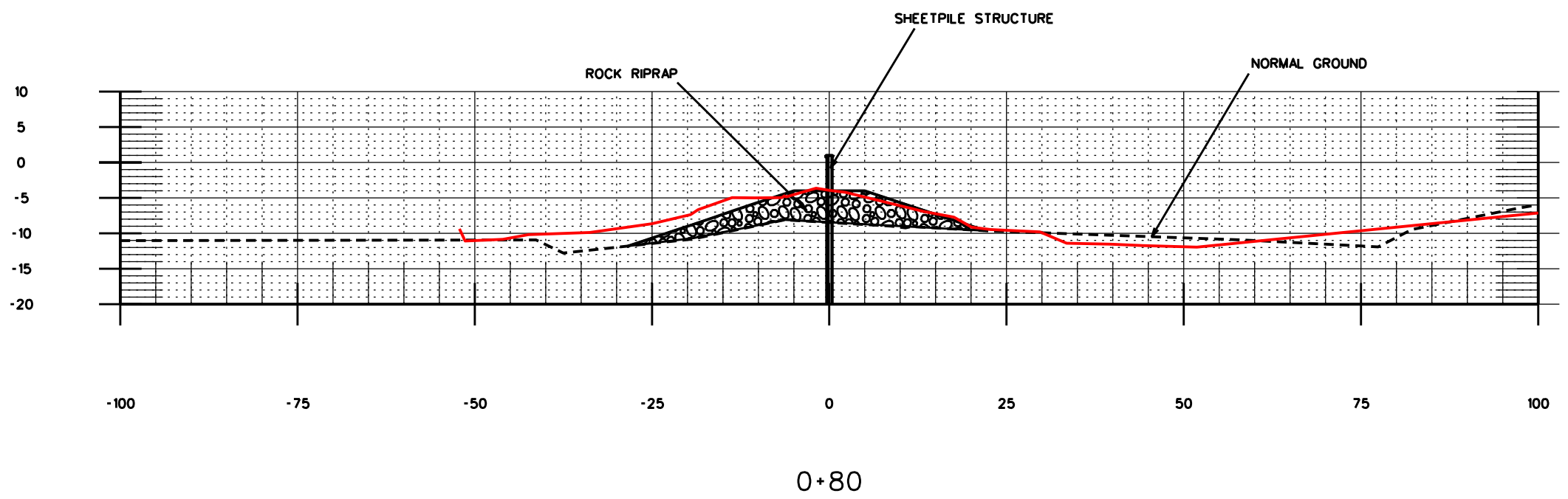
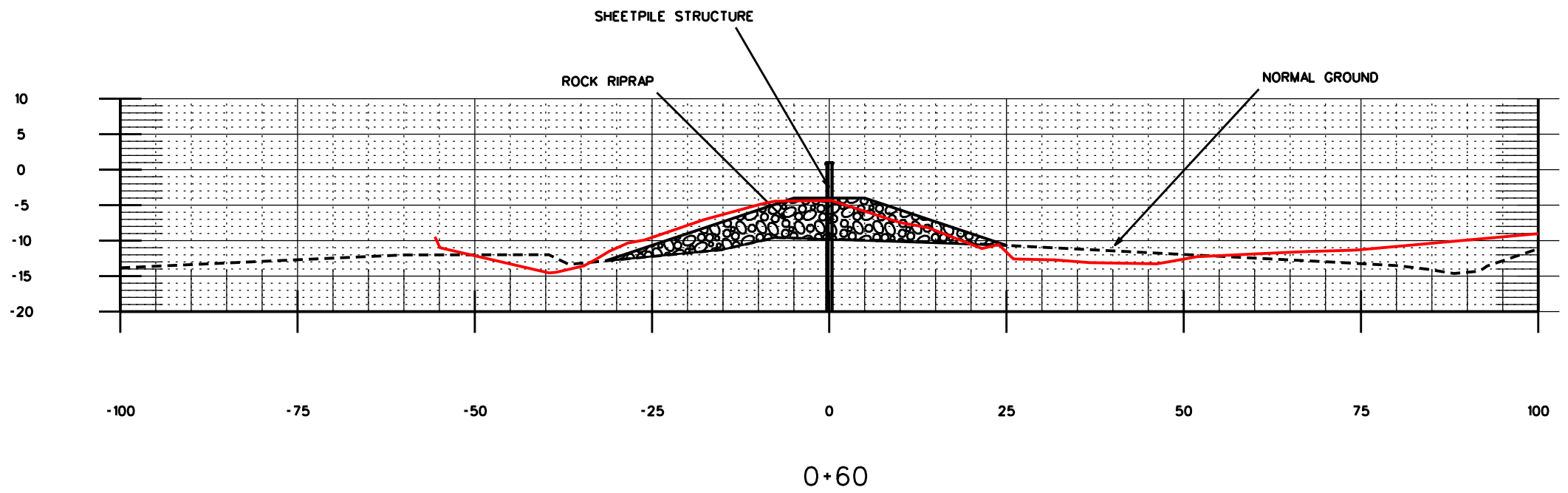


FILE NAME  
LA274

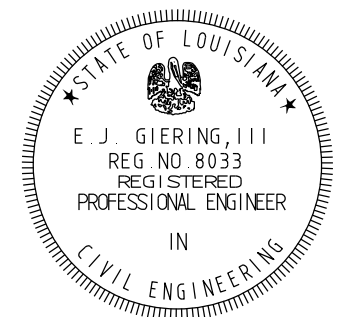
DRAWING NAME  
LA27431.DGN

SHEET 31 OF 76

DESIGNED	DRAWN	CHECKED	APPROVED	DATE
S. GARNER	D. WILMORE	R. FAULKNER, B. STICKER	E. J. GIERING III	07/07
				07/07
				02/09
				05/09



**"AS-BUILT"**



REVISIONS			
NO.	DATE	APPROVED	TITLE

SITE 4 - FILL SECTIONS  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

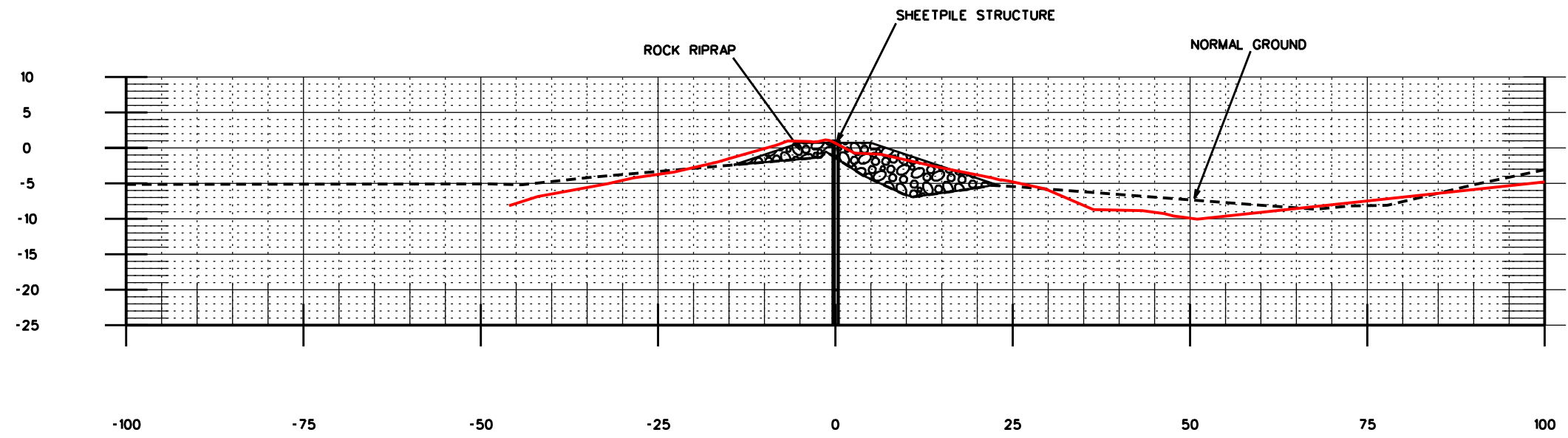


FILE NAME  
LA274

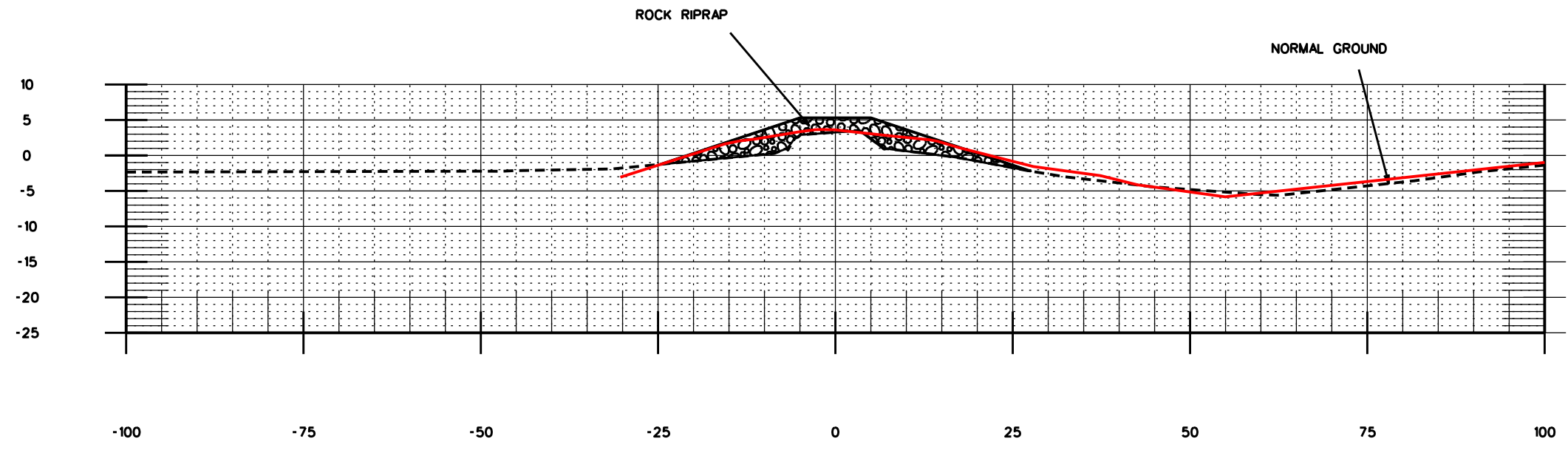
DRAWING NAME  
LA27432.DGN

SHEET 32 OF 76

DESIGNED	DATE
S. GARNER	07/07
DRAWN	DATE
D. WILMORE	07/07
CHECKED	DATE
R. FAULKNER, B. STICKER	02/09
APPROVED	DATE
E.J. GIERING III	05/09

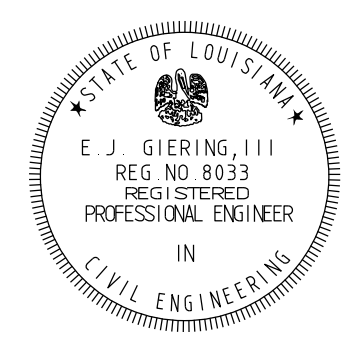


1+00



1+20

**"AS-BUILT"**



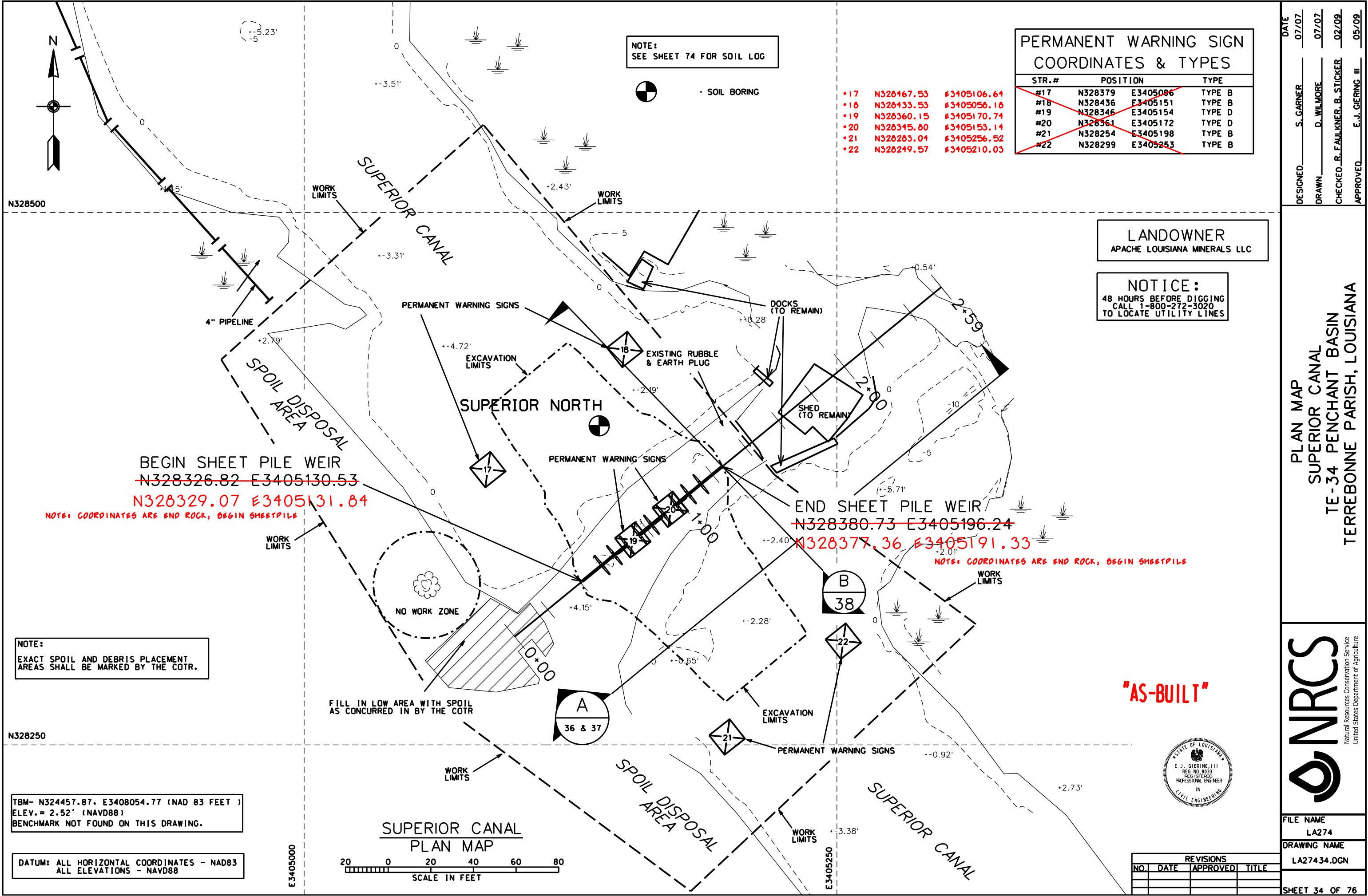
REVISIONS			
NO.	DATE	APPROVED	TITLE

DESIGNED	DATE
S. GARNER	07/07
DRAWN	DATE
D. WILMORE	07/07
CHECKED	DATE
R. FAULKNER, B. STICKER	02/09
APPROVED	DATE
E. J. GIERING III	05/09

SITE 4 - FILL SECTIONS  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME
LA274
DRAWING NAME
LA27433.DGN
SHEET 33 OF 76



PERMANENT WARNING SIGN COORDINATES & TYPES			
STR.#	POSITION		TYPE
#17	N328379	E3405086	TYPE B
#18	N328436	E3405151	TYPE B
#19	N328346	E3405154	TYPE D
#20	N328361	E3405172	TYPE D
#21	N328254	E3405198	TYPE B
#22	N328299	E3405253	TYPE B

LANDOWNER  
APACHE LOUISIANA MINERALS LLC

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

DATE

DESIGNED

DRAWN

CHECKED

APPROVED

S. GARNER

D. WILMORE

R. FAULKNER, B. STICKER

E. J. GIERING, III

07/07

07/07

02/09

05/09

PLAN MAP

SUPERIOR CANAL

TE-34 PENCHANT BASIN

TERREBONNE PARISH, LOUISIANA

NRCS

Natural Resources Conservation Service

United States Department of Agriculture

FILE NAME

LA274

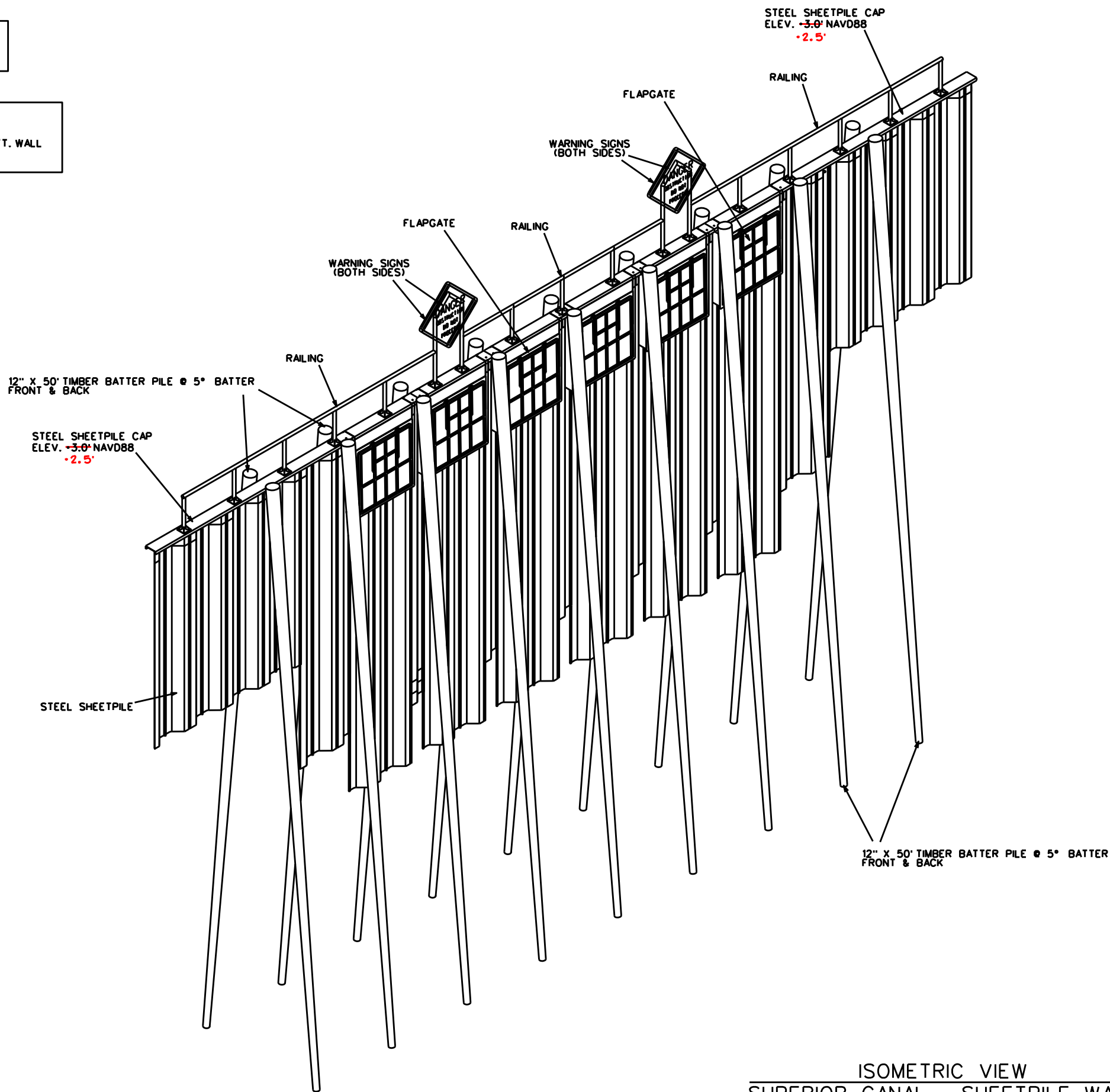
DRAWING NAME

LA274.34.DGN

SHEET 34 OF 76

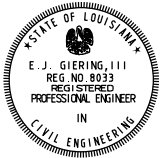
NOTES:  
1. SEE SHEET 55 FOR SHEETPILE DETAIL  
2. SEE SHEETS 41 & 42 FOR GATE DETAILS

STEEL SHEETPILE:  
MINIMUM THICKNESS = 0.375 INCHES  
MINIMUM MOMENT OF INERTIA = 76.8 IN<sup>4</sup> / FT. WALL  
ASTM A 572 GRADE 50



ISOMETRIC VIEW  
SUPERIOR CANAL - SHEETPILE WALL

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

SHEETPILE - ISOMETRIC VIEW  
SUPERIOR CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME  
LA274

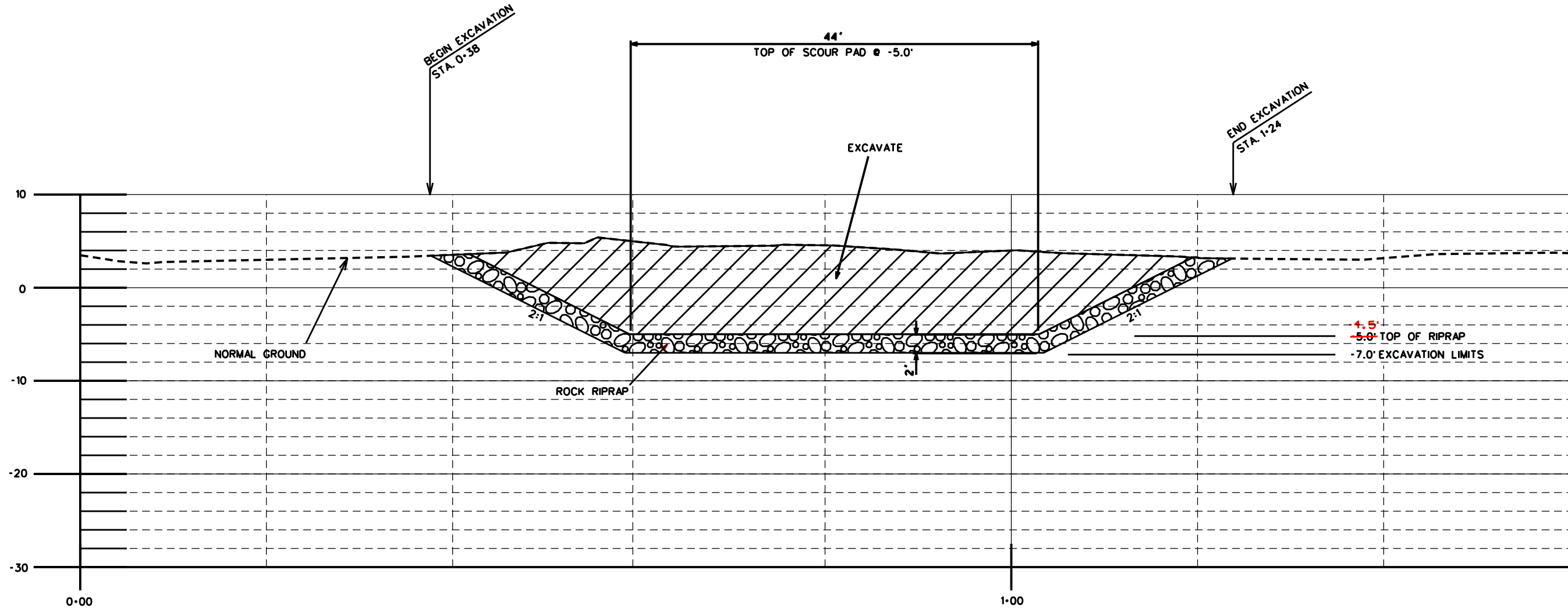
DRAWING NAME  
LA274.35.DGN

SHEET 35 OF 76

DATE	DESIGNED	DRAWN	CHECKED	APPROVED
07/07	S. GARNER	D. WILMORE	R. FAULKNER, B. STICKER	E. J. GIERING, III
07/07				
02/09				
05/09				





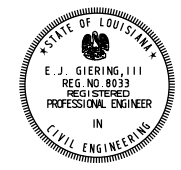


ROCK RIPRAP GRADATION	
PERCENT LIGHTER BY WEIGHT	POUNDS
100	700
50-100	300
15-50	150
0-15	45

EXCAVATION & SCOUR PAD  
ELEVATION VIEW

A  
34

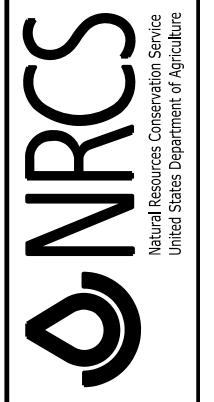
"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

DESIGNED	DATE
S. GARNER	07/07
DRAWN	DATE
D. WILMORE	07/07
CHECKED	DATE
R. FAULKNER, B. STICKER	02/09
APPROVED	DATE
E.J. GIERING, III	05/09

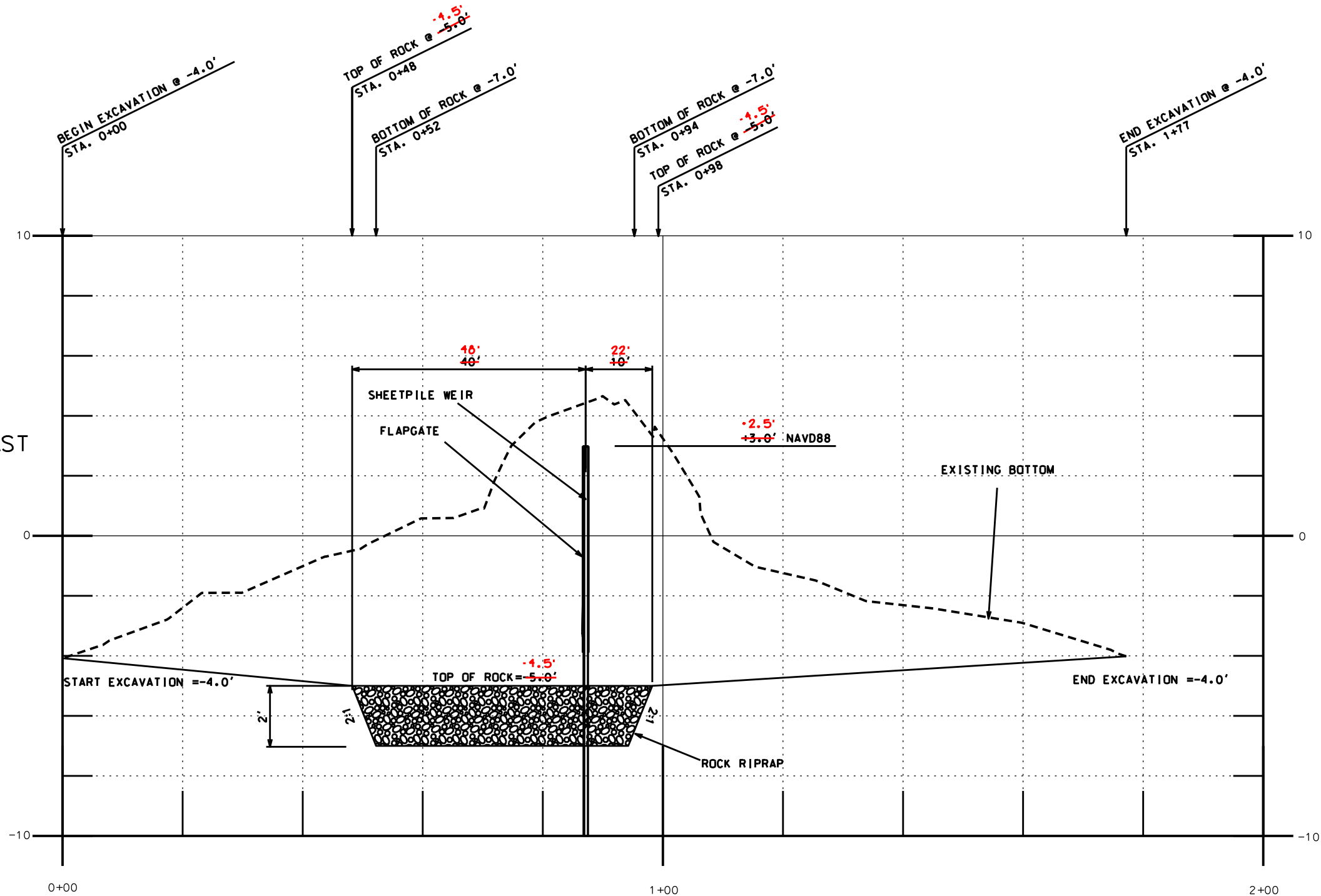
EXCAVATION & SCOUR PAD - ELEVATION VIEW  
SUPERIOR CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME
LA274
DRAWING NAME
LA27437.DGN
SHEET
37 OF 76

SOUTHEAST

NORTHWEST

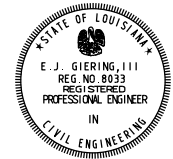


SECTION VIEW - SHEETPILE  
SUPERIOR CANAL

B  
34

ROCK RIPRAP GRADATION	
PERCENT LIGHTER BY WEIGHT	POUNDS
100	700
50-100	300
15-50	150
0-15	45

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

SHEETPILE - SECTION VIEW  
SUPERIOR CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME	L A274
DRAWING NAME	L A27438.DGN
SHEET 38 OF 76	

DESIGNED	DATE
S. GARNER	07/07
DRAWN	DATE
D. WILMORE	07/07
CHECKED	DATE
R. FAULKNER, B. STICKER	02/09
APPROVED	DATE
E.J. GIERING III	05/09



NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING III		05/09


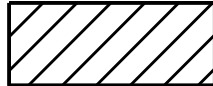
PLAN MAP - EXCAVATION  
SUPERIOR CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

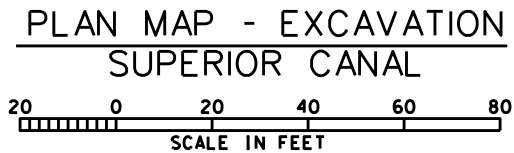
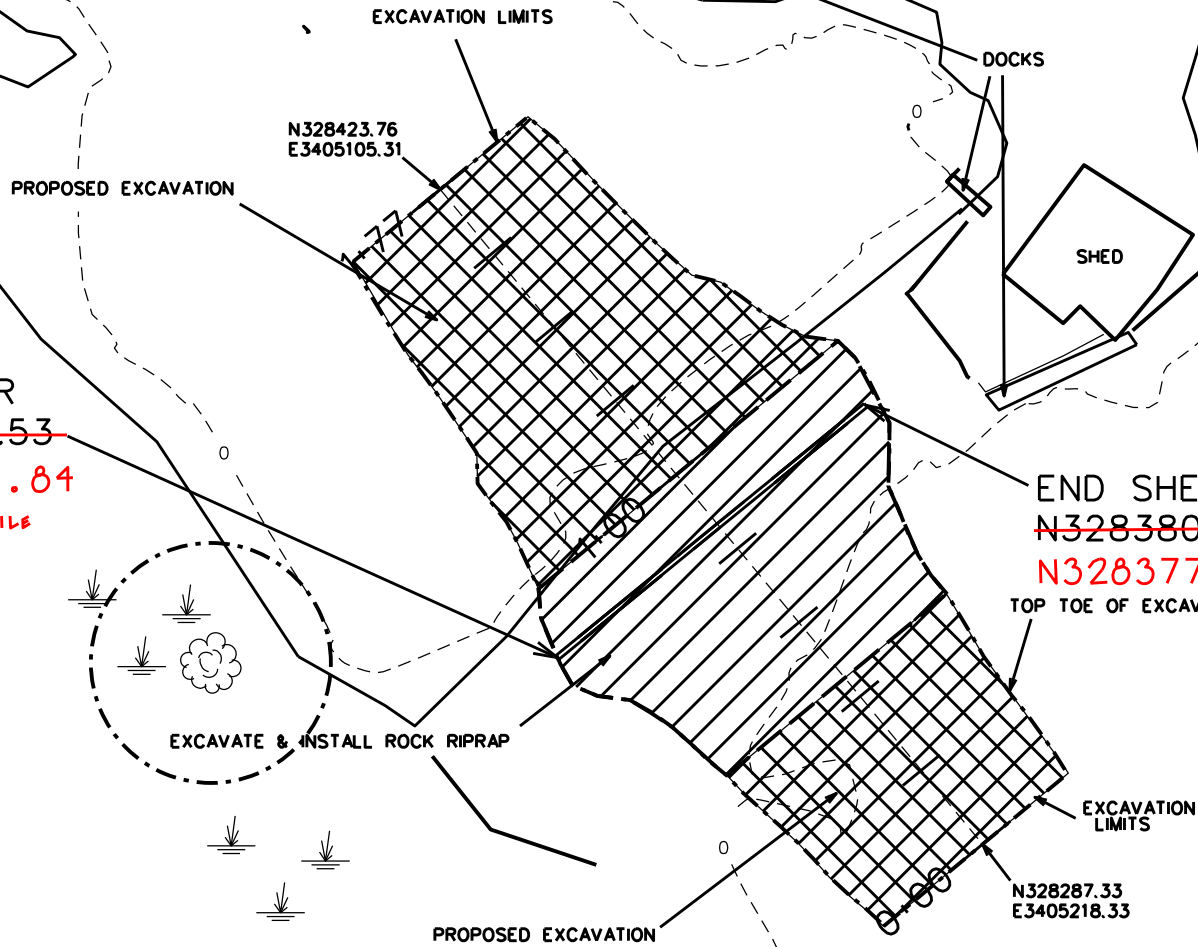


FILE NAME	LA274
DRAWING NAME	LA27439.DGN
SHEET	39 OF 76

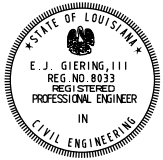
BEGIN SHEET PILE WEIR  
~~N328326.82 E3405130.53~~  
N328329.07 E3405131.84  
NOTE: COORDINATES ARE END ROCK, BEGIN SHEETPILE

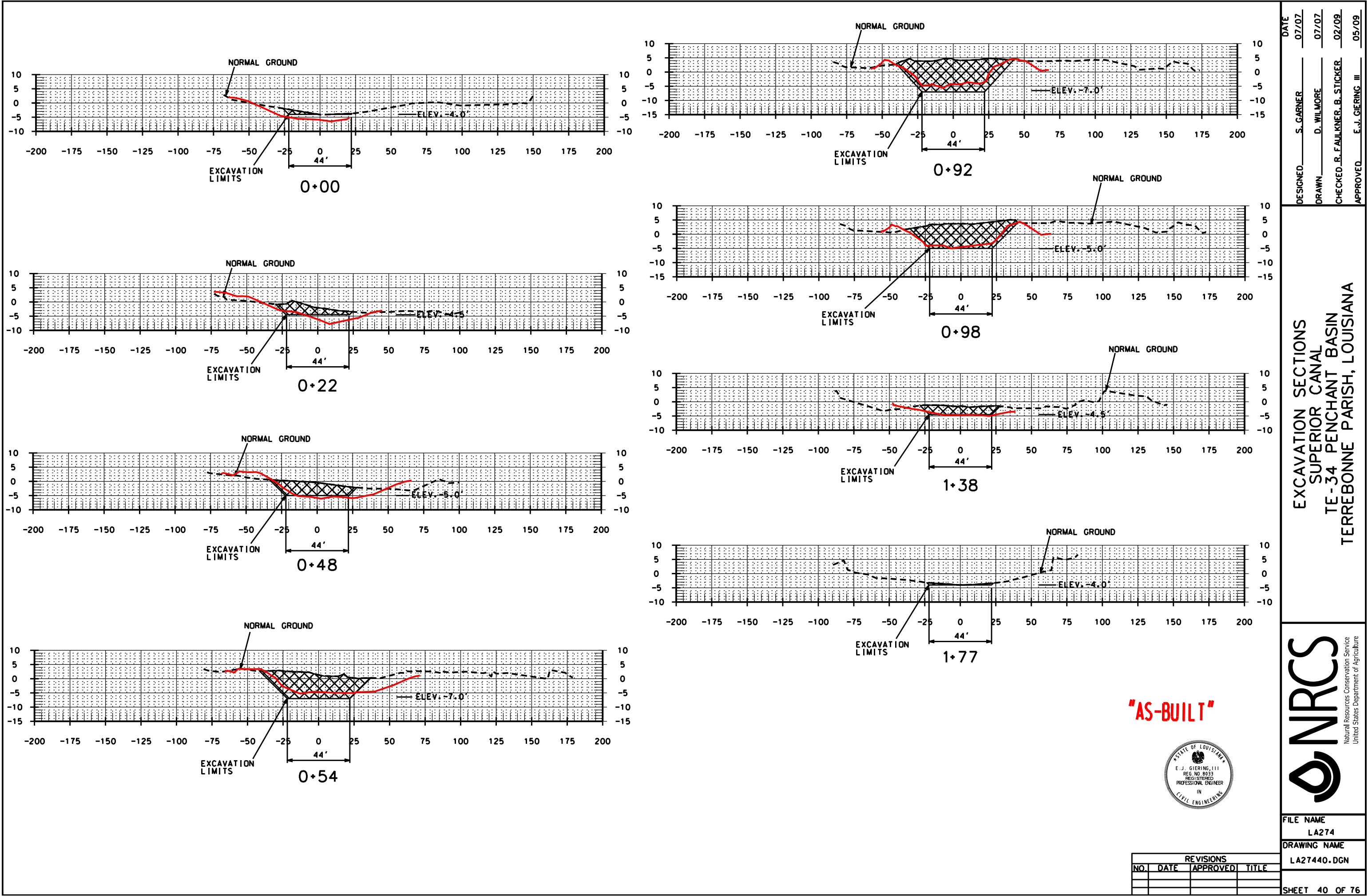
END SHEET PILE WEIR  
~~N328380.73 E3405196.24~~  
N328377.36 E3405191.33  
NOTE: COORDINATES ARE END ROCK, BEGIN SHEETPILE

-  - PROPOSED EXCAVATION AND WORK LIMITS
-  - EXCAVATE AND PLACE ROCK RIPRAP



"AS-BUILT"





DATE	07/07
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING, III

EXCAVATION SECTIONS  
SUPERIOR CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

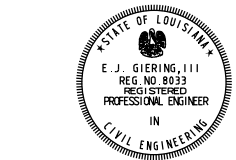


Natural Resources Conservation Service  
United States Department of Agriculture

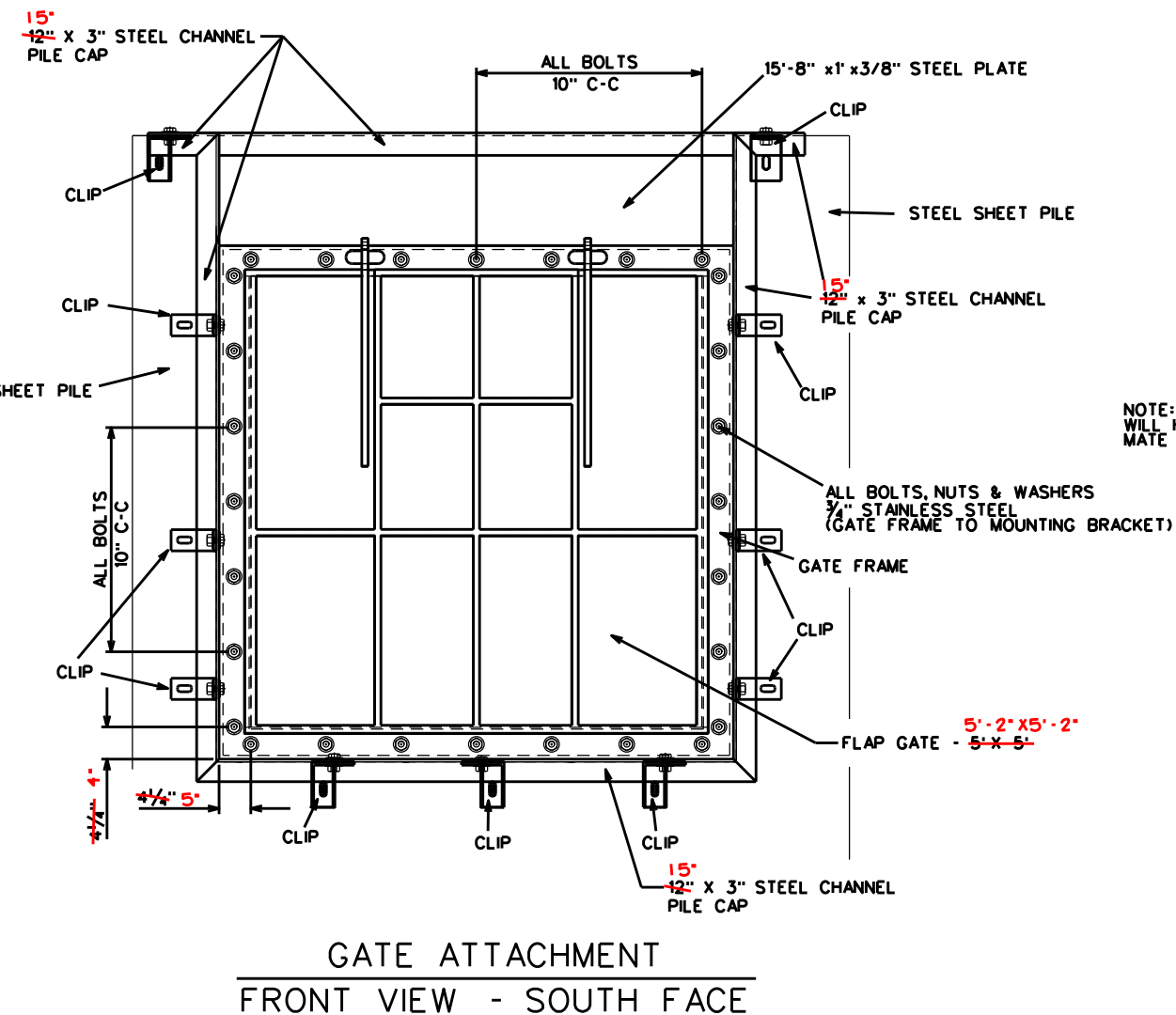
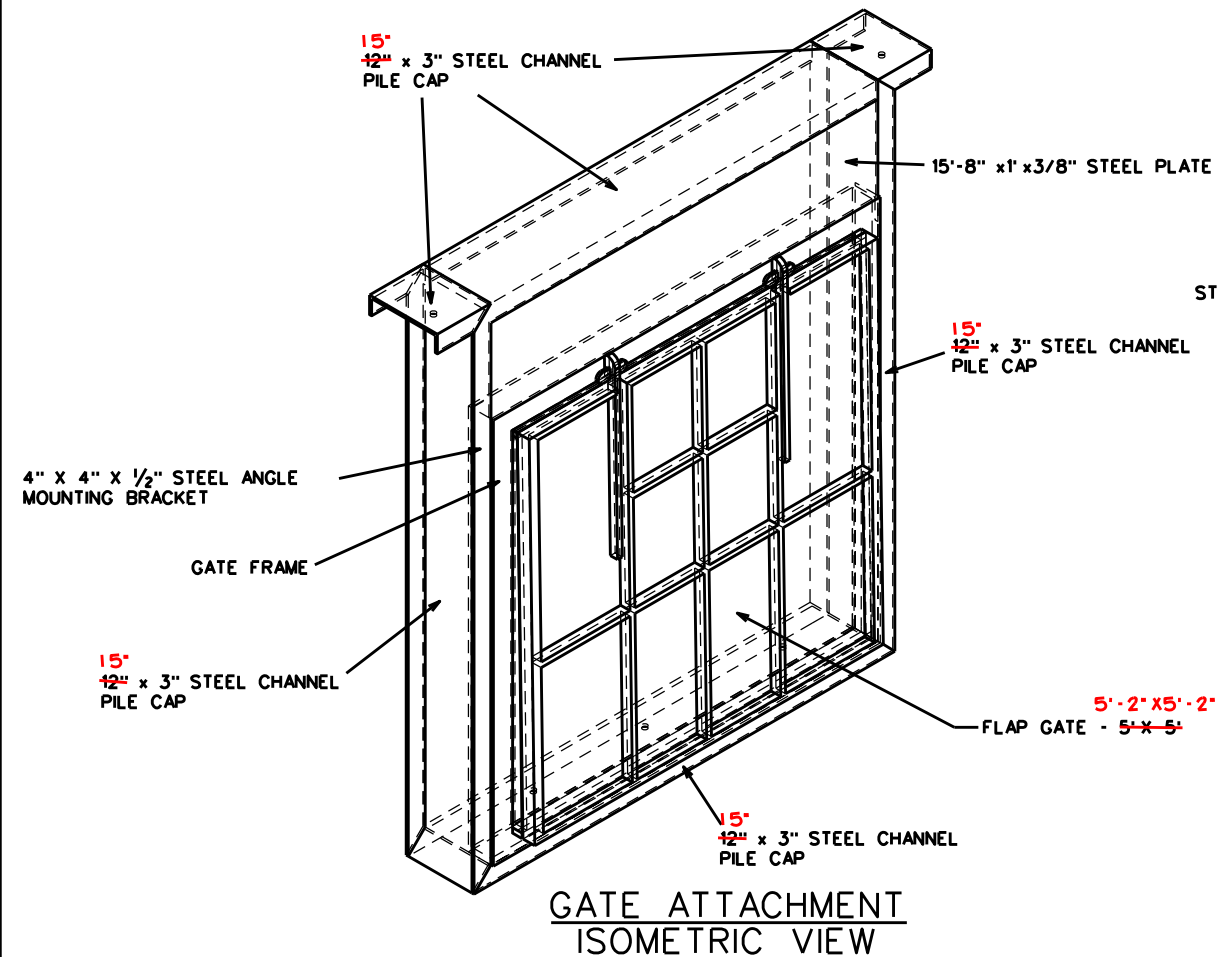
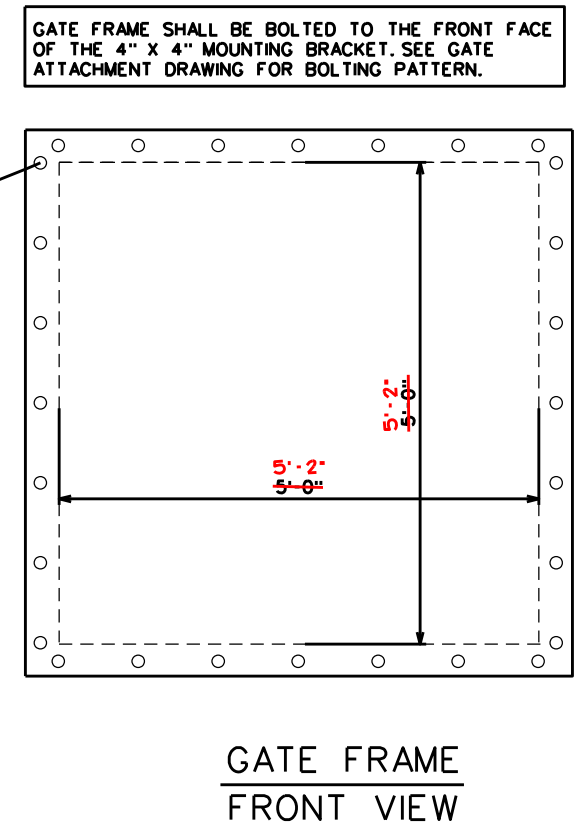
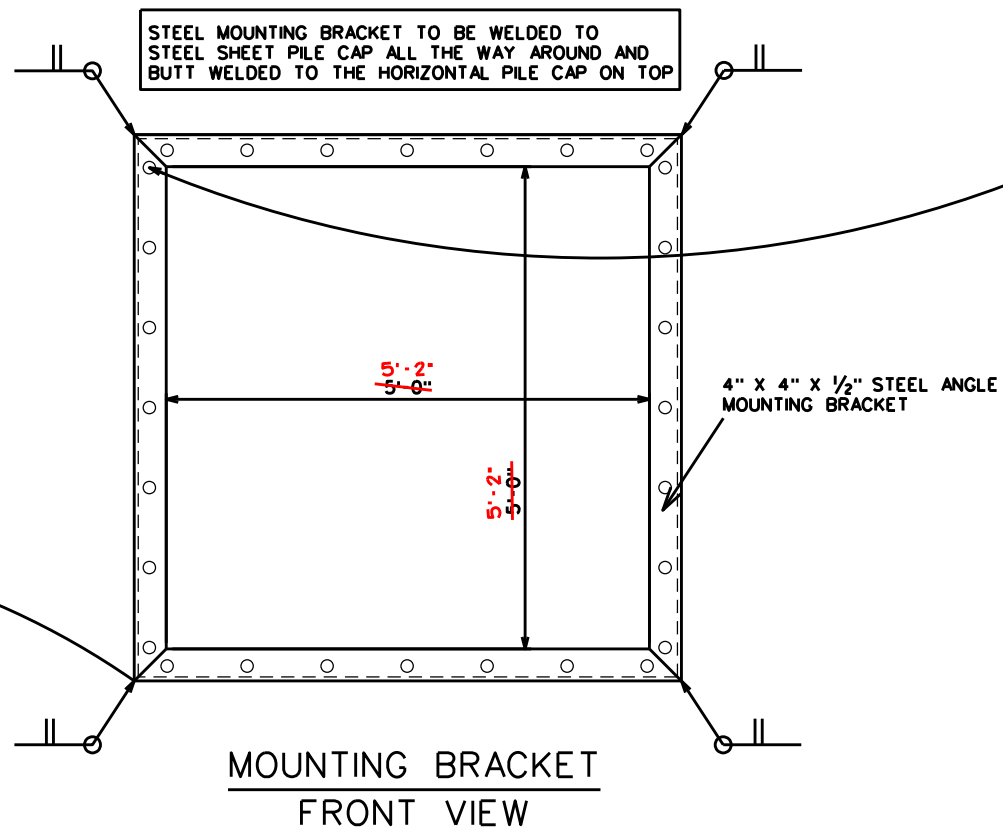
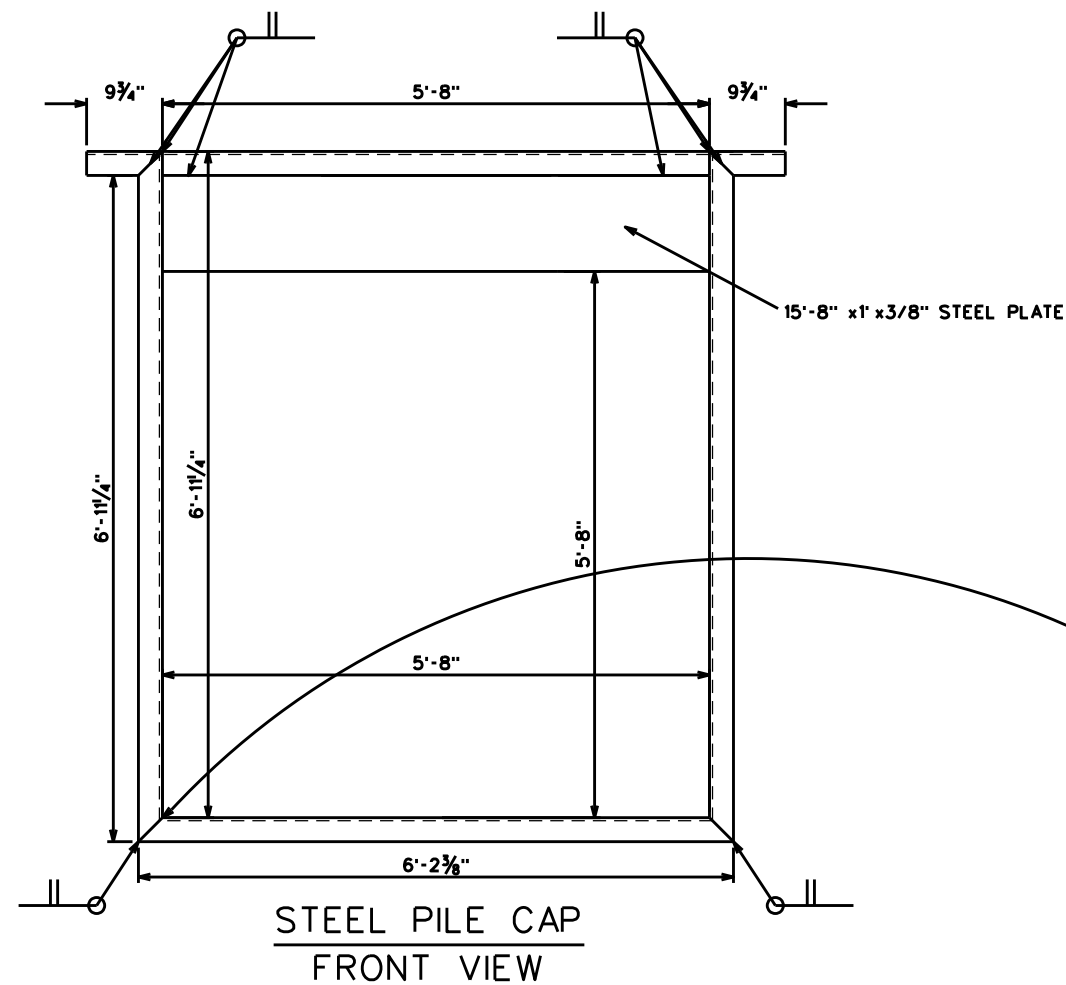
FILE NAME  
LA274

DRAWING NAME  
LA27440.DGN

SHEET 40 OF 76

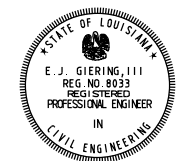


REVISIONS			
NO.	DATE	APPROVED	TITLE



NOTE: CLIPS ON VERTICAL CHANNEL WILL HAVE TO BE FIELD FITTED TO MATE WITH SHEET PILE WEB.

**"AS-BUILT"**



GATE ATTACHMENT DETAILS - FRONT VIEW  
SUPERIOR CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

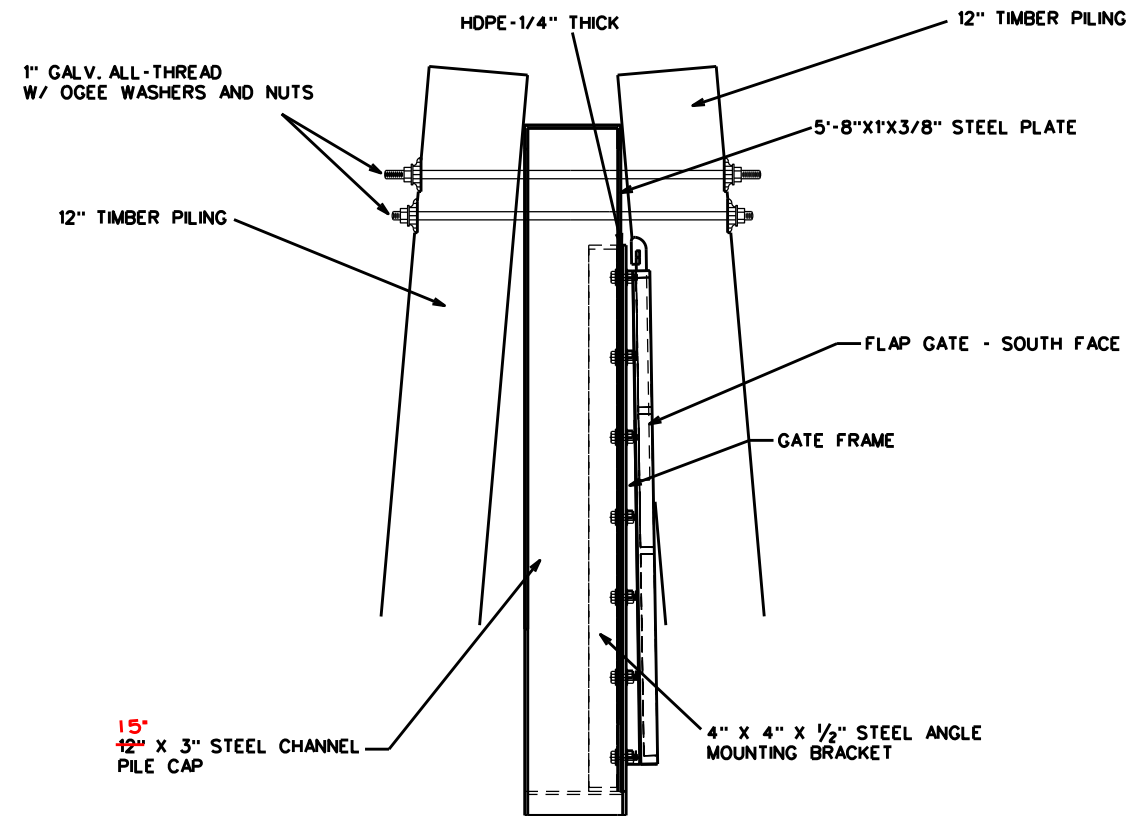
DATE 07/07  
DESIGNED S. GARNER  
DRAWN D. WILMORE  
CHECKED R. FAULKNER, B. STICKER  
APPROVED E.J. GIERING, III



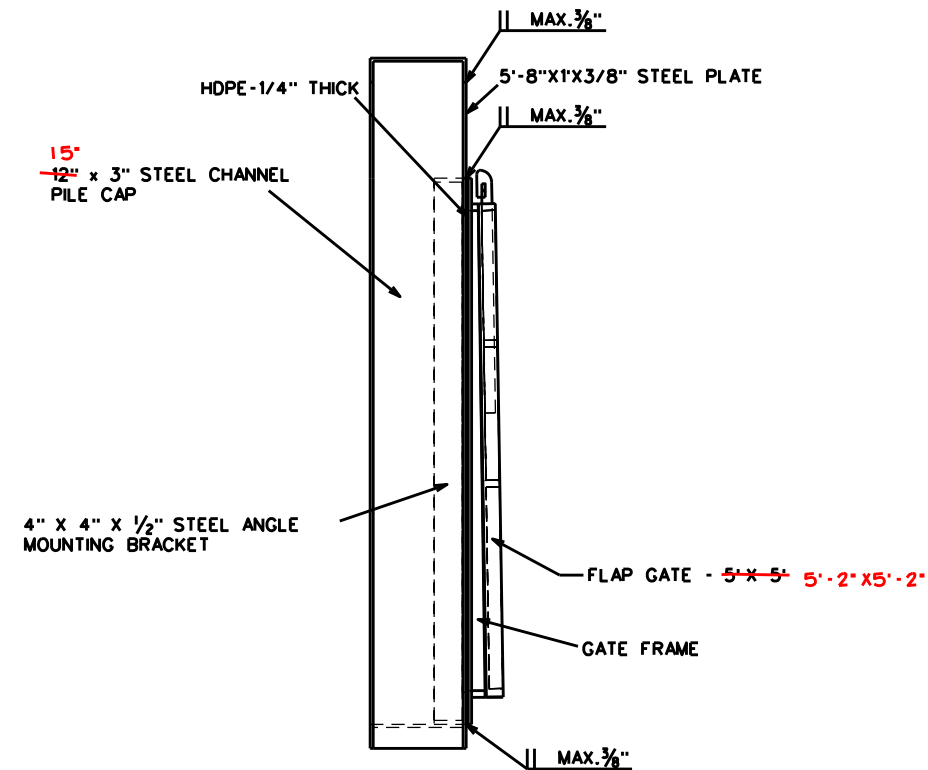
FILE NAME LA274  
DRAWING NAME LA27441.DGN  
SHEET 41 OF 76

REVISIONS		
NO.	DATE	TITLE

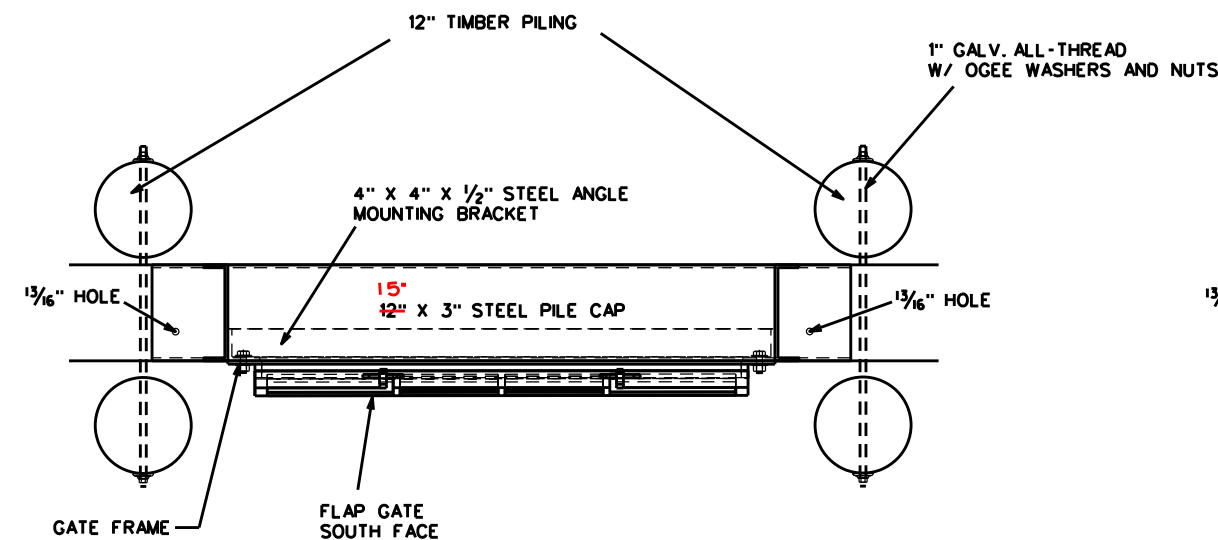




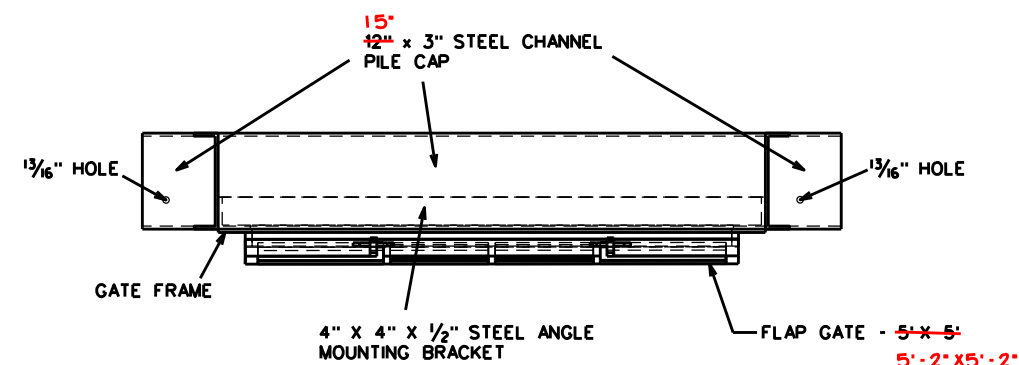
GATE ATTACHMENT W/ PILES  
SIDE VIEW



GATE ATTACHMENT  
RIGHT VIEW



GATE ATTACHMENT W/ PILES  
TOP VIEW



GATE ATTACHMENT  
TOP VIEW

"AS-BUILT"



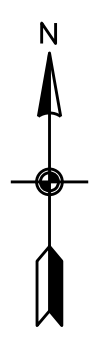
REVISIONS			
NO.	DATE	APPROVED	TITLE

GATE ATTACHMENT DETAILS - SIDE VIEW  
SUPERIOR CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME	LA274
DRAWING NAME	LA27442.DGN
SHEET	42 OF 76

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E. J. GIERING, III		05/09



NOTE:  
DEBRIS FROM CLEARING SHALL BE PLACED ON THE NORTHWEST  
BANK OF BRADY CANAL AT A LOCATION AS CONCURRED IN BY  
THE COTR.

LANDOWNER  
APACHE LOUISIANA MINERALS LLC

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

TBM- N333906.27, E3397496.74 (NAD 83 FEET)  
ELEV. = 2.04' (NAVD 88)  
BENCHMARK NOT SHOWN ON THIS DRAWING

DATUM: ALL HORIZONTAL COORDINATES - NAD83  
ALL ELEVATIONS - NAVD88

PERMANENT WARNING SIGN  
COORDINATES & TYPES

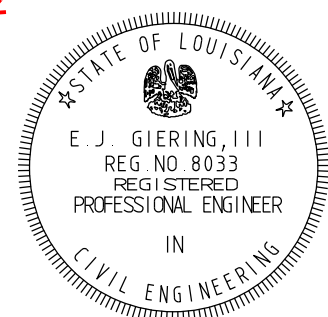
STR.#	POSITION		TYPE
#23	<del>N333777</del>	<del>E3397570</del>	TYPE C
#24	<del>N333732</del>	<del>E3397605</del>	TYPE C
#25	<del>N333684</del>	<del>E3397527</del>	TYPE C
#26	<del>N333741</del>	<del>E3397502</del>	TYPE C
#27	<del>N333752</del>	<del>E3397540</del>	TYPE D
#28	<del>N333740</del>	<del>E3397548</del>	TYPE E
#29	<del>N333726</del>	<del>E3397557</del>	TYPE E
#30	<del>N333716</del>	<del>E3397564</del>	TYPE D

N333734.38 E3397602.92  
N333767.64 E3397574.92  
N336691.12 E3397538.07  
N333740.01 E3397501.71  
N333751.51 E3397539.57  
N333740.79 E3397546.32  
N333726.66 E3397555.47  
N333716.10 E3397562.37

LEGEND

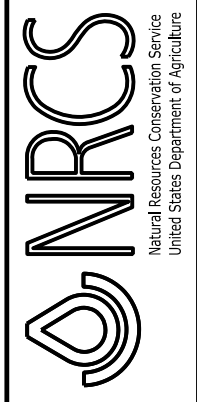
- MARSH
- EXISTING PILE
- EXISTING HEADWALL
- PROPOSED WEIR

"AS-BUILT"



DATE	DESIGNED	DRAWN	CHECKED	APPROVED
07/07	S. GARNER	D. WILMORE	R. FAULKNER, B. STICKER	E.J. GIERING, III

PLAN MAP - WEIR ALIGNMENT  
BRADY CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME  
LA274

DRAWING NAME  
LA27443.DGN

BEGIN SHEET PILE WEIR  
~~N333770.56 E3397526.95~~  
N333763.82 E3397531.69

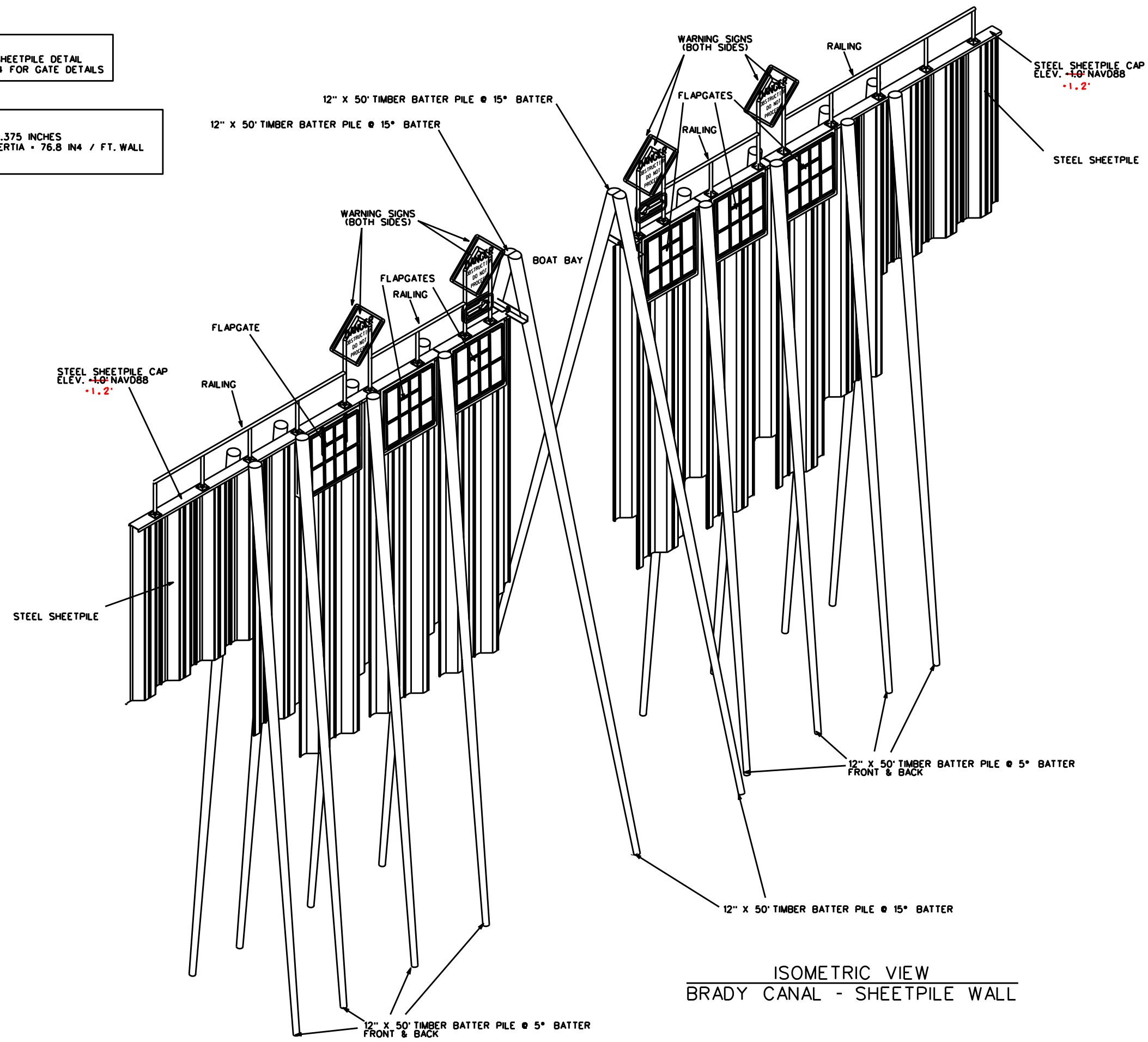
END SHEET PILE WEIR  
~~N333696.39 E3397577.92~~  
N333700.76 E3397572.02

PLAN MAP - WEIR ALIGNMENT  
BRADY CANAL



NOTES:  
1. SEE SHEET 55 FOR SHEETPILE DETAIL  
2. SEE SHEETS 53 & 54 FOR GATE DETAILS

STEEL SHEETPILE:  
MINIMUM THICKNESS = 0.375 INCHES  
MINIMUM MOMENT OF INERTIA = 76.8 IN4 / FT. WALL  
ASTM A 572 GRADE 50



ISOMETRIC VIEW  
BRADY CANAL - SHEETPILE WALL

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

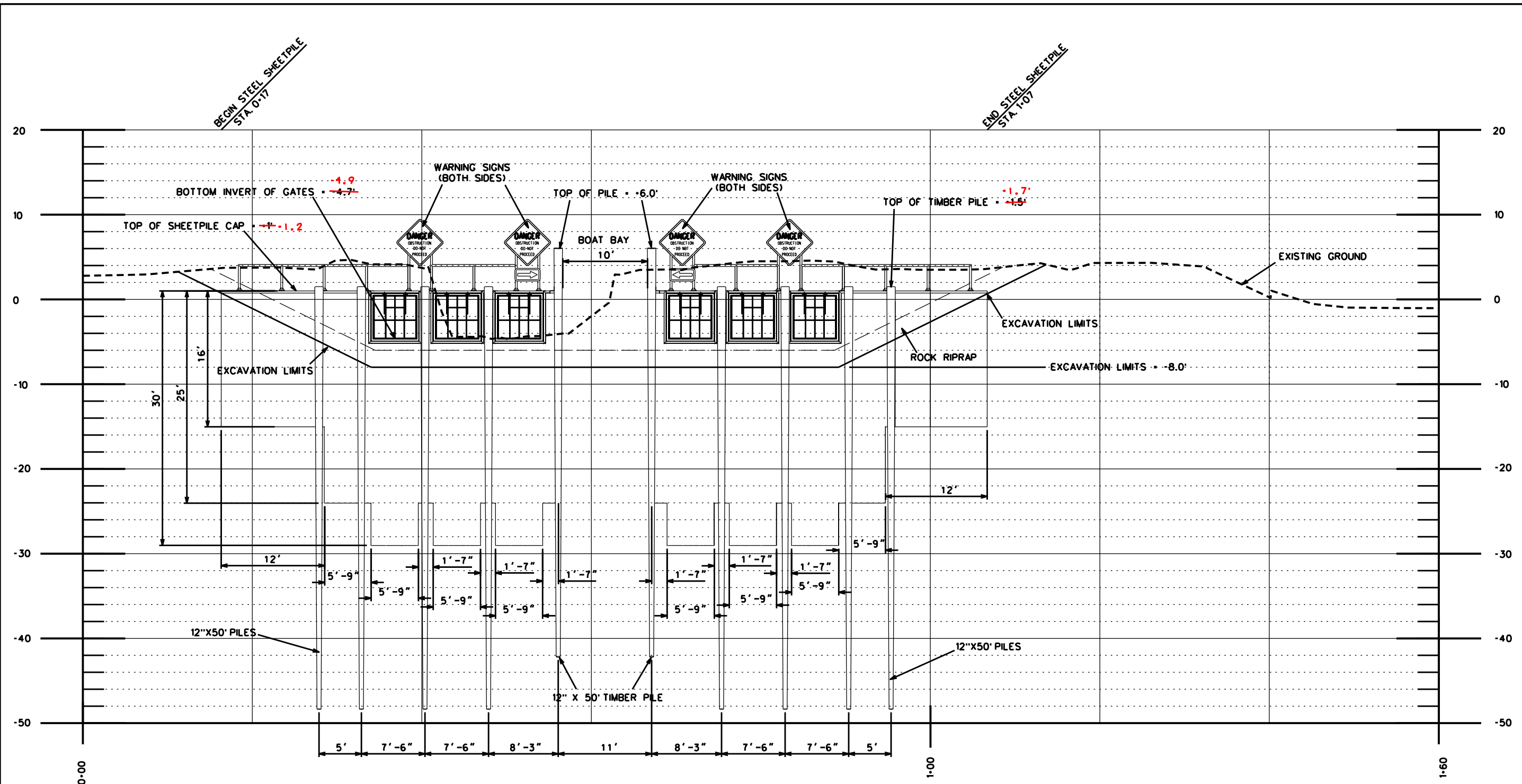
SHEETPILE - ISOMETRIC VIEW  
BRADY CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME  
LA247

DRAWING NAME  
LA24744.DGN

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE	DATE	07/07
CHECKED	R. FAULKNER, B. STICKER	DATE	02/09
APPROVED	E. J. GIERING, III	DATE	05/09



NOTE:  
1. ROCK RIPRAP NOT SHOWN FOR CLARITY.  
2. SEE SHEET 55 FOR SHEETPILE DETAIL

STRUCTURE - ELEVATION VIEW  
SOUTH FACE

C  
43

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

DESIGNED  
S. GARNER  
DATE  
07/07

DRAWN  
D. WILMORE  
DATE  
07/07

CHECKED  
R. FAULKNER, B. STICKER  
DATE  
02/09

APPROVED  
E.J. GIERING III  
DATE  
05/09

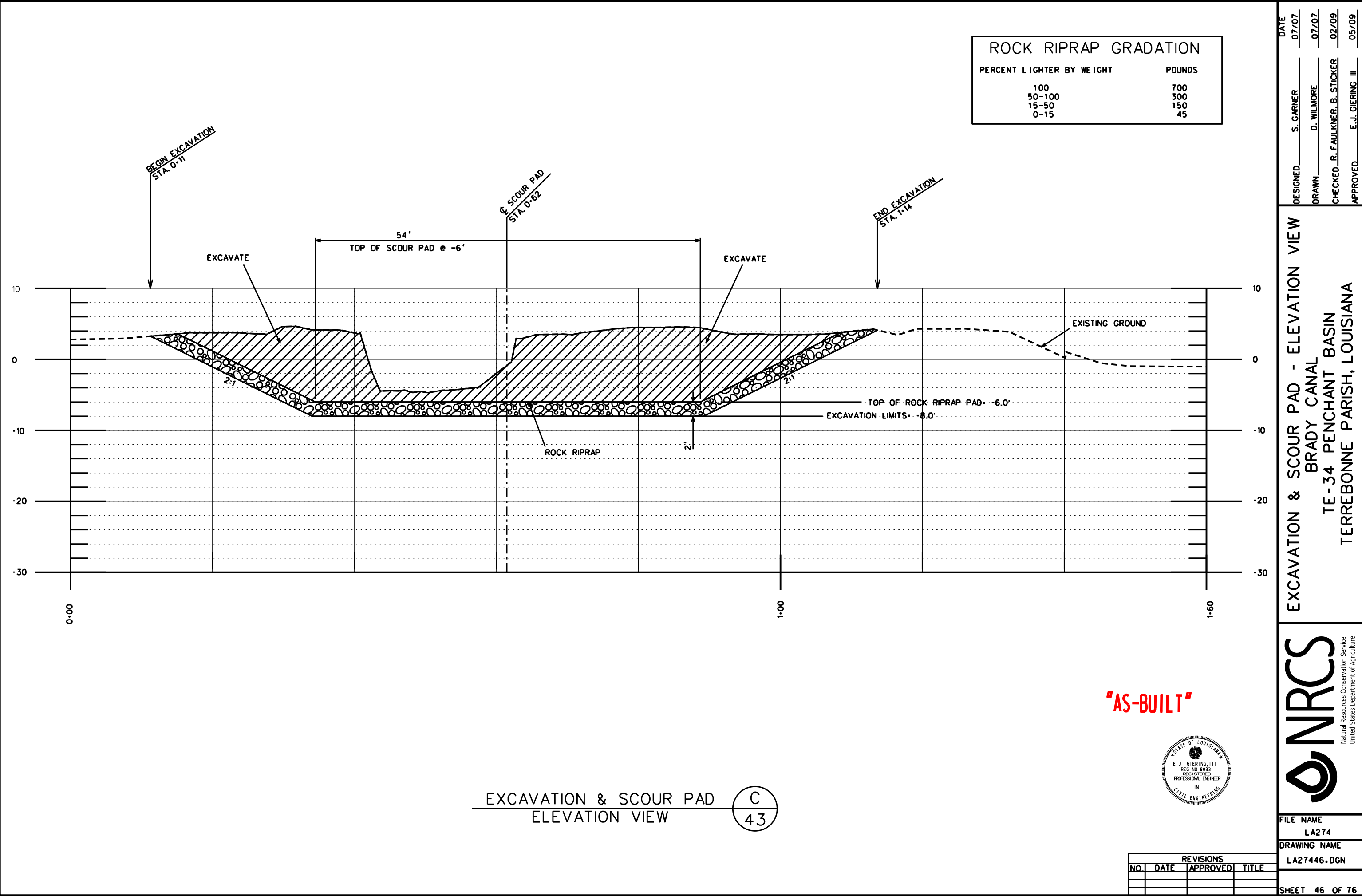
SHEETPILE - ELEVATION VIEW  
BRADY CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

Natural Resources Conservation Service  
United States Department of Agriculture

FILE NAME  
LA274

DRAWING NAME  
LA27445.DGN

SHEET 45 OF 76

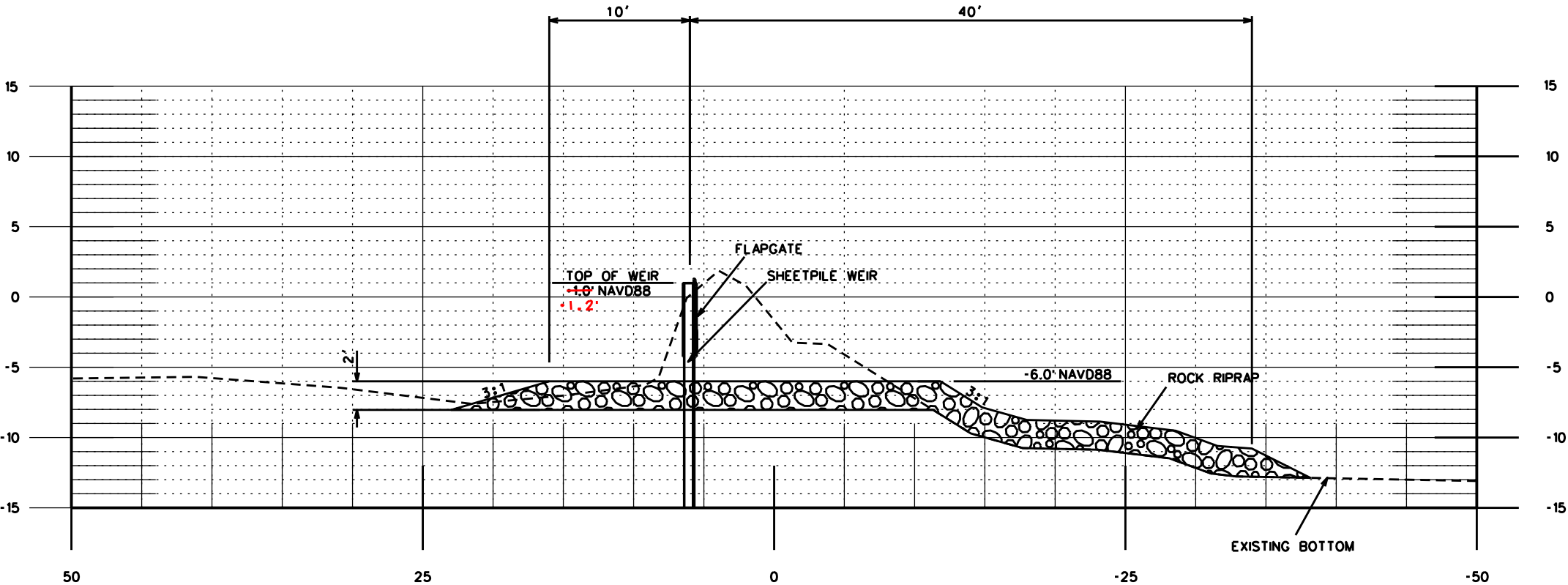


ROCK RIPRAP GRADATION

PERCENT LIGHTER BY WEIGHT	POUNDS
100	700
50-100	300
15-50	150
0-15	45

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING III		05/09

NORTHEAST

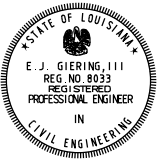


SOUTHWEST

SECTION VIEW - SHEETPILE  
BRADY CANAL

D  
43

"AS-BUILT"



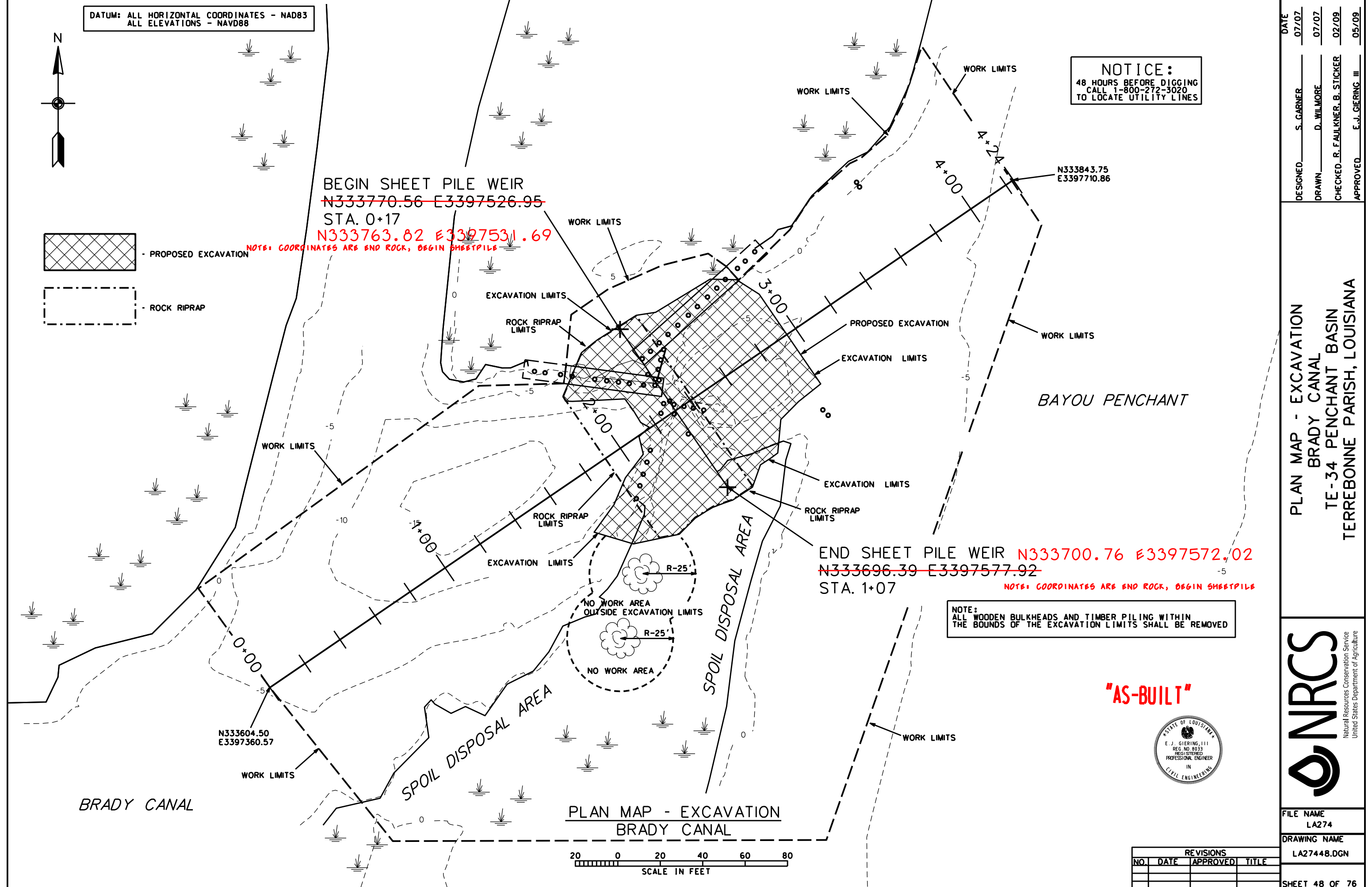
SHEETPILE - SECTION VIEW  
BRADY CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME  
LA274  
DRAWING NAME  
LA27447.DGN

REVISIONS			
NO.	DATE	APPROVED	TITLE



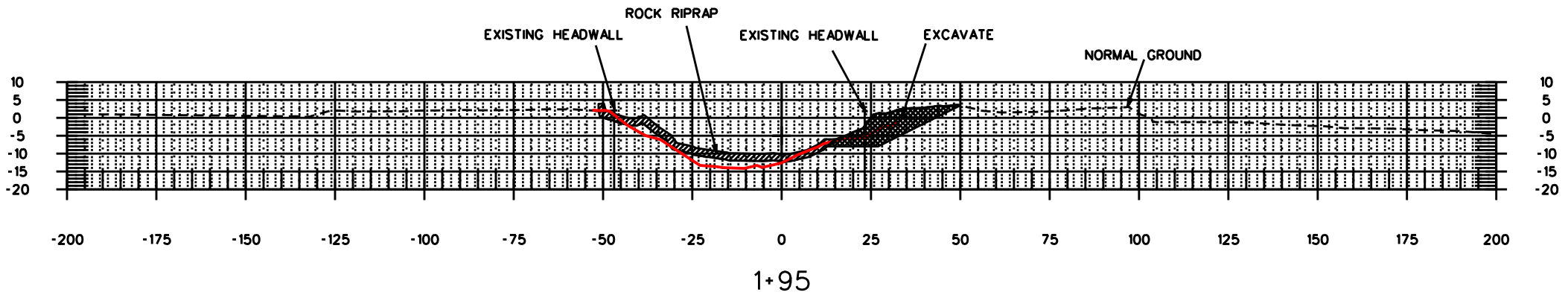
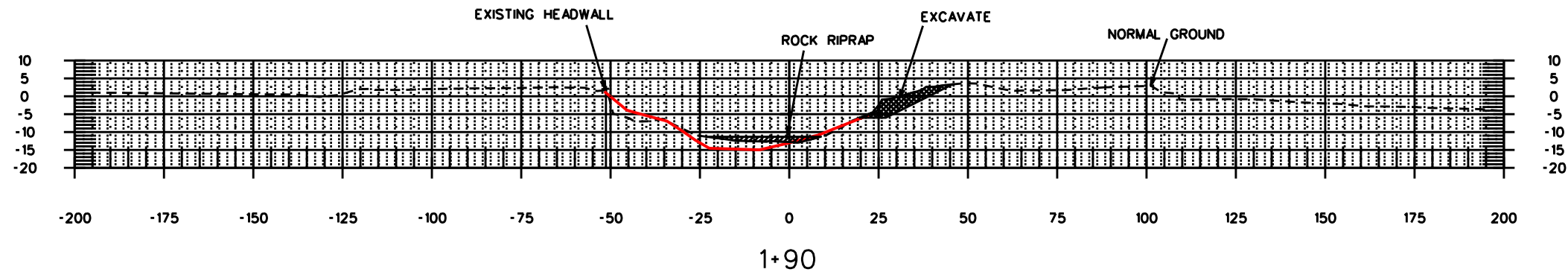
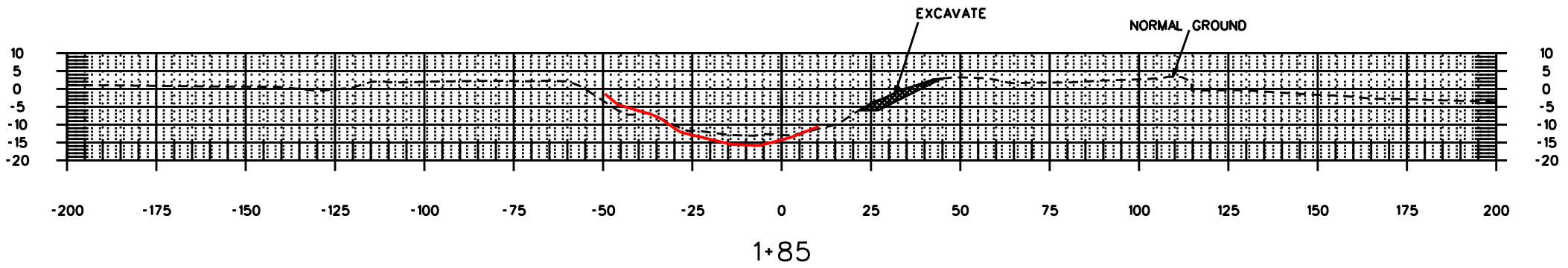
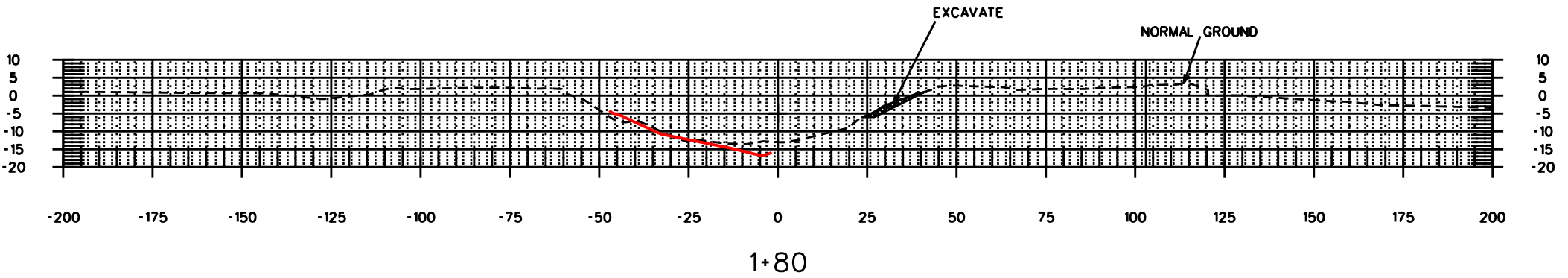


DATE	07/07
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING, III

PLAN MAP - EXCAVATION  
BRADY CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

Natural Resources Conservation Service  
United States Department of Agriculture

FILE NAME	LA274
DRAWING NAME	LA27448.DGN
SHEET	48 OF 76



NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

"AS-BUILT"



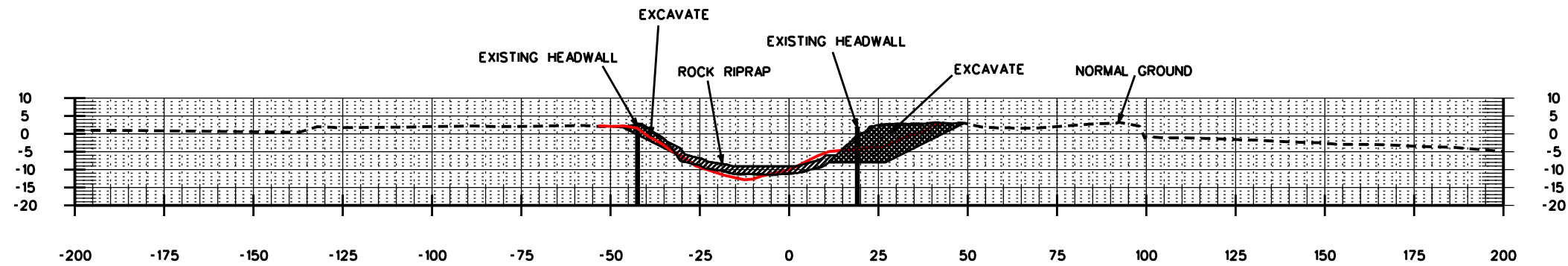
EXCAVATION - SECTIONS  
BRADY CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



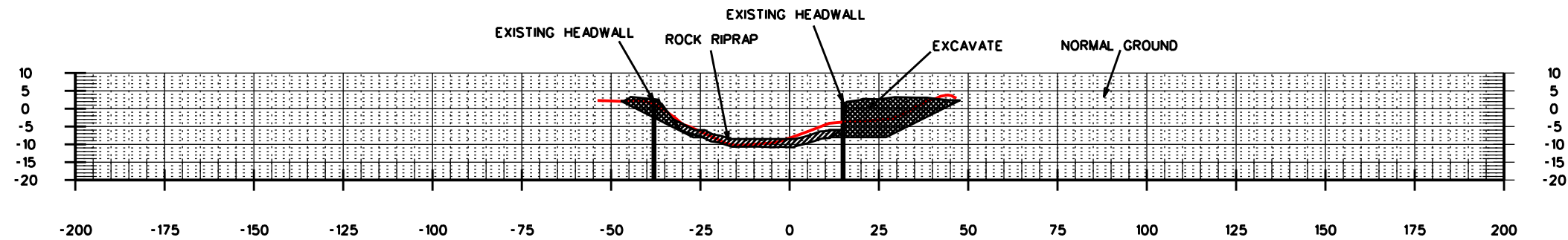
FILE NAME  
LA274  
DRAWING NAME  
LA27449.DGN  
SHEET 49 OF 76

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING III		05/09

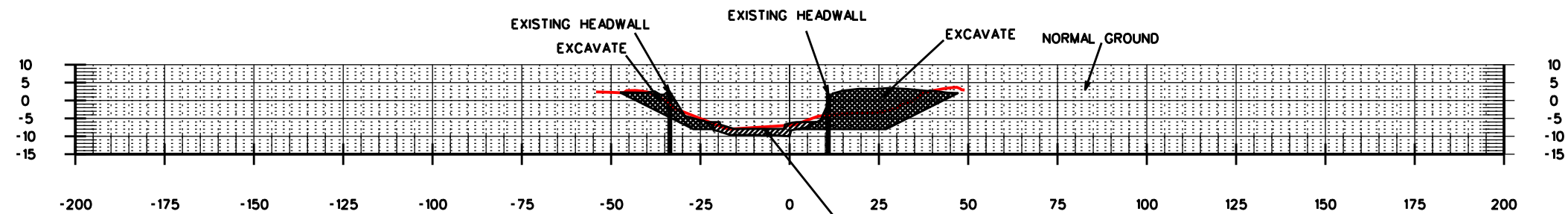
REVISIONS			
NO.	DATE	APPROVED	TITLE



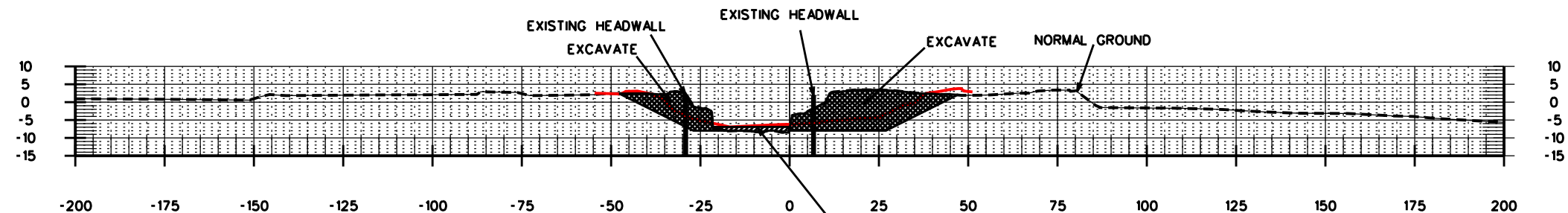
2+00



2+05



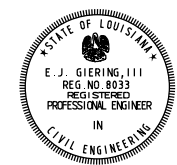
2+10



2+15

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

"AS-BUILT"



EXCAVATION - SECTIONS  
BRADY CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME	LA274
DRAWING NAME	LA27450.DGN
SHEET	50 OF 76

REVISIONS			
NO.	DATE	APPROVED	TITLE

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING III		05/09

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

"AS-BUILT"



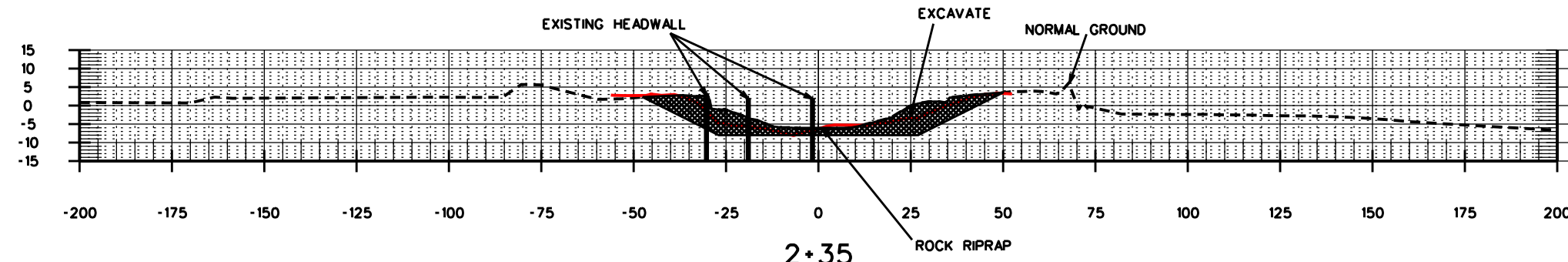
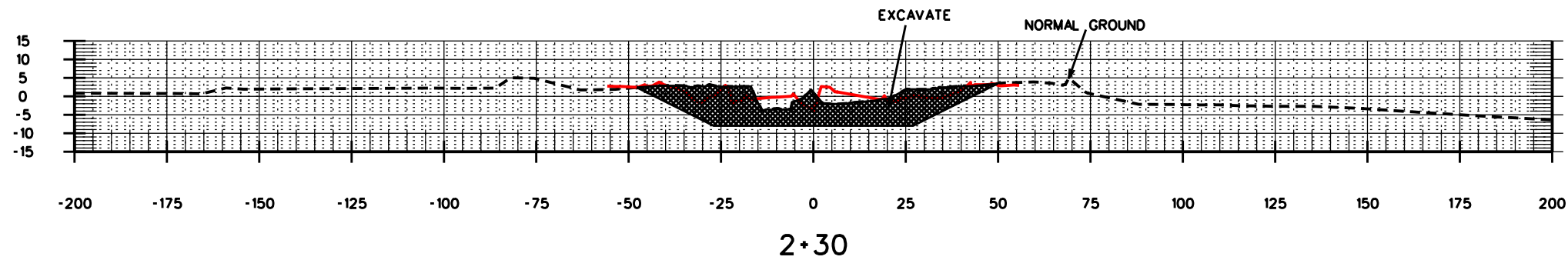
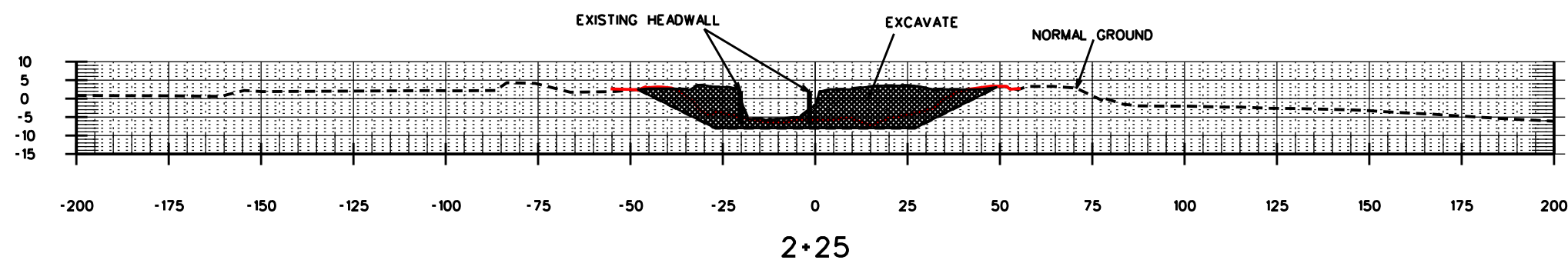
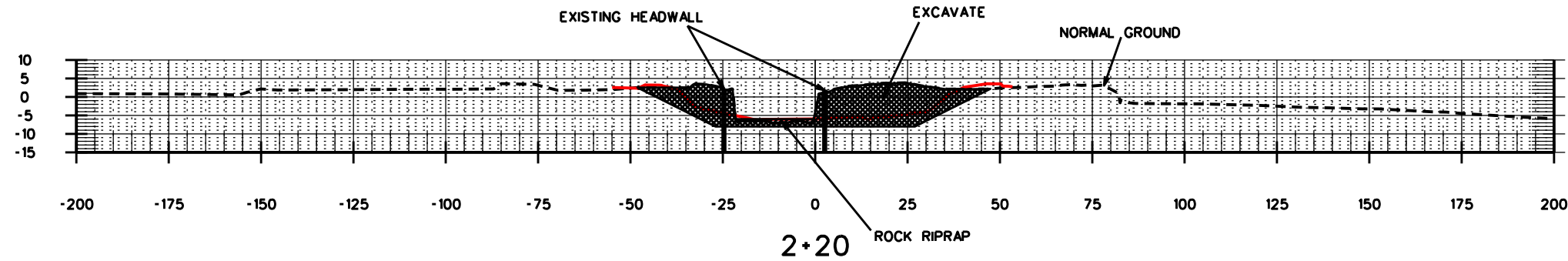
EXCAVATION - SECTIONS  
BRADY CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



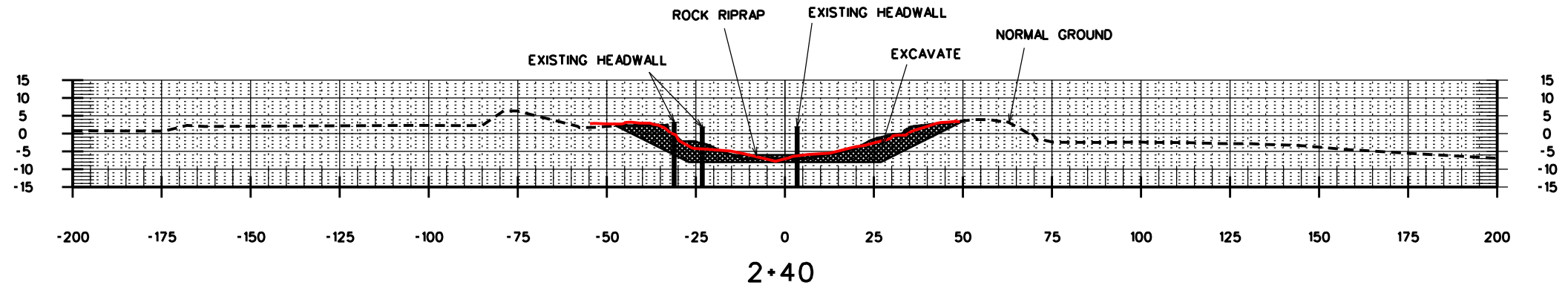
FILE NAME	
LA274	
DRAWING NAME	
LA27451.DGN	
SHEET 51 OF 76	

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING, III		05/09

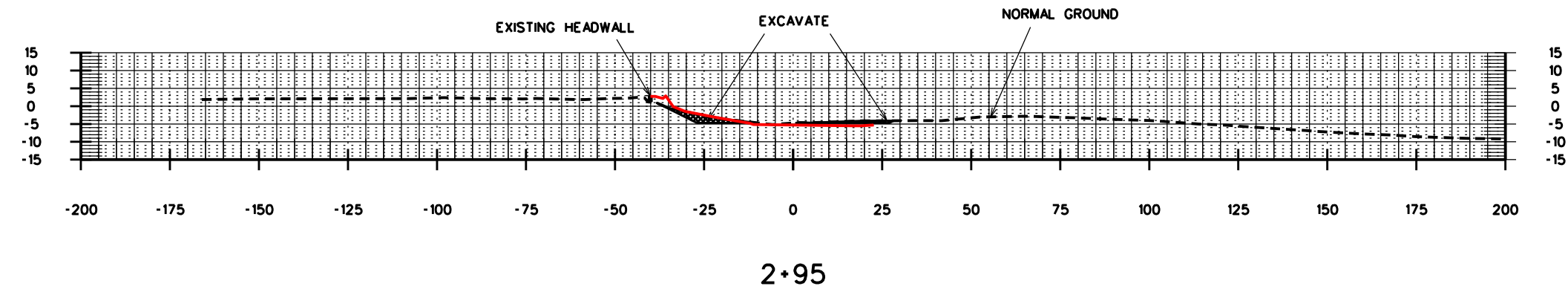
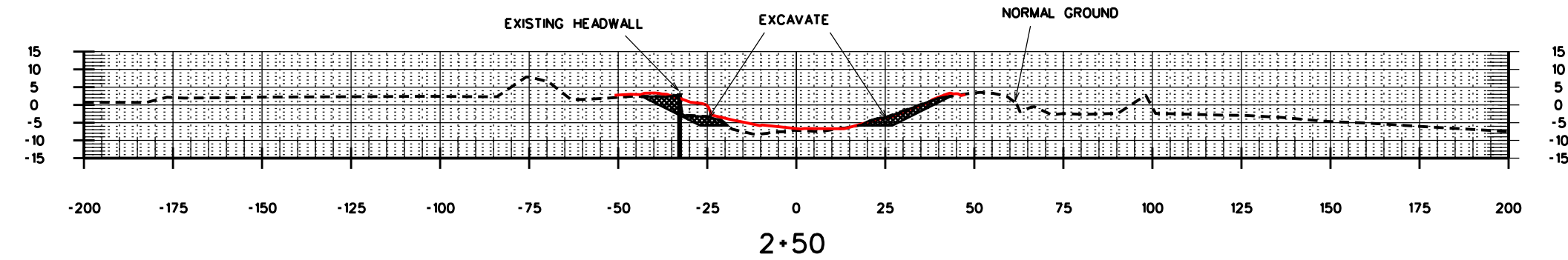
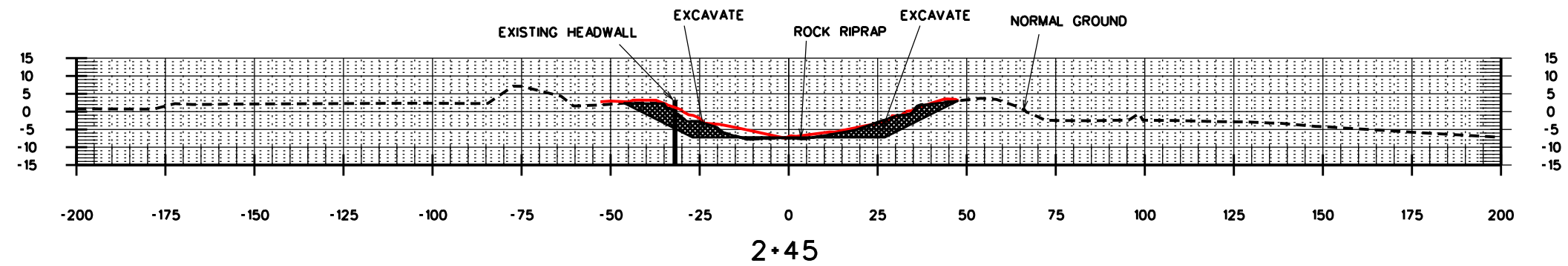
REVISIONS			
NO.	DATE	APPROVED	TITLE







NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES



"AS-BUILT"



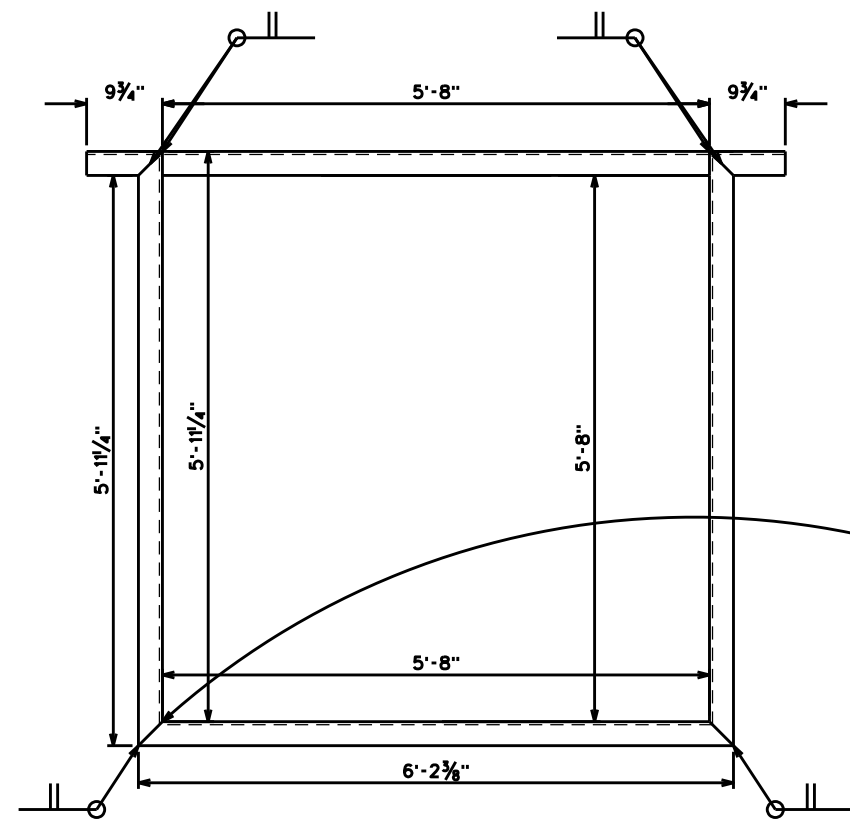
REVISIONS			
NO.	DATE	APPROVED	TITLE

EXCAVATION - SECTIONS  
BRADY CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

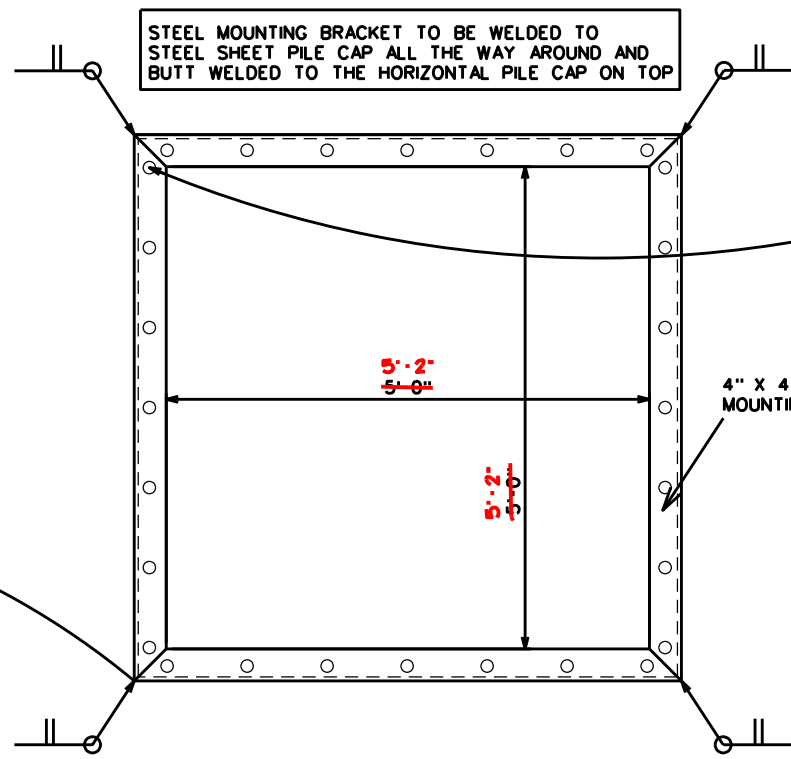


FILE NAME
LA274
DRAWING NAME
LA27452.DGN
SHEET 52 OF 76

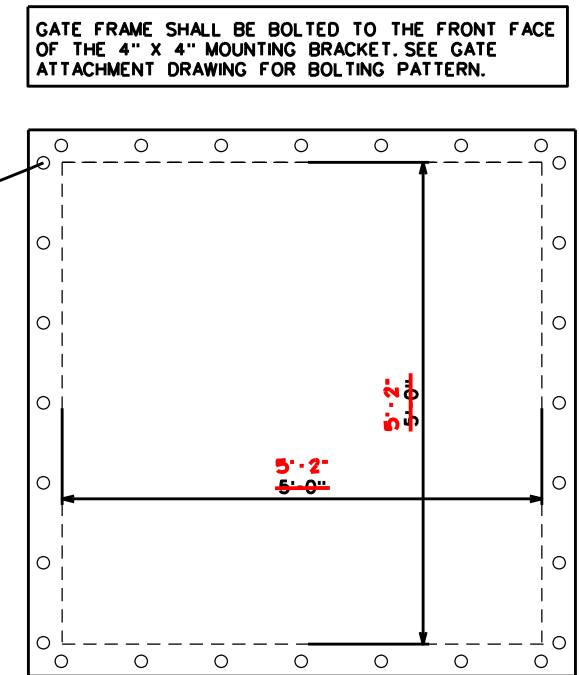
DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING, III		05/09



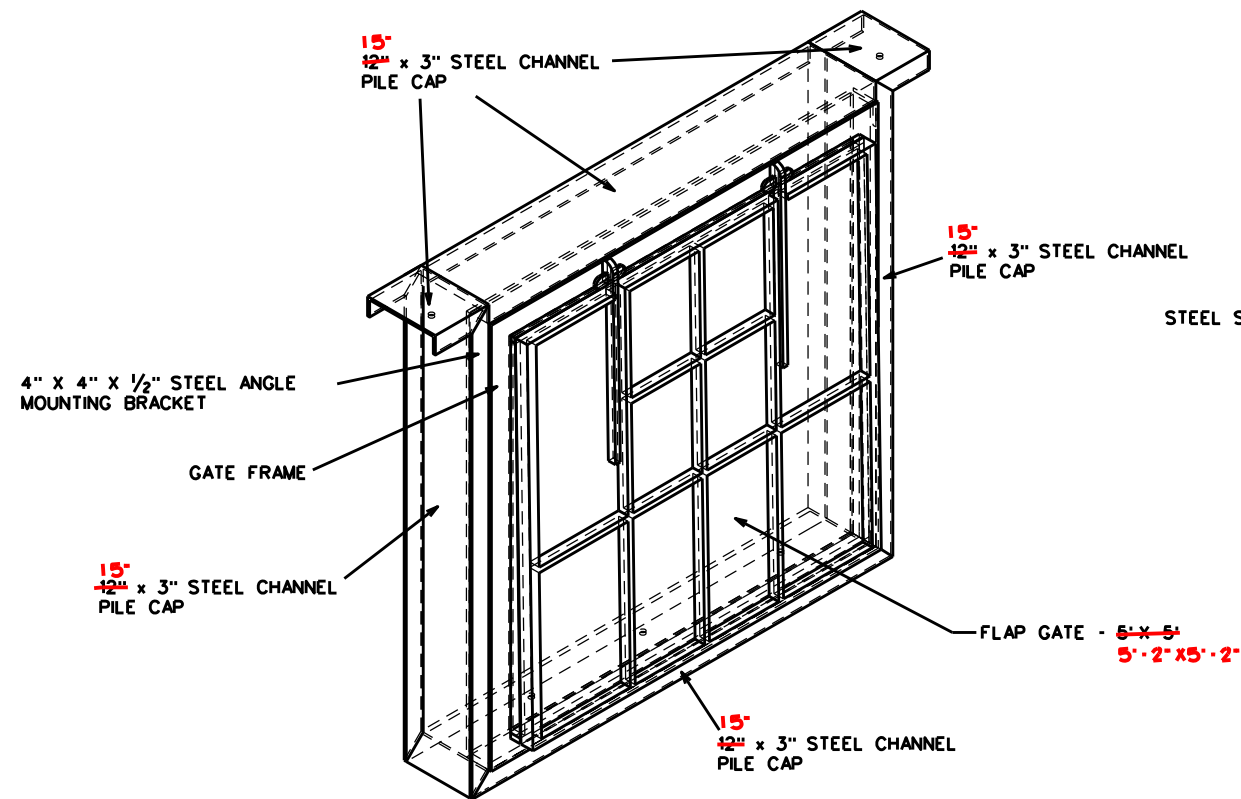
STEEL PILE CAP  
FRONT VIEW



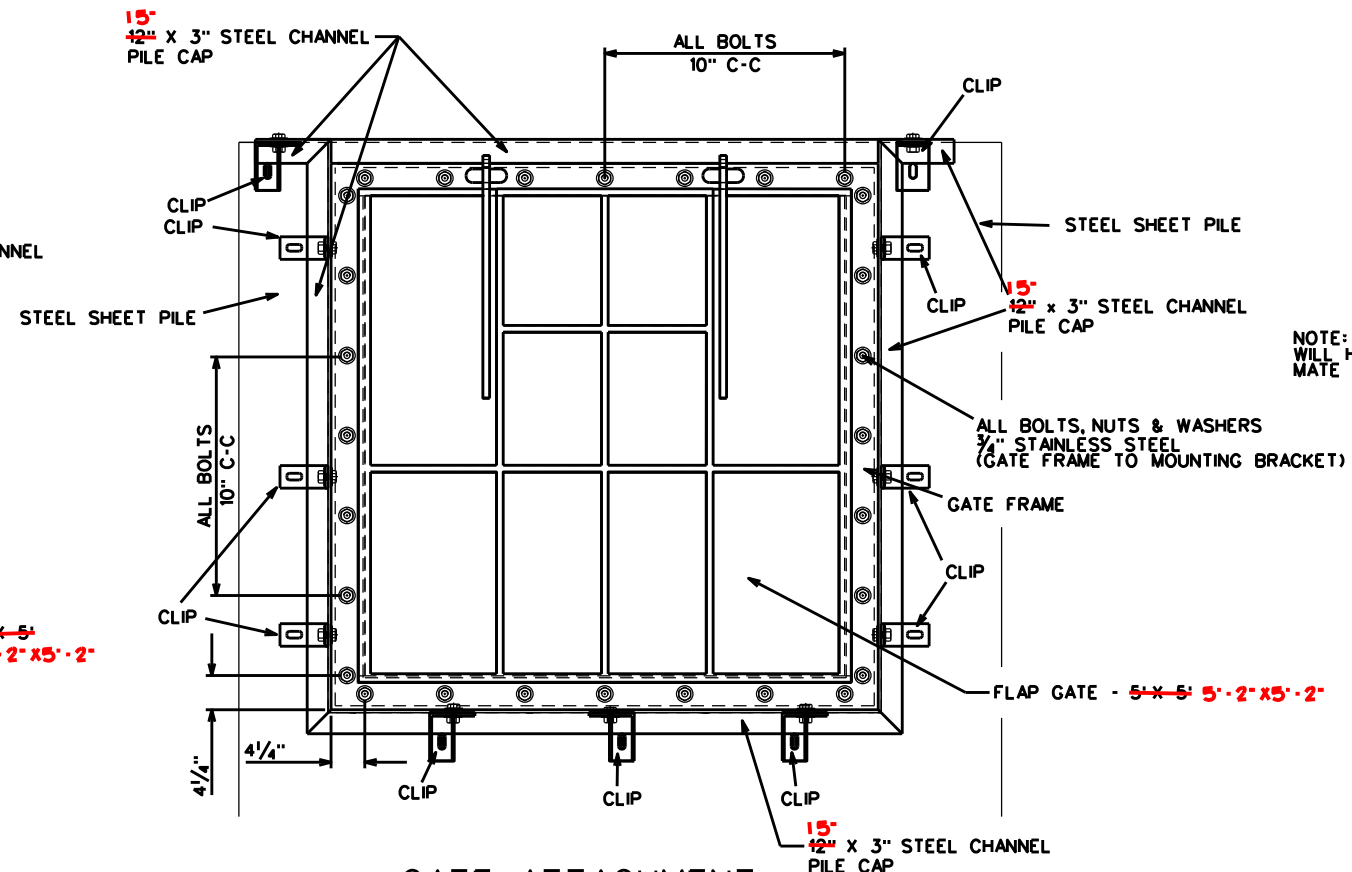
MOUNTING BRACKET  
FRONT VIEW



GATE FRAME  
FRONT VIEW



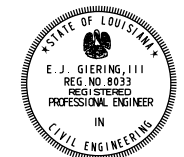
GATE ATTACHMENT  
ISOMETRIC VIEW



GATE ATTACHMENT  
FRONT VIEW - SOUTH FACE

NOTE: CLIPS ON VERTICAL CHANNEL WILL HAVE TO BE FIELD FITTED TO MATE WITH SHEET PILE WEB.

"AS-BUILT"



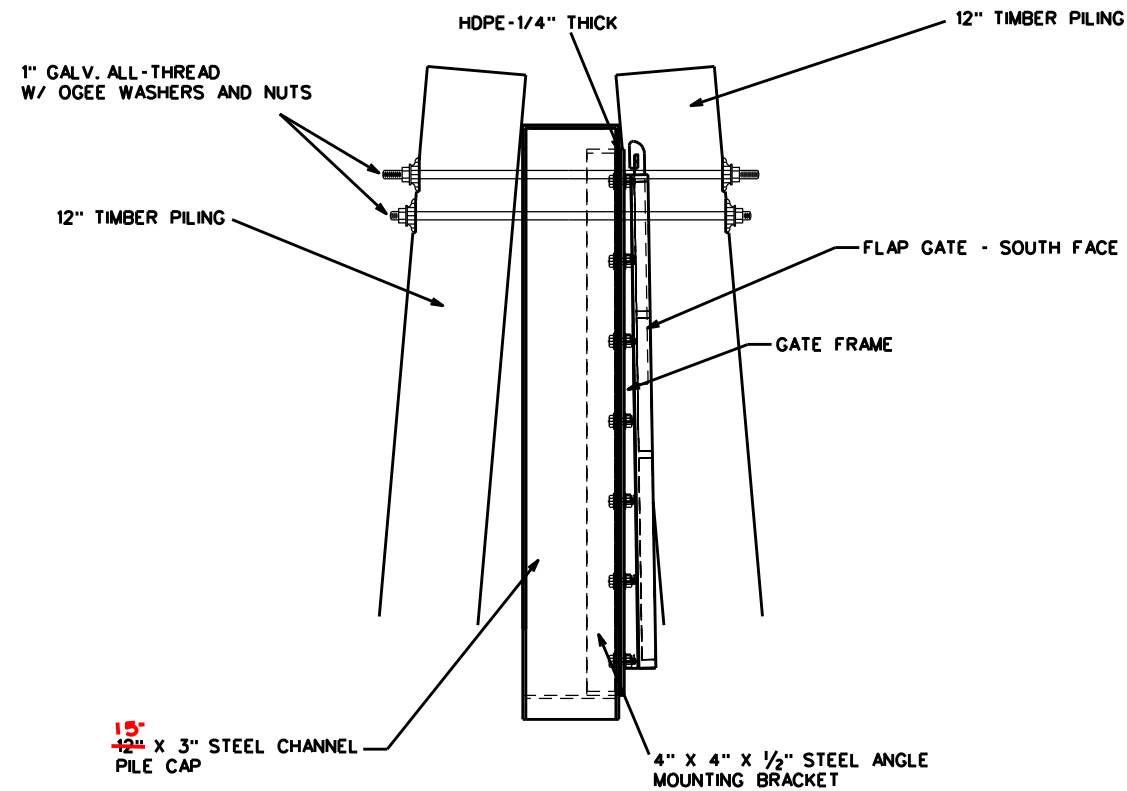
GATE ATTACHMENT DETAILS - FRONT VIEW  
BRADY CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING III		05/09

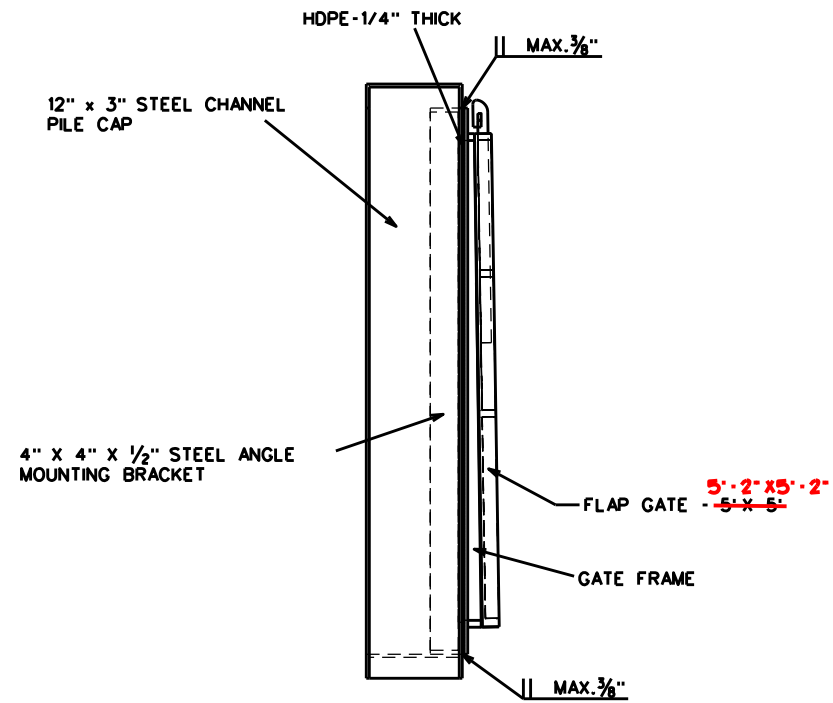


FILE NAME  
LA274  
DRAWING NAME  
LA27453.DGN

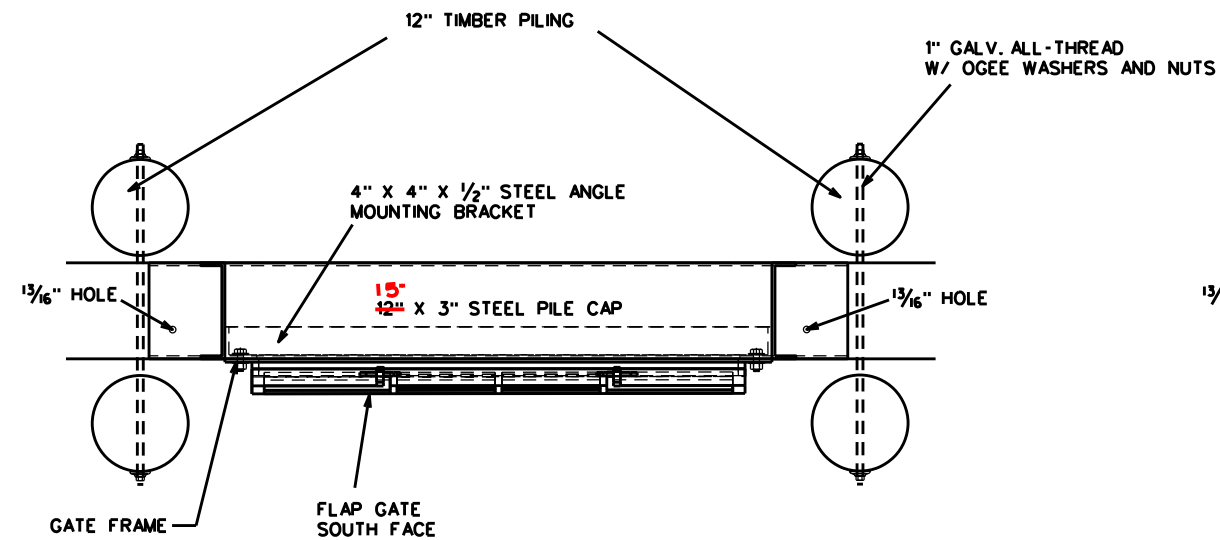
REVISIONS		
NO.	DATE	TITLE



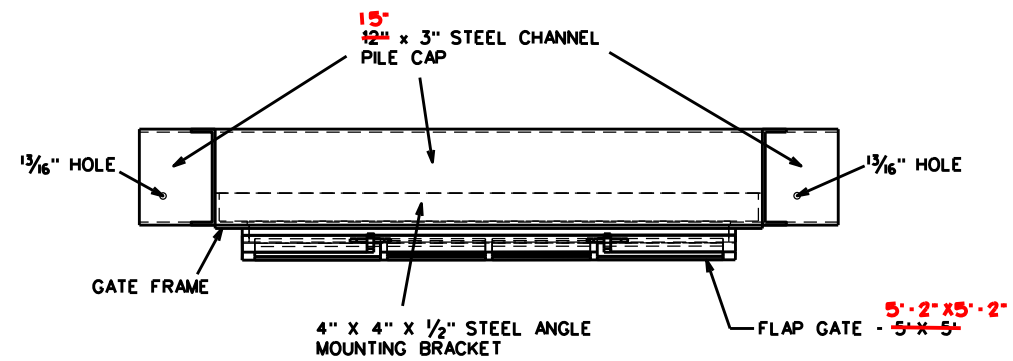
GATE ATTACHMENT W/ PILES  
SIDE VIEW



GATE ATTACHMENT  
RIGHT VIEW

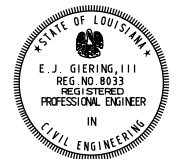


GATE ATTACHMENT W/ PILES  
TOP VIEW



GATE ATTACHMENT  
TOP VIEW

"AS-BUILT"



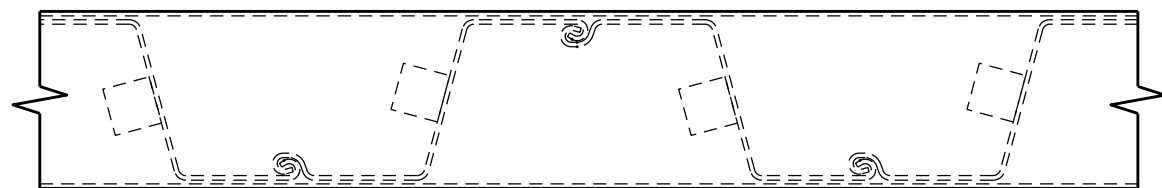
REVISIONS			
NO.	DATE	APPROVED	TITLE

DATE	DESIGNED	DRAWN	CHECKED	APPROVED
07/07	S. GARNER	D. WILMORE	R. FAULKNER, B. STICKER	E.J. GIERING, III
07/07				
02/09				
05/09				

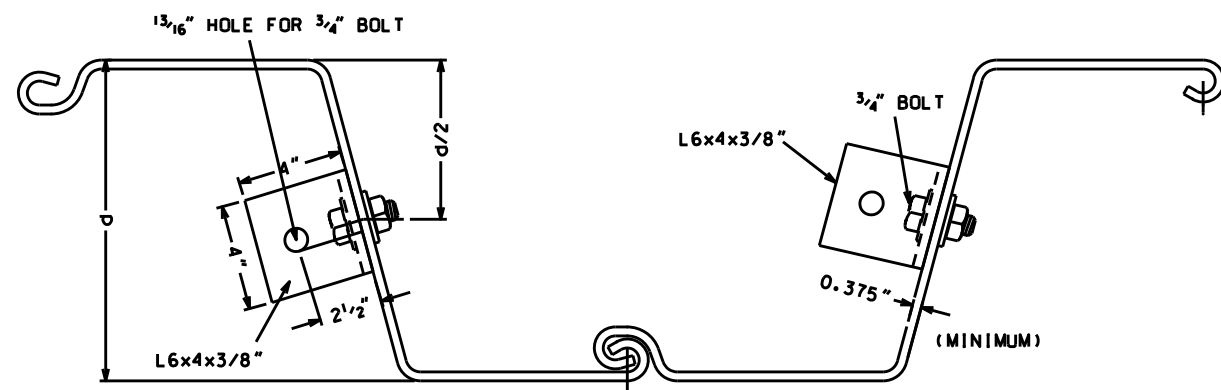
GATE ATTACHMENT DETAILS - SIDE VIEW  
BRADY CANAL  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



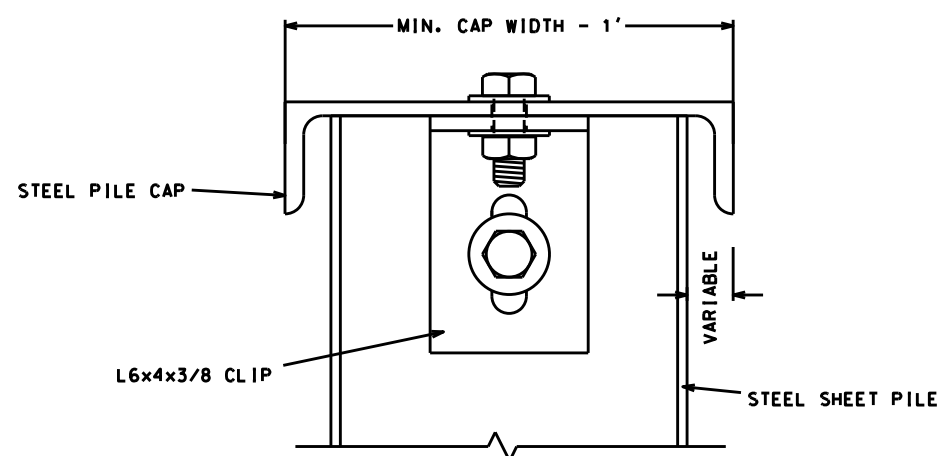
FILE NAME	LA274
DRAWING NAME	LA27454.DGN
SHEET	54 OF 76



PLAN VIEW  
(TYPICAL PILE CAP TO SHEET PILE CONNECTION)



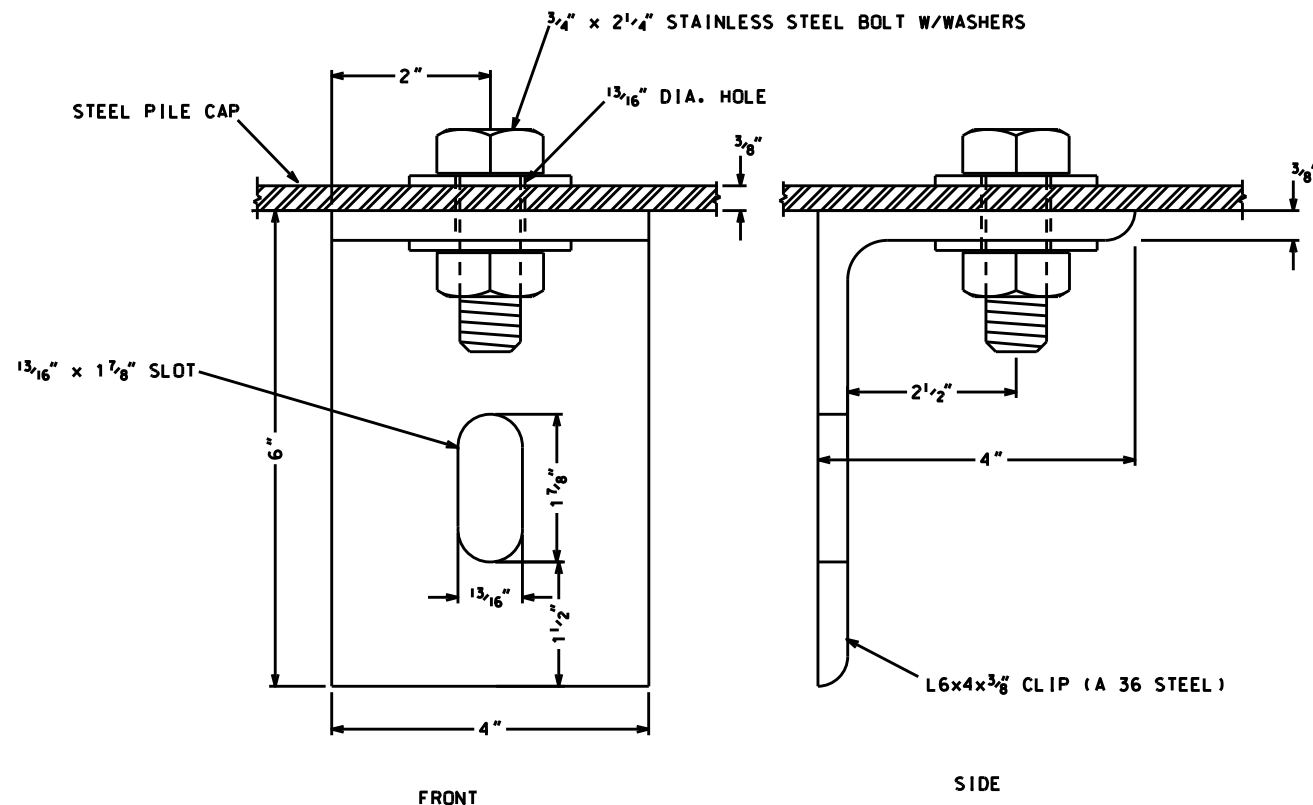
TYPICAL SHEET PILE DETAIL  
(NORMAL CONFIGURATION)



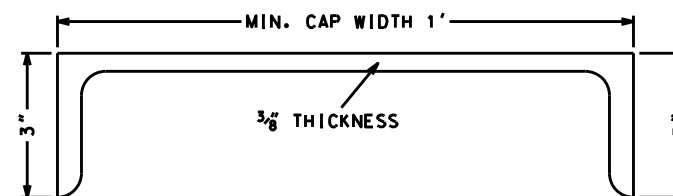
PILE CAP TO SHEET PILE CONNECTION  
(SIDE VIEW)

#### NOTES:

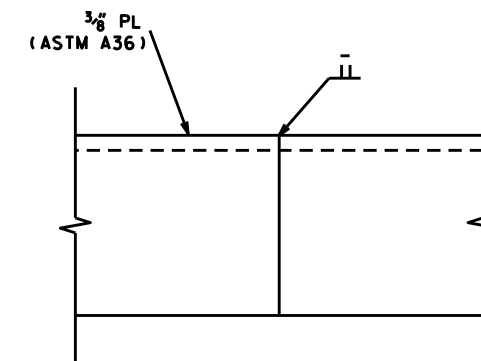
1. THE MINIMUM WEB AND FLANGE THICKNESS OF SHEET PILES SHALL BE 0.375".
2. MINIMUM MOMENT OF INERTIA = 76.8 IN<sup>4</sup>/FT. WALL.
3. THE CONTRACTOR SHALL SUBMIT A METHOD OF CONNECTING THE PILE CAP TO THE SHEET PILE AND ALL DRAWINGS FOR APPROVAL 14 DAYS PRIOR TO FABRICATION.
4. STEEL SHEET PILE SHALL CONFORM TO ASTM A572, GR. 50. ALL CHANNEL, ANGLES AND PLATES SHALL CONFORM TO ASTM A36. THE SHEET PILE AND PILE CONNECTOR SHALL BE PAINTED AS SPECIFIED BY CONST. SPEC. 82.
5. ALL SHEET PILE DIMENSIONS ARE TYPICAL, AND ARE SUBJECT TO CHANGE BASED ON MANUFACTURER/SUPPLIER.
6. SHEET PILE WILL BE DRIVEN IN THE "NORMAL CONFIGURATION" AS SHOWN.
7. THE HOLES IN THE SHEET PILE SHALL BE FIELD DRILLED AND COATING REPAIRED.
8. THE L 6x4x3/8" CLIPS ARE TO BE PLACED ON THE MIDDLE SECTION OF EACH PILE AS SHOWN IN THE DRAWINGS.
9. 8" STRIPS OF 2" CONSPICUITY TAPE AT 12" O.C. FOR BOTH VERTICAL FACES OF PILE CAP FOR ENTIRE LENGTH FOR BRADY CANAL STRUCTURE ONLY.



L 6x4x3/8" (CLIP)



TYPICAL PILE CAP - C 15 X 25  
(NOT TO SCALE)



PILE CAP SPLICE DETAIL  
(NOT TO SCALE)

#### NOTE:

1. THE CONTRACTOR SHALL PROVIDE PILE CAP LENGTHS NO LESS THAN 12' FOR ALL SPLICES.

NOT TO SCALE

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING III		05/09

SHEETPILE DETAIL  
ALL STRUCTURES  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME	LA274
DRAWING NAME	LA27455.DGN
SHEET	55 OF 76



SEE SHEETS 75 & 76 FOR SOIL BORING PROFILES

SOIL BORING LOCATIONS		
BORING	NORTHING	EASTING
WEST 1	396019.34	3334079.79
WEST 2	396232.51	3334776.95
WEST 3	396435.70	3335553.57
EAST 1	396508.03	3336621.74
EAST 2	397033.82	3336956.41
EAST 3	397276.79	3337318.00
EAST 4	397742.68	3338094.19

NOTE:  
SEE SHEET 57 FOR LIMITS OF BORROW AREAS

LANDOWNER  
CONTINENTAL LAND AND FUR CO.

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

TBM- N394985.08 E3336850.30 (NAD 83)  
ELEV. = 5.14 (NAVD 88 )  
DATUM: ALL HORIZONTAL COORDINATES - NAD83  
ALL ELEVATIONS - NAVD88

NOTE:  
ROCK DIKE TIE-INS @ THE BANKLINE  
SHALL BE CONCURRED IN BY THE COTR.

ROCK DIKE (EAST) LAYOUT		
STA. 0+00	N397779.05	E3338249.32
STA. 19+14	N396821.65	E3336592.01
STA. 37+88	N395177.17	E3337491.61



NOTE:  
ROCK DIKE TIE-INS @ THE BANKLINE  
SHALL BE CONCURRED IN BY THE COTR.

ROCK DIKE (WEST) LAYOUT		
STA. 0+00	N395943.94	E3333841.06
STA. 22+25	N396687.67	E3335937.81
STA. 27+99	N396170.72	E3336186.87
STA. 28+79	N396102.43	E3336145.18

LEGEND

SOIL BORING

TBM

CONTAINMENT DIKE

ROCK DIKE

ACCESS CHANNEL

PLAN MAP

MOUTH OF BAYOU PENCHANT

200

0

200

400

600

800

SCALE IN FEET

DATE	07/07
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING, III

PLAN MAP  
MOUTH OF BAYOU PENCHANT  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

NRC  
Natural Resources Conservation Service  
United States Department of Agriculture

FILE NAME  
LA274

DRAWING NAME  
LA27456.DGN

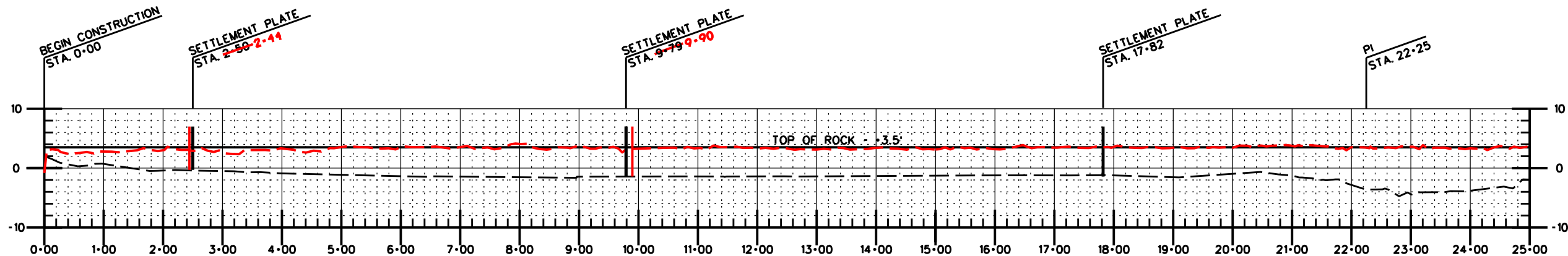
SHEET 56 OF 76

REVISIONS		
NO.	DATE	TITLE

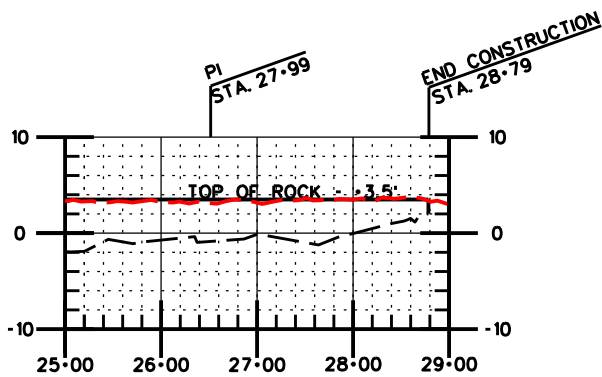




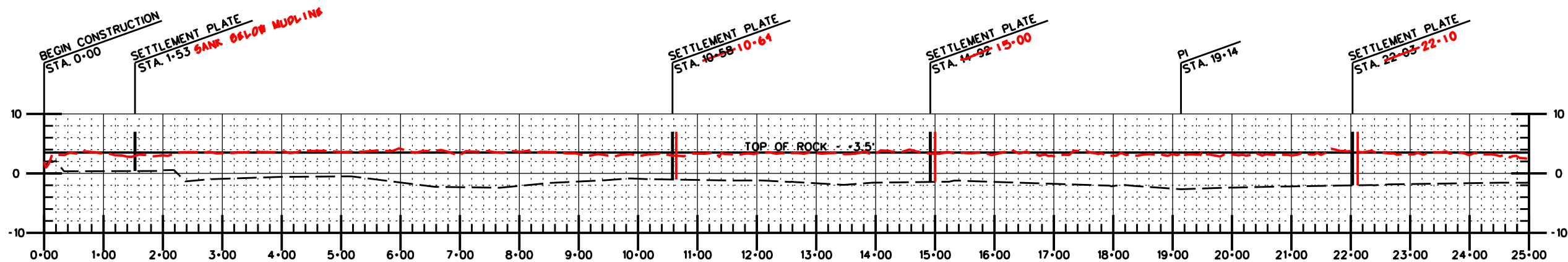




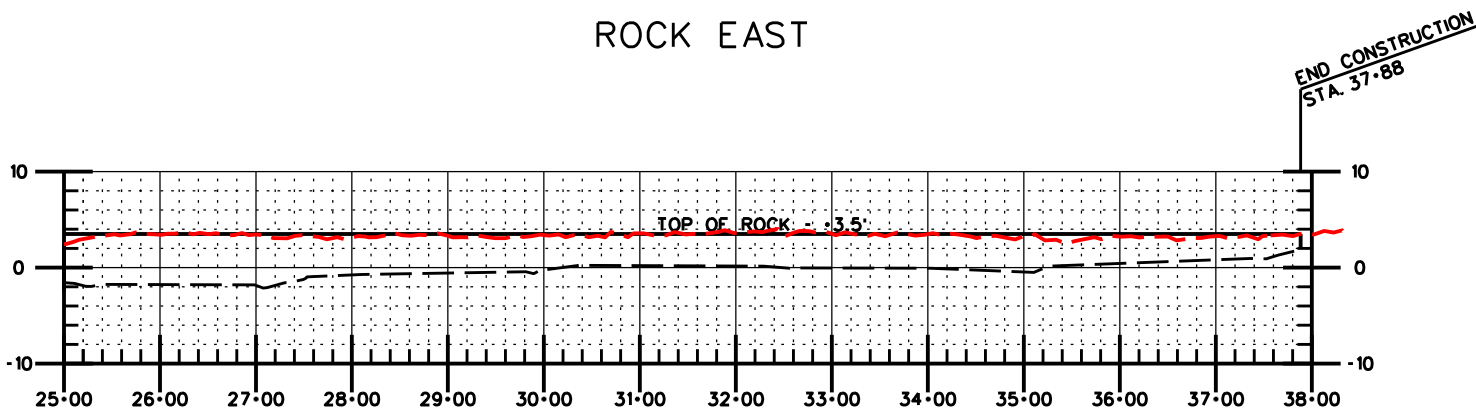
ROCK WEST



ROCK WEST (CONT.)



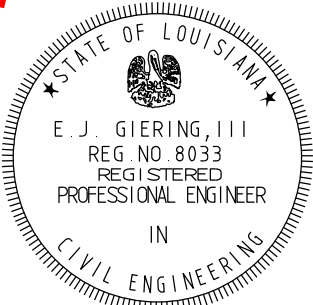
ROCK EAST



ROCK EAST (CONT.)

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

DESIGNED	DRAWN	CHECKED	APPROVED	DATE
S. GARNER	D. WILMORE	R. FAULKNER, B. STICKER	E.J. GIERING, III	07/07
				07/07
				02/09
				05/09

ROCK DIKE PROFILES  
MOUTH OF BAYOU PENCHANT  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME	LA274
DRAWING NAME	LA27458.DGN
SHEET	58 OF 76

TEMPORARY WARNING SIGN  
ELEV. +10.0'

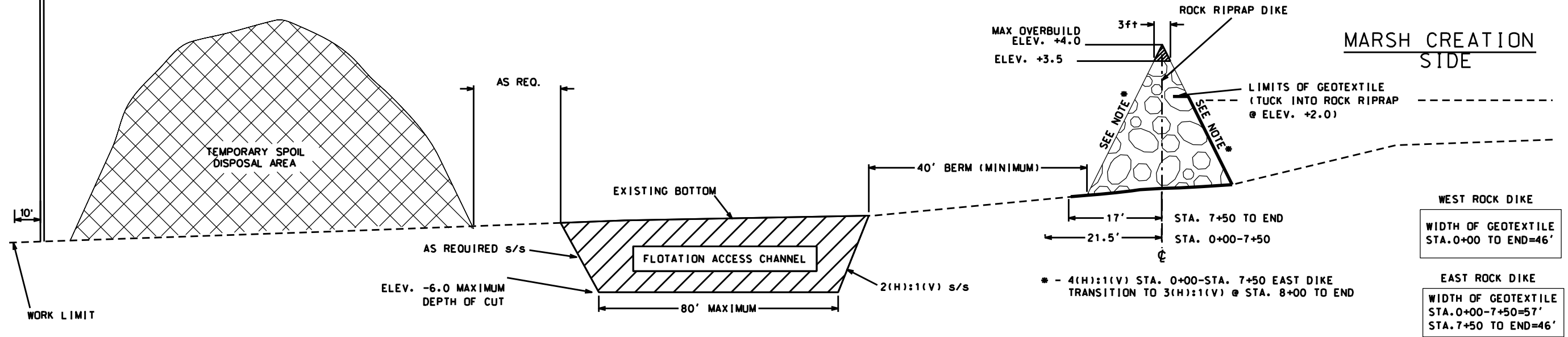
- NOTES:
1. EXCAVATED MATERIAL TO BE PLACED ON THE BAYOU SIDE OF THE FLOTATION CHANNEL. SUCH MATERIAL SHALL BE PLACED BACK INTO THE ACCESS CHANNEL AT THE END OF CONSTRUCTION.
  2. TEMPORARY WARNING SIGNS SHALL BE PLACED AS SHOWN AT A MAXIMUM DISTANCE OF 500' C-C.
  3. THE PAYMENT FOR THE GEOTEXTILE WILL BE BASED ON THE ORIGINAL DESIGN IF CONTRACTOR CHOOSES ALTERNATIVE METHOD FOR GEOTEXTILE PLACEMENT.

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

ROCK RIPRAP GRADATION	
PERCENT LIGHTER BY WEIGHT	POUNDS
100	700
50-100	300
15-50	150
0-15	45

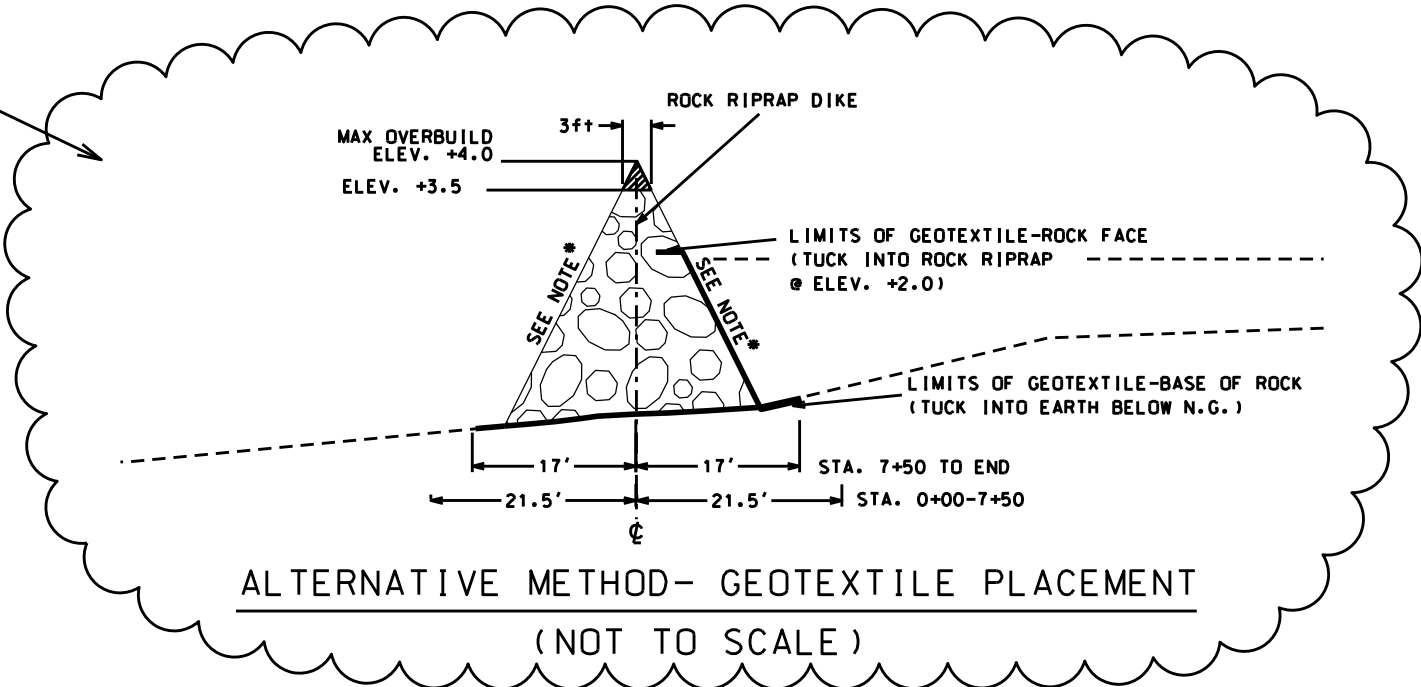
Date	
Designed	05/07
Drawn	05/07
Checked	02/09
Approved	05/09
S. GARNER	
D. WILMORE	
R. FAULKNER, B. STICKER	
E. J. GIERING, III	

AMENDMENT 1



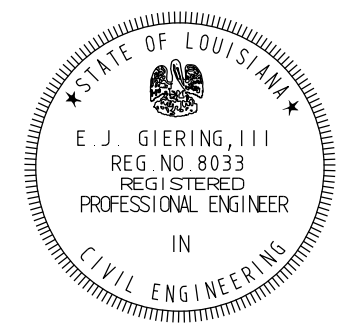
TYPICAL SECTION-ROCK RIPRAP DIKE W/ FLOTATION CHANNEL  
(NOT TO SCALE)

AMENDMENT 1



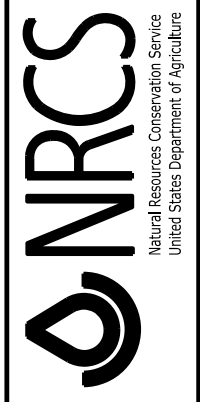
ALTERNATIVE METHOD- GEOTEXTILE PLACEMENT  
(NOT TO SCALE)

"AS-BUILT"



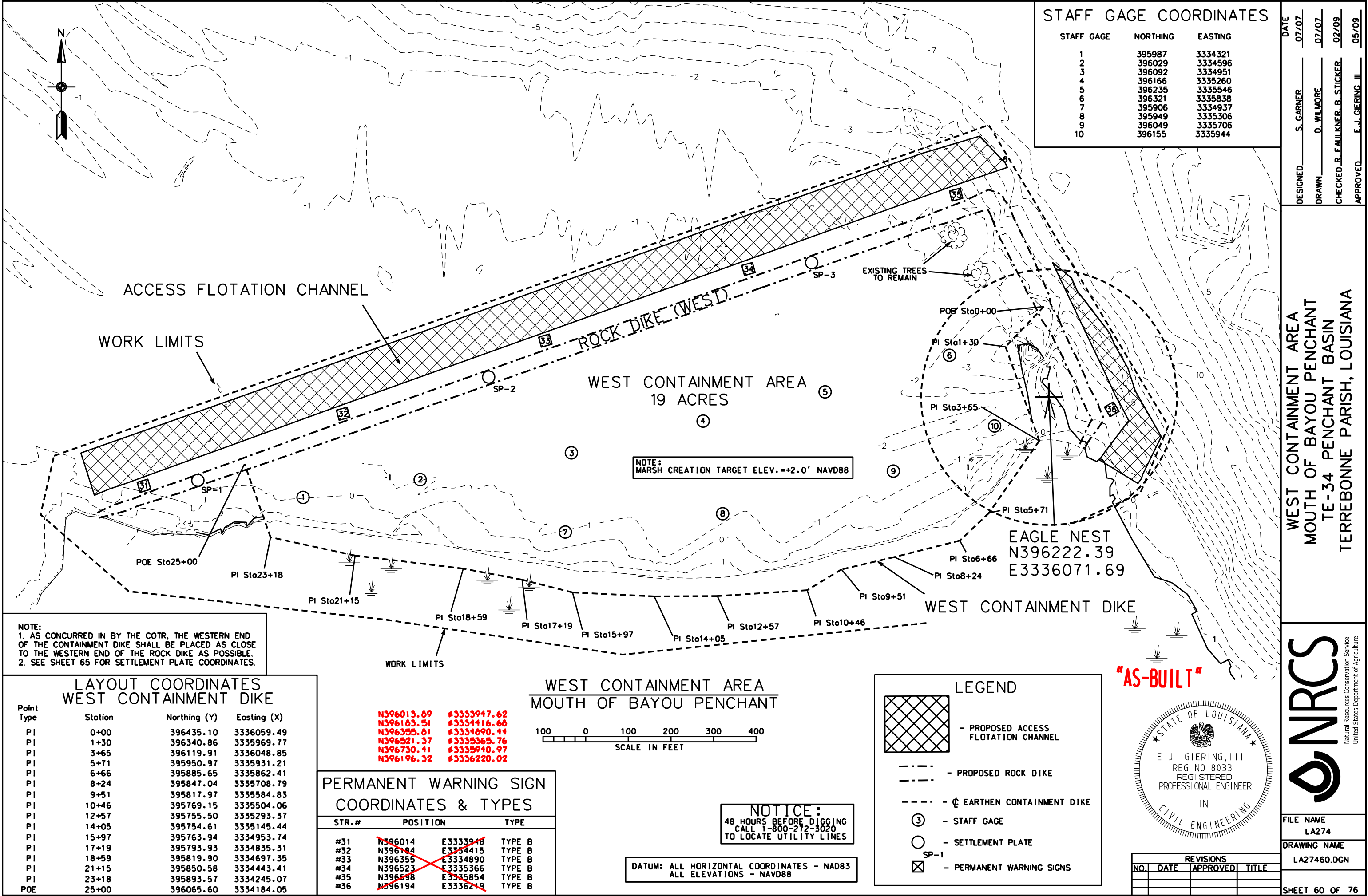
REVISIONS			
NO.	DATE	APPROVED	TITLE
AT	01/08/10	C.S.	C.E.

TYPICAL SECTION - ROCK DIKE  
MOUTH OF BAYOU PENCHANT  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



File Name	LA274
Drawing Name	LA27459.DGN
Sheet	59 of 76





STAFF GAGE COORDINATES

STAFF GAGE	NORTHING	EASTING
1	395987	3334321
2	396029	3334596
3	396092	3334951
4	396166	3335260
5	396235	3335546
6	396321	3335838
7	395906	3334937
8	395949	3335306
9	396049	3335706
10	396155	3335944

DATE	07/07
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING, III

WEST CONTAINMENT AREA  
MOUTH OF BAYOU PENCHANT  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME	LA274
DRAWING NAME	LA27460.DGN
SHEET	60 OF 76

NOTE:  
1. AS CONCURRED IN BY THE COTR, THE WESTERN END OF THE CONTAINMENT DIKE SHALL BE PLACED AS CLOSE TO THE WESTERN END OF THE ROCK DIKE AS POSSIBLE.  
2. SEE SHEET 65 FOR SETTLEMENT PLATE COORDINATES.

LAYOUT COORDINATES  
WEST CONTAINMENT DIKE

Point Type	Station	Northing (Y)	Easting (X)
PI	0+00	396435.10	3336059.49
PI	1+30	396340.86	3335969.77
PI	3+65	396119.91	3336048.85
PI	5+71	395950.97	3335931.21
PI	6+66	395885.65	3335862.41
PI	8+24	395847.04	3335708.79
PI	9+51	395817.97	3335584.83
PI	10+46	395769.15	3335504.06
PI	12+57	395755.50	3335293.37
PI	14+05	395754.61	3335145.44
PI	15+97	395763.94	3334953.74
PI	17+19	395793.93	3334835.31
PI	18+59	395819.90	3334697.35
PI	21+15	395850.58	3334443.41
PI	23+18	395893.57	3334245.07
POE	25+00	396065.60	3334184.05

PERMANENT WARNING SIGN  
COORDINATES & TYPES

STR.#	POSITION	TYPE
#31	N396014	E3333948 TYPE B
#32	N396184	E3334415 TYPE B
#33	N396355	E3334890 TYPE B
#34	N396523	E3335366 TYPE B
#35	N396698	E3335854 TYPE B
#36	N396194	E3336219 TYPE B

WEST CONTAINMENT AREA  
MOUTH OF BAYOU PENCHANT



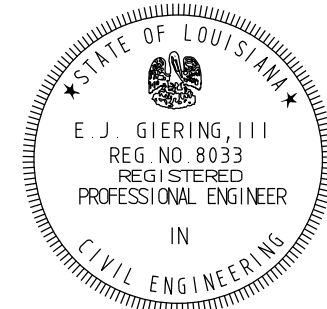
NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

DATUM: ALL HORIZONTAL COORDINATES - NAD83  
ALL ELEVATIONS - NAVD88

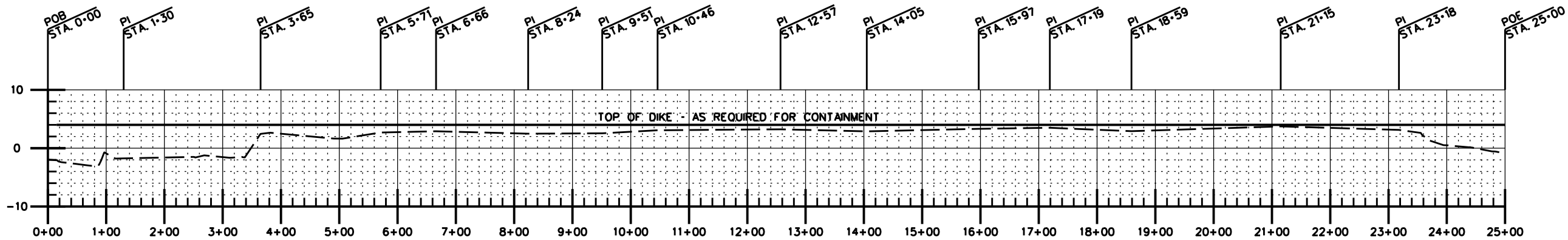
LEGEND

- PROPOSED ACCESS FLOTATION CHANNEL
- PROPOSED ROCK DIKE
- EARTHEN CONTAINMENT DIKE
- STAFF GAGE
- SETTLEMENT PLATE
- PERMANENT WARNING SIGNS

"AS-BUILT"



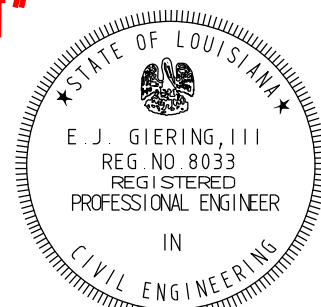
NO.	DATE	APPROVED	TITLE



PROFILE - WEST CONTAINMENT DIKE

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

WEST CONTAINMENT DIKE PROFILES  
MOUTH OF BAYOU PENCHANT  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

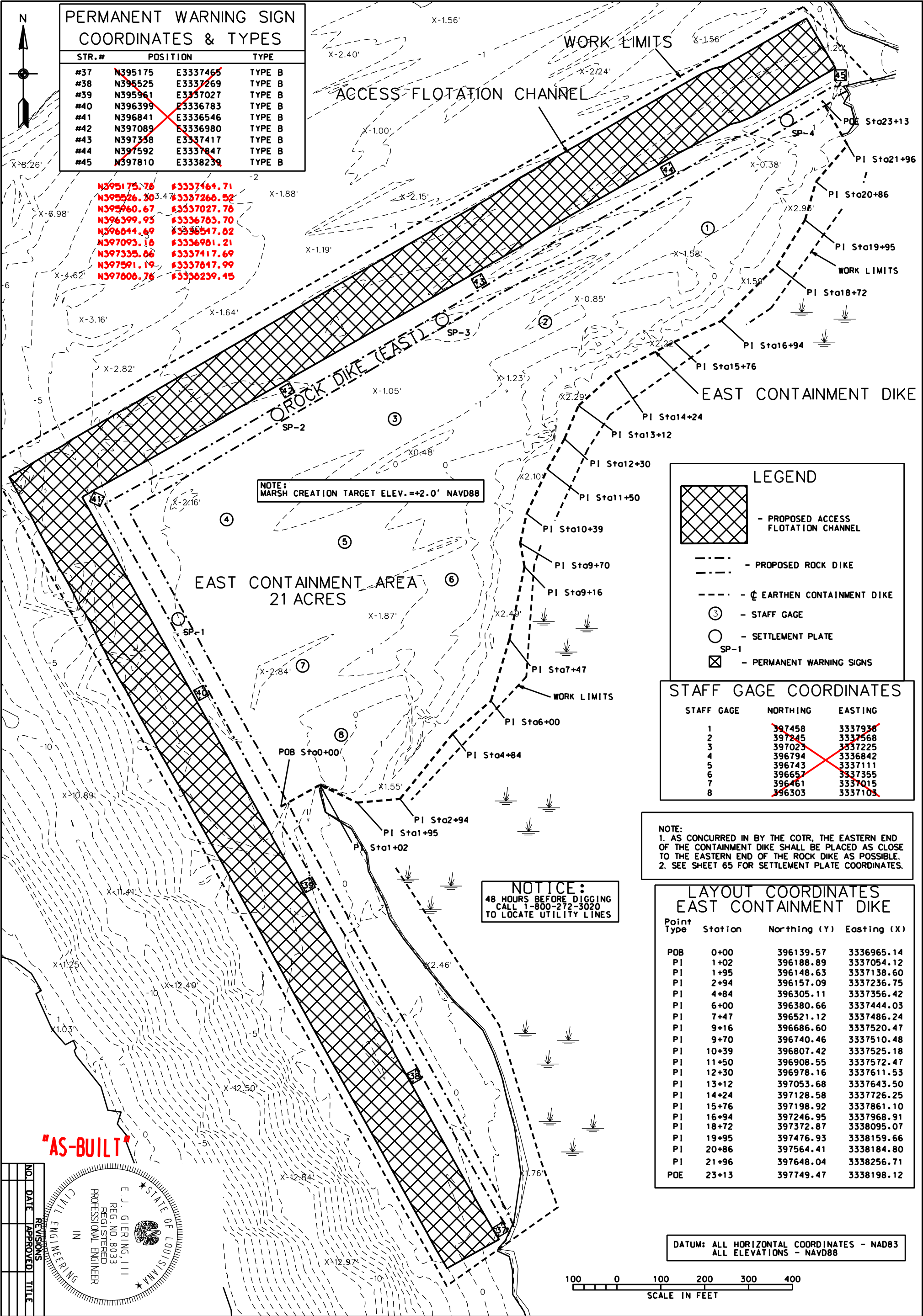


FILE NAME  
LA274

DRAWING NAME  
LA27461.DGN

SHEET 61 OF 76

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING, III		05/09



PERMANENT WARNING SIGN  
COORDINATES & TYPES

STR.#	POSITION		TYPE
#37	N395175	E3337465	TYPE B
#38	N395525	E3337269	TYPE B
#39	N395961	E3337027	TYPE B
#40	N396399	E3336783	TYPE B
#41	N396841	E3336546	TYPE B
#42	N397089	E3336980	TYPE B
#43	N397358	E3337417	TYPE B
#44	N397592	E3337847	TYPE B
#45	N397810	E3338239	TYPE B

N395175.76 E3337464.71  
N395526.30 E3337266.52  
N395960.67 E3337027.76  
N396399.93 E3336783.70  
N396841.69 E3336547.02  
N397093.18 E3336981.21  
N397355.66 E3337417.69  
N397591.19 E3337847.99  
N397806.76 E3338239.45

NOTE:  
MARSH CREATION TARGET ELEV. = +2.0' NAVD88

EAST CONTAINMENT AREA  
21 ACRES

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

LEGEND

- PROPOSED ACCESS FLOTATION CHANNEL
- PROPOSED ROCK DIKE
- EARTHEN CONTAINMENT DIKE
- STAFF GAGE
- SETTLEMENT PLATE
- PERMANENT WARNING SIGNS

STAFF GAGE COORDINATES

STAFF GAGE	NORTHING	EASTING
1	397458	3337938
2	397245	3337568
3	397023	3337225
4	396794	3336842
5	396743	3337111
6	396657	3337355
7	396461	3337015
8	396303	3337103

NOTE:  
1. AS CONCURRED IN BY THE COTR, THE EASTERN END OF THE CONTAINMENT DIKE SHALL BE PLACED AS CLOSE TO THE EASTERN END OF THE ROCK DIKE AS POSSIBLE.  
2. SEE SHEET 65 FOR SETTLEMENT PLATE COORDINATES.

LAYOUT COORDINATES  
EAST CONTAINMENT DIKE

Point Type	Station	Northing (Y)	Easting (X)
POB	0+00	396139.57	3336965.14
PI	1+02	396188.89	3337054.12
PI	1+95	396148.63	3337138.60
PI	2+94	396157.09	3337236.75
PI	4+84	396305.11	3337356.42
PI	6+00	396380.66	3337444.03
PI	7+47	396521.12	3337486.24
PI	9+16	396686.60	3337520.47
PI	9+70	396740.46	3337510.48
PI	10+39	396807.42	3337525.18
PI	11+50	396908.55	3337572.47
PI	12+30	396978.16	3337611.53
PI	13+12	397053.68	3337643.50
PI	14+24	397128.58	3337726.25
PI	15+76	397198.92	3337861.10
PI	16+94	397246.95	3337968.91
PI	18+72	397372.87	3338095.07
PI	19+95	397476.93	3338159.66
PI	20+86	397564.41	3338184.80
PI	21+96	397648.04	3338256.71
POE	23+13	397749.47	3338198.12

DATUM: ALL HORIZONTAL COORDINATES - NAD83  
ALL ELEVATIONS - NAVD88

100 0 100 200 300 400  
SCALE IN FEET

"AS-BUILT"

NO. DATE REVISIONS APPROVED TITLE

CIVIL ENGINEERING

E. J. GIERING, III  
REG. NO. 8033  
REGISTERED  
PROFESSIONAL ENGINEER  
IN  
STATE OF LOUISIANA

FILE NAME  
LA274

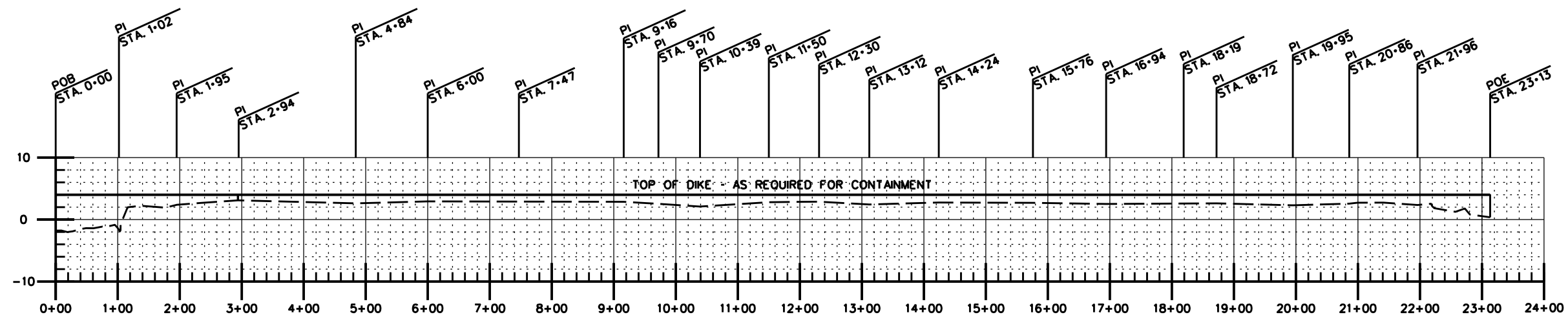
DRAWING NAME  
LA27462.DGN

SHEET 62 OF 76

**NRCS**  
Natural Resources Conservation Service  
United States Department of Agriculture

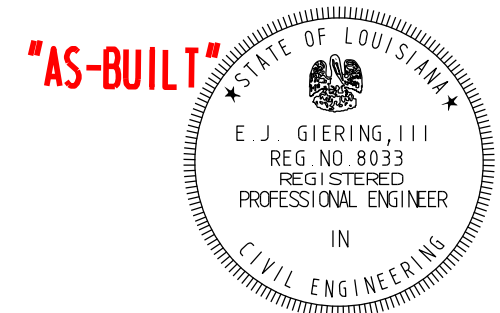
EAST CONTAINMENT AREA  
MOUTH OF BAYOU PENCHANT  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE	DATE	07/07
CHECKED	R. FAULKNER, B. STICKER	DATE	02/09
APPROVED	E.J. GIERING III	DATE	05/09



PROFILE - EAST CONTAINMENT DIKE

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES



REVISIONS			
NO.	DATE	APPROVED	TITLE

EAST CONTAINMENT DIKE PROFILES  
MOUTH OF BAYOU PENCHANT  
TE - 34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



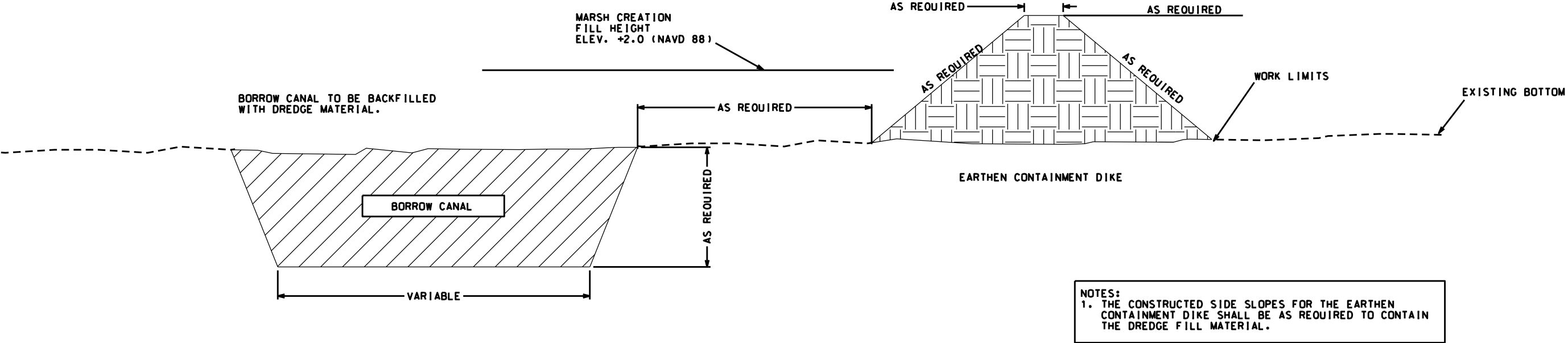
FILE NAME	LA274
DRAWING NAME	LA27463.DGN
SHEET 63 OF 76	

DESIGNED	S. GARNER	DATE	07/07
DRAWN	D. WILMORE		07/07
CHECKED	R. FAULKNER, B. STICKER		02/09
APPROVED	E.J. GIERING, III		05/09



MARSH CREATION SIDE

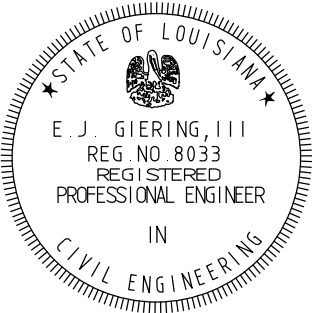
MARSH SIDE



TYPICAL SECTION-EARTHEN CONTAINMENT DIKE INTERIOR BORROW  
(NOT TO SCALE)

"AS-BUILT"

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES



REVISIONS			
NO.	DATE	APPROVED	TITLE

TYPICAL SECTION - CONTAINMENT DIKE  
MOUTH OF BAYOU PENCHANT  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



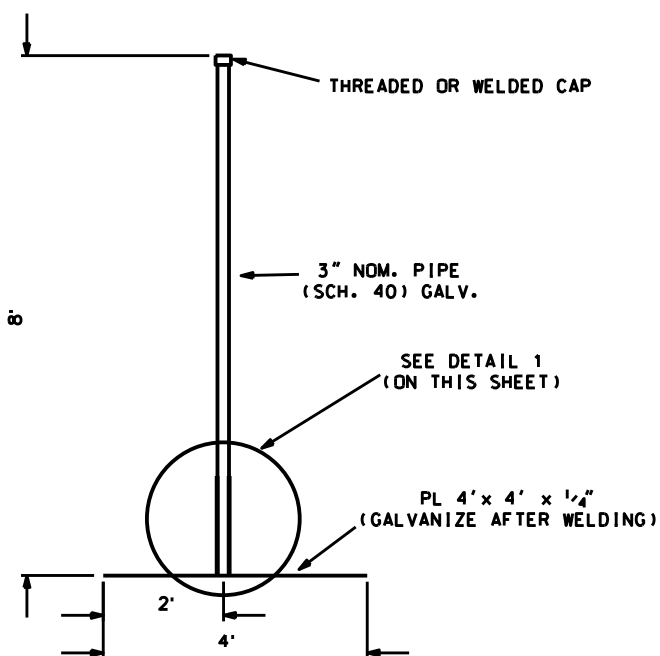
File Name  
LA274

Drawing Name  
LA27464.DGN

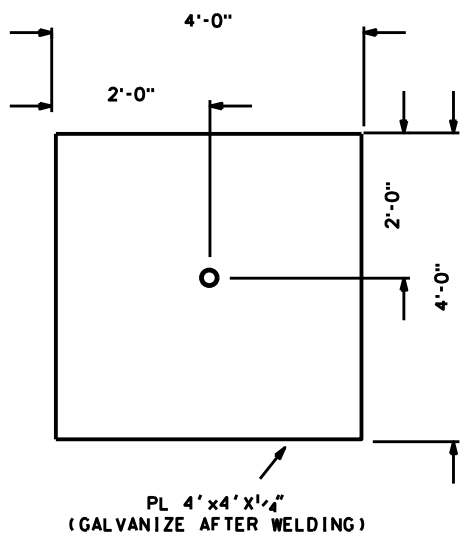
Sheet 64 of 76

Designed	S. GARNER	Date	05/07
Drawn	D. WILMORE		05/07
Checked	R. FAULKNER, B. STICKER		02/09
Approved	E.J. GIERING, III		05/09

NOTE:  
IF THREADED CAP IS USED, COLD GALVINIZE  
THREADS AFTER INSTALLATION.

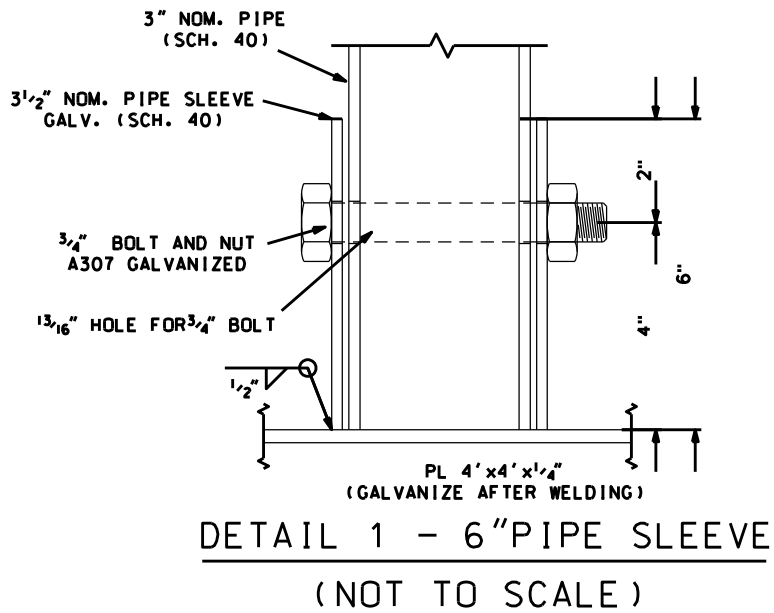


ELEVATION VIEW

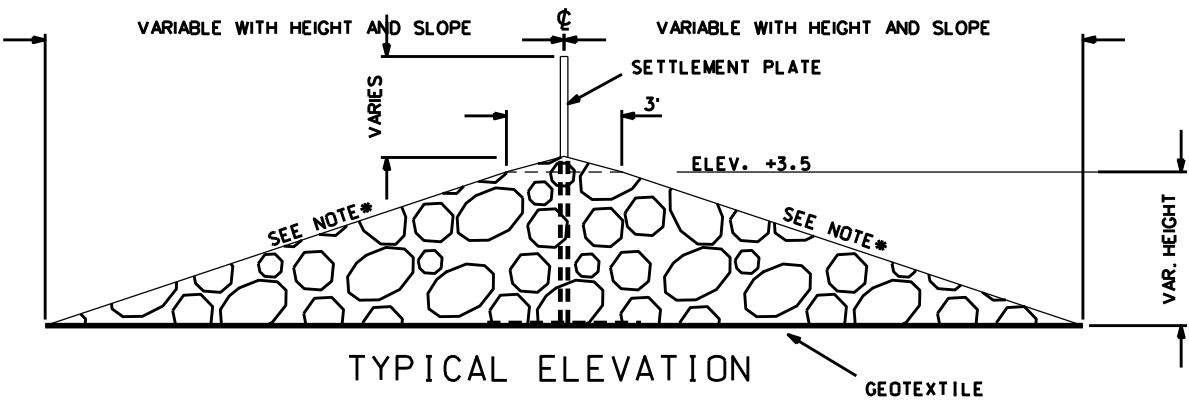


PLAN VIEW

SETTLEMENT PLATE DETAILS  
(NOT TO SCALE)



DETAIL 1 - 6" PIPE SLEEVE  
(NOT TO SCALE)



TYPICAL ELEVATION

GEOTEXTILE

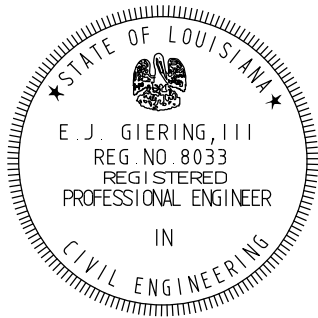
NOTE:  
THE SETTLEMENT PLATE ELEVATION SHALL BE DETERMINED  
BEFORE PLACING ROCK AND AT END OF CONSTRUCTION.

\* - SIDE SLOPE OF EAST ROCK DIKE = 4:1 FROM  
STA. 0+00 - STA. 7+50. TRANSITION TO 3:1  
SIDE SLOPE @ STA. 8+00 TO END. ALL OTHER  
ROCK SECTION SIDE SLOPES ARE 3:1.

ROCK DIKE SETTLEMENT PLATES

AREA	SP-#	NORTHING	EASTING		
WEST	1	<del>396012</del>	<del>3334082</del>	N396023.39	E3334058.08
WEST	2	<del>396209</del>	<del>3334783</del>	N396272.64	E3334761.34
WEST	3	<del>396427</del>	<del>3335556</del>	N396537.07	E3335507.59
EAST	1	396568	3336731		
EAST	2	<del>397033</del>	<del>3336957</del>	N397240.56	E3337333.43
EAST	3	<del>397251</del>	<del>3337335</del>	N397033.17	E3336949.26
EAST	4	<del>397703</del>	<del>3338117</del>	N396569.80	E3336714.42

"AS-BUILT"



DATE	05/07
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E. J. GIERING, III

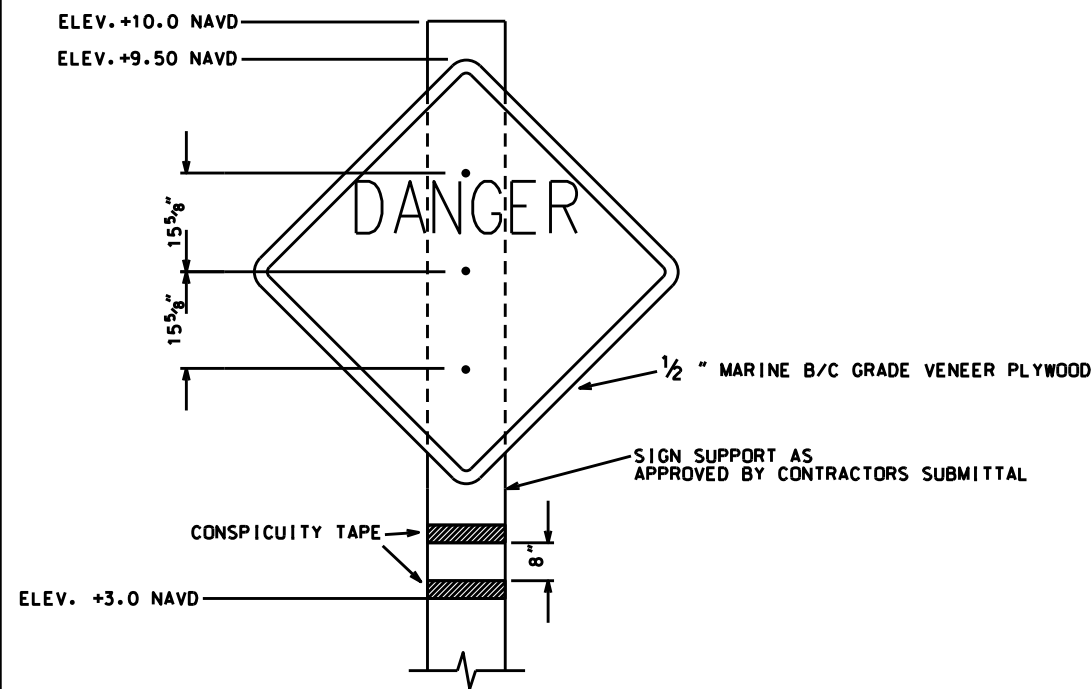
SETTLEMENT PLATE DETAILS  
MOUTH OF BAYOU PENCHANT  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



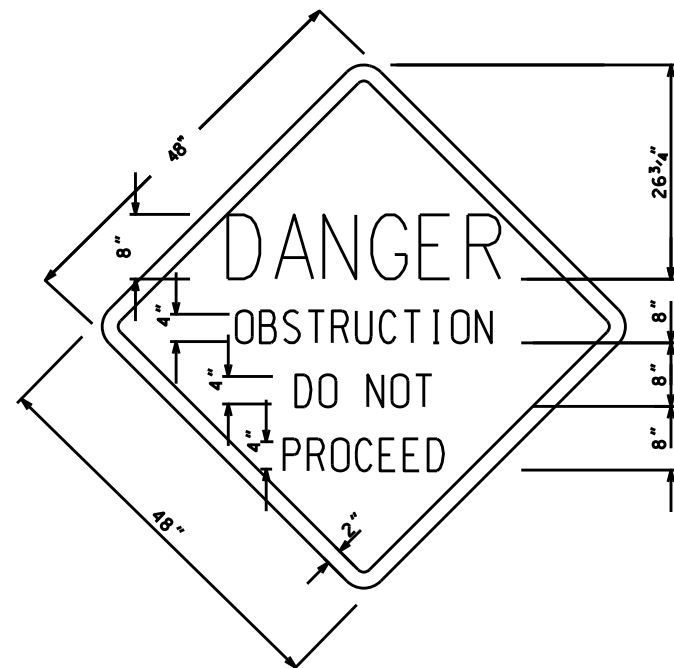
FILE NAME  
LA274

DRAWING NAME  
LA27465.DGN

REVISIONS			
NO.	DATE	APPROVED	TITLE



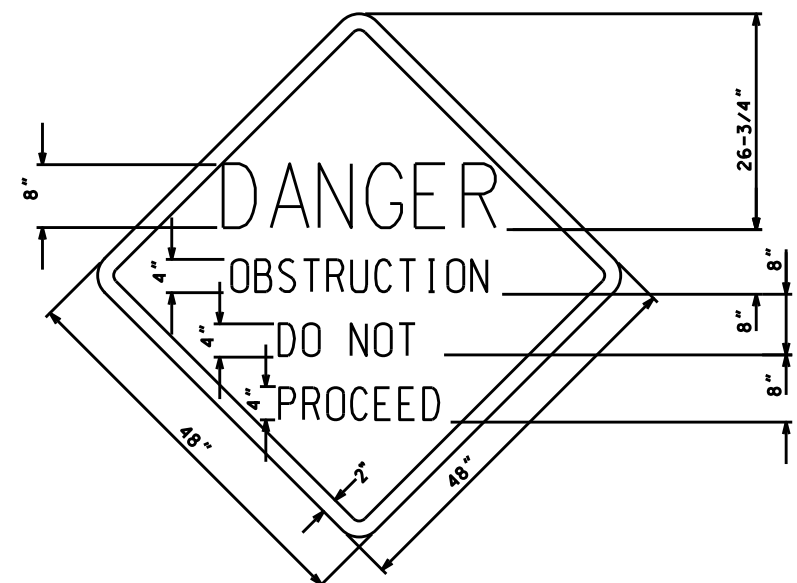
ELEVATION VIEW



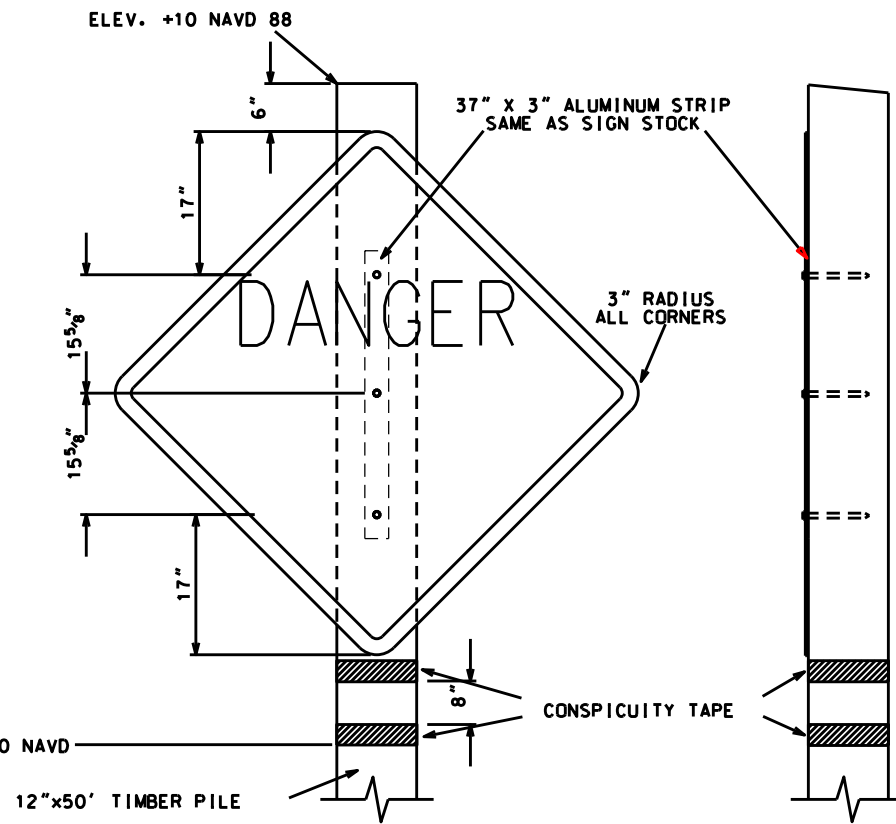
WARNING SIGN DETAILS

NOTE:  
 1. THE 2" BORDER ON THE WARNING SIGN SHALL BE A REFLECTIVE MATERIAL OF ORANGE COLOR. THE LETTERING FIELD SHALL BE A RETRO-REFLECTIVE MATERIAL OF WHITE COLOR. THE LETTERING FOR THE WARNING SIGNS SHALL BE BLACK. WARNING SIGNS SHALL BE PLACED ON TWO SIDES WITH THE SIGN FACING PERPENDICULAR TO THE SHORELINE AS CONCURRED IN BY THE COTR.  
 2. TEMPORARY WARNING SIGNS SHALL BE PLACED AT A MAXIMUM DISTANCE OF 500' APART.

TEMPORARY WARNING SIGN DETAILS  
TYPE 'A'



WARNING SIGN DETAILS

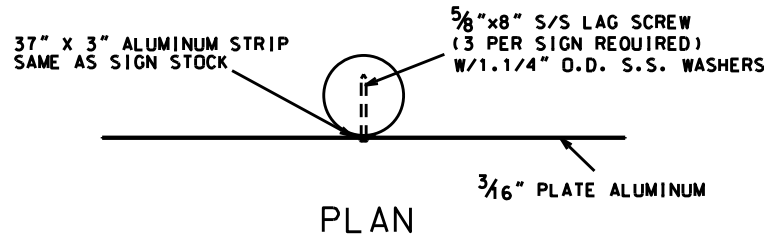


CONNECTION DETAILS

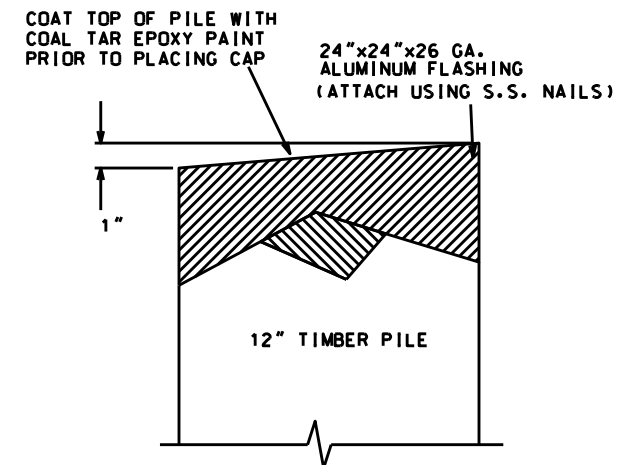
ELEVATION

SIDE

PERMANENT WARNING SIGN DETAILS  
TYPE 'B'

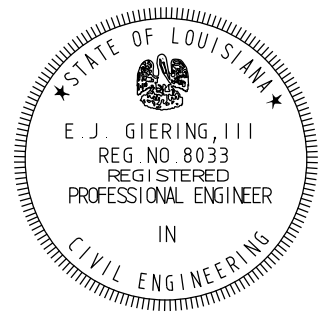


PLAN



TYPICAL TIMBER PILE CAP  
(NOT TO SCALE)

"AS-BUILT"



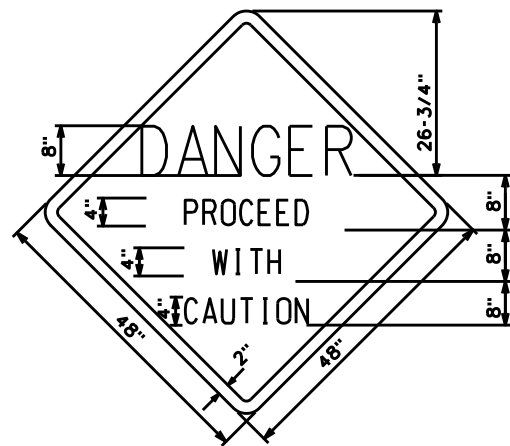
REVISIONS		
DATE	APPROVED	TITLE

Date	Designed	Drawn	Checked	Approved
05/07	S. GARNER	D. WILMORE	R. FAULKNER, B. STICKER	E.J. GIERING III
05/07				
02/09				
05/09				

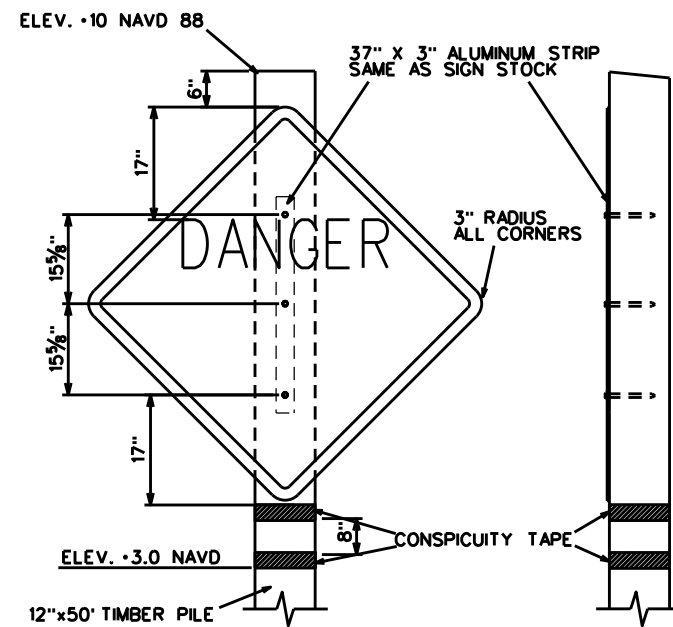
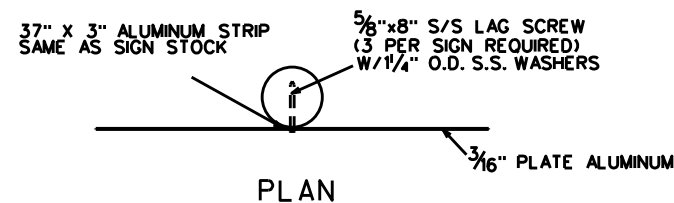
WARNING SIGN DETAILS  
 TYPES 'A' & 'B'  
 TE-34 PENCHANT BASIN  
 TERREBONNE PARISH, LOUISIANA



File Name	LA274
Drawing Name	LA27466.DGN
Sheet	66 of 76

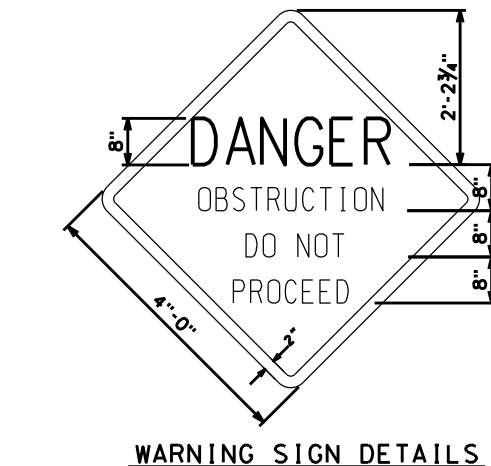
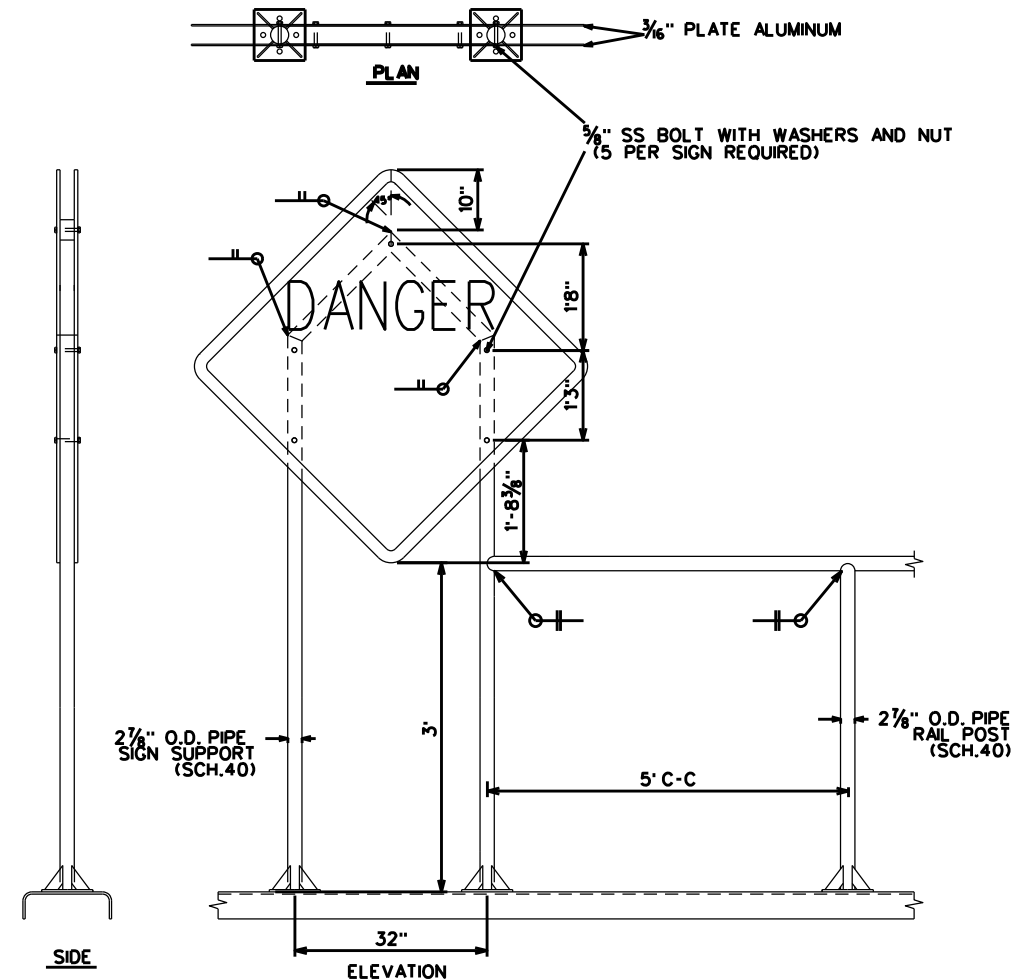


WARNING SIGN DETAILS



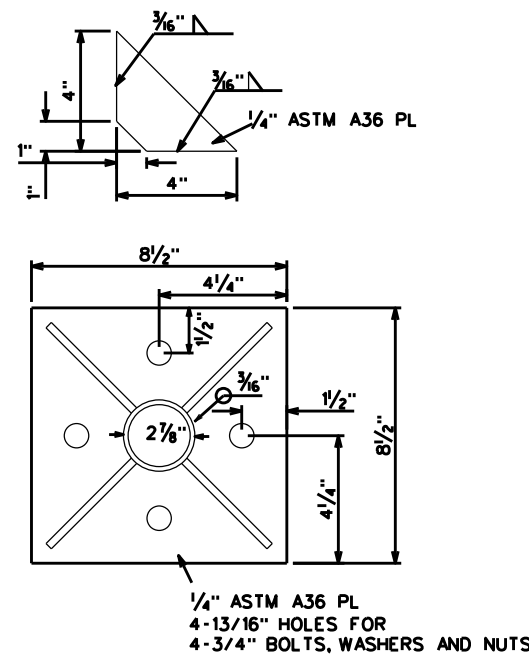
CONNECTION DETAILS  
ELEVATION SIDE

PERMANENT WARNING SIGN DETAILS  
TYPE 'C'

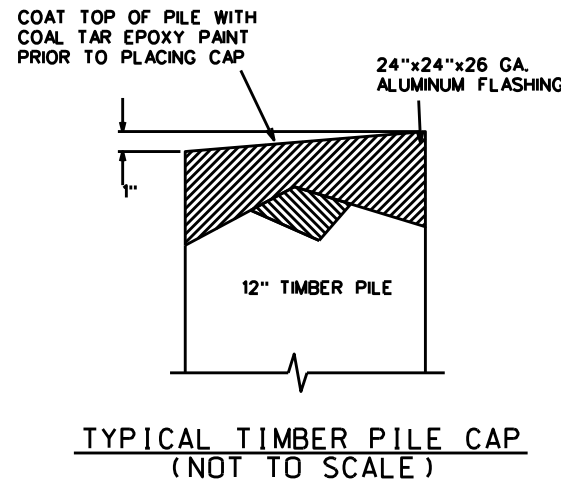


WARNING SIGN DETAILS  
PERMANENT WARNING SIGN DETAILS  
TYPE 'D'

- NOTES:
1. SIGNS SHALL BE CONSTRUCTED USING 3/16" PLATE 6061 ALUMINUM.
  2. THE 2" BORDER SHALL BE A RETRO-REFLECTIVE MATERIAL OF ORANGE COLOR
  3. THE LETTERING AND ARROW FIELD SHALL BE A RETRO-REFLECTIVE MATERIAL OF WHITE COLOR
  4. THE LETTERING AND ARROWS FOR THE SIGNS SHALL BE BLACK.
  5. TEFLON OR NEOPRENE WASHERS SHALL BE PLACED BETWEEN STEEL PIPE AND ALUMINUM SIGNS.
  6. THE SIGN SUPPORTS SHALL BE PAINTED AS SPECIFIED IN CONSTRUCTION SPECIFICATION 82. CLEANING AND PAINTING METALWORK.
  7. TACK WELD NUTS TO BOLTS, WHERE APPLICABLE.

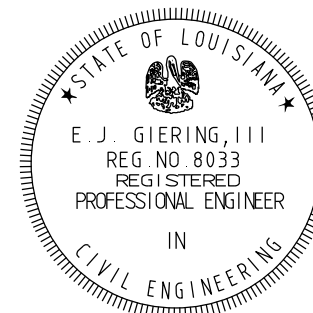


SIGN SUPPORT & RAILING POST  
BASE PLATE  
(NOT TO SCALE)



TYPICAL TIMBER PILE CAP  
(NOT TO SCALE)

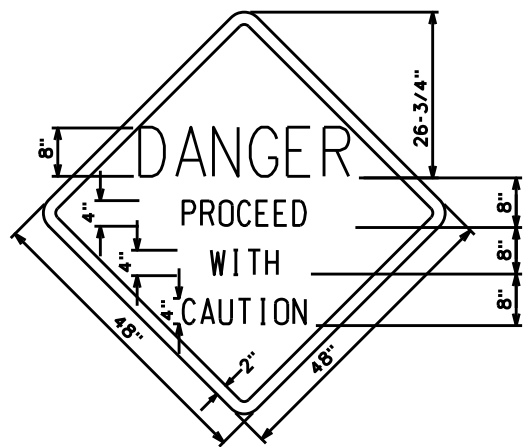
"AS-BUILT"



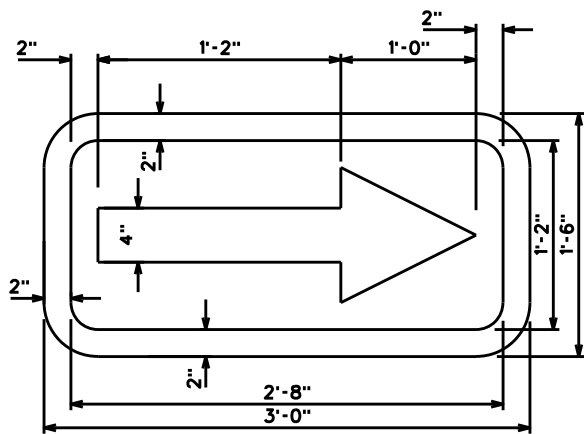
REVISIONS		
NO.	DATE	TITLE

<b>WARNING SIGN &amp; BATTER PILE DETAILS</b> <b>TYPES 'C' &amp; 'D'</b> <b>TE-34 PENCHANT BASIN</b> <b>TERREBONNE PARISH, LOUISIANA</b>	DATE	07/07
	DESIGNED	S. GARNER
	DRAWN	D. WILMORE
	CHECKED	R. FAULKNER, B. STICKER
<b>FILE NAME</b> <b>LA274</b> <b>DRAWING NAME</b> <b>LA274067.DGN</b> <b>SHEET 67 OF 76</b>	APPROVED	E.J. GIERING III

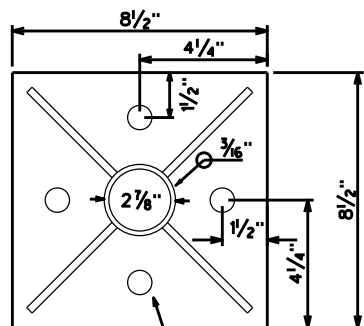
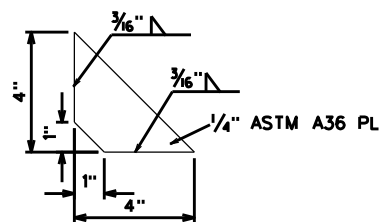




WARNING SIGN DETAILS

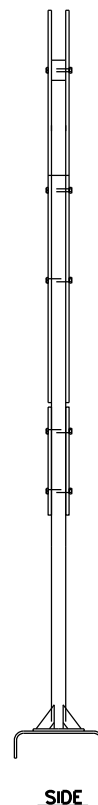


DIRECTIONAL SIGN DETAILS

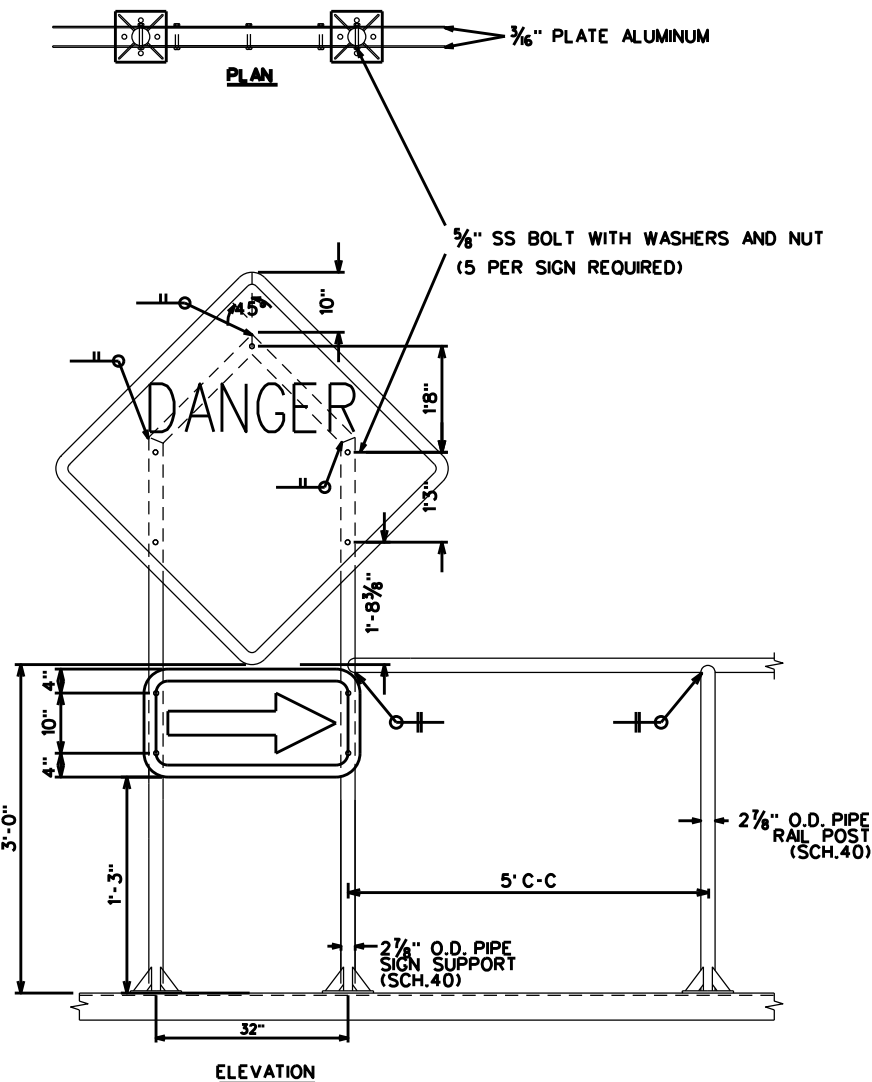


1/4" ASTM A36 PL  
4-13/16" HOLES FOR  
4-3/4" BOLTS, WASHERS AND NUTS

SIGN SUPPORT & RAILING POST  
BASE PLATE  
(NOT TO SCALE)



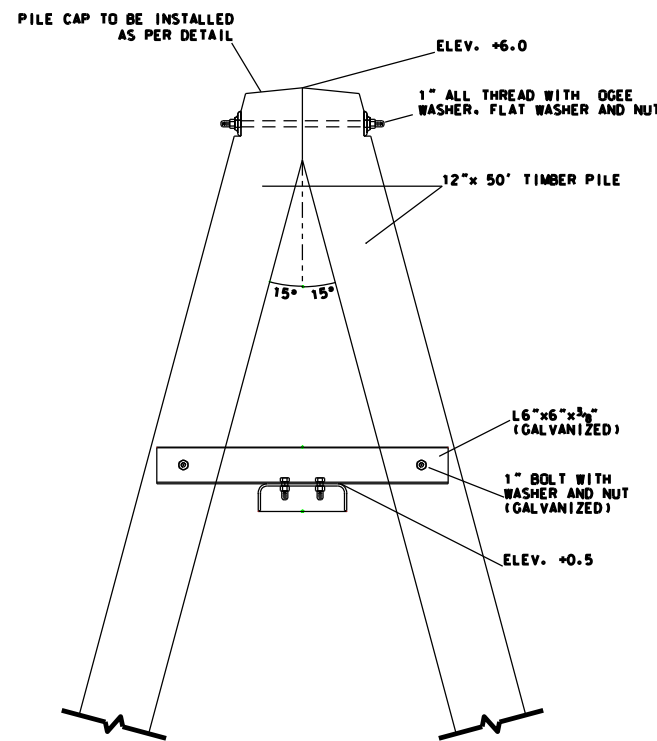
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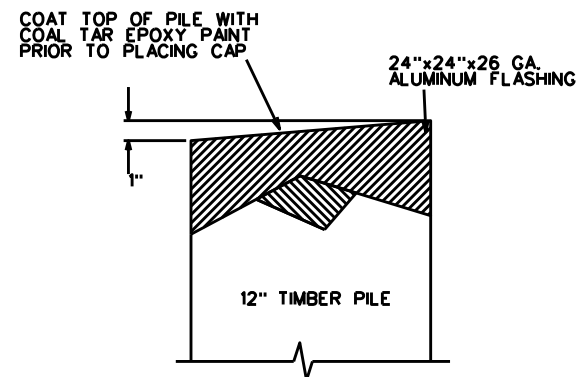
SIGN - DETAILS  
(NOT TO SCALE)

PERMANENT WARNING SIGN DETAILS  
TYPE 'E'

- NOTES:
1. SIGNS SHALL BE CONSTRUCTED USING 3/16" PLATE 6061 ALUMINUM.
  2. THE 2" BORDER SHALL BE A RETRO-REFLECTIVE MATERIAL OF ORANGE COLOR
  3. THE LETTERING AND ARROW FIELD SHALL BE A RETRO-REFLECTIVE MATERIAL OF WHITE COLOR
  4. THE LETTERING AND ARROWS FOR THE SIGNS SHALL BE BLACK.
  5. TEFLON OR NEOPRENE WASHERS SHALL BE PLACED BETWEEN STEEL PIPE AND ALUMINUM SIGNS.
  6. THE SIGN SUPPORTS SHALL BE PAINTED AS SPECIFIED IN CONSTRUCTION SPECIFICATION 82.
  7. TACK WELD NUTS TO BOLTS, WHERE APPLICABLE.

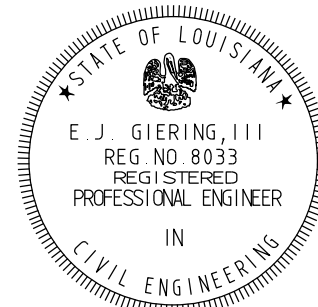


15° BATTER PILE DETAIL  
ELEVATION VIEW



TYPICAL TIMBER PILE CAP  
(NOT TO SCALE)

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE

DATE	07/07
DESIGNED	S. GARNER
DRAWN	D. WILMORE
CHECKED	R. FAULKNER, B. STICKER
APPROVED	E.J. GIERING III

















WARNING SIGN ON SHEETPILE STRUCTURES  
TYPE 'E'  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

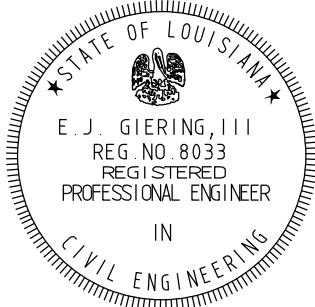


FILE NAME  
LA274

DRAWING NAME  
LA274068.DGN

SHEET 68 OF 76

UNIFIED SOIL CLASSIFICATION SYSTEM					
MAJOR DIVISIONS			SYMBOL & LETTER		DESCRIPTION
COARSE-GRAINED SOILS  More than half of material larger than No. 200 sieve size	GRAVELS  More than half of coarse fraction larger than No.4 sieve size	Clean Gravels (Little or no fines)		GW	WELL GRADED GRAVEL, GRAVEL-SAND MIXTURE
				GP	POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURE
		Gravels with fines (Appreciable amount of fines)		GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURE
				GC	CLAYEY GRAVEL, GRAVEL-SAND-CLAY MIXTURE
	SANDS  More than half of coarse fraction smaller than No.4 sieve size	Clean Sands (Little or no fines)		SW	WELL GRADED SAND, GRAVELLY SAND
				SP	POORLY GRADED SAND, GRAVELLY SAND
		Sands with fines (Appreciable amount of fines)		SM	SILTY SAND, SAND-SILT MIXTURE
				SC	CLAYEY SAND, SAND-CLAY MIXTURE
FINE-GRAINED SOILS  More than half of material smaller than No. 200 sieve size	SILTS AND CLAYS  Liquid limit less than 50			ML	SILT WITH LITTLE OR NO PLASTICITY
				ML	CLAYEY SILT, SILT WITH SLIGHT TO MEDIUM PLASTICITY
				ML	SANDY SILT
				CL	SILTY CLAY, LOW TO MEDIUM PLASTICITY
				CL	SANDY CLAY, LOW TO MEDIUM PLASTICITY (30% TO 50% SAND)
				MH	SILT, HIGH PLASTICITY
	SILTS AND CLAYS  Liquid limit greater than 50			CH	CLAY, HIGH PLASTICITY
				OH	ORGANIC CLAY OF MEDIUM TO HIGH PLASTICITY
			HIGHLY ORGANIC SOILS		



"AS-BUILT"

REVISIONS		
DATE	APPROVED	TITLE

Date

05/07

S. GARNER

Designed

Date

05/07

D. WILMORE

Drawn

Date

02/09

R. FAULKNER, B. STICKER

Checked

Date

05/09

E.J. GIERING III

Approved

SOIL PROFILE LEGEND

TE-34 PENCHANT BASIN

TERREBONNE PARISH, LOUISIANA

NRCS

Natural Resources Conservation Service

United States Department of Agriculture

File Name

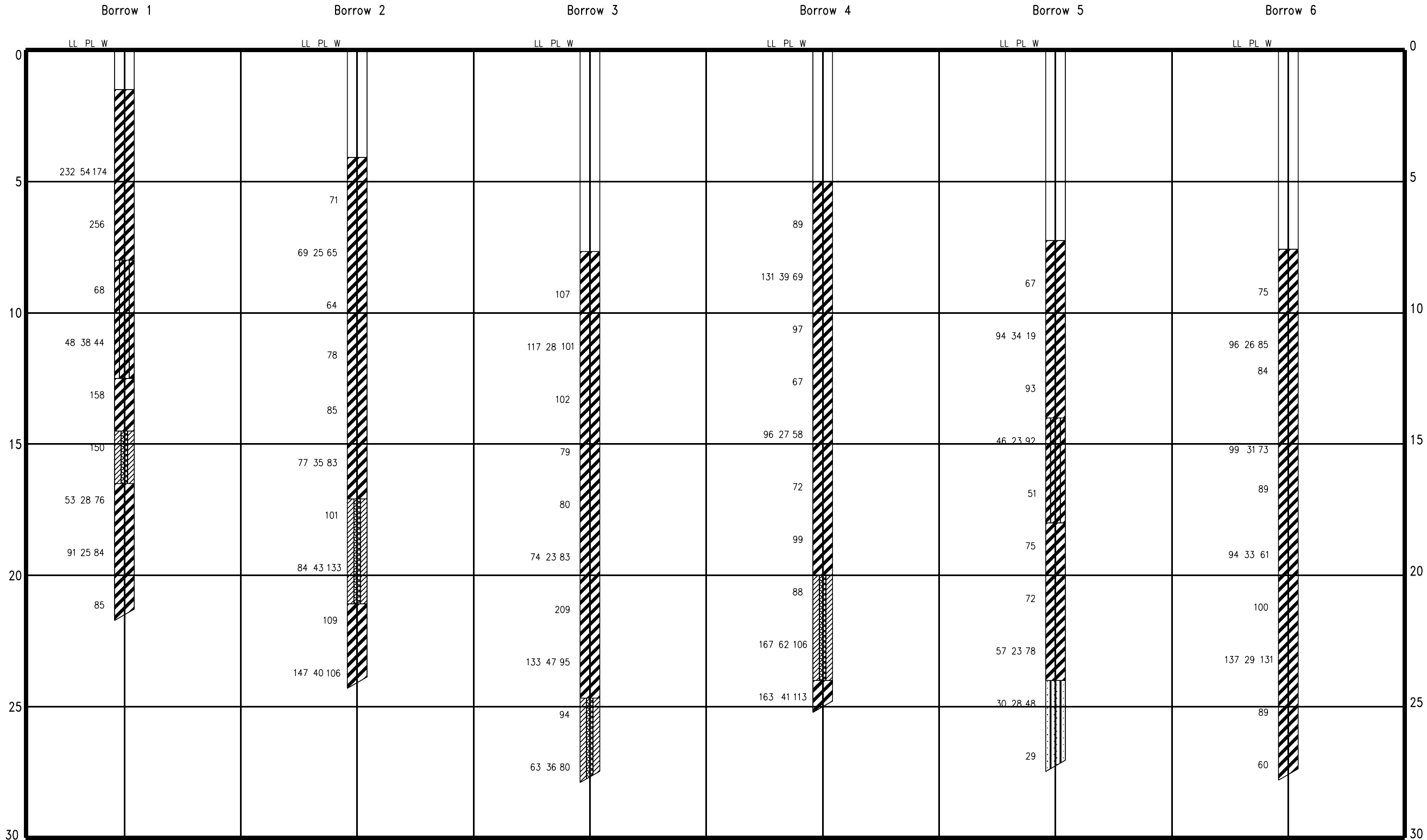
LA274

Drawing Name

LA27469.DGN

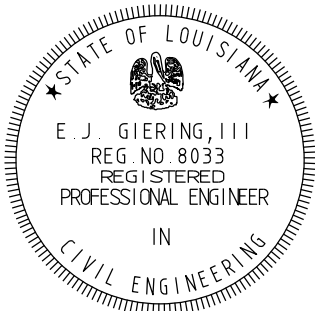
Sheet 69 of 76

DEPTH IN FEET



LEGEND:  
LL = Liquid Limit  
PL = Plastic Limit  
W = Water Content  
DD = Dry Density (pcf)  
C/N = Cohesion (ksf)/Penetration Resistance, N (blows per ft) in the same column  
% -200 = % Passing No. 200 Sieve

"AS-BUILT"



REVISIONS		
DATE	APPROVED	TITLE

SOIL PROFILES - BORROW

BAYOU DECADE

TE-34 PENCHANT BASIN

TERREBONNE PARISH, LOUISIANA

NRCS

Natural Resources Conservation Service

United States Department of Agriculture

File Name

LA274

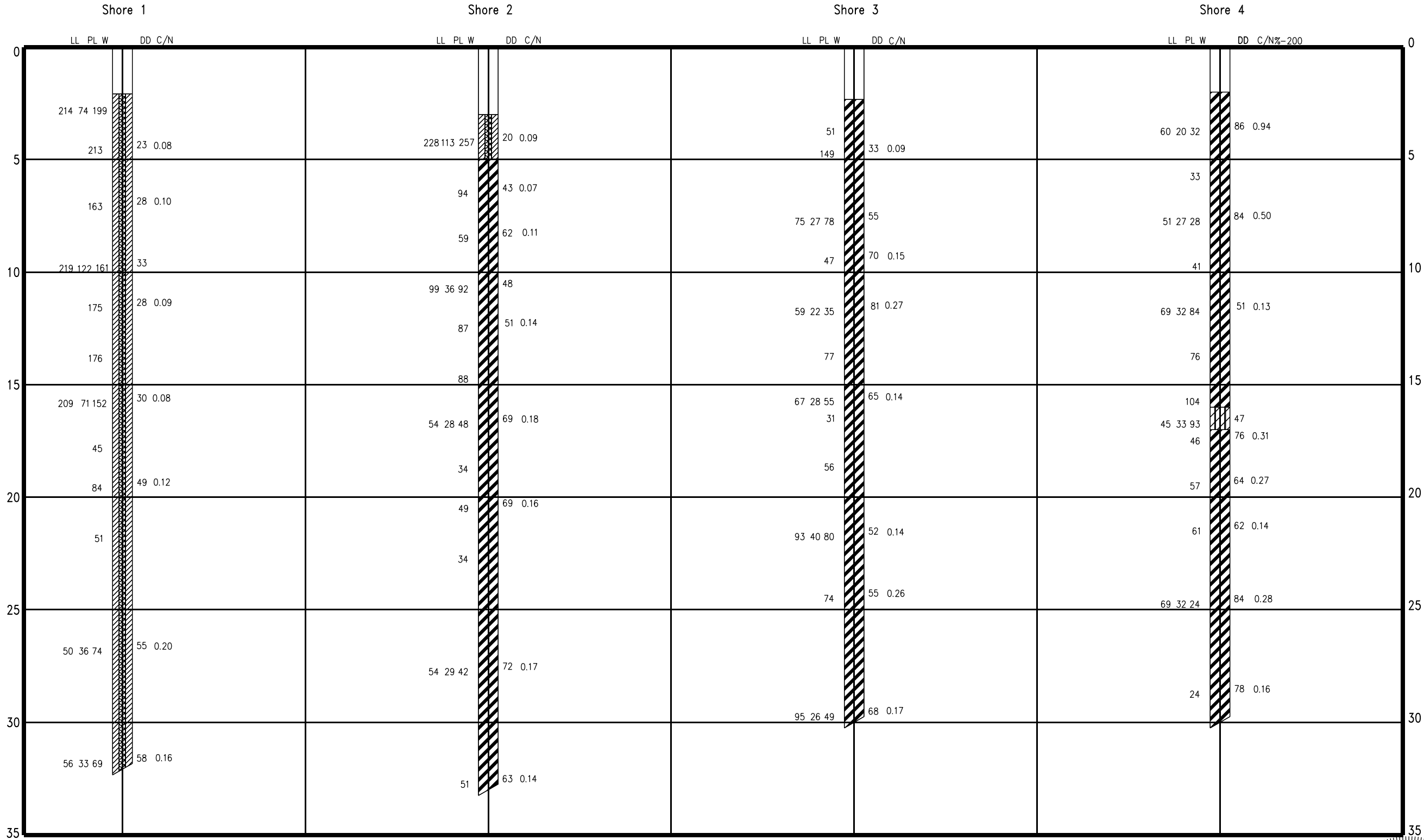
Drawing Name

LA27470.DGN

Sheet 70 of 76

Date	05/07
	05/07
	02/09
	05/09
Designed	S. GARNER
	D. WILMORE
	R. FAULKNER, B. STICKER
	E.J. GIERING III

DEPTH IN FEET



LEGEND:  
LL = Liquid Limit  
PL = Plastic Limit  
W = Water Content  
DD = Dry Density (pcf)  
C/N = Cohesion (ksf)/Penetration  
Resistance, N (blows per ft)  
in the same column  
% -200 = % Passing No. 200 Sieve

"AS-BUILT"



REVISIONS		
DATE	APPROVED	TITLE

SOIL PROFILES - SHORELINE  
BAYOU DECADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

Natural Resources Conservation Service  
United States Department of Agriculture

Designed	S. GARNER	Date	05/07
Drawn	D. WILMORE		05/07
Checked	R. FAULKNER, B. STICKER		02/09
Approved	E.J. GIERING III		05/09

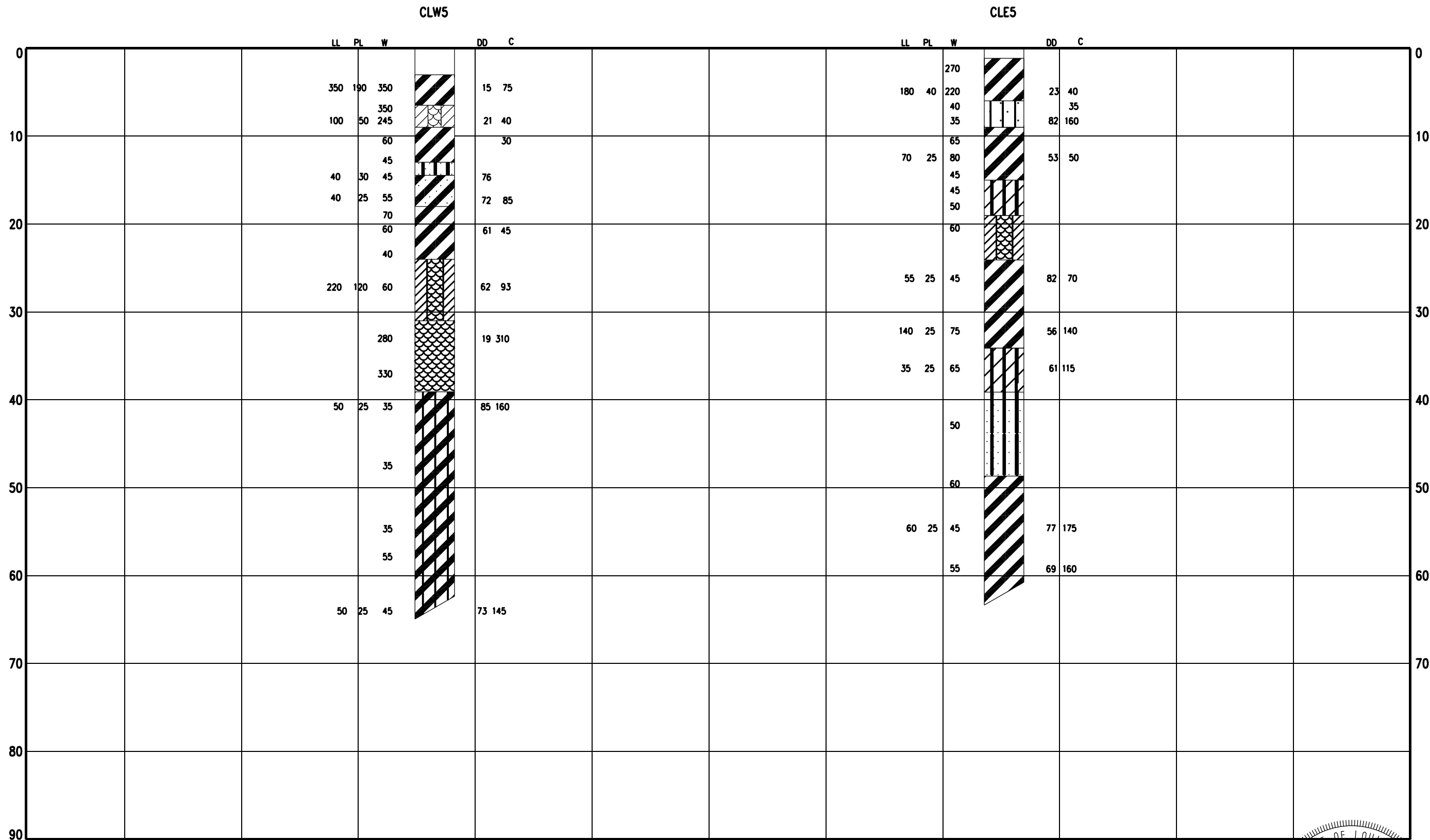
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LA274

Drawing Name  
LA27471.DGN

Sheet 71 of 76

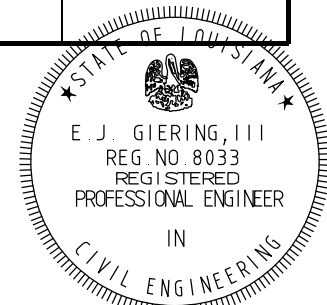


DEPTH IN FEET



LEGEND:  
LL = Liquid Limit  
PL = Plastic Limit  
W = Water Content  
DD = Dry Density (pcf)  
C/N = Cohesion (ksf)/Penetration  
Resistance, N (blows per ft)  
in the same column  
% -200 = % Passing No. 200 Sieve

"AS-BUILT"



REVISIONS		
DATE	APPROVED	TITLE

Date05/07

DesignedS. GARNER

Date05/07

DrawnD. WILMORE

Date02/09

CheckedR. FAULKNER, B. STICKER

Date05/09

ApprovedE.J. GIERING III

SOIL PROFILES - SITE 5  
BAYOU DECADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

NRCS

Natural Resources Conservation Service  
United States Department of Agriculture

File Name  
LA274

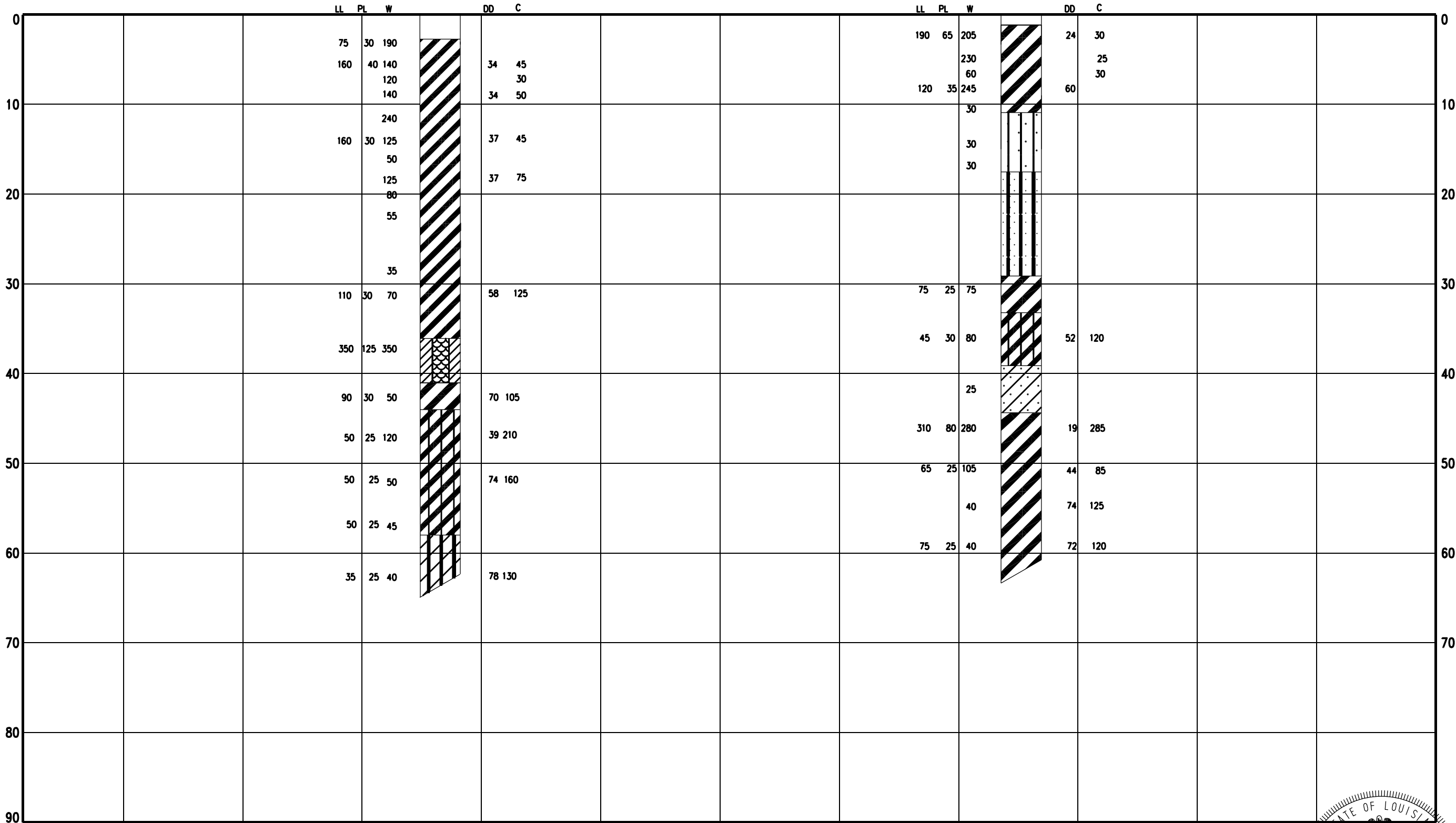
Drawing Name  
LA27472.DGN

Sheet 72 of 76

DEPTH IN FEET

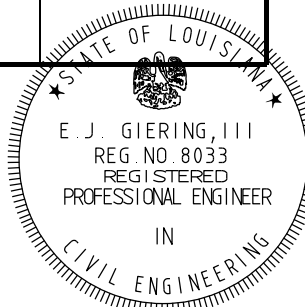
CLW4

CLE4



LEGEND:  
LL = Liquid Limit  
PL = Plastic Limit  
W = Water Content  
DD = Dry Density (pcf)  
C/N = Cohesion (ksf)/Penetration Resistance, N (blows per ft) in the same column  
% -200 = % Passing No. 200 Sieve

"AS-BUILT"



REVISIONS		
DATE	APPROVED	TITLE

SOIL PROFILES - SITE 4  
BAYOU DECADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA

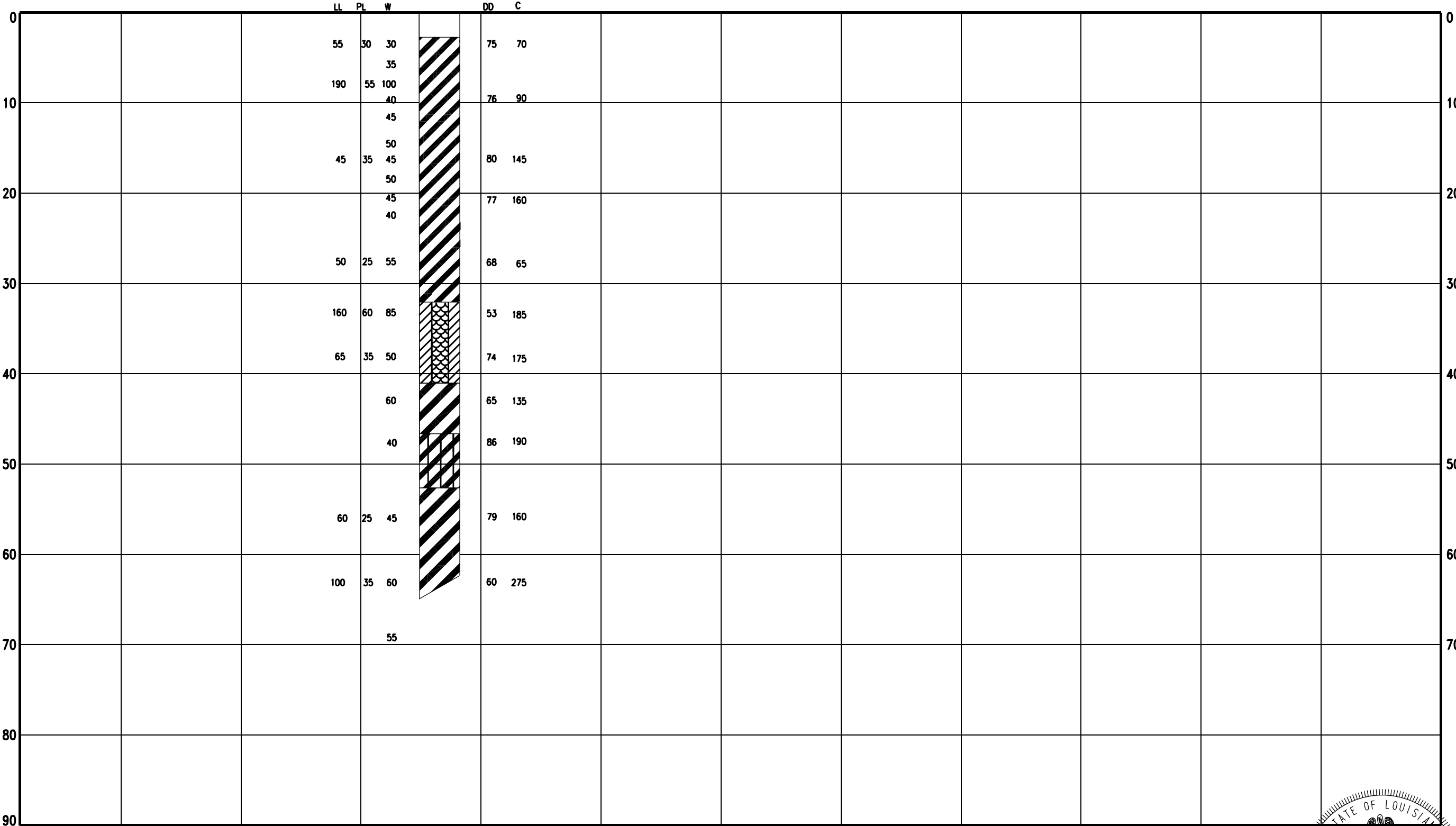


File Name	LA274
Drawing Name	LA27473.DGN
Sheet	73 of 76

Date	05/07
Designed	S. GARNER
Drawn	D. WILMORE
Checked	R. FAULKNER, B. STICKER
Approved	E.J. GIERING III

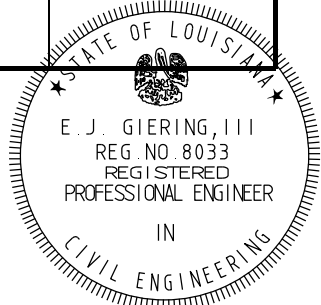
DEPTH IN FEET

SUPERIOR NORTH



LEGEND:  
LL = Liquid Limit  
PL = Plastic Limit  
W = Water Content  
DD = Dry Density (pcf)  
C/N = Cohesion (ksf)/Penetration  
Resistance, N (blows per ft)  
in the same column  
% -200 = % Passing No. 200 Sieve

"AS-BUILT"



REVISIONS		
DATE	APPROVED	TITLE

SOIL PROFILES

SUPERIOR CANAL

TE-34 PENCHANT BASIN

TERREBONNE PARISH, LOUISIANA

NRCS

Natural Resources Conservation Service

United States Department of Agriculture

File Name

LA274

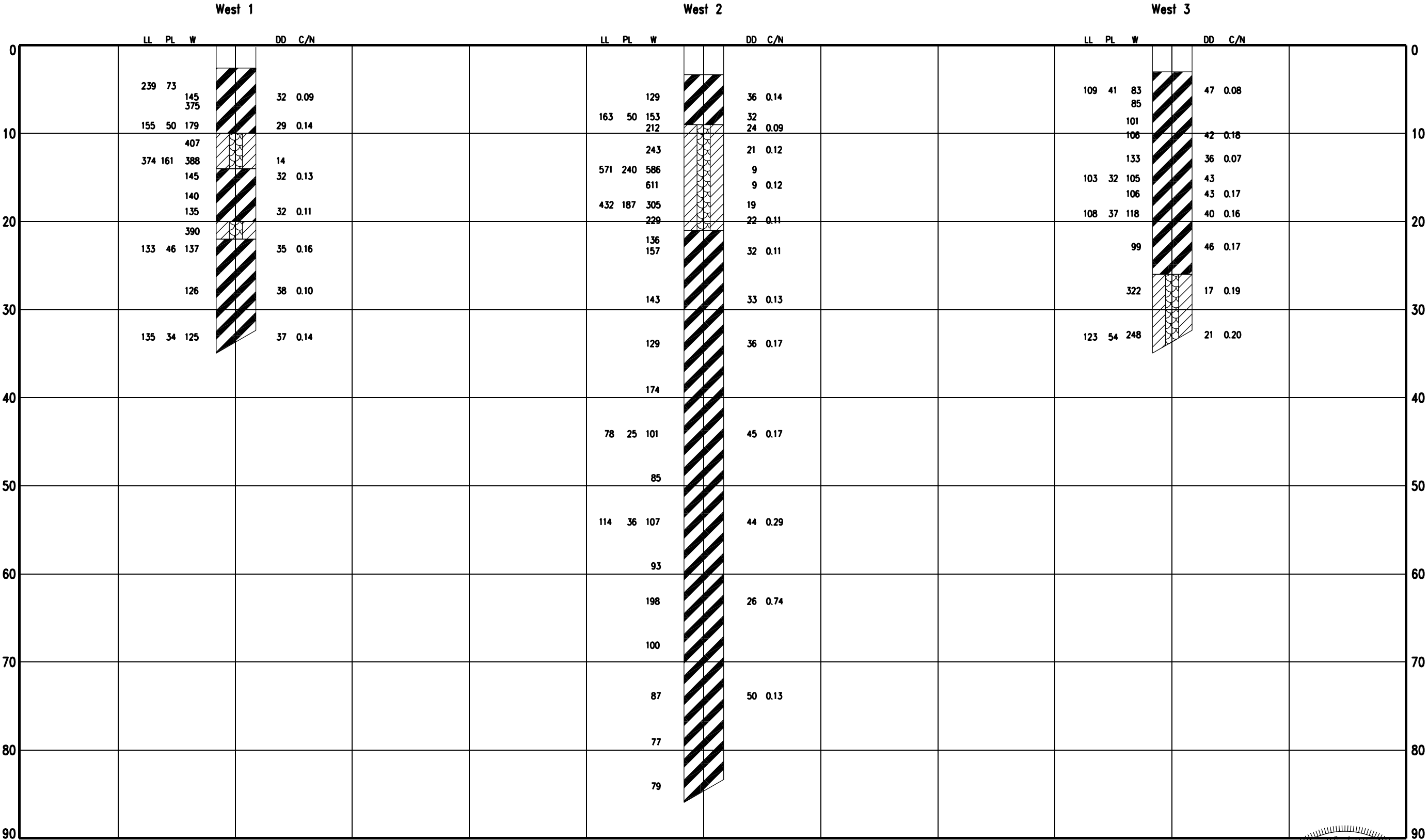
Drawing Name

LA27474.DGN

Sheet 74 of 76

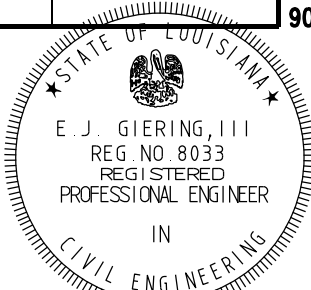
Designed	S. GARNER	Date	05/07
Drawn	D. WILMORE		05/07
Checked	R. FAULKNER, B. STICKER		02/09
Approved	E.J. GIERING III		05/09

DEPTH IN FEET



LEGEND:  
LL = Liquid Limit  
PL = Plastic Limit  
W = Water Content  
DD = Dry Density (pcf)  
C/N = Cohesion (ksf)/Penetration  
Resistance, N (blows per ft)  
in the same column  
% -200 = % Passing No. 200 Sieve

"AS-BUILT"



REVISIONS		
DATE	APPROVED	TITLE

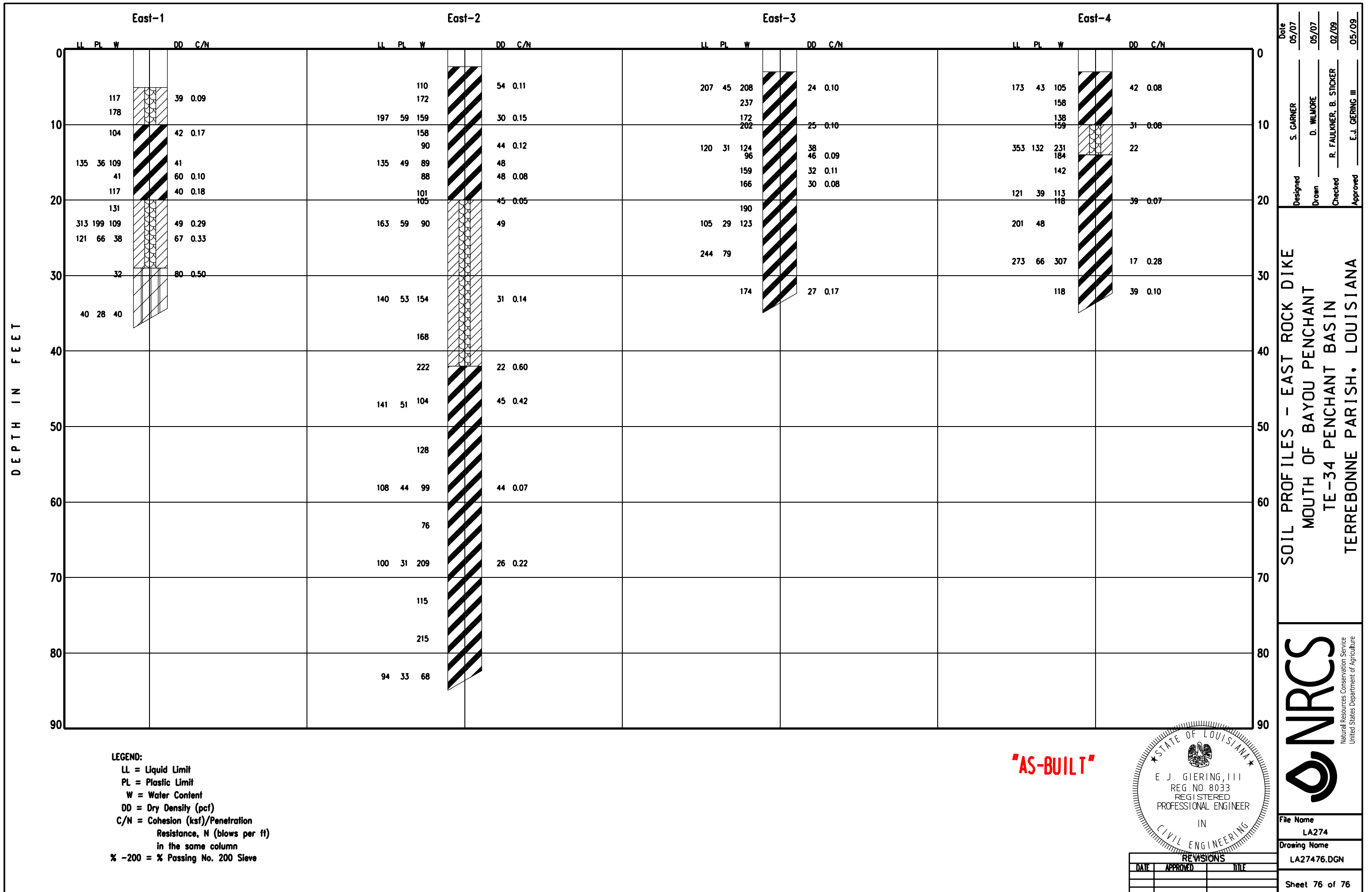
SOIL PROFILES - WEST ROCK DIKE  
MOUTH OF BAYOU PENCHANT  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



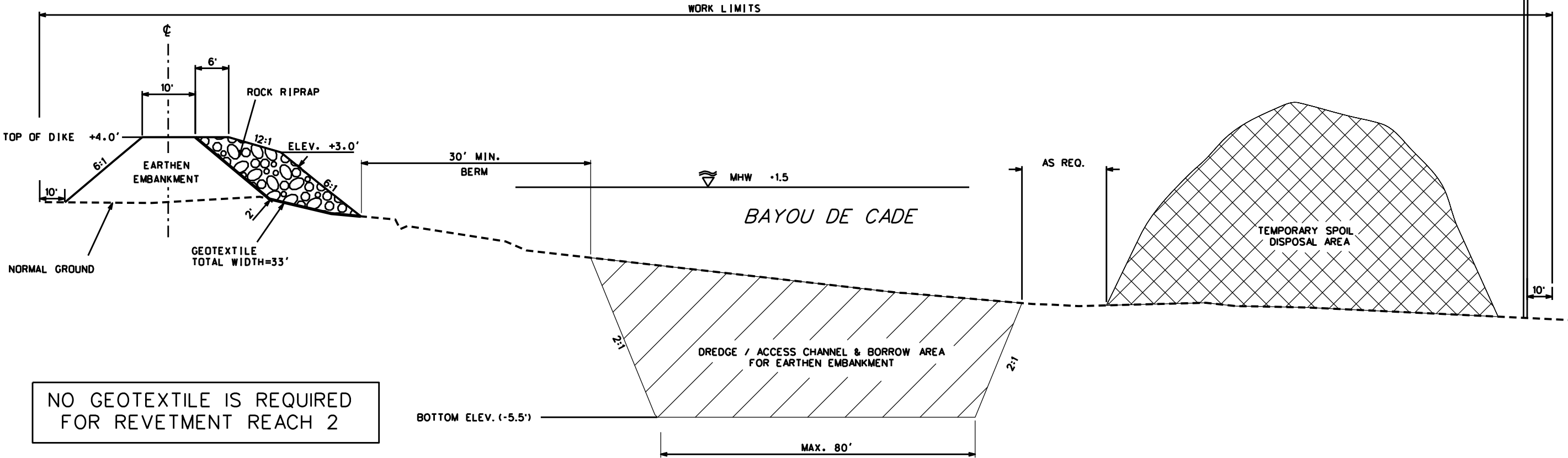
File Name  
LA274  
Drawing Name  
LA27475.DGN  
Sheet 75 of 76

Date	05/07
Designed	S. GARNER
Drawn	D. WILMORE
Checked	R. FAULKNER, B. STICKER
Approved	E.J. GIERING III





- NOTES:
- 1. EXCAVATION IS REQUIRED TO CONSTRUCT THE EARTHEN EMBANKMENT TO THE LINES AND GRADES SHOWN.
  - 2. EXCAVATION FOR FLOTATION IN EXCESS OF THE MATERIAL REQUIRED FOR CONSTRUCTING THE EARTHEN FILL EMBANKMENT IS OPTIONAL TO THE CONTRACTOR.
  - 3. SURPLUS MATERIAL MAY BE PLACED ON THE BAYOU SIDE OF THE FLOTATION CHANNEL. SUCH MATERIAL SHALL BE PLACED BACK INTO THE ACCESS CHANNEL AT THE END OF CONSTRUCTION.
  - 4. ADDITIONAL MATERIAL SHALL BE TAKEN FROM A DEEPER CUT WITHIN BAYOU DE CADE AT SECTIONS WHERE ACCESS CHANNEL EXCAVATION QUANTITIES ARE NOT SUFFICIENT FOR CONSTRUCTING THE REQUIRED EARTHFILL FOR THE EARTHEN EMBANKMENT.
  - 5. TEMPORARY WARNING SIGNS SHALL BE PLACED AS SHOWN AT A MAXIMUM DISTANCE OF 500' C-C.

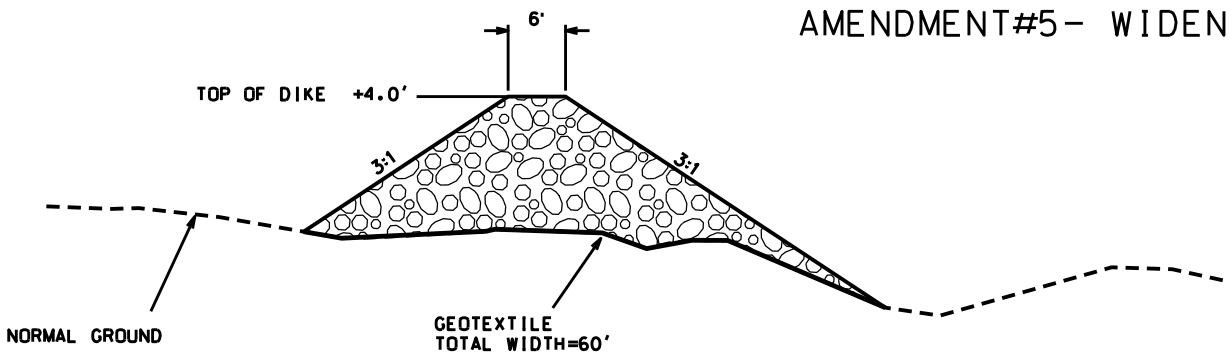


NO GEOTEXTILE IS REQUIRED FOR REVETMENT REACH 2

TYPICAL SECTION - REVETMENT  
BAYOU DE CADE SHORELINE

NOTICE:  
48 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

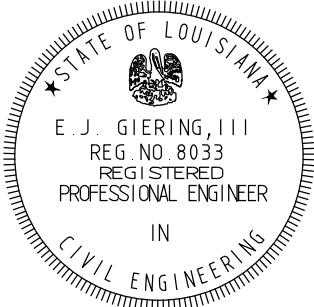
AMENDMENT#5- WIDEN FLOTATION CHANNEL TO 80'



ROCK PLUG - STA. 13+40 TO STA. 15+40  
BAYOU DE CADE -REACH 3

NOT TO SCALE

"AS-BUILT"



REVISIONS			
NO.	DATE	APPROVED	TITLE
A5	01/25/10	C.S.	C.E.

TYPICAL SECTION - REVETMENT  
BAYOU DE CADE  
TE-34 PENCHANT BASIN  
TERREBONNE PARISH, LOUISIANA



FILE NAME  
LA274  
DRAWING NAME  
LA27408A5.DGN

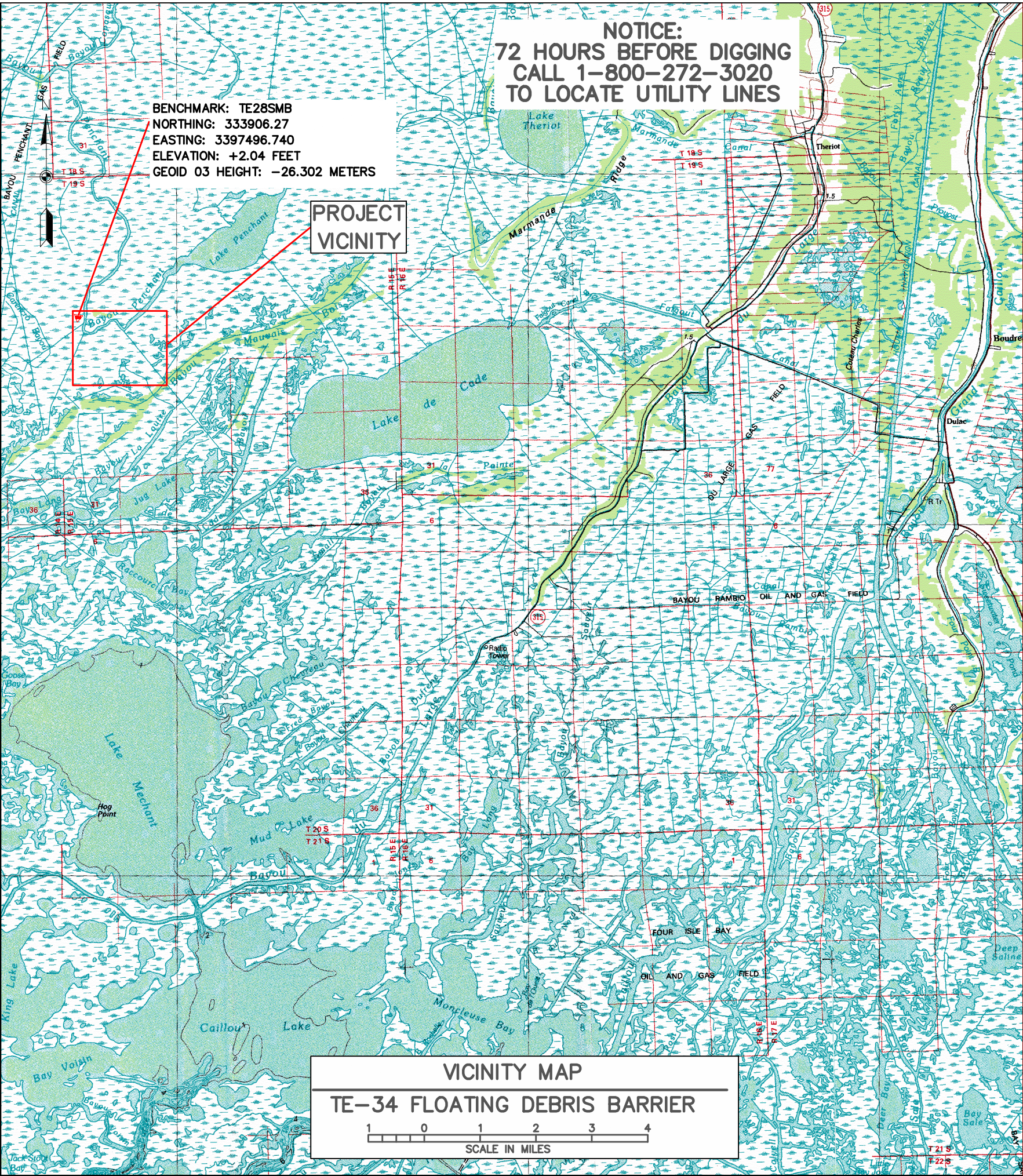
DATE	DESIGNED	DRAWN	CHECKED	APPROVED
07/07	S. GARNER	D. WILMORE	R. FAULKNER, B. STICKER	E.J. GIERING III
07/07				
02/09				
05/09				



NOTICE:  
72 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

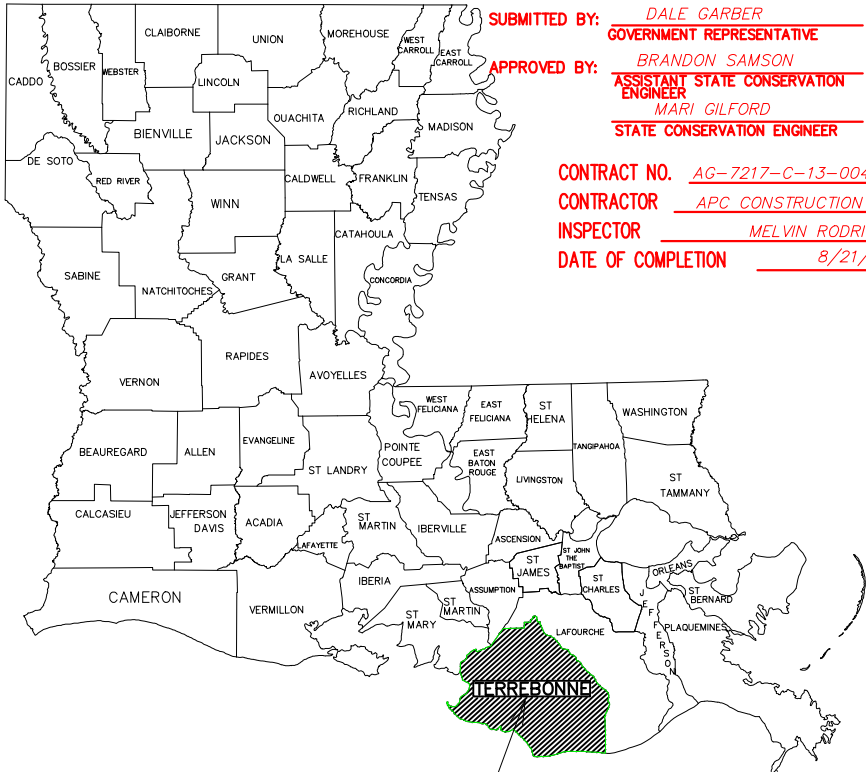
BENCHMARK: TE28SMB  
NORTHING: 333906.27  
EASTING: 3397496.740  
ELEVATION: +2.04 FEET  
GEOID 03 HEIGHT: -26.302 METERS

PROJECT  
VICINITY



VICINITY MAP  
TE-34 FLOATING DEBRIS BARRIER  
SCALE IN MILES

TE-34 FLOATING DEBRIS BARRIER  
BRADY CANAL & SUPERIOR CANAL  
BUILT UNDER THE COASTAL WETLANDS PLANNING,  
PROTECTION AND RESTORATION ACT  
PUBLIC LAW 101-646  
BY THE  
NATURAL RESOURCES CONSERVATION SERVICE  
OF THE  
UNITED STATES DEPARTMENT OF AGRICULTURE  
WITH THE ASSISTANCE OF THE  
COASTAL PROTECTION AND RESTORATION AUTHORITY  
OF LOUISIANA  
2014



LOCATION IN LOUISIANA  
(TERREBONNE PARISH)

"AS-BUILT PLANS"

SUBMITTED BY: DALE GARBER  
GOVERNMENT REPRESENTATIVE  
APPROVED BY: BRANDON SAMSON  
ASSISTANT STATE CONSERVATION  
ENGINEER  
MARI GILFORD  
STATE CONSERVATION ENGINEER  
CONTRACT NO. AG-7217-C-13-004  
CONTRACTOR APC CONSTRUCTION COMPANY, LLC  
INSPECTOR MELVIN RODRIGUE  
DATE OF COMPLETION 8/21/2013

INDEX TO DRAWINGS

- COVER SHEET - VICINITY MAP
- PROJECT MAP
- LOCATION MAP - BRADY CANAL
- SITE MAP - BRADY CANAL
- LOCATION MAP - SUPERIOR CANAL
- SITE MAP - SUPERIOR CANAL
- FLOTATION BODY DETAILS
- UNDERWATER HANGING DEBRIS CURTAIN DETAILS
- TIMBER PILE CONNECTION DETAILS
- PERMANENT WARNING SIGN DETAILS
- 4 PILE DOLPHIN DETAILS

"AS-BUILT"  
DATE OF COMPLETION 8/21/2013



REVISIONS			
NO.	DATE	APPROVED	TITLE

COVER SHEET/VICINITY MAP  
TE-34 FLOATING DEBRIS BARRIER  
BRADY CANAL AND SUPERIOR CANAL  
TERREBONNE PARISH, LOUISIANA



FILE NAME  
DRAWING NAME  
SHEET 01 of 11

DESIGNED	M. GREMILLON	DATE	04/13
DRAWN	A. GREMILLON		04/13
CHECKED	B. SAMSON		02/14
APPROVED	M. GILFORD		04/14





BENCHMARK: TE28SMB  
NORTHING: 333906.27  
EASTING: 3397496.740  
ELEVATION: +2.04 FEET  
GEOID 03 HEIGHT: -26.302 METERS

BRADY CANAL SITE  
(PROPOSED FLOATING DEBRIS BARRIER)

NOTICE:  
72 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

**"AS-BUILT"**  
DATE OF COMPLETION: 8/21/2013



PROJECT MAP — TE-34 FLOATING DEBRIS BARRIERS  
BRADY CANAL & SUPERIOR CANAL



IMAGERY DATE: 2012

PROJECT MAP  
TE-34 FLOATING DEBRIS BARRIERS  
BRADY CANAL SITE & SUPERIOR CANAL SITE  
TERREBONNE PARISH, LOUISIANA

Natural Resources Conservation Service  
United States Department of Agriculture

DESIGNED	M. GREMILLION	DATE	04/13
DRAWN	A. GREMILLION		04/13
CHECKED	B. SAMSON		02/14
APPROVED	M. GILFORD		04/14

REVISIONS			
NO.	DATE	APPROVED	TITLE

FILE NAME  
DRAWING NAME  
SHEET 02 of 11





NOTICE:  
72 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

BENCHMARK: TE28SMB  
NORTHING: 333906.27  
EASTING: 3397496.740  
ELEVATION: +2.04 FEET  
GEOID 03 HEIGHT: -26.302 METERS

EXISTING  
BRADY CANAL  
STRUCTURE

PROPOSED  
FLOATING DEBRIS  
BARRIER

WORK LIMITS (RED)  
SEE SHEET 4 OF 11  
FOR COORDINATES

BAYOU PENCHANT

BRADY CANAL

NOTE:  
1. APACHE LOUISIANA MINERALS, LLC IS THE SOLE LANDOWNER WITHIN  
THE COVERAGE OF THIS SHEET.

LOCATION MAP — TE-34 FLOATING DEBRIS BARRIER  
BRADY CANAL SITE



**"AS-BUILT"**  
DATE OF COMPLETION 8/21/2013

IMAGERY DATE: 2012

LOCATION MAP — BRADY CANAL  
TE-34 FLOATING DEBRIS BARRIER  
BRADY CANAL AND SUPERIOR CANAL  
TERREBONNE PARISH, LOUISIANA



FILE NAME
DRAWING NAME
SHEET 03 of 11

DESIGNED	M. GREMILLON	DATE	04/13
DRAWN	A. GREMILLON		04/13
CHECKED	B. SAMSON		02/14
APPROVED	M. GILFORD		04/14

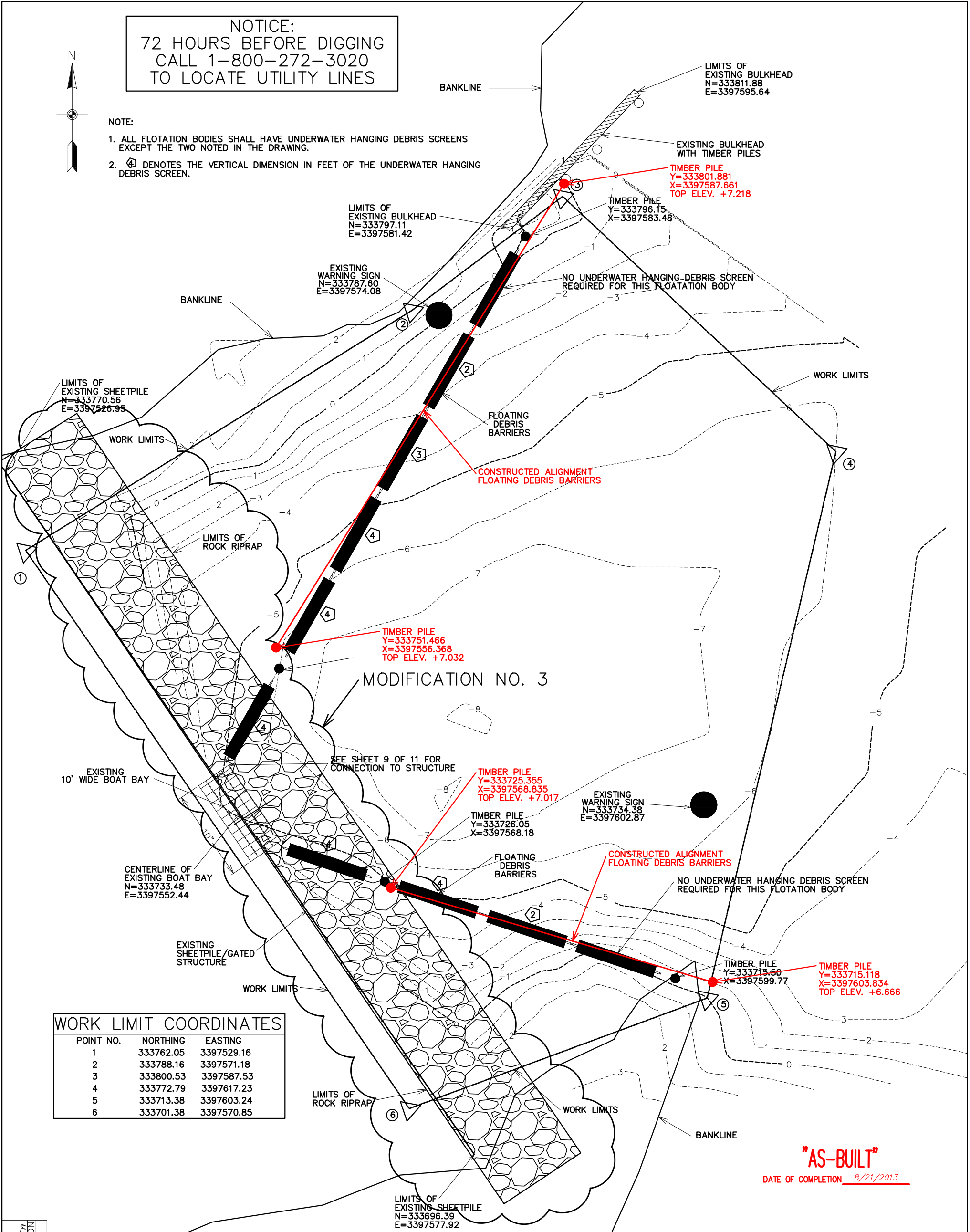
REVISIONS			
NO.	DATE	APPROVED	TITLE



NOTICE:  
72 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

NOTE:

1. ALL FLOTATION BODIES SHALL HAVE UNDERWATER HANGING DEBRIS SCREENS EXCEPT THE TWO NOTED IN THE DRAWING.
2. ④ DENOTES THE VERTICAL DIMENSION IN FEET OF THE UNDERWATER HANGING DEBRIS SCREEN.



WORK LIMIT COORDINATES		
POINT NO.	NORTHING	EASTING
1	333762.05	3397529.16
2	333788.16	3397571.18
3	333800.53	3397587.53
4	333772.79	3397617.23
5	333713.38	3397603.24
6	333701.38	3397570.85

**"AS-BUILT"**  
DATE OF COMPLETION 8/21/2013



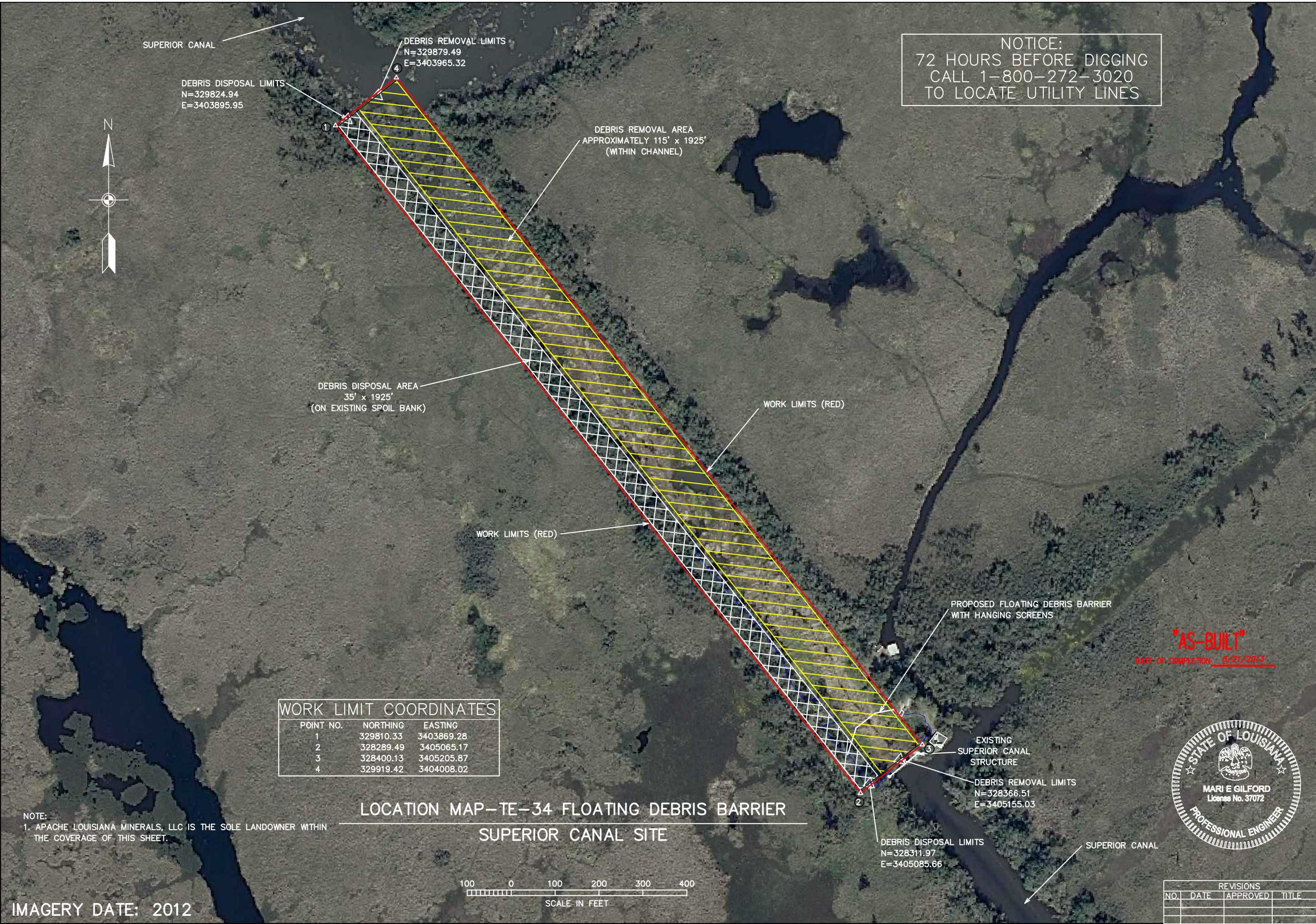
SITE MAP – BRADY CANAL  
TE-34 FLOATING DEBRIS BARRIERS



SITE MAP – BRADY CANAL  
TE-34 FLOATING DEBRIS BARRIER  
BRADY CANAL AND SUPERIOR CANAL  
TERREBONNE PARISH, LOUISIANA

DESIGNED	M. GREMILLION	DATE	04/13
DRAWN	A. GREMILLION		04/13
CHECKED	B. SAMSON		02/14
APPROVED	M. GILFORD		04/14





SUPERIOR CANAL

DEBRIS DISPOSAL LIMITS  
N=329824.94  
E=3403895.95

DEBRIS REMOVAL LIMITS  
N=329879.49  
E=3403965.32

DEBRIS REMOVAL AREA  
APPROXIMATELY 115' x 1925'  
(WITHIN CHANNEL)

DEBRIS DISPOSAL AREA  
35' x 1925'  
(ON EXISTING SPOIL BANK)

WORK LIMITS (RED)

WORK LIMITS (RED)

PROPOSED FLOATING DEBRIS BARRIER  
WITH HANGING SCREENS

**"AS-BUILT"**

DATE OF COMPLETION 8/21/2013

EXISTING  
SUPERIOR CANAL  
STRUCTURE

DEBRIS REMOVAL LIMITS  
N=328366.51  
E=3405155.03

DEBRIS DISPOSAL LIMITS  
N=328311.97  
E=3405085.66

SUPERIOR CANAL

WORK LIMIT COORDINATES		
POINT NO.	NORTHING	EASTING
1	329810.33	3403869.28
2	328289.49	3405065.17
3	328400.13	3405205.87
4	329919.42	3404008.02

LOCATION MAP-TE-34 FLOATING DEBRIS BARRIER  
SUPERIOR CANAL SITE



NOTE:  
1. APACHE LOUISIANA MINERALS, LLC IS THE SOLE LANDOWNER WITHIN  
THE COVERAGE OF THIS SHEET.

IMAGERY DATE: 2012



DESIGNED	M. GREMILLON	DATE	04/13
DRAWN	A. GREMILLON		04/13
CHECKED	B. SAMSON		02/14
APPROVED	M. GILFORD		04/14

LOCATION MAP - SUPERIOR CANAL  
TE-34 FLOATING DEBRIS BARRIER  
BRADY CANAL AND SUPERIOR CANAL  
TERREBONNE PARISH, LOUISIANA



FILE NAME

DRAWING NAME

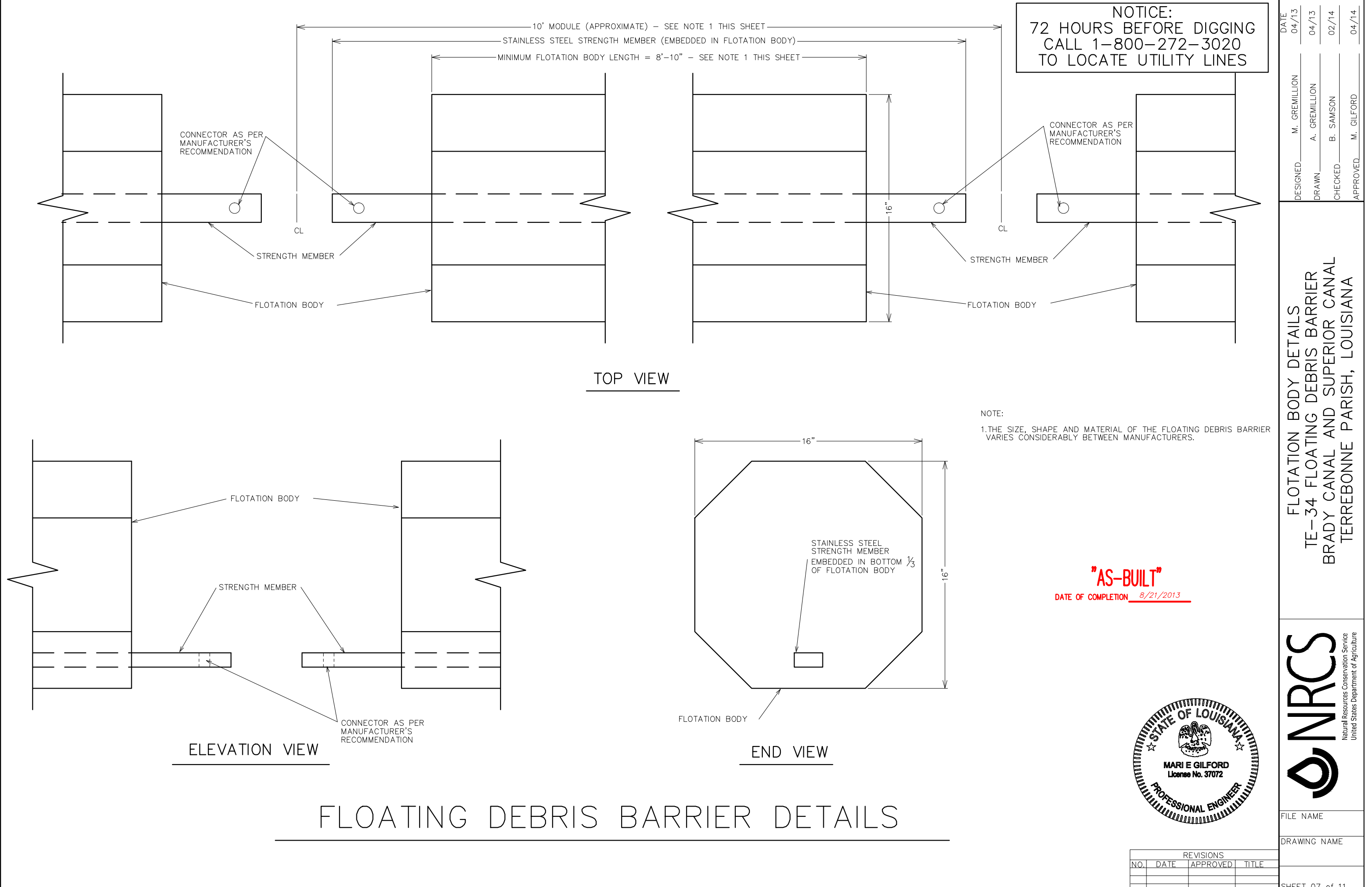
REVISIONS			
NO.	DATE	APPROVED	TITLE

SHEET 05 of 11



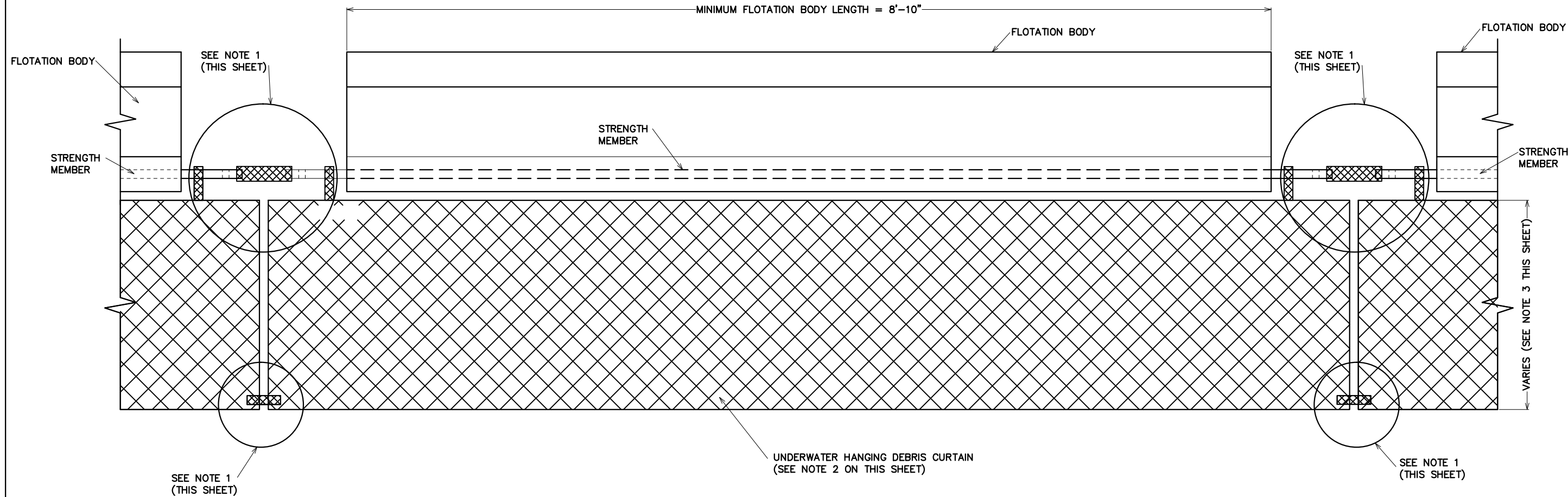






DESIGNED	M. GREMILLION	DATE	04/13
DRAWN	A. GREMILLION		04/13
CHECKED	B. SAMSON		02/14
APPROVED	M. GILFORD		04/14

FLOTATION BODY DETAILS  
TE-34 FLOATING DEBRIS BARRIER  
BRADY CANAL AND SUPERIOR CANAL  
TERREBONNE PARISH, LOUISIANA



# UNDERWATER HANGING DEBRIS SCREEN DETAILS ELEVATION VIEW

## NOTES:

1. THE CONNECTIONS BETWEEN THE STRENGTH MEMBERS SHALL BE AS PER MANUFACTURER'S RECOMMENDATION. THE CONNECTIONS BETWEEN THE STRENGTH MEMBERS AND THE UNDERWATER HANGING DEBRIS SCREENS SHALL BE AS PER MANUFACTURER'S RECOMMENDATION. THE CONNECTIONS BETWEEN THE ADJACENT UNDERWATER HANGING DEBRIS SCREENS SHALL BE AS PER MANUFACTURER'S RECOMMENDATION.
2. THE TYPE OF MATERIAL AND TYPE OF CONSTRUCTION FOR THE UNDERWATER HANGING DEBRIS SCREENS VARIES CONSIDERABLY BETWEEN MANUFACTURERS.
3. SEE SHEET 4 AND 6 FOR FLOTATION BODIES THAT WILL REQUIRE UNDERWATER HANGING DEBRIS SCREENS, ALSO THE DEPTH OF SCREEN FOR RESPECTIVE FLOTATION BODY.
4. THE DESIGN, MATERIAL, CONSTRUCTION AND CONNECTIONS SHALL BE SUCH THAT THE UNDERWATER HANGING DEBRIS SCREEN WILL NOT DEFLECT ALONG THE LONGITUDINAL AXIS, AND THE SCREEN WILL REMAIN IN A VERTICAL POSITION DURING FLOW CONDITIONS.

**"AS-BUILT"**  
DATE OF COMPLETION 8/21/2013



REVISIONS			
NO.	DATE	APPROVED	TITLE

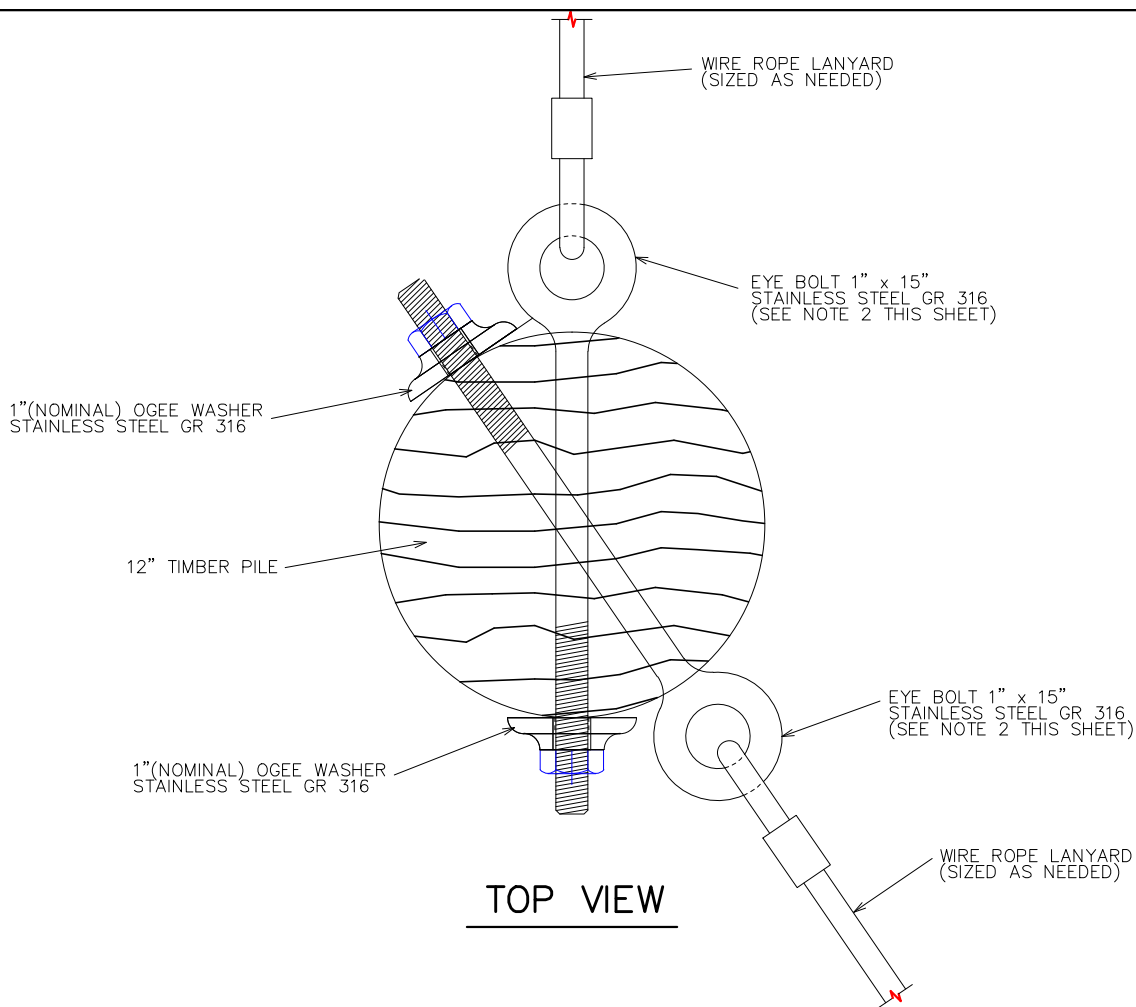
DESIGNED	M. GREMILLION	DATE	04/13
DRAWN	A. GREMILLION		04/13
CHECKED	B. SAMSON		02/14
APPROVED	M. GILFORD		04/14

UNDERWATER HANGING DEBRIS SCREEN DETAILS  
TE-34 FLOATING DEBRIS BARRIER  
BRADY CANAL AND SUPERIOR CANAL  
TERREBONNE PARISH, LOUISIANA

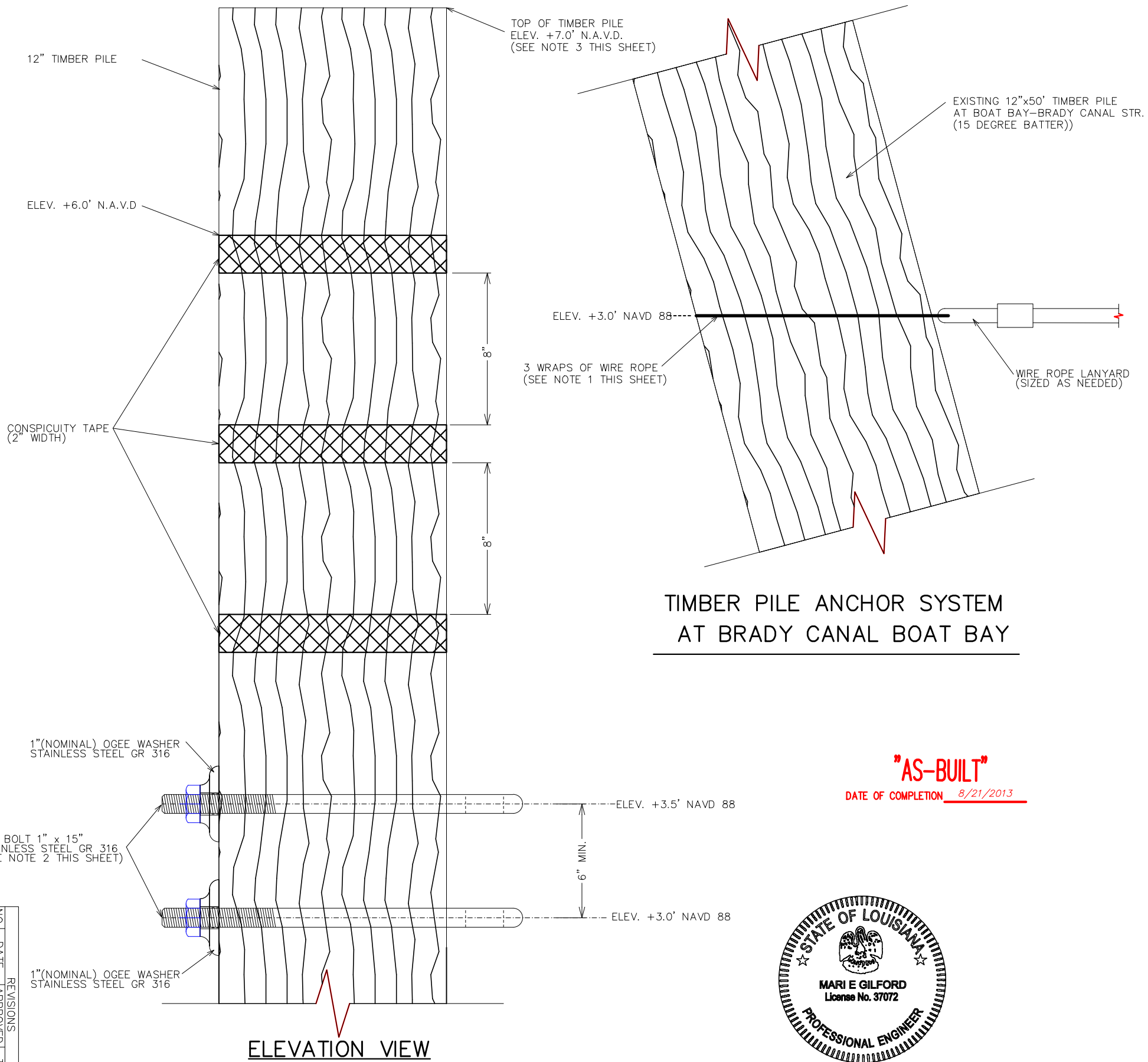


FILE NAME  
DRAWING NAME

NOTICE:  
72 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES



- NOTES:
- 3 WRAPS OF STAINLESS STEEL WIRE ROPE, TYPE 304, OF 6x19 STRAND CONSTRUCTION AS A MINIMUM, AND HAVING A DIAMETER OF 1/2" OR GREATER. WRAPS WILL BE AT ELEVATION +3.0' N.A.V.D. 88. WIRE ROPE LANYARD TO WRAP AROUND ALL THREE.
  - THE ANGLE BETWEEN THE EYE-BOLTS SHOWN IN THE TOP VIEW IS FOR GENERAL REFERENCE. THE ANGLE CONNECTION VARIES. THE ELEVATION VIEW DEPICTS THE ELEVATION DIFFERENCE BETWEEN THE CONNECTIONS WHEN TWO EYE-BOLTS ARE CONNECTED AT A SINGLE PILE.
  - ALL TIMBER PILES SHOWN IN THE PLANS ARE TYPICAL EXCEPT THE 2-FOUR PILE DOLPHINS AT THE SUPERIOR CANAL SITE. THE TOP OF THE CENTER PILE(VERTICAL) IN THE 2-FOUR PILE DOLPHINS WILL BE AT ELEVATION +11.5 NAVD 88.



TIMBER PILE ANCHOR SYSTEM  
AT BRADY CANAL BOAT BAY

"AS-BUILT"  
DATE OF COMPLETION 8/21/2013



TYPICAL TIMBER PILE ANCHOR SYSTEM



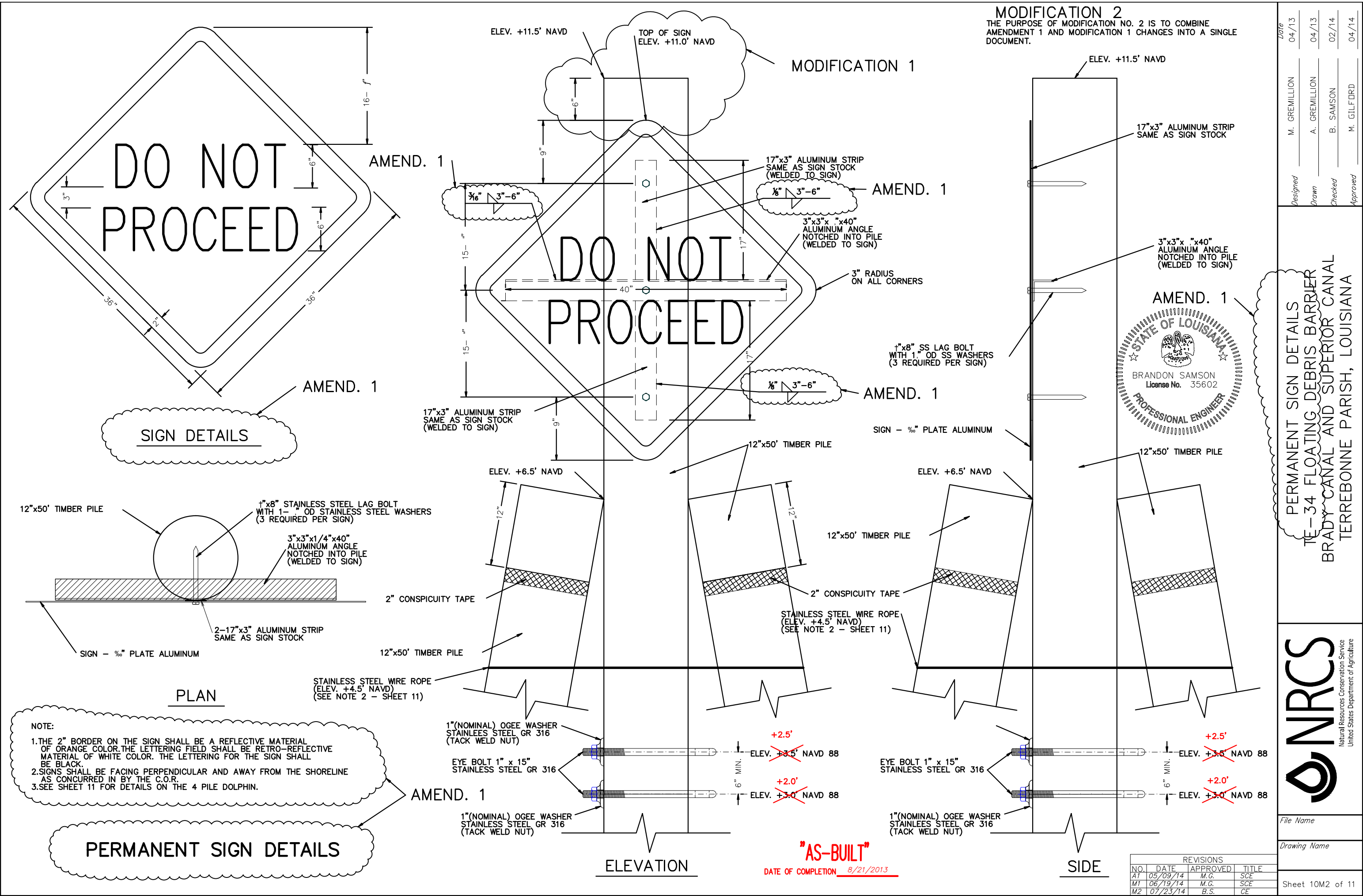
TIMBER PILE CONNECTION DETAILS  
TE-34 FLOATING DEBRIS BARRIER  
BRADY CANAL AND SUPERIOR CANAL  
TERREBONNE PARISH, LOUISIANA

DESIGNED	M. GREMILLION	DATE	04/13
DRAWN	A. GREMILLION		04/13
CHECKED	B. SAMSON		02/14
APPROVED	M. GILFORD		04/14

NO.	DATE	REVISIONS

FILE NAME	DRAWING NAME



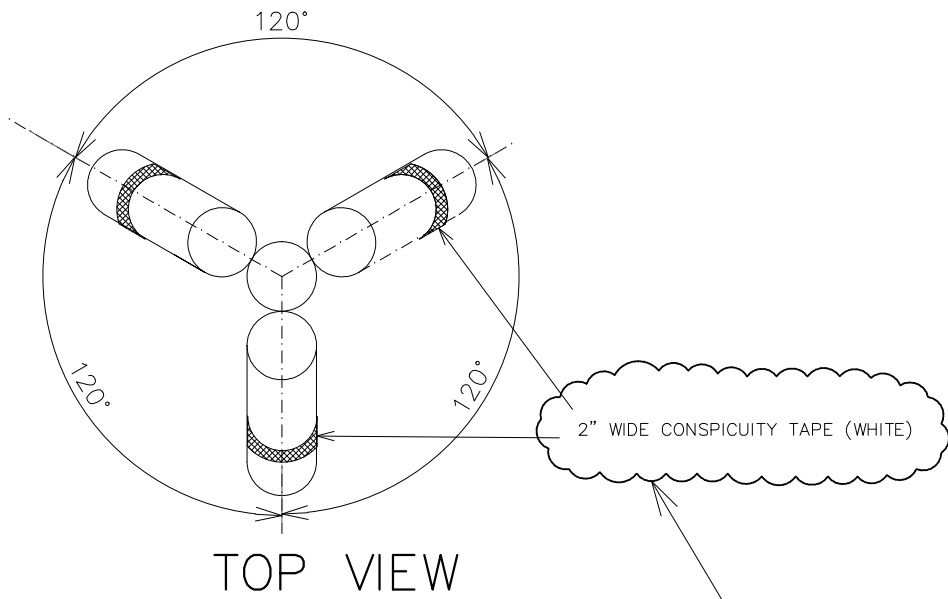


Date	04/13
Designed	M. GREMILLION
Drawn	A. GREMILLION
Checked	B. SAMSON
Approved	M. GILFORD

4 PILE DOLPHIN DETAILS  
~~TE-34 FLOATING DEBRIS BARRIER~~  
 BRADY CANAL AND SUPERIOR CANAL  
 TERREBONNE PARISH, LOUISIANA

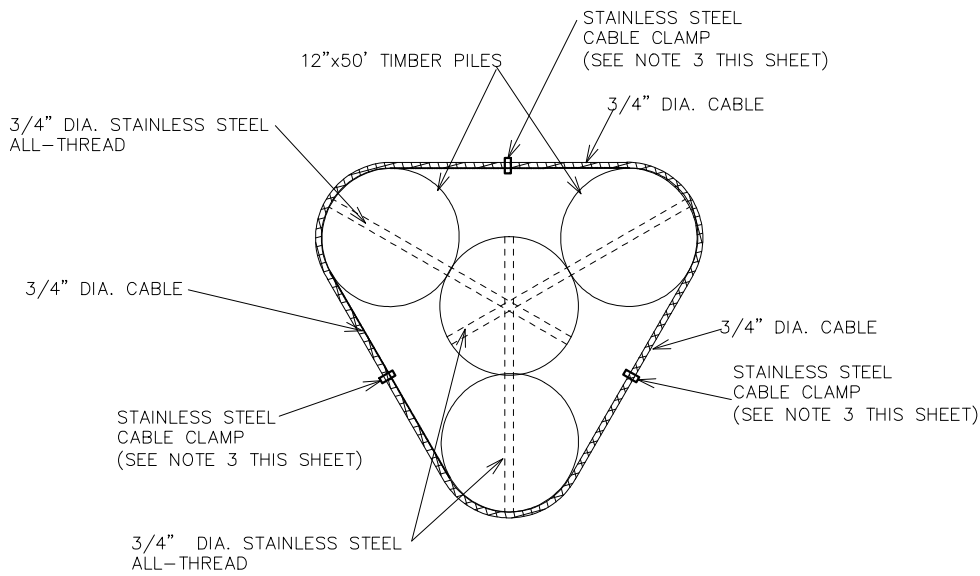


File Name  
 Drawing Name



TOP VIEW

AMENDMENT NO. 1

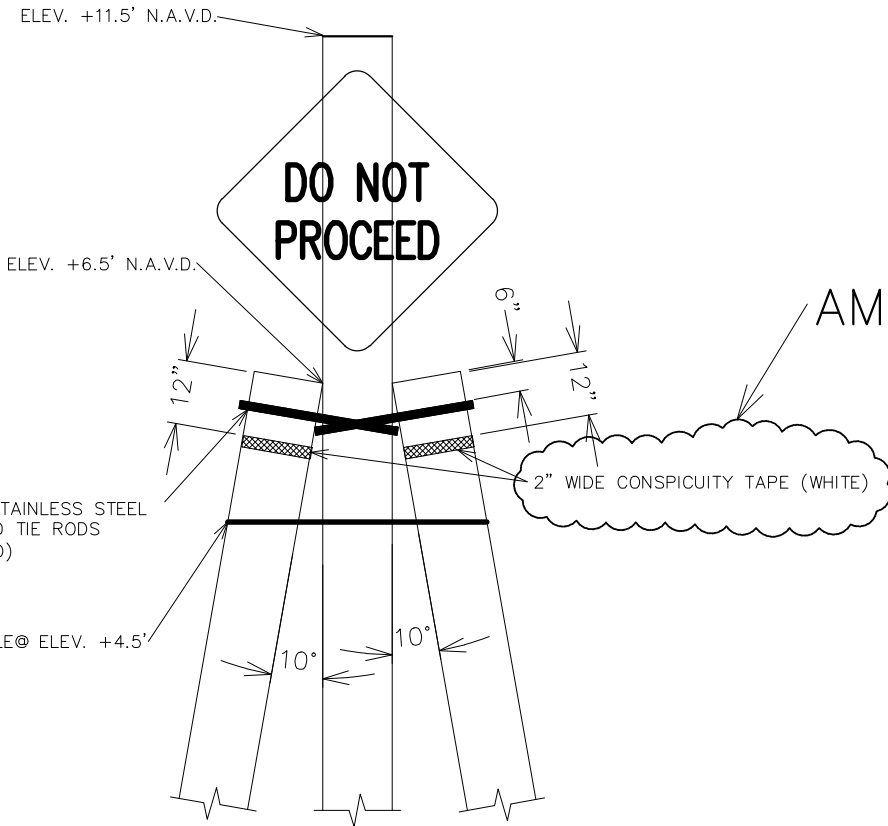


TOP VIEW

AMENDMENT NO. 1

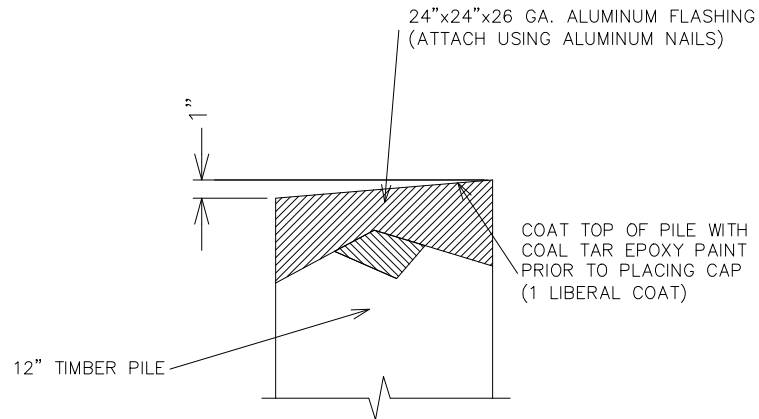
NOTES:

1. ALL 3/4" DIAMETER ALL THREAD TIE RODS SHALL BE SECURED BY NOTCHED IN PLACE SS OGEE WASHERS AND TACK WELDED NUTS. TIE RODS SHALL MEET STAINLESS STEEL TYPE 316. ALL NOTCHES SHALL BE COATED WITH A SINGLE COAT OF COAL TAR EPOXY PAINT PRIOR TO ASSEMBLY.
2. 8 WRAPS OF STAINLESS STEEL WIRE ROPE, TYPE 304, OF 6x19 STRAND AS A MINIMUM, AND HAVING A DIAMETER OF 1/2" OR GREATER. THE 8 WRAPS SHALL BE CENTERED AT ELEVATION +4.5 NAVD 88.
3. THE STAINLESS STEEL WIRE ROPE SHALL BE SECURED USING STAINLESS STEEL SWAGING SLEEVES, TYPE 304 OR TYPE 316 STAINLESS STEEL WIRE ROPE CLIPS.
4. THE ROW OF 3/4" DIAMETER ALL-THREAD TIE RODS SHALL A MINIMUM OF 6" BELOW TOP OF BATTER PILE AND 3" VERTICAL CLEARANCE FROM ADJACENT TIE ROD.
5. ALL TIMBER PILES FOR FOUR PILE NAVIGATION AID DOLPHIN SHALL TREATED 12" x 50'.
6. ALL TIMBER PILES SHALL BE FITTED WITH A TIMBER PILE CAP.



ELEVATION VIEW

AMENDMENT NO. 1



TYPICAL TIMBER PILE CAP  
 (NOT TO SCALE)

"AS-BUILT"  
 DATE OF COMPLETION 8/21/2013



REVISIONS			
NO.	DATE	APPROVED	TITLE
A1	05/09/14	M.G.	SCE

FOUR PILE DOLPHIN DETAILS

ATTACHMENT V

PENCHANT BASIN NATURAL RESOURCE PLAN, INCREMENT 1  
(TE-34)

**PROJECT PERMITS  
&  
PERMIT AMENDMENTS**





DEPARTMENT OF THE ARMY

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS

P. O. BOX 60267

NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO  
ATTENTION OF:

**AUG 19 2008**

Operations Division  
Central Evaluation Section

SUBJECT: MVN-2008-1500-CY

Lafourche-Terrebonne Soil and Water Conservation District  
143 Laura Drive  
Thibodaux, Louisiana 70301

Gentlemen:

Enclosed is a permit dated this date, subject as above, authorizing work under the Department of the Army permit program.

You are again reminded that any work not in accordance with the approved plans is subject to removal regardless of the expense and the inconvenience that such removal may involve and regardless of the date when the discrepancy is discovered.

Your attention is directed to all the terms and conditions of the approval. In order to have the work approved in accordance with the issued permit, all terms and conditions of the permit and plans shown on the drawings attached thereto must be rigidly adhered to.

It is necessary that you notify the District Engineer, Attention: Central Evaluation Section, in writing, prior to commencement of work and also upon its completion. The notification must include the permittee's name, as shown on the permit, and the permit number. Please note the expiration date on the permit. Should the project not be completed by that date, you may request a permit time extension. Such requests must be received before, but no sooner than six months before, the permit expiration date and must show the work completed and the reason the project was not finished within the time period granted by the permit.

A copy of Page 1 of the permit (ENG Form 1721) must be conspicuously displayed at the project site. Also, you must keep a copy of the signed permit at the project site until the work is completed.

The New Orleans District Regulatory Branch is committed to improving our service to you and would like your honest opinions of how we are doing. We ask that you utilize the following link to complete and submit a Customer Service Survey: <http://per2.nwp.usace.army.mil/survey.html>. If you do not have internet access you may request a hard copy of the Customer Service Survey by calling (504) 862-2257. Your input is important to us, thank you for your time.

Sincerely,

Martin S. Mayer  
Chief, Central Evaluation Section

Enclosure

# DEPARTMENT OF THE ARMY PERMIT

Permittee: Lafourche-Terrebonne Soil and Water Conservation District

Permit No. MVN 2008-1500-CY

Issuing Office: New Orleans District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Implement the Penchant Basin Natural Resources Plan, Increment 1 Project (CWPPRA TE-34) to provide shoreline protection, marsh creation, and freshwater introduction for deteriorating marsh in the Penchant Basin, in accordance with drawings attached in 15 sheets, dated May 6, 2008 and 1 revision dated May 28, 2008.

Project Location: In the Penchant Basin area, in Terrebonne Parish, Louisiana.

## Permit Conditions:

### General Conditions:

1. The time limit for completing the work authorized ends on **AUGUST 31, 2013**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least 1 month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

**Special Conditions: Page 4**

**Further Information:**

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.



- e. Damage claims associated with any future modification, suspension, or revocation of this permit.
4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.
5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
- a. You fail to comply with the terms and conditions of this permit.
  - b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
  - c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

X *James H. Cantrell*  
(PERMITTEE)

X 8-13-08  
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

*Martin S. Mayer*

19 August 2008  
(DATE)

Martin S. Mayer, Chief Central Evaluation Section  
for Alvin B. Lee, District Commander

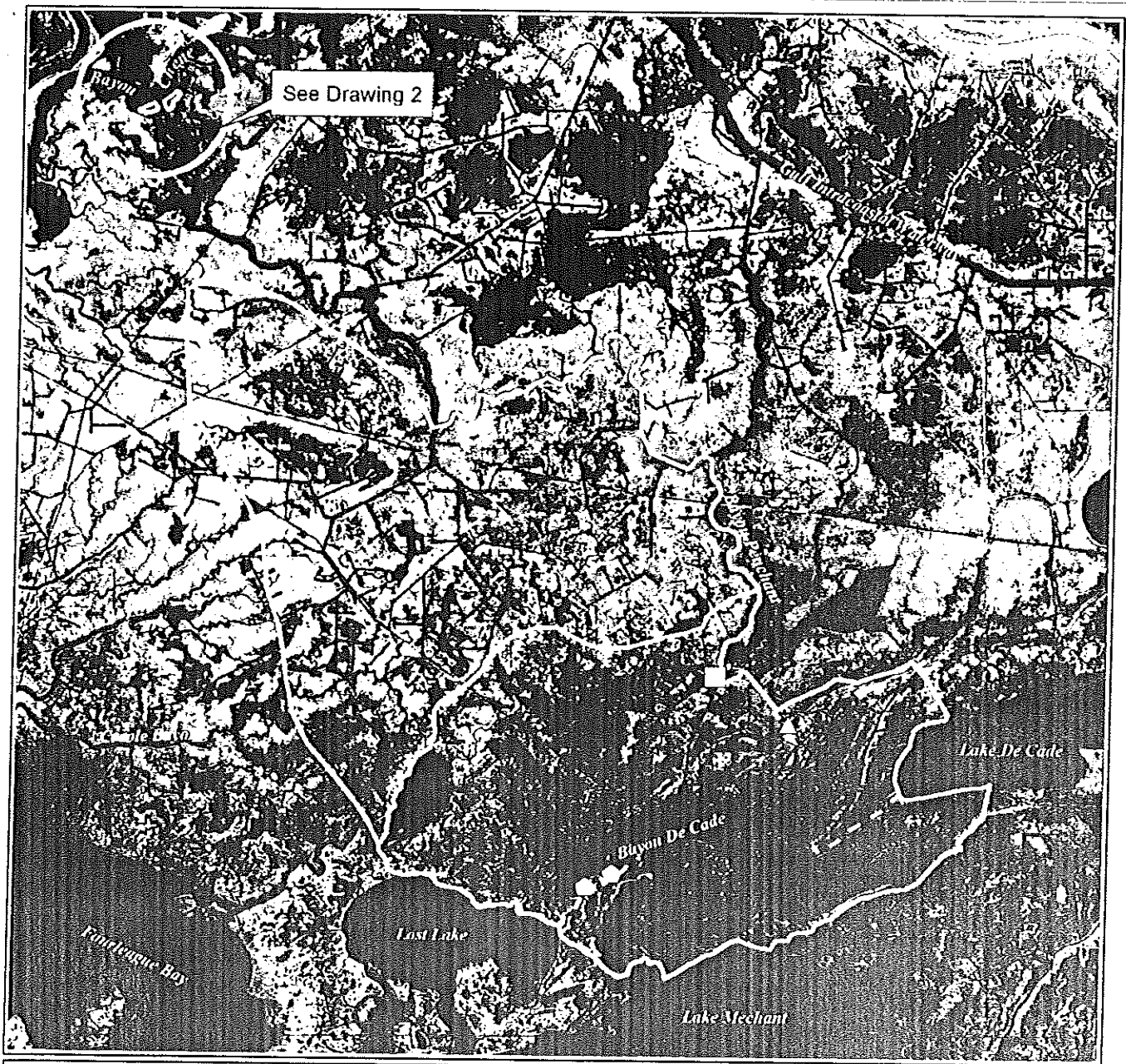
When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

\_\_\_\_\_  
(TRANSFEREE)

\_\_\_\_\_  
(DATE)

SPECIAL CONDITIONS: MVN 2008-1500-CY

7. This authorization is wholly unconnected and unconcerned with the ownership of, or rights in, the underlying soil and creates no property rights.
8. The permittee is aware that all necessary local, state and parish approvals must be obtained prior to the commencement of work at the project site.
9. The permitted activity must not interfere with the public's right to free navigation on all navigable waters of the United States.
10. The permittee must install and maintain, at the permittee's expense, any safety lights, signs, and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, on the permittee's authorized facilities.
11. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.
12. Structures and fill will not be placed on state-owned water bottoms without the approval of the Louisiana Division of Administration, State Land Office. The permittee will be responsible for contacting the State Land Office to ascertain if any structures or fill will be placed on state-owned water bottoms.
13. The Chitimacha Tribe of Louisiana has stated that the project area is part of the aboriginal Chitimacha homelands. If during the course of work at the site, prehistoric and/or historic aboriginal cultural materials are discovered, the permittee will contact the Chitimacha Tribe of Louisiana at P.O. Box 661, Charenton, LA 70523, and the US Army Corps of Engineers, New Orleans District (CEMVN) Regulatory Branch. CEMVN will initiate the required federal, state, and Tribal coordination to determine the significance of the cultural materials and the need, if applicable, for additional cultural resource investigations.
14. The permittee shall limit dredge and fill activities and/or other types of filling activities to areas essential to the project. The remainder of the property shall be left in its natural state. If the proposed project requires any additional work not expressly permitted herein, or impacts any wetlands other than the areas indicated on the attached drawings, the permittee must apply for an amendment to this authorization prior to commencement of work.



# **Penchant Basin Natural Resources Plan, Increment 1 (TE-34)** **Proposed Boundary and Infrastructure Changes**



Weir w/  
Boat Bay \*

Flap-gated Culverts \*

Flap-gated Weir  
w/ Boat Bay \*

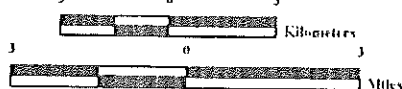
Bankline Maintenance/  
Restoration \*

Shoreline Protection \*

Marsh Creation \*

Project Boundary \*

\* denotes proposed features

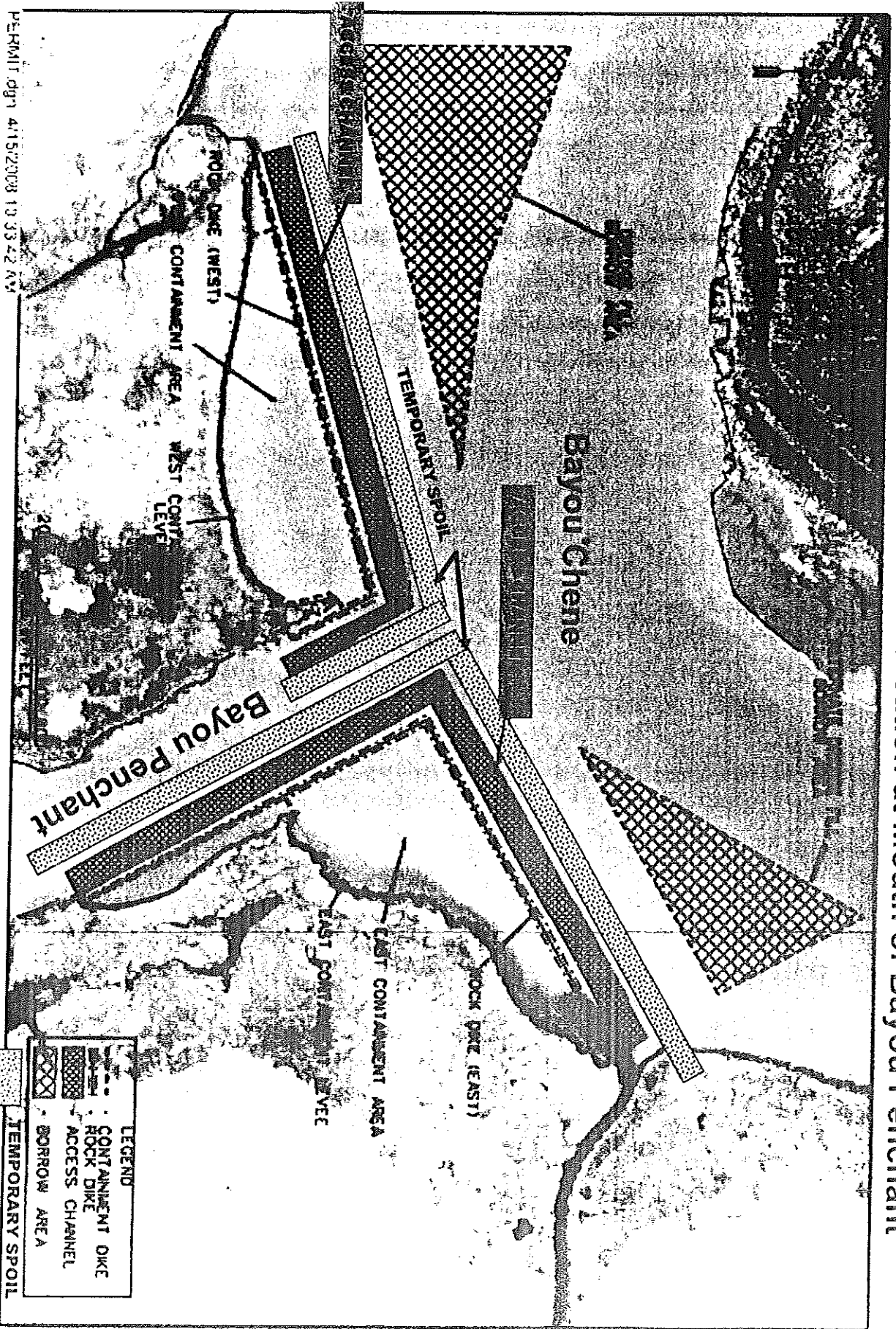


Produced by  
U.S. Department of the Interior  
U.S. Geological Survey  
National Wetlands Research Center  
Coastal Protection and Field Station  
Baton Rouge, LA  
Image Source:  
Benthic Mapper Software, Ford &  
Acquired 1/14/07 2007

Map ID: USGS/CMR/2008/1201  
 Map Date: Dec 17, 2008



# Plan View Shoreline Protection and Marsh Creation at Mouth of Bayou Penchant

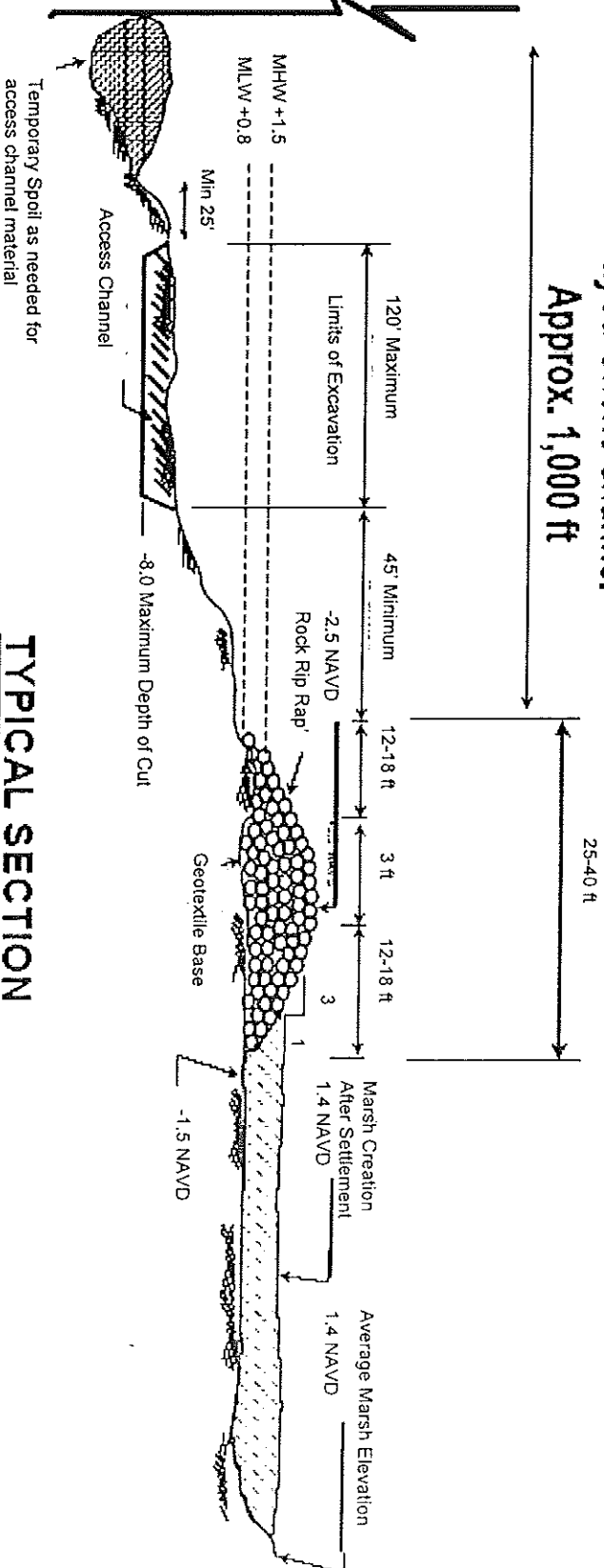


05/28/2008

Drawing

# FORESHORE ROCK DIKE AND MARSH CREATION

Bayou Chene channel  
Approx. 1,000 ft



## TYPICAL SECTION



- Notes:
1. All Elevations in NAVD88.
  2. Material from access channel will be temporarily placed in Bayous Chene and Penchant and returned to channel after construction. Temporary warning signs will be used to mark locations.
  3. Dike length east of Bayou Penchant = 3,800 feet
  4. Dike length west of Bayou Penchant = 2,750 feet

NOT TO SCALE

TE-34 PENCHANT BASIN PROJECT  
TYPICAL DRAWING - FORESHORE ROCK DIKE  
AND MARSH CREATION AT MOUTH OF BAYOU  
PENCHANT  
TERREBONNE PARISH, LA



### Legend

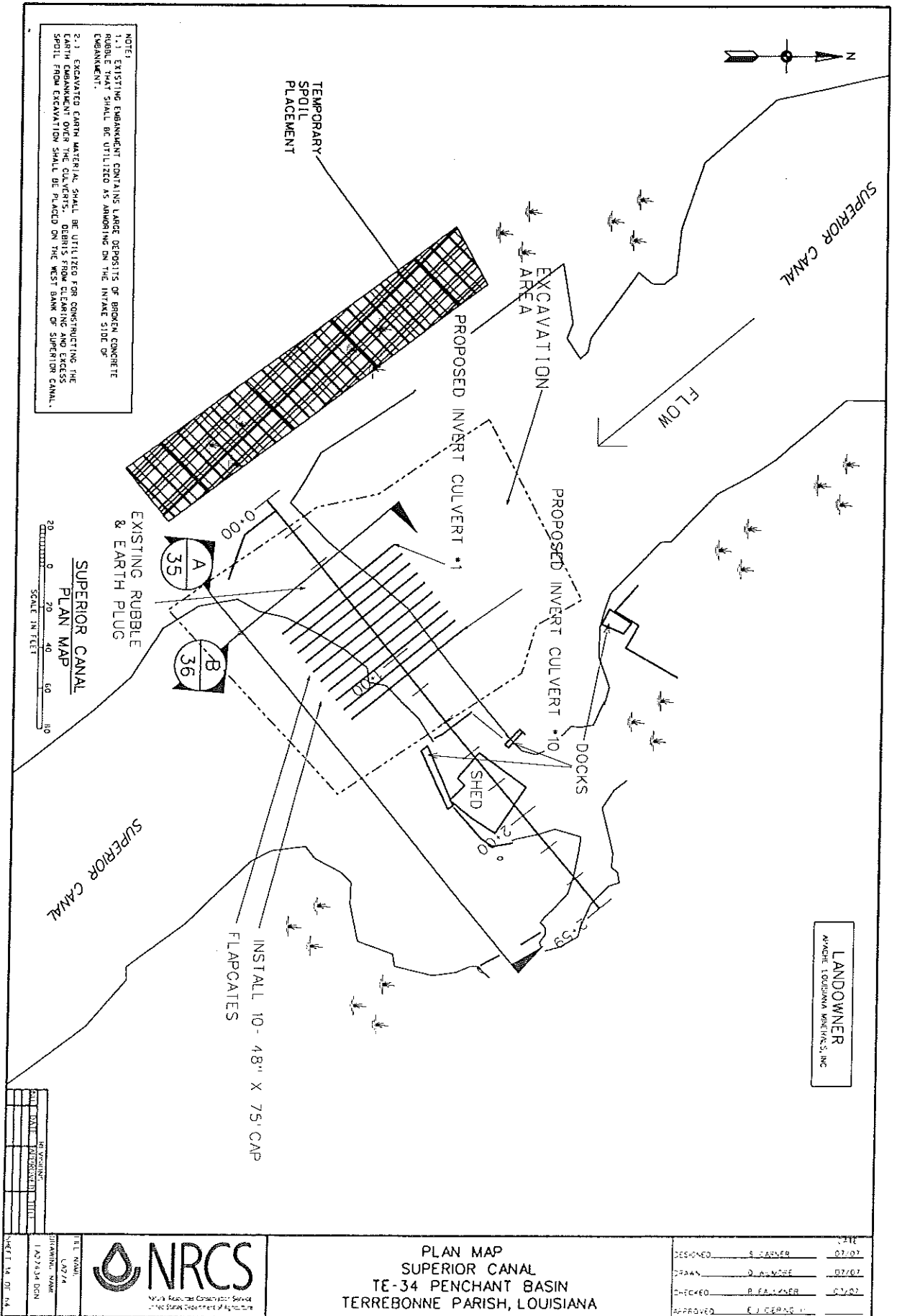
-  Flap-Gated Weir w/Boat Bay
-  Flap-Gated Culverts
- Project Boundary



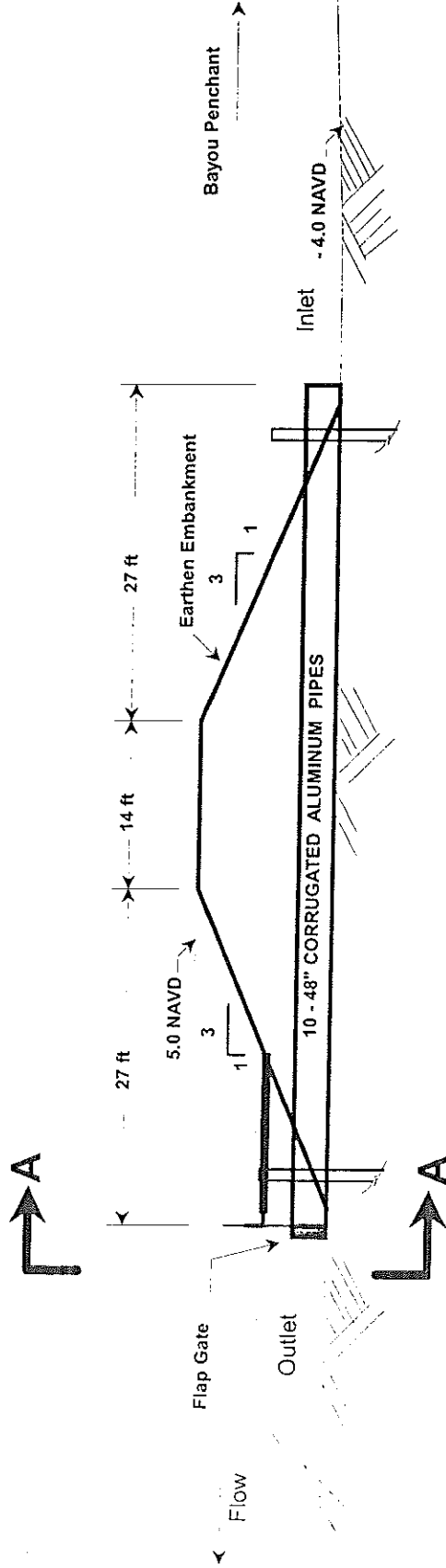
Brady Canal and  
Superior Canal  
Structure Locations





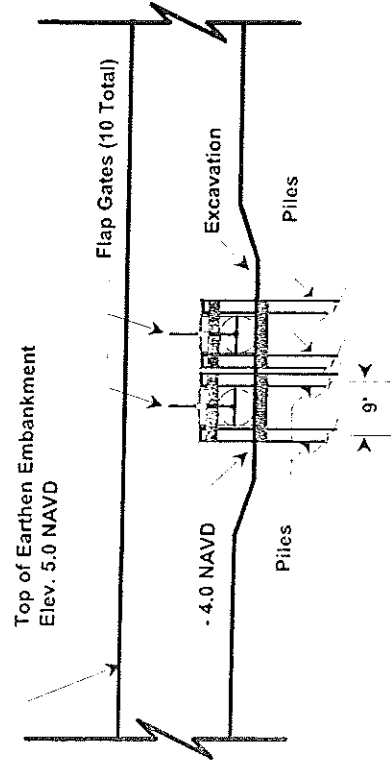


# SUPERIOR CANAL STRUCTURE



**TYPICAL SECTION**

- NOTES:**
1. Structure to be installed through the embankment at Mauvois Bois Ridge .
  2. Excavation and shaping of channel may be necessary to provide grade for inlet and outlet.



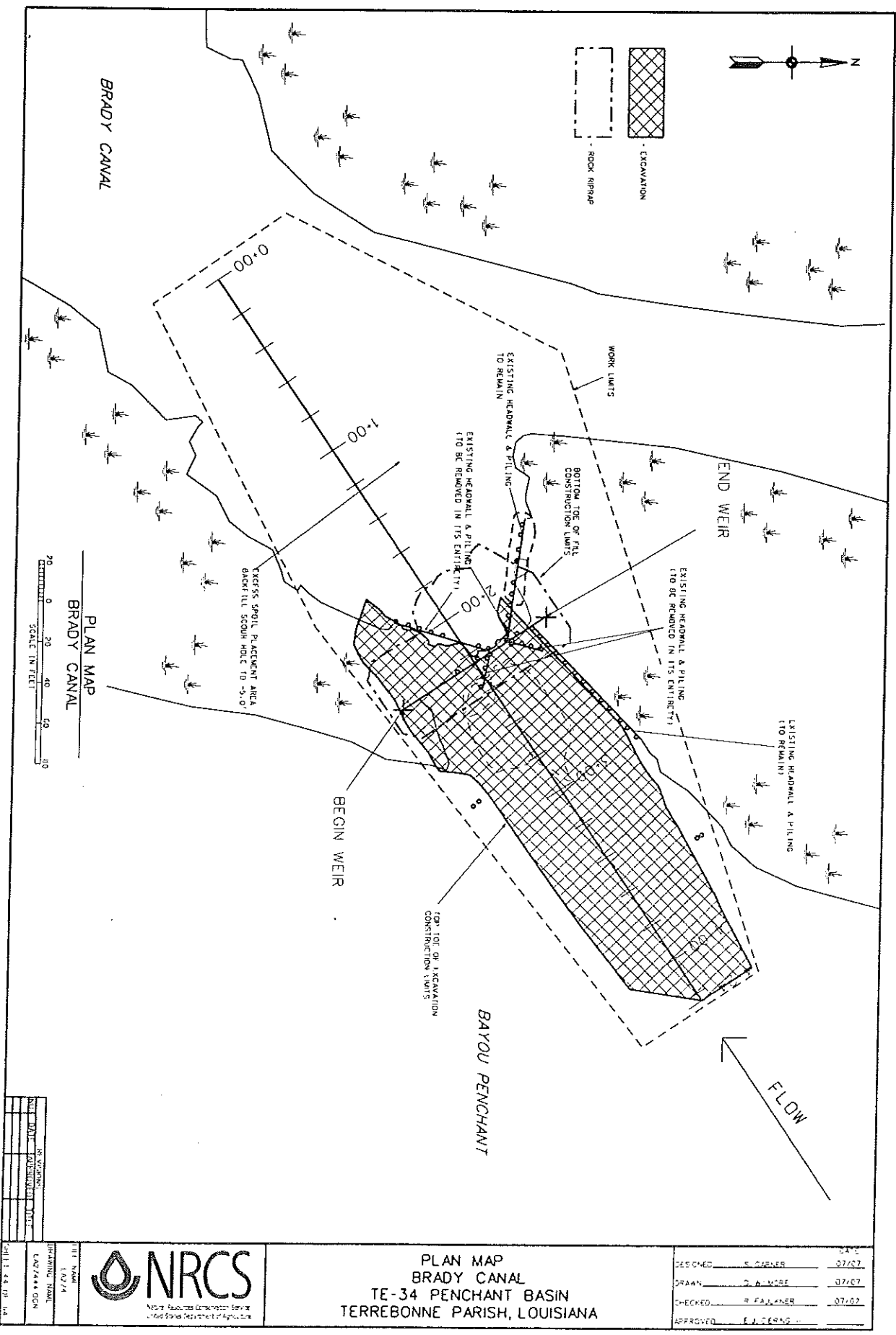
**Section A-A**

NOT TO SCALE

TE-34 PENCHANT BASIN PROJECT  
TYPICAL DRAWING - SUPERIOR CANAL  
TERREBONNE PARISH, LA

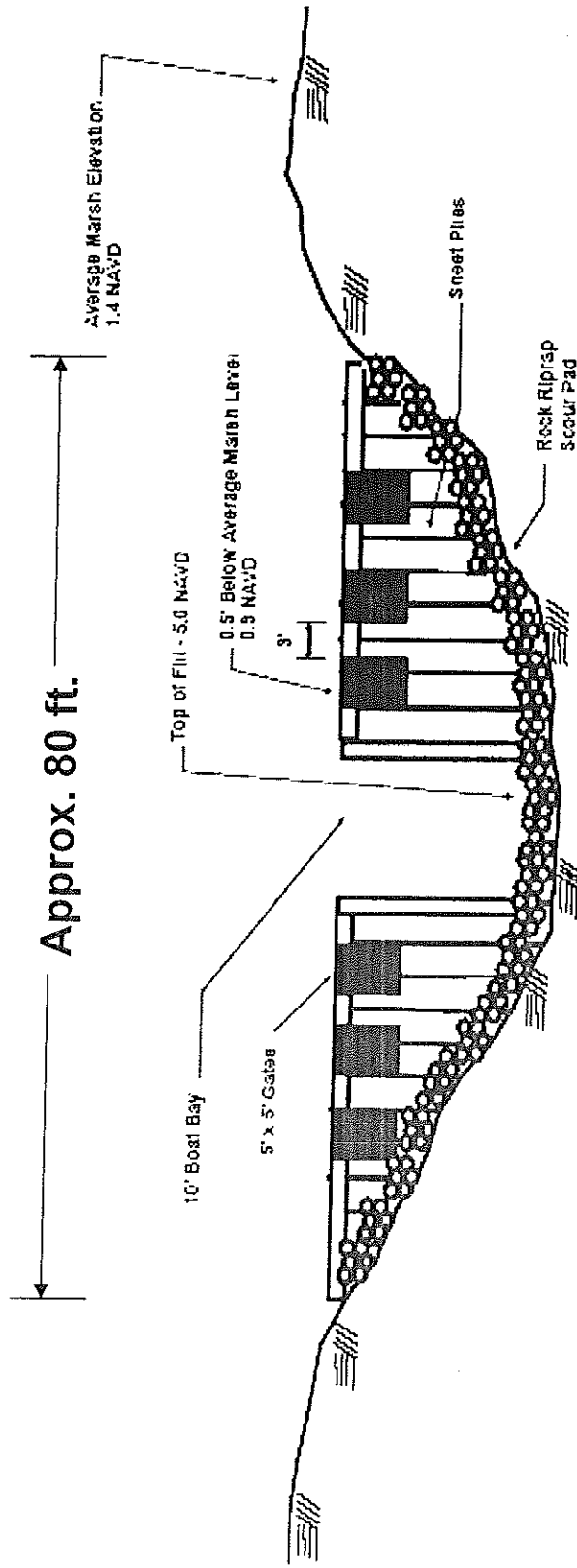
05/28/2008

Drawing





# BRADY CANAL STRUCTURE



## TYPICAL SECTION

### NOTES:

1. Structure shall consist of a steel sheetpile wall set at 0.5' below average marsh level.
2. Structure shall have a 10' wide x 5' deep boat bay in the center.

TE-34 PENCHANT BASIN PROJECT


TYPICAL DRAWING - STEEL SHEETPILE  
WITH BOAT BAY AT BRADY CANAL

TERREBONNE PARISH, LA

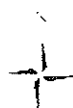
NOT TO SCALE



**Legend**

 Bankline Maintenance ~12,000'

Project Boundary






Upper Bayou De Cade  
Bankline Maintenance





### Legend

-  Weir with Boat Bay
-  Bankline Restoration ~14,500'
-  Project Boundary

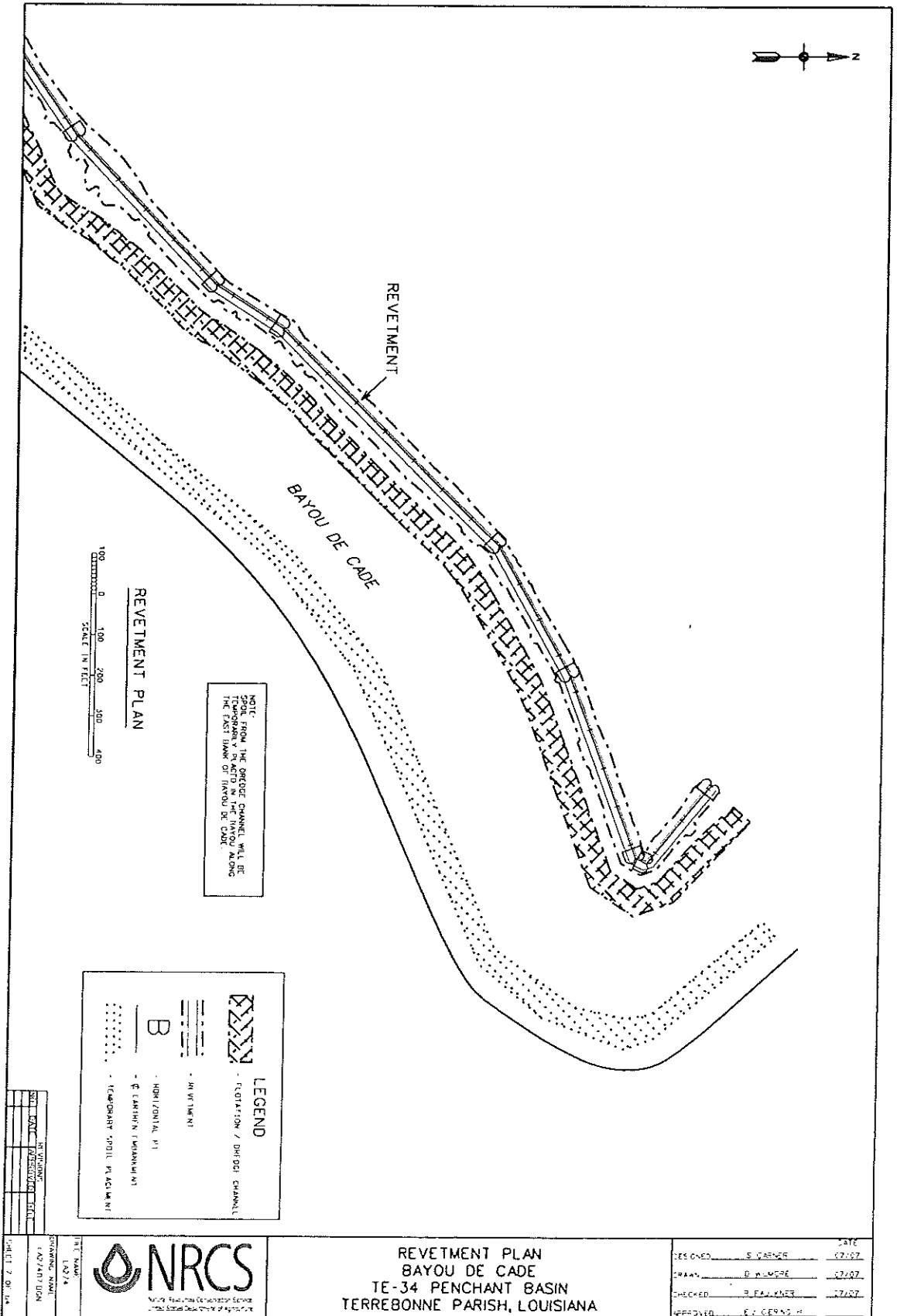
### Lower Bayou De Cade Bankline Restoration and Structure Locations





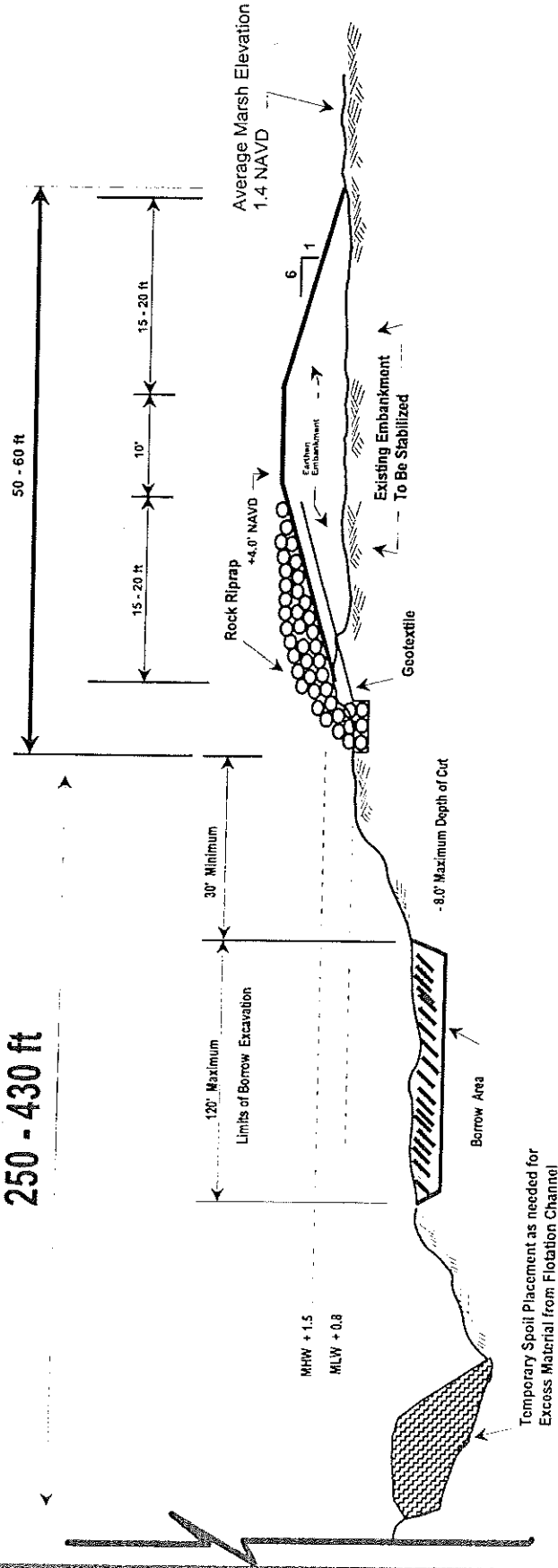
05/28/2008

Drawing



# BAYOU DECADE SHORELINE RESTORATION

Bayou DeCade channel  
250 - 430 ft



## TYPICAL SECTION

NOT TO SCALE

TE-34 PENCHANT BASIN PROJECT  
TYPICAL DRAWING - SHORELINE  
RESTORATION AT BAYOU DECADE

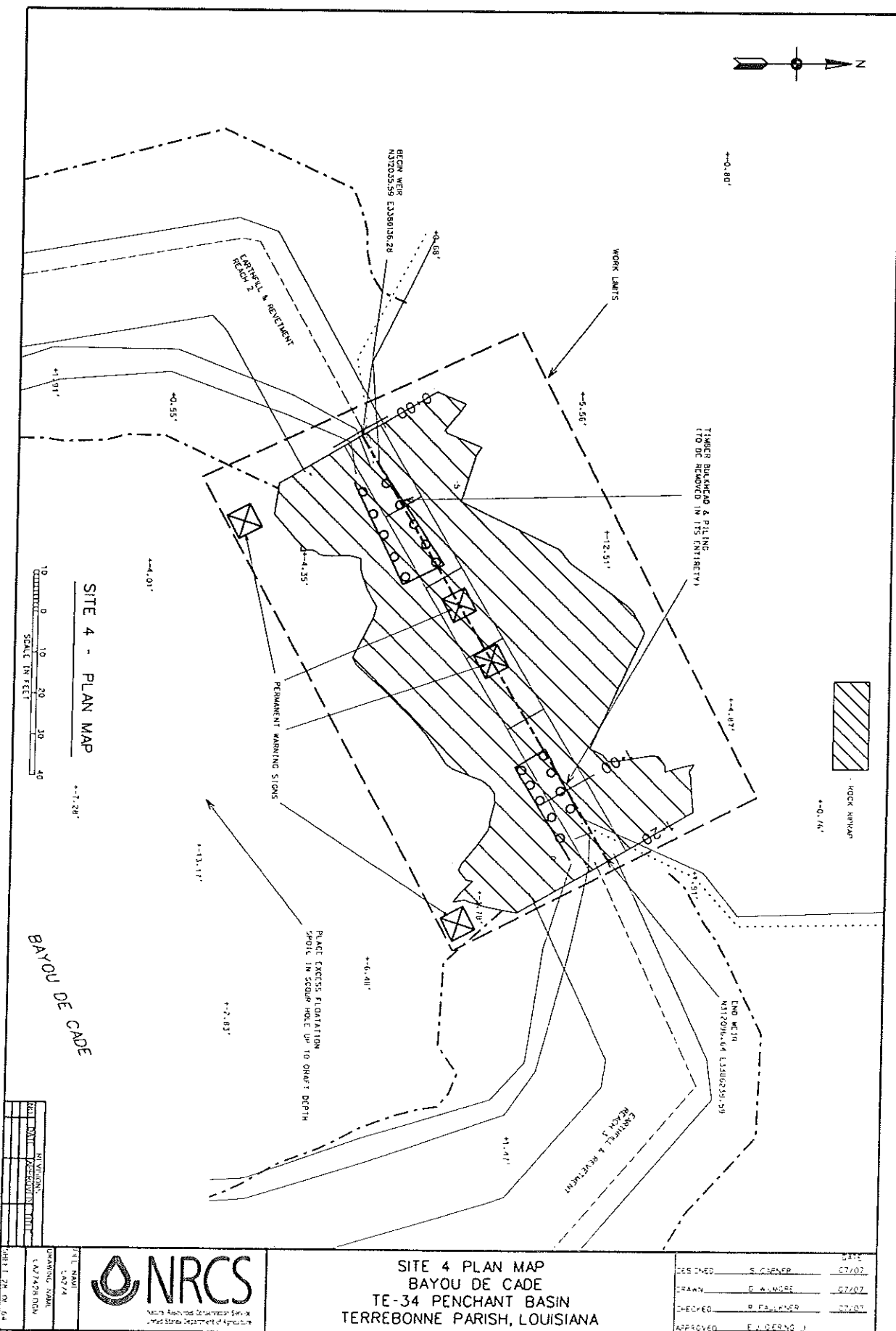
TERREBONNE PARISH, LA

- Notes:
1. All Elevations Shown in N.A.V.D.
  2. Borrow Material to be Taken from Bayou DeCade. Excess material will be temporarily placed in Bayou DeCade and returned to borrow area after construction completion, as needed. Temporary Navigation Warning Signs will be used to mark locations.
  3. MLW and MHW based on gage at Lake Decade.
  4. Upper Bayou DeCade length = 12,000 feet.
  5. Lower Bayou DeCade length = 14,500 feet.

05/28/2008

Drawing

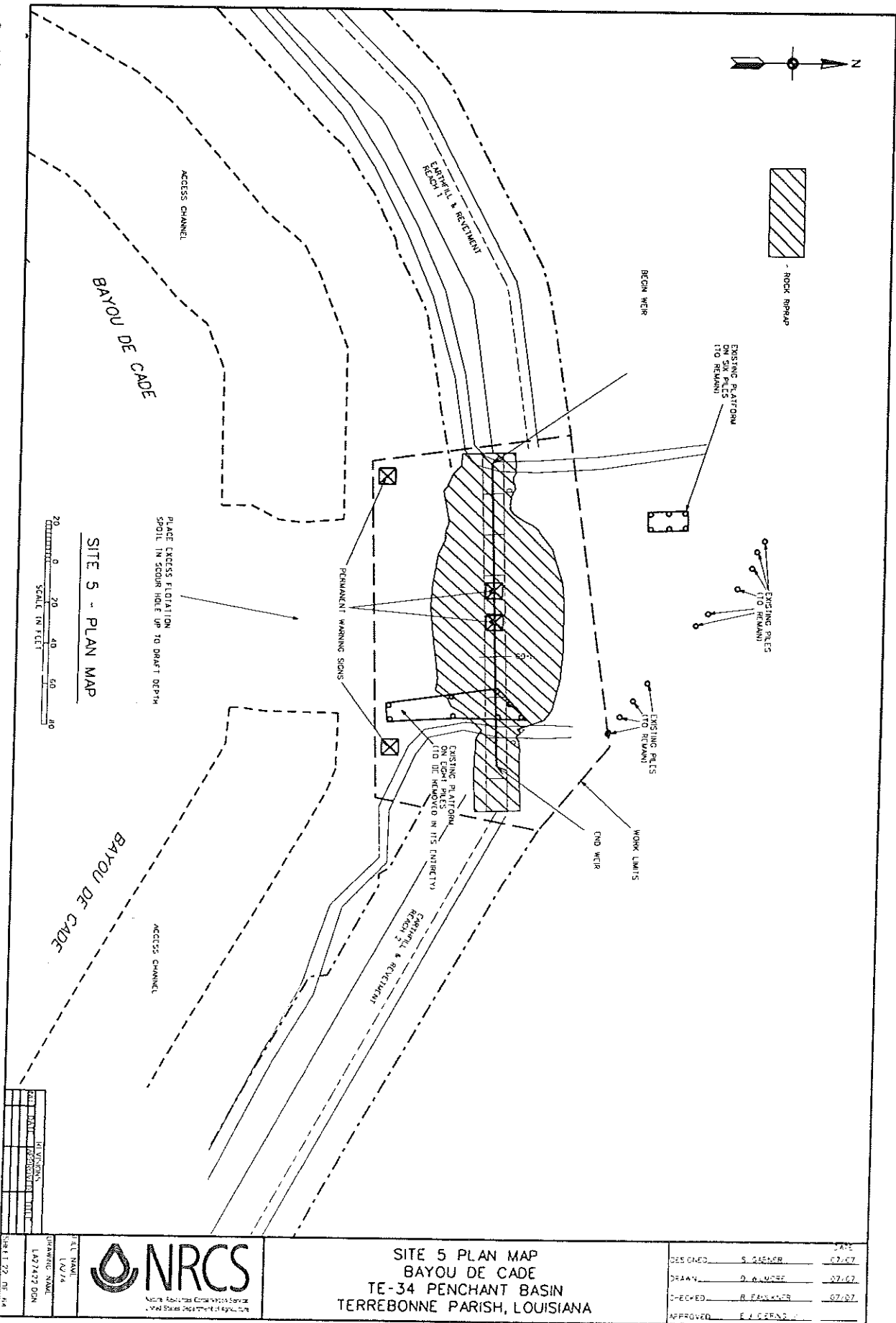
12 of 15





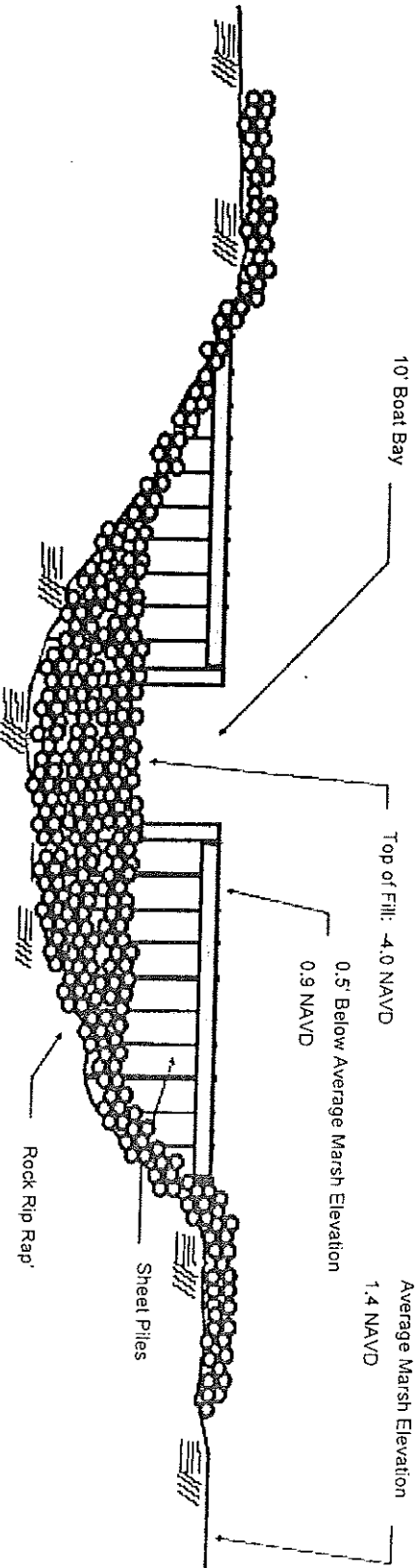
05/28/2008

Drawing



# BAYOU DECADRE STRUCTURES Sites 4 and 5

Site 5: Approx 150 ft  
Site 4: Approx 110 ft



## Notes:

1. Structures shall consist of steel sheetpile weirs set 10.5' below average marsh level with rock rip rap base.
2. Structure shall have a 10' wide boat bay.

## TYPICAL SECTION

NOT TO SCALE

TE-34 PENCHANT BASIN PROJECT  
TYPICAL DRAWING - STEEL SHEETPILE  
WITH BOAT BAY AT BAYOU DECADRE  
TERREBONNE PARISH, LA

05/28/2008

Drawing



DEPARTMENT OF THE ARMY  
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 60267  
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO  
ATTENTION OF

SEP 10 2013

Operations Division  
Western Evaluation Section

SUBJECT: MVN-2013-01701-WPP

Lafourche-Terrebonne Soil & Water Conservation District  
143 Laura Drive  
Thibodaux, Louisiana, 70301

Dear Gentlemen:

The proposed work, removal of debris and install debris barriers at Superior Canal, Brady Canal, and near Lake Penchant, located approximately 10 miles south of Houma, in Terrebonne Parish, Louisiana, as shown on the attached drawings, is authorized under **Category II** of the **Programmatic General Permit** provided that all conditions of the permit are met.

However, prior to commencing work on your project, you must obtain approvals from state and local agencies as required by law and by terms of this permit. These approvals include, but are not limited to, a permit, consistency determination or determination of "no direct or significant impact (NDSI) on coastal waters" from the Louisiana Department of Natural Resources, Office of Coastal Management and a water quality certification from the Louisiana Department of Environmental Quality.

This approval to perform work is valid for 5 years from the date of this letter.

Permittee is aware that this office may reevaluate its decision on this permit at any time the circumstances warrant.

Should you have any further questions concerning this matter, please contact Johnny Duplantis of this office at (504) 862-2548.

Sincerely,

*Danell S. Barbara*  
for: Martin S. Mayer  
Chief, Regulatory Branch

Enclosures

1. Activities authorized under this general permit shall not be used for piecemeal work and shall be applied to single and complete projects. All components of a single and complete project shall be treated together as constituting one single and complete project. All planned phases of multi-phased projects shall be treated together as constituting one single and complete project. This general permit shall not be used for any activity that is part of an overall project for which an individual permit is required.
2. No activity is authorized under this general permit which may adversely affect significant cultural resources listed or eligible for listing in the National Register of Historic Places until the requirements for Section 106 of the National Historic Preservation Act are met. Upon discovery of the presence of previously unknown historic and/or prehistoric cultural resources, all work must cease and the permittee must notify the State Historic Preservation Office and the Corps of Engineers. The authorization is suspended until it is determined whether or not the activity will have an adverse effect on cultural resources. The authorization may be reactivated or modified through specific conditions if necessary, if it is determined that the activity will have no adverse effect on cultural resources. The CEMVN-PGP authorization will be revoked if it is determined that cultural resources would be adversely affected, and an individual permit may be necessary.
3. The Chitimacha Tribe of Louisiana has stated that the project area is part of the aboriginal Chitimacha homelands. If during the course of work at the site, prehistoric and/or historic aboriginal cultural materials are discovered, the permittee will contact the Chitimacha Tribe of Louisiana at P.O. Box 661, Charenton, LA 70523, and CEMVN. CEMVN will initiate the required Federal, State, and Tribal coordination to determine the significance of the cultural materials and the need, if applicable, for additional cultural resource investigations.
4. There shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein. The permittee will, at his or her expense, install and maintain any safety lights, signals, and signs prescribed by the United States Coast Guard, through regulations or otherwise, on authorized facilities or on equipment used in performing work under the authorization.
5. No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to block or impound water.
6. If the proposed activity involves the installation of aerial transmission lines, submerged cable, or submerged pipelines across navigable waters of the United States the following is applicable:

The National Ocean Service (NOS) has been notified of this authorization. You must notify NOS and this office in writing, at least two weeks before you begin work and upon completion of the activity authorized by this permit. Your notification of completion must include a drawing which certifies the location and configuration of the completed activity (a certified permit drawing



may be used). Notification to NOS will be sent to the following address: National Ocean Service, Office of Coast Survey, N/CS261, 1315 East West Highway, Silver Springs, Maryland 20910-3282.

7. For pipelines under an anchorage or a designated fairway in the Gulf of Mexico the following is applicable:

The National Ocean Service has been notified of this authorization. You must notify NOS and this office in writing, at least two weeks before you begin work and upon completion of the activity authorized by this permit. Within 30 days of completion of the pipeline, 'as built' drawings certified by a professional engineer registered in Louisiana or by a registered surveyor shall be furnished to this office, the Commander (dpw), Eighth Coast Guard District, Hale Boggs Federal Building, 500 Poydras Street, Room 1230, New Orleans, Louisiana 70130, and to the Director, National Ocean Service, Office of Coast Survey, N/CS261, 1315 East West Highway, Silver Springs, Maryland 20910-3282. The plans must include the location, configuration and actual burial depth of the completed pipeline project.

8. If the proposed project, or future maintenance work, involves the use of floating construction equipment (barge mounted cranes, barge mounted pile driving equipment, floating dredge equipment, dredge discharge pipelines, etc.) in a federally maintained waterway, you are advised to notify the Eighth Coast Guard District so that a Notice to Mariners, if required, may be prepared. Notification with a copy of your permit approval and drawings should be mailed to the Commander (dpw), Eighth Coast Guard District, Hale Boggs Federal Building, 500 Poydras Street, Room 1230, New Orleans, Louisiana 70130, about 1 month before you plan to start work. Telephone inquiries can be directed to (504) 671-2112.

9. All activities authorized herein shall, if they involve, during their construction or operation, any discharge of pollutants into waters of the United States, be at all times consistent with applicable water quality standards, effluent limitations and standards of performance, prohibitions, pretreatment standards and management practices established pursuant to the Clean Water Act (PL 92-500: 86 Stat 816), or pursuant to applicable state and local laws.

10. Substantive changes to the Louisiana Coastal Resources Program may require immediate suspension and revocation of this permit in accordance with 33 CFR 325.7.

11. Irrespective of whether a project meets the other conditions of this permit, the Corps of Engineers retains discretionary authority to require an individual Department of the Army permit when circumstances of the proposal warrant this requirement.

12. Any individual authorization granted under this permit may be modified, suspended, or revoked in whole or in part if the Secretary of the Army or his authorized representative determines that there has been a violation of any of the terms or conditions of this permit or that such action would otherwise be in the public interest.

13. The Corps of Engineers may suspend, modify, or revoke this general permit if it is found in

the public interest to do so.

14. Activities proposed for authorization under the PGP must comply with all other necessary federal, state, and/or local permits, licenses, or approvals. Failure to do so would result in a violation of the terms and conditions of CEMVN-PGP.

15. The permittee shall permit the District Commander or his authorized representative(s) or designee(s) to make periodic inspections of the project site(s) and disposal site(s) if different from the project site(s) at any time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.

16. This general permit does not convey any property rights, either in real estate or material, or any exclusive privileges; and it does not authorize any injury to property or invasion of rights or any infringement of federal, state, or local laws or regulations nor does it obviate the requirements to obtain state or local assent required by law for the activity authorized herein.

17. In issuing authorizations under this permit, the federal government will rely upon information and data supplied by the applicant. If, subsequent to the issuance of an authorization, such information and data prove to be false, incomplete, or inaccurate, the authorization may be modified, suspended, or revoked, in whole or in part.

18. For activities resulting in sewage generation at the project site, such sewage shall be processed through a municipal sewage treatment system or, in areas where tie-in to a municipal system is not practical, the on-site sewerage system must be approved by the local parish sanitarian before construction.

19. Any modification, suspension, or revocation of CEMVN-PGP, or any individual authorization granted under this permit, will not be the basis for any claim for damages against the United States.

20. Additional conditions deemed necessary to protect the public interest may be added to the general permit by the District Commander at any time. If additional conditions are added, the public will be advised by public notice. Individual authorizations under CEMVN-PGP may include special conditions deemed necessary to ensure minimal impact and compliance with CEMVN-PGP.

21. CEMVN-PGP is subject to periodic formal review by CEMVN and OCM in coordination with the Environmental Protection Agency, US Fish and Wildlife Service, the National Marine Fisheries Service, and the Louisiana Department of Wildlife and Fisheries. Comments from reviewing agencies will be considered in determination as to whether modifications to the general permit are needed. Should the District Commander make a determination not to incorporate a change proposed by a reviewing agency, after normal negotiations between the respective agencies, the District Commander will explain in writing to the reviewing agency the

basis and rationale for his decision.

22. CEMVN retains discretion to review CEMVN-PGP, its terms, conditions, and processing procedures, and decide whether to modify, reissue, or revoke the permit. If CEMVN-PGP is not modified or reissued within 5 years of its effective date, it automatically expires and becomes null and void.

23. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

24. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party as described in Special Condition 26 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

25. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

26. If you sell the property associated with this permit, you must provide this office with a copy of the permit and a letter noting your agreement to transfer the permit to the new owner and the new owners agreement to accept the permit and abide by all conditions of the permit. This letter must be signed by both parties.

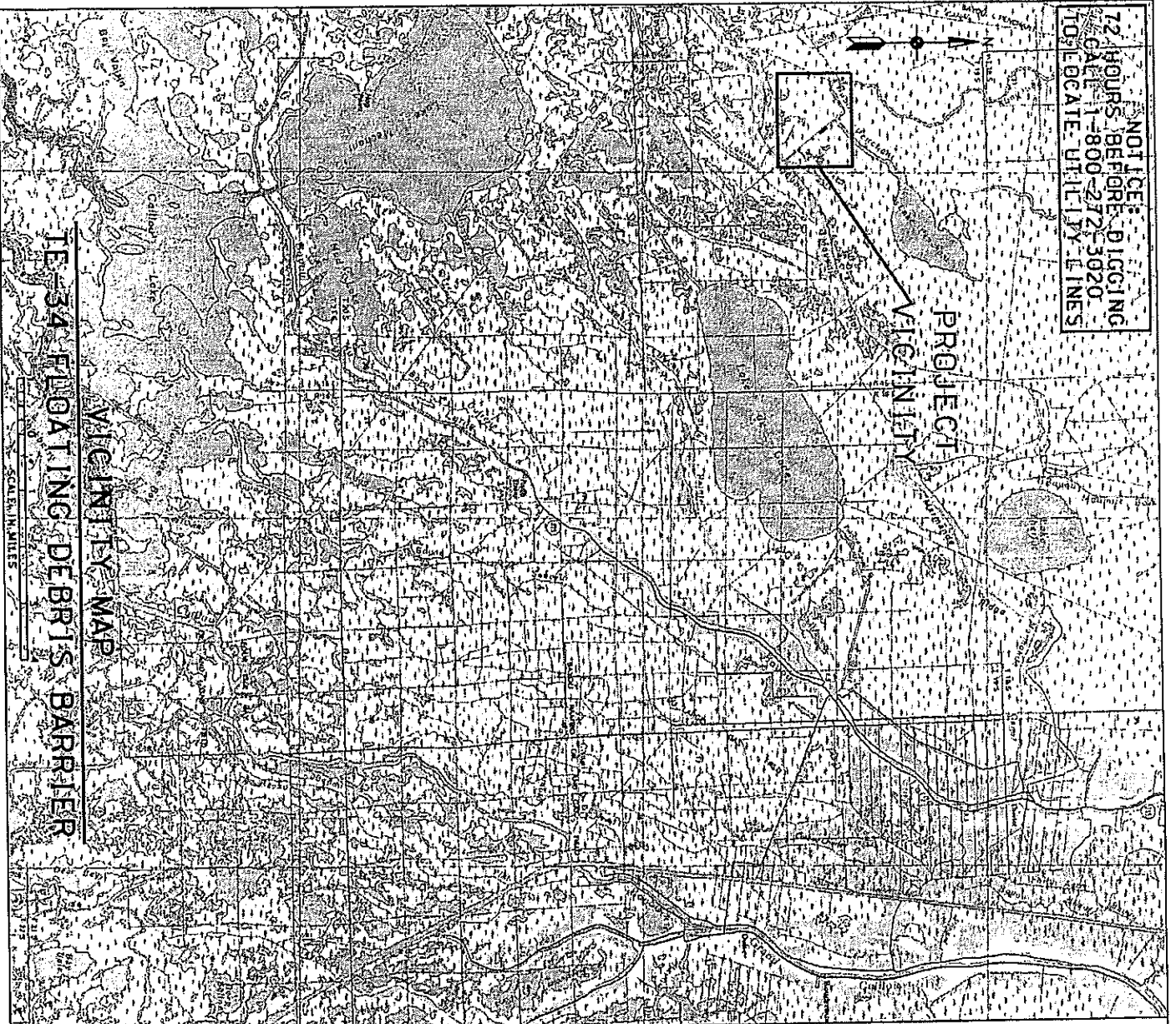
27. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit.

28. Many local governing bodies have instituted laws and/or ordinances in order to regulate dredge and/or fill activities in floodplains to assure maintenance of floodwater storage capacity and avoid disruption of drainage patterns that may affect surrounding properties. Your project involves dredging and/or placement of fill; therefore, you must contact the local municipal and/or parish governing body regarding potential impacts to floodplains and compliance of your proposed activities with local floodplain ordinances, regulations or permits.

29. In issuing authorizations under this permit, the federal government does not assume any liability for: damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes; damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest; damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit, and; design or construction deficiencies associated with the permitted work.

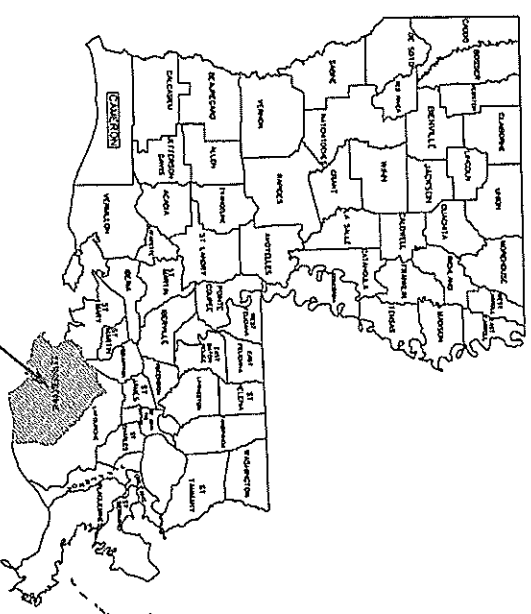


NOTICE: DIGGING  
72 HOURS BEFORE  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES



# TE-34 PENCHANT BASIN FLOATING DEBRIS BARRIERS BRADY CANAL

## SUPERIOR CANAL PERMIT DRAWINGS



LOCATION IN LOUISIANA  
(TERREBONNE PARISH)

### INDEX TO DRAWINGS

- 1 COVER SHEET - VICINITY MAP
- 2 PROJECT MAP
- 3 LOCATION MAP - BRADY CANAL
- 4 SITE MAP - BRADY CANAL
- 5 LOCATION MAP - SUPERIOR CANAL
- 6 SITE MAP - SUPERIOR CANAL
- 7 DETAILS - FLOATING DEBRIS BARRIER
- 8 DETAILS - ANCHOR SYSTEM

BRADY CANAL SITE

BRADY CANAL

BRADY POND

SUPERIOR CANAL

DEBRIS DISPOSAL AREA  
35' x 1925'

DEBRIS REMOVAL AREA  
APPROXIMATELY 115' x 1925'  
(WITHIN CHANNEL)

SUPERIOR CANAL SITE

PROJECT MAP - THE 34 FLOATING DEBRIS BARRIER

BRADY CANAL & SUPERIOR CANAL

SCALE  
0 100 200 300 400 500 600 700 800 900 1000 1100 1200  
FEET

NOTICE:  
72 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES





BRADY CANAL

EXISTING  
BRADY CANAL  
STRUCTURE

PROPOSED  
FLOATING DEBRIS  
BARRIER

BAYOU BELICHAMPE

LOCATION MAP - TE-34 FLOATING DEBRIS BARRIER  
BRADY CANAL SITE

0 100 200 300 400  
FEET  
SCALE IN FEET



NOTICE:  
72 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES

BANKLINE

EXISTING BULKHEAD  
WITH TIMBER PILES

TIMBER PILE  
Y=333796.15  
X=3397583.48

BANKLINE

EXISTING SHEETPIILING

FLOATING  
DEBRIS  
BARRIERS

TIMBER PILE  
Y=333749.20  
X=3397556.71

TIMBER PILE  
Y=333726.05  
X=3397568.18

EXISTING  
10' WIDE  
BOAT BAY

FLOATING  
DEBRIS  
BARRIERS

EXISTING  
SHEETPILE/GATED  
STRUCTURE

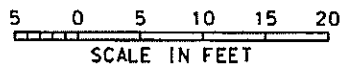
TIMBER PILE  
Y=333715.50  
X=3397599.77

EXISTING SHEETPIILING

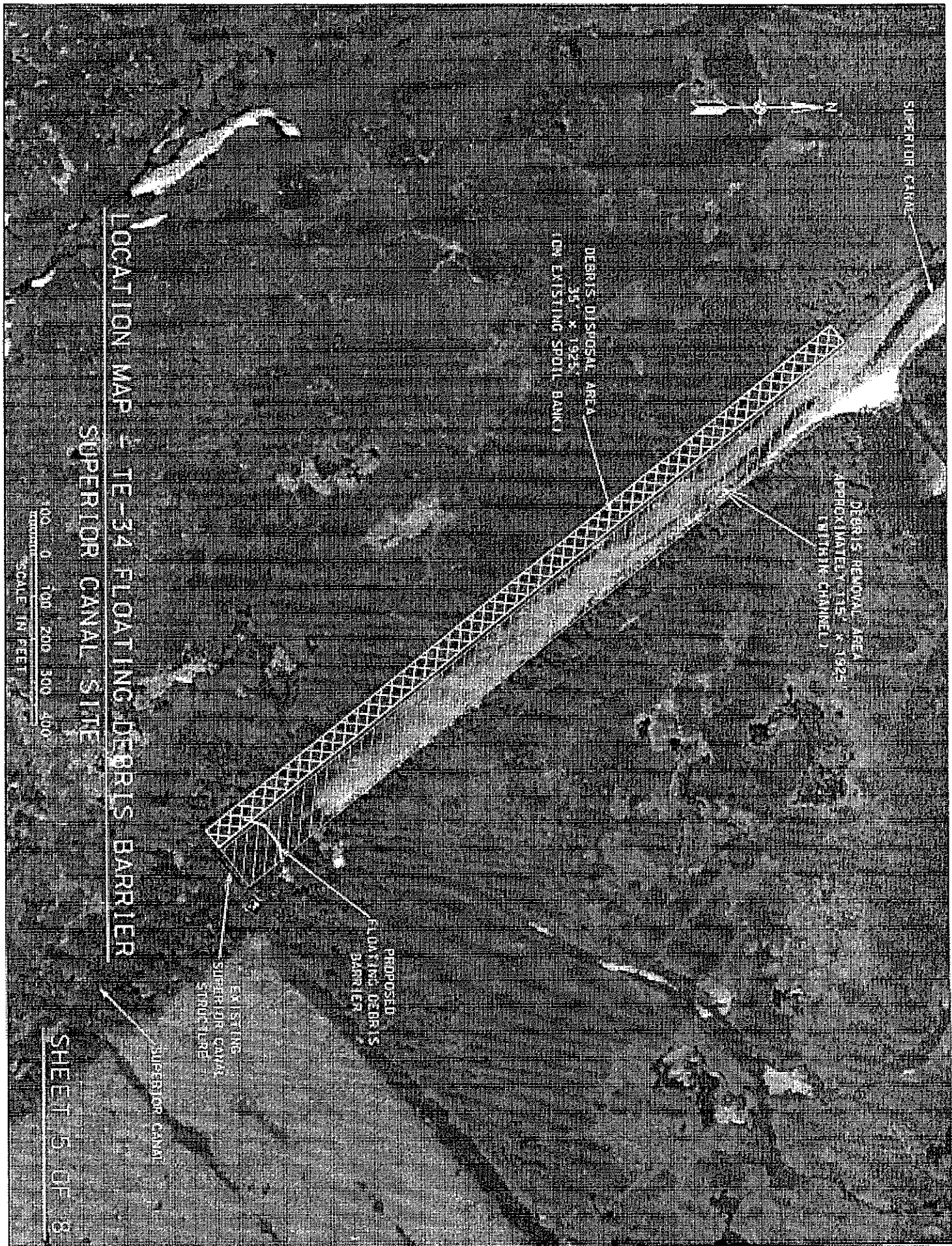
BANKLINE

BANKLINE

SITE MAP - BRADY CANAL  
TE-34 FLOATING DEBRIS BARRIER





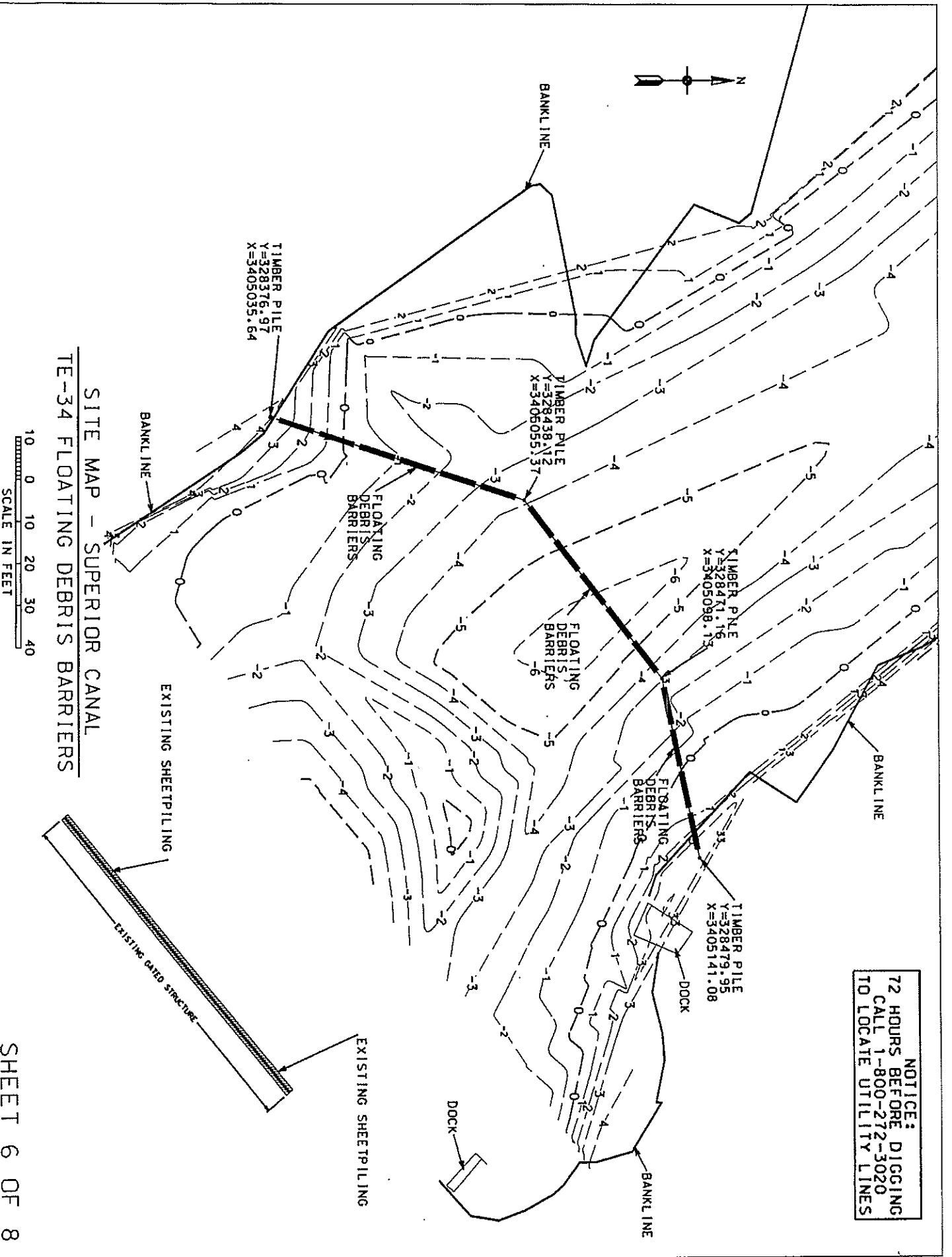


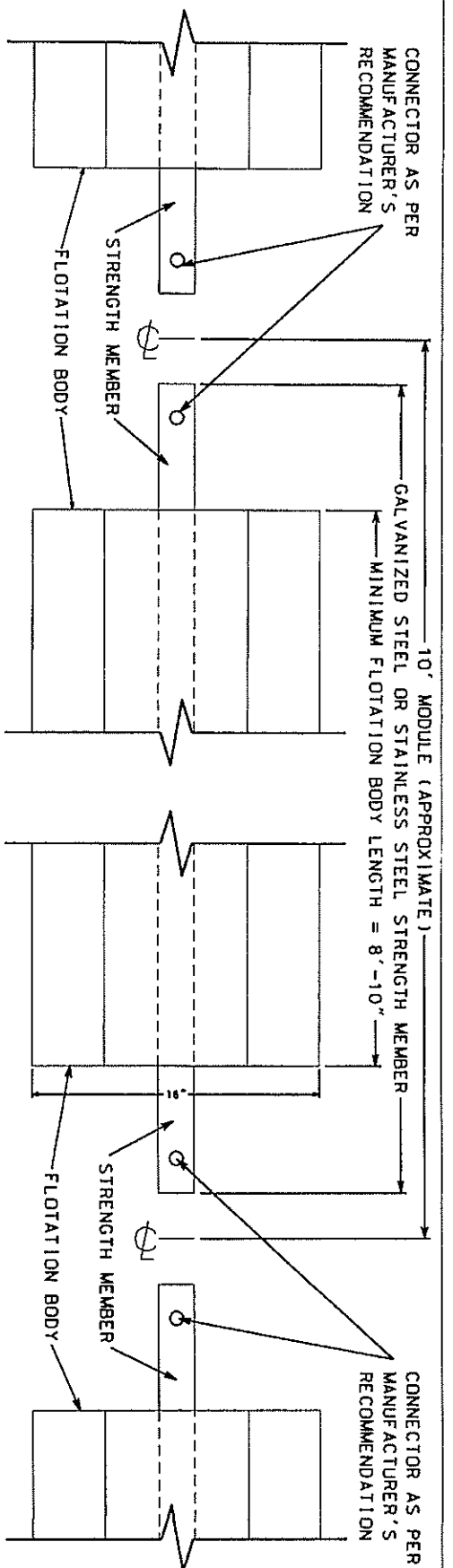
LOCATION MAP - TE-34 FLOATING DEBRIS BARRIER

SUPERIOR CANAL SITE

0 100 200 300 400  
FEET  
SCALE (IN FEET)

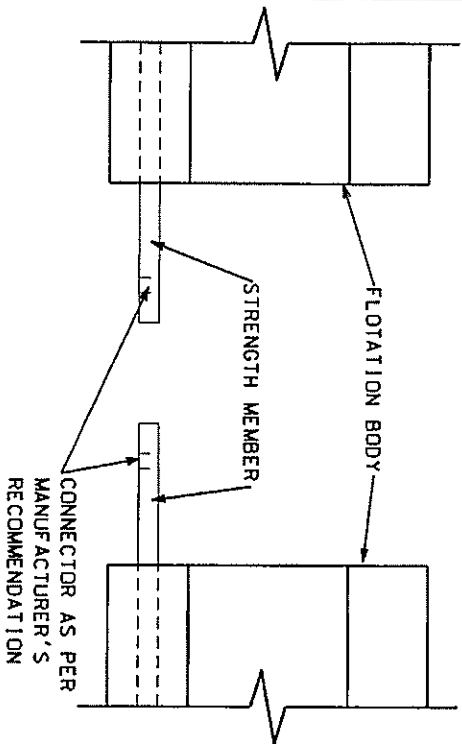
NOTICE:  
72 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES



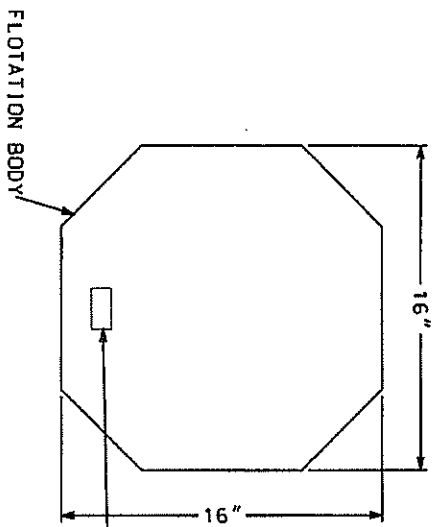


**TOP VIEW**

**NOTICE:**  
72 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES



**ELEVATION VIEW**

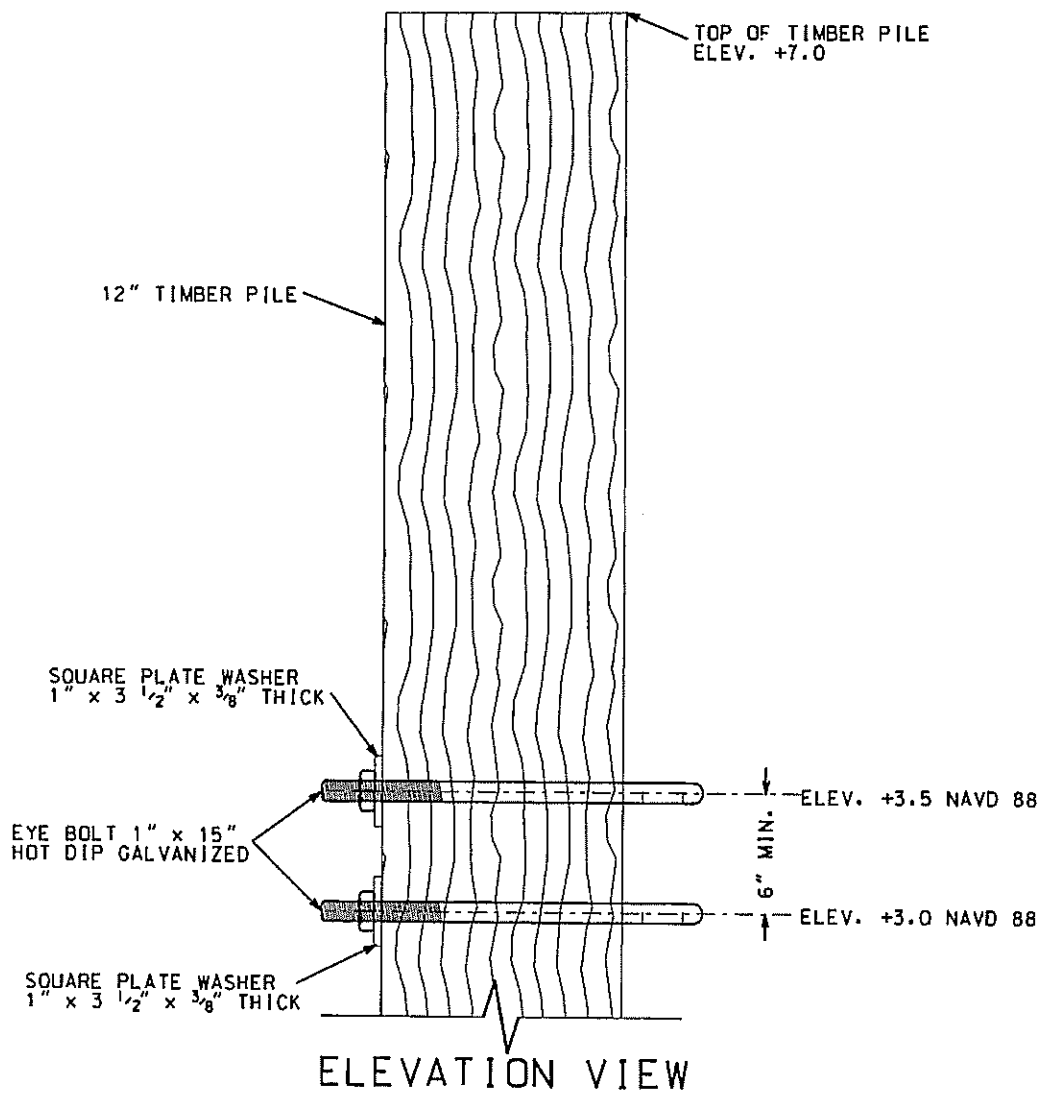
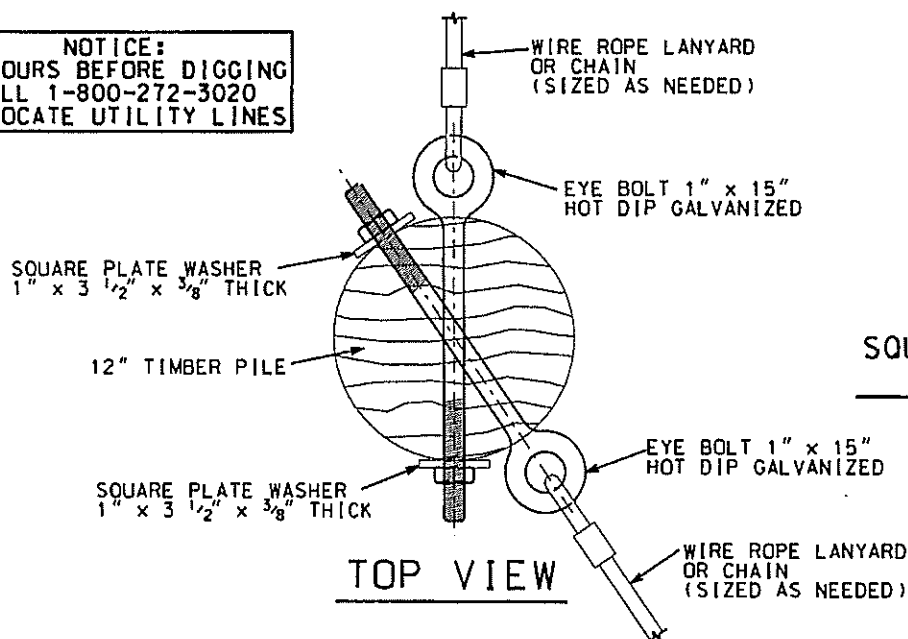


**END VIEW**

GALVANIZED STEEL OR  
STAINLESS STEEL  
STRENGTH MEMBER  
EMBEDDED IN BOTTOM 1/3  
OF FLotation BODY

# FLOATING DEBRIS BARRIER DETAILS

**NOTICE:**  
72 HOURS BEFORE DIGGING  
CALL 1-800-272-3020  
TO LOCATE UTILITY LINES



## TIMBER PILE ANCHOR SYSTEM



ATTACHMENT VI

PENCHANT BASIN NATURAL RESOURCE PLAN, INCREMENT 1  
(TE-34)

**OPERATION, MAINTENANCE, AND REHABILITATION  
BUDGET**

Penchant Basin (TE-34) - 20 Year O&M Budget Projections

Year	FY	Inflation Factor	Annual Inspections (State)	Annual Inspections (Federal)	Every 2 Years Embankment Maintenance	Year 5 & 15 Structure/Gate Cleaning	Years 7 & 14 Structure 4&5 Maintenance	Year 10 Major Structural Maintenance	Federal S&A	Total by Year
			\$7,400	\$3,400	\$66,219	\$97,876	\$83,968	\$1,726,544		
0	2015	1.0190	\$7,541	\$3,465						\$11,005
-1	2016	1.0363	\$7,669	\$3,523	\$68,623				\$13,371	\$93,186
-2	2017	1.0560	\$7,814	\$3,590						\$11,405
-3	2018	1.0771	\$7,971	\$3,662	\$71,324				\$3,231	\$86,188
-4	2019	1.0987	\$8,130	\$3,736		\$107,536			\$5,768	\$125,170
-5	2020	1.1206	\$8,292	\$3,810	\$74,205				\$3,362	\$89,669
-6	2021	1.1431	\$8,459	\$3,887			\$95,984		\$5,144	\$113,473
-7	2022	1.1659	\$8,628	\$3,964	\$77,205				\$3,498	\$93,294
-8	2023	1.1892	\$8,800	\$4,043						\$12,843
-9	2024	1.2130	\$8,976	\$4,124	\$80,324			\$2,094,298	\$76,994	\$2,264,716
-10	2025	1.2373	\$9,156	\$4,207						\$13,363
-11	2026	1.2620	\$9,339	\$4,291	\$83,568				\$3,786	\$100,984
-12	2027	1.2873	\$9,526	\$4,377						\$13,903
-13	2028	1.3130	\$9,716	\$4,464	\$86,946		\$110,250		\$6,565	\$217,941
-14	2029	1.3393	\$9,911	\$4,554		\$131,085			\$7,031	\$152,581
-15	2030	1.3661	\$10,109	\$4,645	\$90,462				\$4,098	\$109,314
-16	2031	1.3934	\$10,311	\$4,738						\$15,049
-17	2032	1.4213	\$10,518	\$4,832	\$94,117				\$4,264	\$113,731
-18	2033	1.4497	\$10,728	\$4,929						\$15,657
-19	2034	1.4787	\$10,942	\$5,028	\$97,918				\$4,436	\$118,324
			\$182,536	\$83,868	\$824,691	\$238,622	\$206,234	\$2,094,298	\$141,548	\$3,771,796

Total O&M Budget - 20 Year Life: \$3,771,796