COMPLETION REPORT
FOR
OAKS/AVERY CANAL HYDROLOGIC RESTORATION PROJECT
TV-13A AND TV-13B

PREPARED FOR:
STATE OF LOUISIANA
DEPARTMENT OF NATURAL RESOURCES
POST OFFICE BOX 639
ABBEVILLE, LOUISIANA 70511-0639

PREPARED BY:
ACADIAN ENGINEERS
& ENVIRONMENTAL CONSULTANTS INC.
POST OFFICE BOX 1126
EUNICE, LOUISIANA 70535
337/457-1492

Approved By: James A. Ducote
James A. Ducote, PE, PLS

Dated: October, 2002

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COMPLETION REPORT
FOR
OAKS/AVERY HYDROLOGIC RESTORATION PROJECT
TV-13A AND TV-13B
VERMILION & IBERIA PARISHES, LOUISIANA

1.0 PRIME CONTRACTOR

Luhr Brothers, Inc.
Post Office Box 50
Columbia, Illinois 62236

Sub-Office
Luhr Brothers, Inc.
Post Office Box 7886
Alexandria, Louisiana 77568-7886
Phone: 318/487-9263

2.0 SIGNIFICANT DATES/AMOUNTS

Description	Date
Contract Award	May 2, 2002
Pre-Construction Conference	May 31, 2002
Notice to Proceed	On or Before June 25, 2002
Commencement Date	June 25, 2002
Date Fixed for Completion	November 22, 2002
Actual Completion Date	October 14, 2002
Original Contract Amount	$1,556,287.00
Actual Contract Amount	$1,807,138.00

3.0 SUBCONTRACTORS

Prime Contractor, Luhr Brothers, Inc. supplied the stone for the job. All other on-site work was subcontracted to Bertucci Construction Company. Bertucci Construction Company subcontracted Item No.'s 3, 7a, and 8 of Phase I and Item 3 of Phase II to Berry Brothers General Contractors, Inc. These items consisted of constructing the sheet pile wall, navigation aids and spoilbank refurbishment at Cowpath and the navigation aids and lights at Avery Canal. Subcontractors addresses are listed below:

Bertucci Construction Company
#7 River Road
Jefferson, Louisiana 70181
Phone: 504/835-0303

Berry Brothers General Contractors, Inc.
Post Office Box 253
Berwick, Louisiana 70342
Phone: 985/384-8770

4.0 ITEMS OF WORK

PHASE I						
Item No.	Items of Work	Estimated	Final Quantity	Unit Price	Final Amount	% Over or Under
1	Mob/Demob	Lump Sum	Lump Sum	$105,000.00	$105,000.00	N/A
2	Bank Stabilization - Oaks Canal	8,800 Tons	8,043 Tons	$22.00	$176,946.00	-9
3	Sheet Pile-Cowpath	1,850 SF	1,850 SF	$32.70	$60,495.00	0
4A	Geotextile Fabric (Type I)	*18,134 SY	20,947 SY	$4.00	$83,788.00	+15
4B	Geotextile Fabric (Type 2)	2,129 SY	1,412 SY	$8.00	$11,296.00	-34
5	Stone Plug - Union Oil Canal	930 Tons	863 Tons	$30.00	$25,890.00	-7
6A	Bank Stabilization - GIWW (Rip 1)	*27,000 Tons	28,860 Tons	$23.30	$672,438.00	+7
6B	Bank Stabilization - GIWW (Rip 2)	4,400 Tons	5,202 Tons	$22.30	$116,004.60	+18
7A	Cowpath Spoilbank Refurbishment	5 Stations	4.8 Stations	$3,768.00	$18,086.40	-4
7B	Union Oil Canal Spoilbank Refurbishment	7 Stations	6.4 Stations	$2,600.00	$16,640.00	-9
8	Navigation Aids - Cowpath	Lump Sum	Lump Sum	$2,700.00	$2,700.00	N/A
PHASE II						
1	Mob & Demob	Lump Sum	Lump Sum	$14,000.00	$14,000.00	N/A
2	Low Sill Weir & B/S Avery Canal	16,600 Tons	19,470 Tons	$22.00	$428,340.00	+17
3	Navigation Aids & Lights - Avery Canal	Lump Sum	Lump Sum	$27,400.00	$27,400.00	N/A

	Total Phase I			$1,289,284.00
	Total Phase II			$ 469,740.00
1.	As modified by Change Order No. 1.*			
2.	Phase II. Change Order #2, Add 12 piles	L.S.	100% L.S.	$ 20,013.00
3.	Phase II. Change Order #2, Alt. Direction Arrow Signage,	L.S.	100% L.S.	$ 28,101.00
	Total Modifications			$ 48,114.00
	TOTAL PHASE II WITH MOD'S #2 & #3			$ 517,854.00
	TOTAL PHASE I WITH MOD #1			$1,289,284.00
	TOTAL PROJECT			**$1,807,138.00**

5.0 EQUIPMENT

5.1 Job Site

A. Bertucci Construction Company

Spud Barge A B-3 w/88-B Dragline (110' Boom)
Spud Barge A B-11 w/71-B Dragline (110' Boom)
Equipment Barge 623 w/Link Belt 2800 Backhoe
Equipment Barge RG 410 w/Koching 1266 Backhoe
Pile Extractor MKT V/5C (970701)
Crew Boat Big Bob
M/V Delta Duck
M/V Julie Marie
Survey Boat w/50 HP Outboard Motor

B. Berry Brothers General Contractors

Dredge "Captain Leonard"
Survey Boat w/Outboard Motor
Spud Barge BB-107/American 5299 Dragline
3,000 Lb. Drop Hammer
900 cfm Sulivan Air Compressor
GM 14.5 KW Generator

6.0 SUPPLY BARGE UTILIZATION AND QUANTITY DATA

#	BARGE NAME	DATE MEASURED LOADED	DATE MEASURED UNLOADED	LOCATION	QUANTITY	QUANTITY ACCUM. PER LOCATION
1	RG 198	06/30/02	06/30/02	#1 Rip 2	1,049	1,049
2	GD 951	07/02/02	07/02/02	#2 Rip 2	1,465	2,514
3	GD 960	07/03/02	07/03/02	#3 Rip 2	1,472	3,986
4	GD 944	07/02/02	07/09/02	#4 Rip 2	766	4,752
4a	GD 944	07/09/02	07/09/02	#1 Oaks	704	704
5	GD 958	07/09/02	07/10/02	#2 Oaks	1,395	2,099
6	GD 948	07/11/02	07/11/02	#3 Oaks	1,380	3,479
7	GD 957	07/12/02	07/12/02	#1 Rip 1	500	500
	GD 957	07/12/02	07/12/02	#4 Oaks	903	4,382
8	GD 952	07/12/02	07/13/02	#5 Oaks	1,464	5,846
9	GD 943	07/14/02	07/14/02	#6 Oaks	1,416	7,262
10	GD 945	07/15/02	07/16/02	#7 Oaks	781	8,043
	GD 945	07/15/02	07/16/02	#5 Rip 2	450	5,202
	GD 945	07/15/02	07/16/02	#2 Rip 1	65	565
10a	GD 945	07/16/02	07/25/02	#3 Rip 1	75	640
11	GD 956	07/12/02	07/15/02	#1 Avery	1,391	1,391
12	GD 963	07/15/02	07/16/02	#2 Avery	1,391	2,782
13	GD 964	07/16/02	07/16/02	#3 Avery	1,388	4,170
14	GD 955	07/16/02	07/17/02	#4 Avery	1,347	5,517
15	GD 954	07/16/02	07/18/02	#5 Avery	1,479	6,996
16	GD 949	07/18/02	07/18/02	#6 Avery	1,367	8,363
17	GD 966	07/19/02	07/19/02	#7 Avery	1,363	9,726
18	R 8473	07/19/02	07/21/02	#8 Avery	1,475	11,201
19	R 8465	07/21/02	07/23/02	#9 Avery	1,444	12,645
20	GD 961	07/22/02	07/23/02	#10 Avery	1,401	14,046
21	R 8477	07/23/02	07/27/02	#4 Rip 1	1,389	2,029
22	GD 965	07/23/02	07/27/02	#5 Rip 1	1,433	3,462

#	BARGE NAME	DATE MEASURED LOADED	DATE MEASURED UNLOADED	LOCATION	QUANTITY	QUANTITY ACCUM. PER LOCATION
23	R 8478	07/29/02	07/30/02	#6 Rip 1	1,448	4,910
24	M 7656	07/23/02	08/01/02	#7 Rip 1	1,438	6,348
25	GD 942	07/09/02	08/02/02	#8 Rip 1	1,433	7,781
26	R 8476	08/01/02	08/03/02	#9 Rip 1	1,419	9,200
27	GD 944	07/09/02	08/04/02	#11 Avery	1,071(P)*	15,117
27 Rev.	GD 944	08/02/02	08/04/02	#11 Avery	1,035	15,081
27a	GD 944	08/04/02	08/07/02	#1 Armor Plug	370	370
28	M 7653	07/23/02	08/04/02	#10 Rip 1	1,404	10,604
29	GD 9410	07/09/02	08/04/02	#11 Rip 1	1,175	11,779
30	R 8475	08/02/02	08/05/02	#12 Avery	1,055	16,136
30a	R 8475	08/05/02	08/08/02	#2 Armor Plug	368	738
31	GD 959	08/02/02	08/05/02	#12 Rip 1	1,409	13,188
32	GD 943	08/05/02	08/06/02	#13 Rip 1	1,164	14,352
33	GD 946	08/02/02	08/08/02	#14 Rip 1	726	15,078
	GD 946	08/02/02	08/08/02	#3 Armor Plug	125	863
33a	GD 946	08/08/02	08/12/02	#13 Avery	566	16,702
34	GD 958	08/02/02	08/09/02	#15 Rip 1	1,358	16,436
35	GD 957	08/02/02	08/09/02	#16 Rip 1	1,298	17,734
36	R 8486	08/04/02	08/09/02	#17 Rip 1	1,366	19,100
37	GD 962	08/04/02	08/10/02	#18 Rip 1	1,411	20,511
38	R 8487	08/04/02	08/10/02	#19 Rip 1	1,480	21,991
39	GD 947	07/23/02	08/11/02	#20 Rip 1	1,443	23,434
40	R 8480	08/01/02	08/12/02	#21 Rip 1	1,445	24,879
41	R 8468	08/04/02	08/12/02	#22 Rip 1	1,389	26,268
42	GD 951	08/05/02	08/12/02	#23 Rip 1	1,168	27,436
43	GD 961	09/30/02	10/08/02	#24 Rip 1	1,424	28,860
44	GD 945	09/30/02	10/12/02	#14 Avery	1,421	18,123
45	GD 963	09/30/02	10/13/02	#15 Avery	1,347	19,470
*: Error				TOTAL LOCATION(S)		62,438

7.0 SIGNIFICANT EVENTS - START/FINISH/PROGRESS

The Contract was awarded to Luhr Brothers on May 2, 2002, for the total amount of $1,556,287.00. A Pre-Construction conference was held at the Estuarine Habitats and Coastal Fisheries Center located at 646 Cajundome Boulevard in Lafayette, Louisiana on May 31, 2002. Contractor was notified to commence work on or about June 25, 2002.

Contractor, Luhr Brothers, subcontracted on-site work to Bertucci Construction Company. Bertucci Construction Company subcontracted the sheet pile wall and spoilbank refurbishment at Cowpath and the timber construction, signs and navigation lights at Cowpath and Avery Canal.

Subcontractor, Bertucci Construction Company mobilized equipment and material on jobsite on June 25, 2002, and began clearing and grubbing embankment areas in Union Oil Canal on June 26, 2002. Subcontractor constructed approximately five hundred (500) feet of embankment (three (3) locations) and then utilized Spud Barge AB-3 for stone placements on June 29, 2002 at Rip #2. Stone placements for foreshore rock dike continued at Rip #2 until July 8, 2002. At that time, only the Spicer Oil Pipeline area remained uncompleted. Subcontractor commenced stone placements for bankline stabilization in Oaks Canal on July 9, 2002 and completed this item of work on July 15, 2002 using a total of eight thousand forty-three (8,043) tons of 650 pound stone. Bertucci commenced placing geotextile fabric and stone at foreshore dike location at Rip #1, utilizing Spud Barge RG-410 on July 11, 2002. Spud Barge RG-410 then moved back to Union Oil Canal to complete spoilbank refurbishment. Initial embankment work was completed on July 13, 2002. However, Contractor returned to Area III (canal opening) and recaped dike on August 3, 2002. Spud Barge RG-410 was then moved to Avery Canal and commenced work on weir. Spud Barge AB-3 moved from Oaks Canal to Avery Canal for weir construction and commenced building bank stabilization dike. Spud Barge AB-3 worked on weir construction until July 23, 2002, then moved to Rip #1 for foreshore dike construction. Spud Barge AB-11 moved to Avery Canal on August 2, 2002 and resumed weir construction until August 5, 2002. Spud Barge #AB-11 then moved back to fleeting

area to lighten supply barges for stone placements at Rip #1 and then moved to Union Oil Canal on August 6, 2002 for construction of armor plug. Using light loaded (3 trips) supply barges, subcontractor completed the armor plug on August 8, 2002. Contractor did not have to dig floatation channel for access to site.

Spud Barge AB-11 and Spud Barge AB-3 then worked on foreshore dike on Rip #1 until August 12, 2002, when initial pass over entire dike location was completed. However, visual observations and cross sections submitted by Contractor indicated deficient areas in dike section existed. Settlement in dike was especially noted at old canal crossings. During construction, especially on the west end, shallow water and low tides at times hindered equipment access of equipment to placement areas thereby reducing the production rate and accuracy of stone placements. This being the case even though supply barges were lightened to reduce draft.

Spud Barge AB-11 moved back to Avery Canal on August 12, 2002 and placed last remaining stone (B-stone, partial load) in weir. Although the quantity of stone utilized in the weir construction matched the estimated quantity for the job, cross sections indicated deficient areas remained. A Pre-Work Profile of the weir area performed by the Contractor showed a substantial deepening of the channel from the section shown in the Contract drawings indicating additional stone needed to obtain full grade and section. Contractor was advised that additional stone would be needed at the Avery weir and Rip #1 to complete the project. Based on the Contractor's Quality Control Section's, it was determined that two (2) loads of B stone for the Avery weir and one (1) load of #650 pound stone for Rip #1 would be needed to complete the project. LDNR advised Contractor to obtain this material to complete the project. Subcontractor, Bertucci elected to demobilize equipment from the site and return at a later date when the remaining stone needed would be available at the jobsite.

Subcontractor Bertucci returned to the job site on September 30, 2002 and commenced work at the Avery weir. Contractor attempted to pull pilings (Mod #3) by use of hoist line of drag line on Spud Barge AB-11. After several unsuccessful attempts,

Contractor abandoned efforts and determined that he would need a pile extractor to perform the work. The Spud Barge AB-11 was then moved to Rip #1 to build up the low areas of dike. On October 1, 2002, after placing approximately five hundred (500) tons of stone, Contractor made up tow with equipment and supply barges to prepare for Hurricane Lili. Contractor moved his plant to a safe harbor to wait out the storm.

Bertucci Construction Company returned to the job site on October 7, 2002 and resumed work on raising low areas in dike at Rip #1. This work was completed on October 8, 2002 and Spud Barge AB-11 was moved back to Avery weir. On October 10, 2002, Bertucci utilized Spud Barge AB-11 with vibrating pile extractor to remove the four (4) pile clusters marking the channel bottom at the weir.

Subcontractor erected the directional signs (Mod #3) and completed stone placements in deficient areas on October 13, 2002. Bertucci completed demobilization from job site on October 14, 2002 and job was accepted on that date.

Subcontractor Berry Brothers mobilized equipment on job site on July 22, 2002. Subcontractor used Spud Barge "Captain Leonard" to bucket dredge six (6) foot depth by forty-five (45) foot width access channel from GIWW to Cowpath sheetpile location. Spoil was placed on the east bank of Cowpath Channel in disposal area for permissible excavation from GIWW to Station 4+00 (approximately) and in required spoilbank restoration area between Station 4+00 and sheetpile weir location. The bucket dredge completed work on July 24, 2002 and was replaced with pile driving rig BB 107/American 5299. Berry Brothers began construction of the steel sheet pile weir on July 25, 2002 and completed structure including warning sign on August 5, 2002. Type 52-27 steel sheet pile was used to construct the wall.

Berry Brothers then moved to Avery Canal and commenced pile driving operations for navigation aids and lights. After driving a single pile for the Type "D" directional arrow sign, it was noted that the pile swayed considerably in the current. LDNR was notified and they directed, by Change Order (No. 2), to replace the four (4) single piles to four (4) pile

clusters. Berry Brothers completed the installation of pile clusters and warning signs and navigation lights on August 11, 2002 and demobilized their equipment from the job site.

8.0 MODIFICATIONS AND CHANGES

Three (3) Change Order's were made on Contract and are listed below:

Change Order No. 1 increased the estimated quantity of stone and geotextile fabric for Rip #1. Original quantity computations inadvertently left out the quantity for dike construction between Oaks Canal and next canal over on east end of project.

Change Order No. 2 changed the single piles (4) for Type "D" sign to four (4) pile clusters in order to increase stability of the sign support.

Change Order No. 3 was for Alternative Directional Arrow Signage after complaints from the fishing industry stated that the pile clusters for Type "D" sign would hinder navigation of the weir.

9.0 UTILITY CROSSINGS

Facility owners were notified prior to work at Oaks Canal and Rip #2 where utilities were known to exist. Representatives for Spicer Oil Pipeline at Rip #2 said that their pipeline was inactive and gave permission for dike construction over the line. They elected not to send a representative to the work site. Hurricane Lili destroyed the remaining section of warning sign at the pipeline. Even though the pipeline is inactive, the pipeline has not been abandoned and a warning sign should remain. Representatives for the pipelines located on the southeast side of Oaks Canal were on hand when stone placements were made in the vicinity of their pipeline.

10.0 STONE GRADATION

Grade "B" was used at Avery Canal weir and the armor plug at Union Oil Canal. The 650 pound (Max. size) stone was used at Oaks Canal bankline stabilization and foreshore dike construction at Rip #1 and Rip #2. Riprap gradation test for each stone is included in Appendix A.

11.0 GEOTEXTILE

Geotextile fabric was utilized beneath the foreshore dike at Rip #1 and beneath embankment area #3 (abandoned Oil Field Canal) at Union Oil Canal. Type II fabric (300 lb/in) was used at the canal crossing at Rip #1 and Union Oil Canal. Type I fabric (200 lb/in) was used at all other locations. Geotextile installation data chart is included in Appendix B.

12.0 QUALITY CONTROL

Quality control at the job site was administered by Mr. Keith Payne and Mr. Scott Sheppard of Bertucci Construction Company. Contractor was often late in performing and submitting compliance surveys following stone placements. However, the overall performance in Quality Control was adequate.

13.0 QUALITY ASSURANCE

Quality Assurance was administered by Mr. James Ducote, P.E., P.L.S. and Mr. Raymond Plauche of Acadian Engineers & Environmental Consultants Inc. (Acadian). The three (3) phase inspection system was stressed and followed throughout the Contract period.

14.0 ACCIDENTS/SAFETY

The Subcontractor (Bertucci) provided a Safety Plan which was utilized at the job site. Daily inspections concerning safety were conducted by QC and QA personnel.

There were no accidents or loss time injuries on the project. A total of approximately four thousand eight hundred (4,800) hours were expended on the project without a loss time accident or injury. The Contractor's performance towards safety was satisfactory.

15.0 FINAL ACCEPTANCE

A final inspection of the project except for Avery weir was made on October 11, 2002 by Mr. Stan Aucoin of LDNR, representatives from NRCS, Alexandria Office, Acadian Engineers & Environmental Consultants Inc. and Contractor. It was noted that most of the newly planted grass on the spoilbank refurbishment work had died. This was believed to be caused by salt water pushed inland by Hurricane Lili and therefore not the Contractor's responsibility to correct. No other adverse comments concerning project were noted. Except for Avery Canal, all project work was accepted on October 11, 2002. After soundings and sections taken by Contractor were reviewed and upon completion of stone placements on October 13, 2002, the work on Avery weir was accepted.