

ATTACHMENT III

FRITCHIE MARSH RESTORATION PROJECT

PROJECT COMPLETION REPORT



United States
Department of
Agriculture

Natural Resources
Conservation Service

3737 Government Street
Alexandria, Louisiana
71302

June 27, 2001

Mr. John Hodnet
Project Manager
Coastal Restoration Division
Department of Natural Resources
P.O. Box 94396
Baton Rouge, Louisiana 70804-9396

Mr. Tom Podany
Chief, CWPPRA Program Manager
US Army Engineer District, New Orleans
P.O. Box 60267
New Orleans, Louisiana 70506

Gentlemen:

Re: PL-646 – PO-6
Fritchie Marsh Hydrologic Restoration Project

The design and construction portions of the referenced project have been completed. As such a Project Completion Report and "As Built" Plans have been developed for the completed works. For your records, enclosed are a copies of the Project Completion Report and the "As Built" plans for the project.

Please direct any questions concerning this Project Completion Report to Brad Sticker at (318) 473-7791.

Sincerely,

Ed Giering III, P.E.
State Conservation Engineer

Enclosures

cc: Bruce Lehto, ASTC/Water Resources, NRCS, Alexandria, LA
Britt Paul, Water Resources Planning Staff Leader, NRCS, Alexandria, LA (with completion report)
Brad Sticker, Civil Engineer, NRCS, Alexandria, LA (with enclosures)
Charles Phillips, Contracting Officer, NRCS, Alexandria, LA (with completion report)
George Boddie, Head of Engineering, LA Dept. of Natural Resources, Coastal Restoration Division, Baton Rouge, LA (with enclosures)
Wayne Talbot, COTR, NRCS, Addis, LA (with completion report)
Cherie LaFleur, Design Engineer, NRCS, Alexandria, LA (with completion report)
Tony Beauboeuf, District Conservationist, NRCS, Franklinton, LA (with enclosures)

PROJECT COMPLETION REPORT¹

PROJECT NAME

Fritchie Marsh Hydrologic Restoration

CWPPRA/STATE PROJECT NO.

PO-6

Report Date: June 27, 2001

BY:

USDA-NRCS

1. Project Managers/Contracting Officer:

DNR Project Manager	John Hodnet	Telephone	(225) 342-7305
DNR Construction Project Manager	John Hodnet	Telephone	(225) 342-7305
DNR Monitoring Manager	Paul Germillion	Telephone	(504) 449-5057
Federal Agency Project Manager	John Jurgensen	Telephone	(318) 473-7694
Federal Agency Contracting Officer	Charles Phillips	Telephone	(318) 473-7796

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

The Fritchie Marsh Hydrologic Restoration Project is located in the Pontchartrain Basin, north of Lake Pontchartrain and contains 5,924 acres of intermediate and brackish marsh. The area is bounded on the north by the southern edge of the Pleistocene terrace, on the east by US Highway 90 and on the west and south by Louisiana Highway 433. The project is located in part of T9S-R14E, part of T9S-R15E, part of T10S-R14E, and part of T10S-R15E. The approximate center of the project area is Latitude 30° 15' and Longitude 90° 15'.

The project features consist of a steel sheet pile weir with boat bay in W-14 canal, approximately 400 feet of channel enlargement from W-14 canal to the interior of the marsh, installation of a six foot diameter conduit under US Highway 90 at Salt Bayou, approximately 5,300 feet of channel enlargement of Salt Bayou west of US Highway 90 and a steel sheet pile bulkhead on the north bank of Salt Bayou east of US Highway 90.

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

The final completed project consisted of five major components that were installed at the general location described above and as shown in the attached "As Built" drawings. The installed components are as follows:

- Installation of a sheet pile weir in W-14 channel. The weir is 108 feet in total width with three step-downs in elevation. The wingwalls are 24' wide with the top elevation at +1.4'. The 20' wide boat bay is located in the center of the weir with the crest at elevation -3.6'. The intermediate portion of the weir crest is at elevation +0.4. The weir also has a safety railing and warning signs to direct boat traffic.
- The W-14 Diversion channel was excavated into the marsh upstream of the W-14 weir to allow more water to move through the marsh. The channel was excavated for 400 linear feet with a 20' bottom width and 4 horizontal to 1 vertical side slopes. The channel invert has a zero grade throughout its length. The resulting spoil was spread on the southwest side of the channel to an average height of 0.5' above the existing marsh elevation.

Actual Benefited Acres 1040

¹To be filled out at construction completion by either the DNR 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).

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

3. Salt Bayou was excavated starting at the west side of US Highway 90 for a distance of 5300 linear feet. The bayou was excavated with a 20' wide bottom and 2 ½ horizontal to 1 vertical side slopes. The channel invert has a zero grade throughout its length. The resulting spoil was spread on both sides of the channel to an average height of 0.5' above the existing marsh elevation.
4. A 72" diameter reinforced concrete pipe 136' long was jacked and bored under US Highway 90 in Salt Bayou adjacent to an existing 6'x6' box culvert. The pipe was designed with zero grade and the invert at elevation -2.8' to correspond with the existing pipe. The installed pipe has a low section in the center due to settlement during construction. Both ends of the new and existing conduits were protected with COE R-140 gradation of rock riprap. The riprap apron extends out from the pipe 25' and up the side slopes of the channel.
5. A 308' long sheet pile bulkhead was installed on the east side of US Highway 90 on the north bank of Salt Bayou. The bulkhead tied into the wingwall of the existing 6'x6' box culvert and extended east. The bulkhead consisted of 23' long steel sheet piles with a galvanized C-section cap. Drainfill was placed behind the wall for the entire length.

For greater details refer to the "As Built" drawings attached.

4. Key project cost elements

	CWPPRA Project Cost Estimates**	Cost Incurred as of Construction Completion
Construction	\$1,483,838.23	\$751,128.30
E & D	\$281,149.64	\$275,213.24
Landrights	\$29,902.67	\$29,902.67
Monitoring	\$915,647.00	\$174,099.13
O & M	\$225,211.00	\$0.00
Total	\$2,935,748.54	\$1,230,343.34

**** Most recent estimate from CWPPRA Project estimates Report produced by USACOE.**

5. Items of work

SCHEDULE OF ITEMS

Item No.	Work	Est. Quantity	Unit	Est. Unit Price	Estimated Amount	Final Quan.	Bid Unit Price	Final Amount	% Over or Under
1	Mobilization & Demobilization	1	Job	\$50,000.00	\$50,000.00	1	\$28,595.00	\$28,595.00	0%
2	Pollution Control	1	Job	\$10,000.00	\$10,000.00	1	\$12,800.00	\$12,800.00	0%
3	Construction Surveys	1	Job	\$5,000.00	\$5,000.00	1	\$21,200.00	\$21,200.00	0%
4	Permanent Vegetation Seeding	1	Acre	\$600.00	\$600.00	0.9	\$3,300.00	\$2,970.00	-10%
5	Remove of Water, Hwy 90 Culvert	1	Job	\$25,000.00	\$25,000.00	1	\$15,200.00	\$15,200.00	0%
6	Steel Sheet Piling W-14 Weir	2,027	S.F.	\$23.00	\$46,621.00	2,027	\$19.00	\$38,513.00	0%
7	Steel Sheet Piling Salt Bayou Bulkhead	7,084	S.F.	\$23.00	\$162,932.00	7,084	\$28.00	\$198,352.00	0%
8	Channel Excavation W-14 Diversion	2,000	C.Y.	\$10.00	\$20,000.00	1,727	\$4.60	\$7,944.20	-14%
9	Channel Excavation Salt Bay	15,000	C.Y.	\$10.00	\$150,000.00	17,663	\$5.70	\$100,679.10	18%
10	RCP 72" x 136 Culvert, Hwy 90	136	L.F.	\$1,000.00	\$136,000.00	136	\$690.00	\$93,840.00	0%
11	Rock Riprap Hwy 90 Culvert	430	Tons	\$37.00	\$15,910.00	615.4	\$60.00	\$36,924.00	43%
12	Metal fab & Installation, Warning Signs & Railings W-14 Weir	1	Job	\$8,000.00	\$8,000.00	1	\$16,900.00	\$16,900.00	0%
13	Traffic Control	1	Job	\$30,000.00	\$30,000.00	1	\$14,800.00	\$14,800.00	0%
14	Contractor Quality Control	1	Job	\$2,000.00	\$2,000.00	1	\$8,500.00	\$8,500.00	0%

Original Estimated Amount \$662,063.00

Original Bid Amount \$572,500.00

Modification #4									
*15	Metal Fab & Installation, Sheet Pile cap bends, Salt Bayou Bulkhead	1	Job	\$300.00	\$300.00	1	\$366.00	\$366.00	0%

Final Amount Modification #4 \$366.00

Modification #5									
**16	Asphalt Road Leveling Patch	35	Tons	\$180.00	\$6,300.00	54	\$225.00	\$12,150.00	54%
**17	Mobilization for joint sealing & soil stabilization	1	Tons	\$3,000.00	\$3,000.00	1	\$3,200.00	\$3,200.00	0%
**18	Sealing of concrete pipe joints	33	Gal.	\$215.00	\$7,095.00	30	\$500.00	\$15,000.00	-9%
**19	Soil stabilization test	15	Gal.	\$215.00	\$3,225.00	15	\$433.00	\$6,495.00	0%

Final Amount Modification #5

\$36,845.00

*Modification #4 Original Negotiated Amount \$366.00

*Modification #5 Original Negotiated Amount \$34,070.00

Total Over/Under-Run Amount \$27,492.30

Final Contract Amount \$634,428.30

6. Construction and construction oversight

Construction Contract

50-7217-0-8

Prime construction contractor	Stolt Comex Seaway
Subcontractor	Gill's Crane Service
Original construction contract	\$572,500.00
Change orders	\$ 34,436.00
Over/Under Runs	\$ 27,492.30
Final construction contract	\$634,428.30

Const. oversight contractor	Brown, Cunningham, & Ganuch	Const. amt.	\$87,384.37
Cons. O.S./Admin. agency	USDA - NRCS	Est. amt.	\$72,065.25

7. Major equipment used.

1. Marsh Buggy with Linkbelt 3400 long reach excavator
2. Marsh Buggy with 325 Cat excavator (portion of the job)
3. 350 Sansung excavator
4. Kobelco excavator (portion of the job)
5. Cat track excavator with vibratory hammer
6. 304 Koering dragline (portion of the job)
7. Dresser Cherry Picker (portion of the job)
8. D-5 Cat dozer (portion of the job)
9. Flexifloat barges (portion of the job)
10. Pipe jack for jacking 72" diameter pipe under US Hwy 90 (portion of the job)
11. Boat with outboard motor

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

The contractor began the prosecution of the work by starting on Salt Bayou. The initial clearing was completed and excavation started at approximate station 3+00. The contractor chose to excavate from the start to the end (station 53+00) then work back spreading the spoil. With the equipment on the job, spreading the spoil to 0.5' above marsh elevation proved to be a very difficult task. The contractor was using a marsh buggy with a long reach excavator. This work took the entire performance time of the contract to complete.

The contractor then began working on the installation of the bulkhead along Salt Bayou. This work progressed without any problems.

While still working on the bulkhead, the contractor also began installing the 72" diameter culvert and installing the W-14 weir. Several problems were encountered in the installation of the 72" RC Pipe. The first problem was getting the owners of one of the fiber optic lines in the work limits to adequately locate their line. This caused delays to the contractor. Also during the jacking and boring operation, US Highway 90 began to settle. This started at the time when the pipe was advanced to approximately the center of the roadway. As the road surface began to settle, impact from passing traffic became worse, thus increasing the settlement. Upon completion of the installation of the pipe, a "dip" in the invert was present. This can be seen on the "As Builts". Also the movement in the pipe caused some of the joints to open. The largest gap in the joint was 1 ¾ inches. The o-ring on the spigot end was still in contact with the socket, and had a minimum 1 inch additional movement before the joint would be open. Several site visits and meetings were held with all parties to discuss the need for any additional work to seal the pipe joints. The recommendation that the joints be sealed by some additional measures was made and concurred in by DNR and NRCS. A modification was executed to inject a flexible hydrophobic urethane into the annular space of the joints to ensure a complete seal. Concerns about future settlement of the pipe was also raised by the DNR project manager. A test to inject a hydrophilic urethane under the pipe invert to stabilize the soil was attempted with no success due to the soil conditions. The pipe had not settled from the time the installation was completed to the end of the job; therefore this should not be a future problem. Upon completion of sealing the pipe joints, the contractor removed the dewatering structures and installed the riprap aprons.

While working on the pipe, the contractor was also installing the W-14 sheet pile weir and excavating the W-14 diversion channel. This work was completed without problems.

9. Construction change orders and field changes.

- Modification #1: No cost or time change. Required the contractor to submit survey data within two weeks.
- Modification #2: No cost or time change. Changed the side slopes on Salt Bayou excavation from 4 horizontal to 1 ½ horizontal to 1 vertical.
- Modification #3: No cost change. Added 1-day performance time. Included various miscellaneous items.
- Modification #4: Increased cost by \$366.00 for fabrication and installation of bends in the bulkhead cap. Also increased the performance time by 18 days which included delays from locating fiber optic cables, and other items.
- Modification #5: Added Item 16 to apply a leveling patch on Hwy 90, Item 17 for mobilization to seal the pipe joints, Item 18 for sealing the pipe joints, Item 19 for the soil stabilization test, and Item 20 soil stabilization. If the soil stabilization test was successful, Item 20 would have been executed. The total cost for the modification was \$50,070.00 and added 16 days to the performance time.
- Modification #6: Removed Item 20 in modification #5 and reduced the contract by \$16,000.00 and 3 days performance time.
- Modification #7: Allowed the contractor to hydroseed the disturbed areas. This was a no cost change and the performance time remained unchanged.
- Modification #8: Increased performance time by 2 days for the increase in quantity of Bid Item 9. No cost change.

10. Pipeline and other utility crossings.

<u>Structure</u>	<u>Owner</u>	<u>Rep. To Contact</u>
Two fiber optic cables	AT&T	Roy Jones (504) 908-0766
One fiber optic cable	Williams Communications	John Stapler (504) 529-7377
One fiber optic cable	Level III / Gilbert Southern	Lester Cockrell (504) 915-8911
Overhead electric lines	Entergy	

11. Safety and Accidents.

No accidents were reported during the construction.

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

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

	<u>Date</u>
Bid I.D. (Construction, Vegetation, etc.)	Construction 50-7217-0-8
Bid Opening	8/17/00
Contract Award	9/13/00
Notice to Proceed	10/10/00
Mobilization	10/25/00
Construction Start	10/25/00
Construction Completion	2/28/01
Final Acceptance	3/6/01

Other significant Project Dates

Date

Project Implementation closeout**

Start of Preconstruction Monitoring***

Monitoring Plan Completion***

**** Final implementation closeout is made by either the DNR Project Manager or the Federal Agency Contracting Officer depending on which organization had lead role for construction of project.**

***** To be completed by DNR Project Manager.**

NRCS SUPPLEMENT TO COMPLETION REPORT

CONTRACT ADMINISTRATION

List any significant problems encountered in the administration of the construction contract and recommended solutions future contracts of this nature.

DESCRIPTION OF ITEM IN PLANS OR SPECS	RECOMMENDATIONS FOR FUTURE CONTRACTS
1. The access for equipment to the W-14 site was off of Hwy 433 right of way. This was agreed to by DOTD; however it was not included in the permit for the work issued by DOTD. Upon the contractor's arrival to off load equipment, DOTD stated that the contractor would not be allowed to this. After discussions with the District Engineer, DOTD did agree to allow the contractor to off load equipment and materials from Hwy 433 ROW.	It is recommended that all agreements be included in future DOTD permits. A thorough review should be made to ensure all work within a DOTD right of way is included in any permit issued by DOTD prior to the start of construction..

NRCS SUPPLEMENT TO COMPLETION REPORT

CONSTRUCTION PLANS & SPECIFICATIONS

List any items pertinent to the plans which caused problems, need clarification or changes for future contracts of this nature.

DESCRIPTION OF ITEM IN PLANS OR SPECS	RECOMMENDATIONS FOR FUTURE CONTRACTS
1. The items to be painted and or galvanized was confusing as written in the specifications and shown on the drawings.	It is recommended that a painting schedule be provided for all future contracts where various items will be coated. The schedule should identify the item, whether it is galvanized or not, the surface preparation required, and the paint system required.
2. The W-14 diversion drawings did not show any transitions. This left an abrupt change in the channel where construction stopped.	Where sections change significantly, the transitions should be detailed in the drawings.
3. The Hwy 90 culvert did not show enough details in the plans to accurately depict how the riprap and transitions were to be installed. Also there was no pipe bedding details provided.	Adequate details must be provided to accurately depict the required layout and construction of all features for future contracts.
4. The cap for the sheet pile weir and bulkhead was detailed as a rolled section of plate steel.	It is recommended that for future contracts a standard "C" section be specified and detailed as the cap for sheet pile structures.