

070196/Graphics/IP Figures-Relocated Outfall Structures/070196A01PA_vic.mxd | SBF | 04-15-2013



MAP SOURCE: ESRI, 2010.



Legend

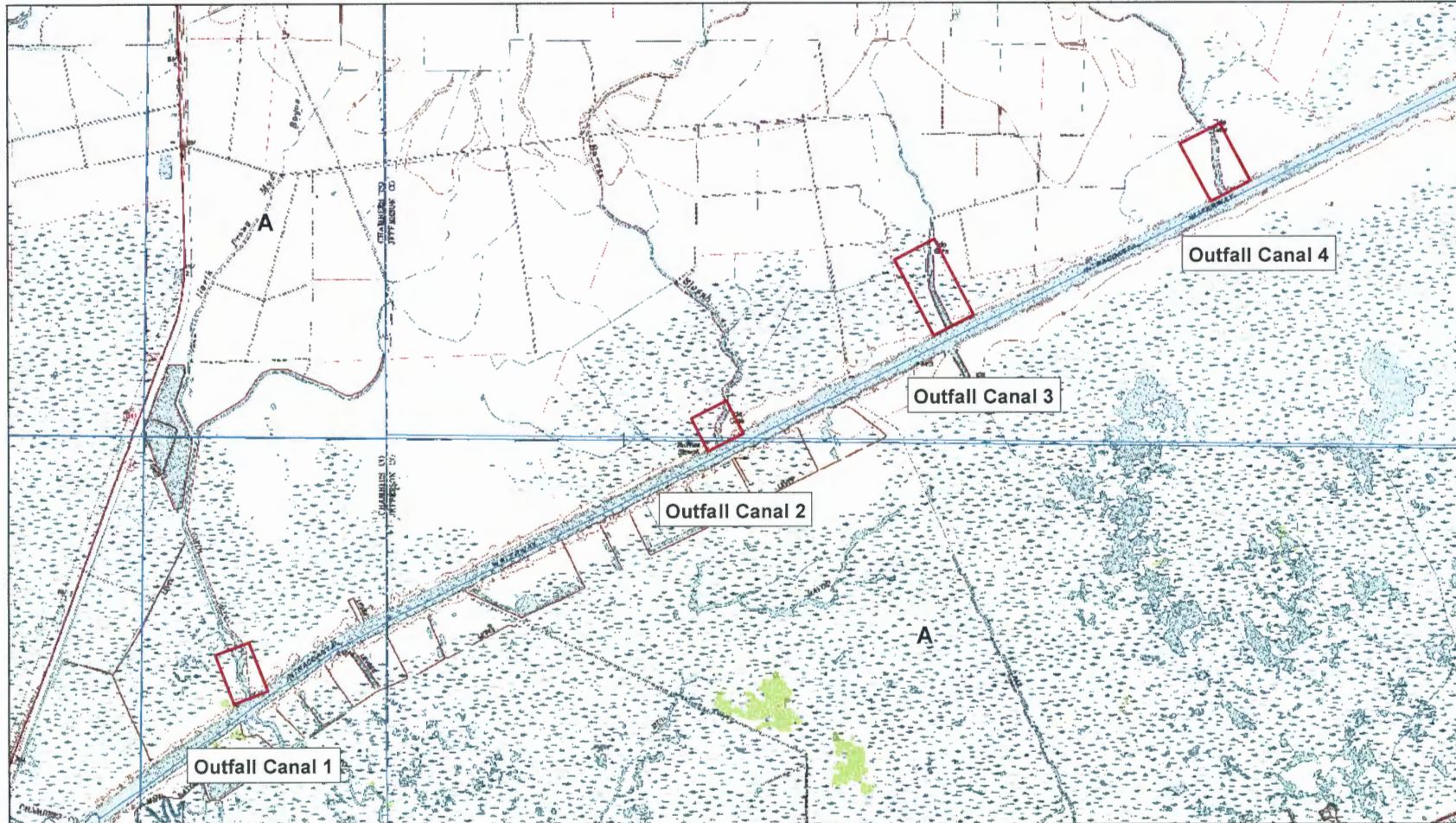
 Project Area



FIGURE 1
VICINITY MAP
RECONSTRUCTION OF OUTFALL CANALS
CHAMBERS AND JEFFERSON COUNTIES, TEXAS
SWG-2008-00352

Horizon
Environmental Services, Inc.

070196/Graphics/IP Figures-Reconstruct Canals/070196A02PA_topo-fema.mxd | SBF | 04-15-2013



MAP SOURCE: USGS, 1974 & 1994.



Legend

- Project Area
- A - 100 Year Floodplain



FIGURE 2

TOPOGRAPHY AND FLOOD MAP
RECONSTRUCTION OF OUTFALL CANALS
CHAMBERS AND JEFFERSON COUNTIES, TEXAS
SWG-2008-00352

070196/Graphics/IP Figures-Reconstruct Canals/070196A03PA_NW1.mxd | SBF | 04-15-2013



MAP SOURCE: USFWS, 2011a.



Legend
Project Area



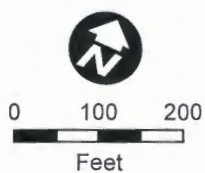
FIGURE 3
USFWS NWI MAP
RECONSTRUCTION OF OUTFALL CANALS
CHAMBERS AND JEFFERSON COUNTIES, TEXAS
SWG-2008-00352

Horizon
Environmental Services, Inc.

070196/Graphics/P_Figures-Reconstruct_Canals/070196A04PA_D01_2012.mxd I SBE I 04-15-2013



MAP SOURCE: USDA, JEFFERSON CO., 2012.



Legend
Project Area



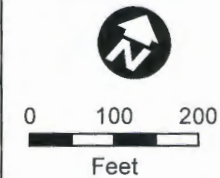
FIGURE 4
OUTFALL CANAL 1
2012 AERIAL PHOTOGRAPHY
RECONSTRUCTION OF OUTFALL CANALS
CHAMBERS AND JEFFERSON COUNTIES, TEXAS
SWG-2008-00352

070196/Graphics/Pl Figures-Reconstruct Canals/070196A05PA_OC1_JD.mxd | SBE | 04-15-2013



GULF INTRACOASTAL WATERWAY

MAP SOURCE: USDA, JEFFERSON CO., 2012.



Legend

- Project Area
- Project Limits
- Existing Levee
- Wetland Data Point

Jurisdictional Area

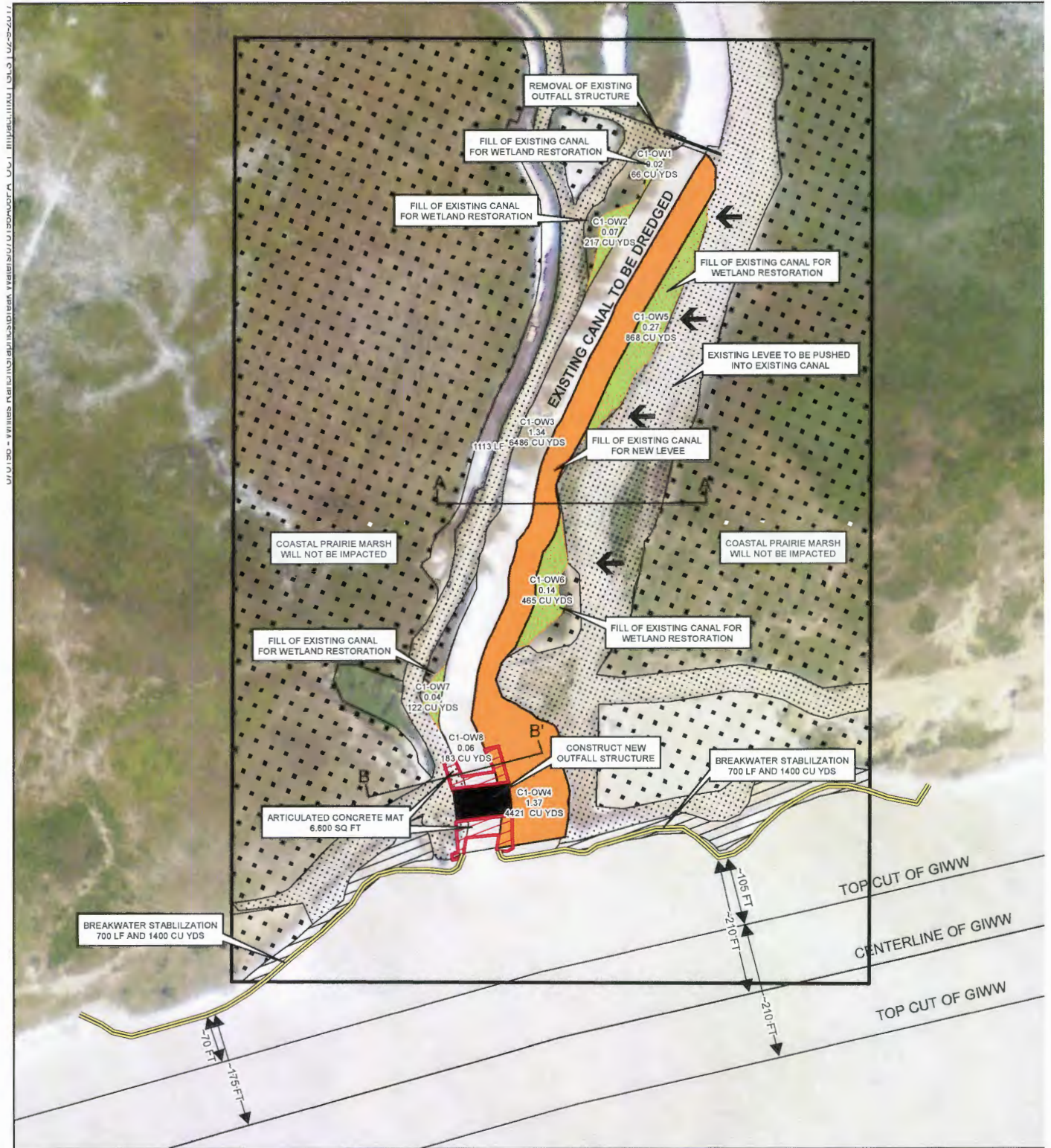
- Coastal Prairie Marsh
- Unvegetated Flat



FIGURE 5

OUTFALL CANAL 1
 JURISDICTIONAL DETERMINATION MAP
 RECONSTRUCTION OF OUTFALL CANALS
 CHAMBERS AND JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352

Horizon
 Environmental Services, Inc.



MAP SOURCE: USDA, JEFFERSON CO., 2012.

Legend

- Project Area
- Outfall Structure 1
- Existing Levee
- Jurisdictional Area
 - Coastal Prairie Marsh
 - Unvegetated Flat

0 100 200
 Feet

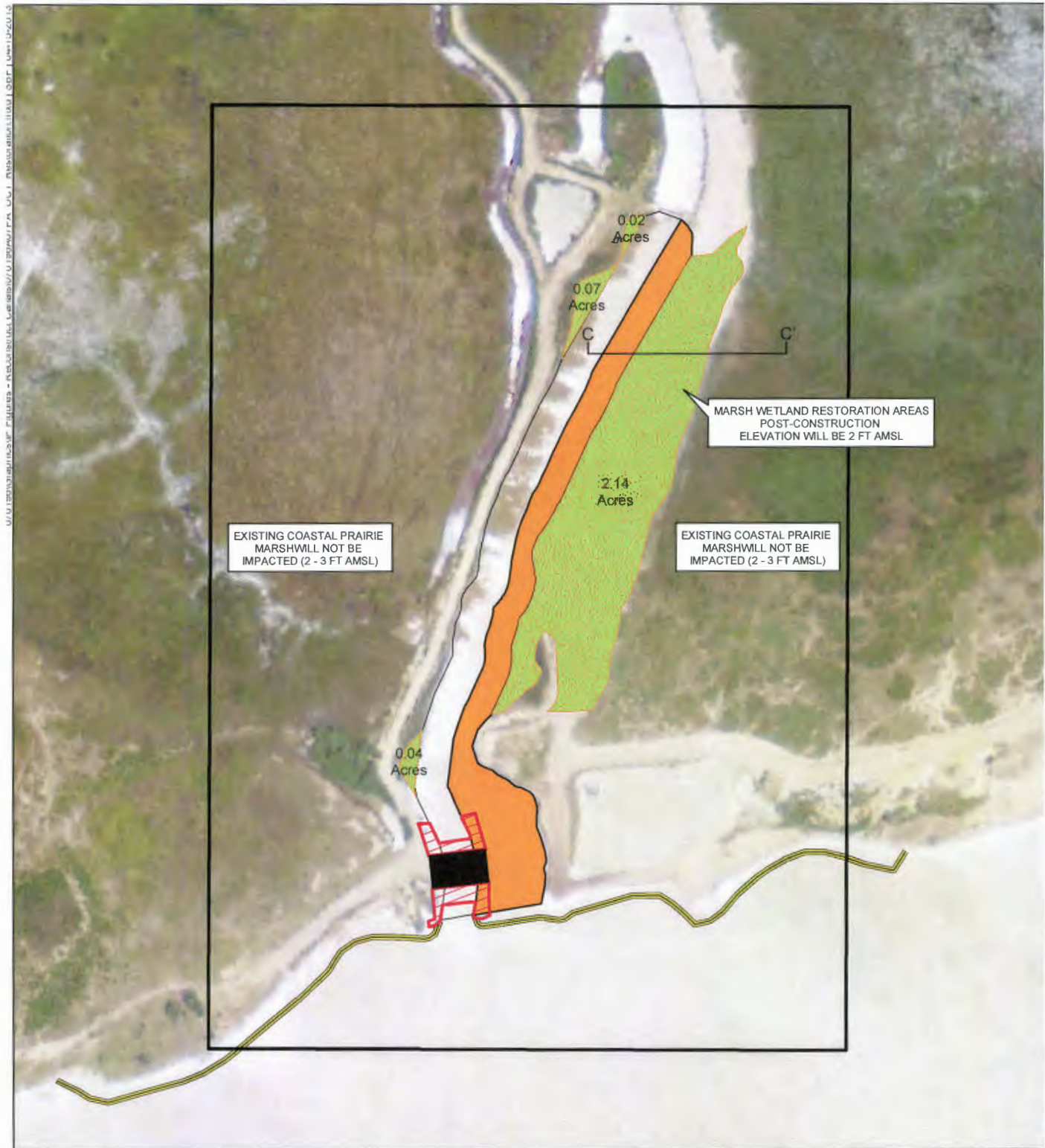
Horizon
 Environmental Services, Inc.

Impact Area

Construction Activity

- Excavation - Existing Canal
- Fill - New Levee
- Fill - Wetland Restoration
- Fill - New Outfall Structure
- Articulated Concrete Mat Polygon
- Breakwater

FIGURE 6 REV
 OUTFALL CANAL 1
 RECONSTRUCTION OF OUTFALL CANAL MAP
 CHAMBERS AND
 JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352



MAP SOURCE: USDA, JEFFERSON CO., 2012.



- Legend**
- Project Area
 - Marsh Wetland Restoration
 - Fill - New Outfall Structure
 - Articulated Concrete Mat Polygon
 - Breakwater
- Impact Area**
- Construction Activity**
- Excavation - Existing Canal
 - Fill - New Levee



FIGURE 7 REV
 OUTFALL CANAL 1
 RESTORATION PLAN
 CHAMBERS AND
 JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352



070196/Graphics/JP_Figures-Reconstruct Canals/070196A08PA_OC2_2012Aer.mxd | SBF | 04-15-2013

MAP SOURCE: USDA, JEFFERSON CO., 2012.



0 100 200
Feet

Legend

 Project Area



FIGURE 8

OUTFALL CANAL 2
2012 AERIAL PHOTOGRAPHY
RECONSTRUCTION OF OUTFALL CANALS
CHAMBERS AND JEFFERSON COUNTIES, TEXAS
SWG-2008-00352

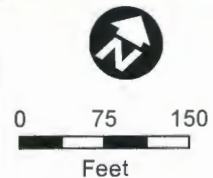
Horizon
Environmental Services, Inc.

070196AC:\arh\c\p\Figures-Reconstruct Canals\070196A\09PA_OC2_ID.mxd | SBF | 04-15-2013



GULF INTRACOASTAL WATERWAY

MAP SOURCE: USDA, JEFFERSON CO., 2012.



Legend

- Project Area
- Project Limits
- Existing Levee
- Wetland Data Point
- Jurisdictional Area**
- Coastal Prairie Marsh
- Unvegetated Flat



FIGURE 9

OUTFALL CANAL 2
JURISDICTIONAL DETERMINATION MAP
RECONSTRUCTION OF OUTFALL CANALS
CHAMBERS AND JEFFERSON COUNTIES, TEXAS
SWG-2008-00352

Horizon
Environmental Services, Inc.



MAP SOURCE: USDA, JEFFERSON CO., 2012.

0 100 200
 Feet

Horizon
 Environmental Services, Inc.

Legend

- Breakwater
- Outfall Structure 1
- Existing Levee
- Coastal Prairie Marsh
- Unvegetated Flat

Jurisdictional Area

- Coastal Prairie Marsh
- Unvegetated Flat

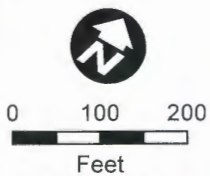
Impact Area

- Excavation - Existing Canal
- Fill - New Levee
- Fill - Wetland Restoration
- Fill - New Outfall Structure
- Articulated Concrete Mat Polygon
- Breakwater

FIGURE 10 REV
 OUTFALL CANAL 2
 RECONSTRUCTION OF OUTFALL CANAL MAP
 CHAMBERS AND JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352



MAP SOURCE: USDA, JEFFERSON CO., 2012.



Legend

- Project Area
- Breakwater
- Articulated Concrete Mat Polygon
- Marsh Wetland Restoration

Impact Area

- Excavation - Existing Canal
- Fill - New Levee
- Fill - New Outfall Structure



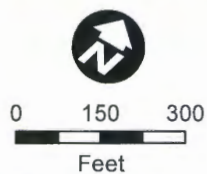
FIGURE 11 REV

OUTFALL CANAL 2
 RESTORATION PLAN
 CHAMBERS AND
 JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352

070196[Graphics/IP_Figures-Reconstruct_Canals\070196A12PA_OC3_2012Aer.mxd | SBF | 04-15-2013



MAP SOURCE: USDA, JEFFERSON CO., 2012.



Legend
Project Area

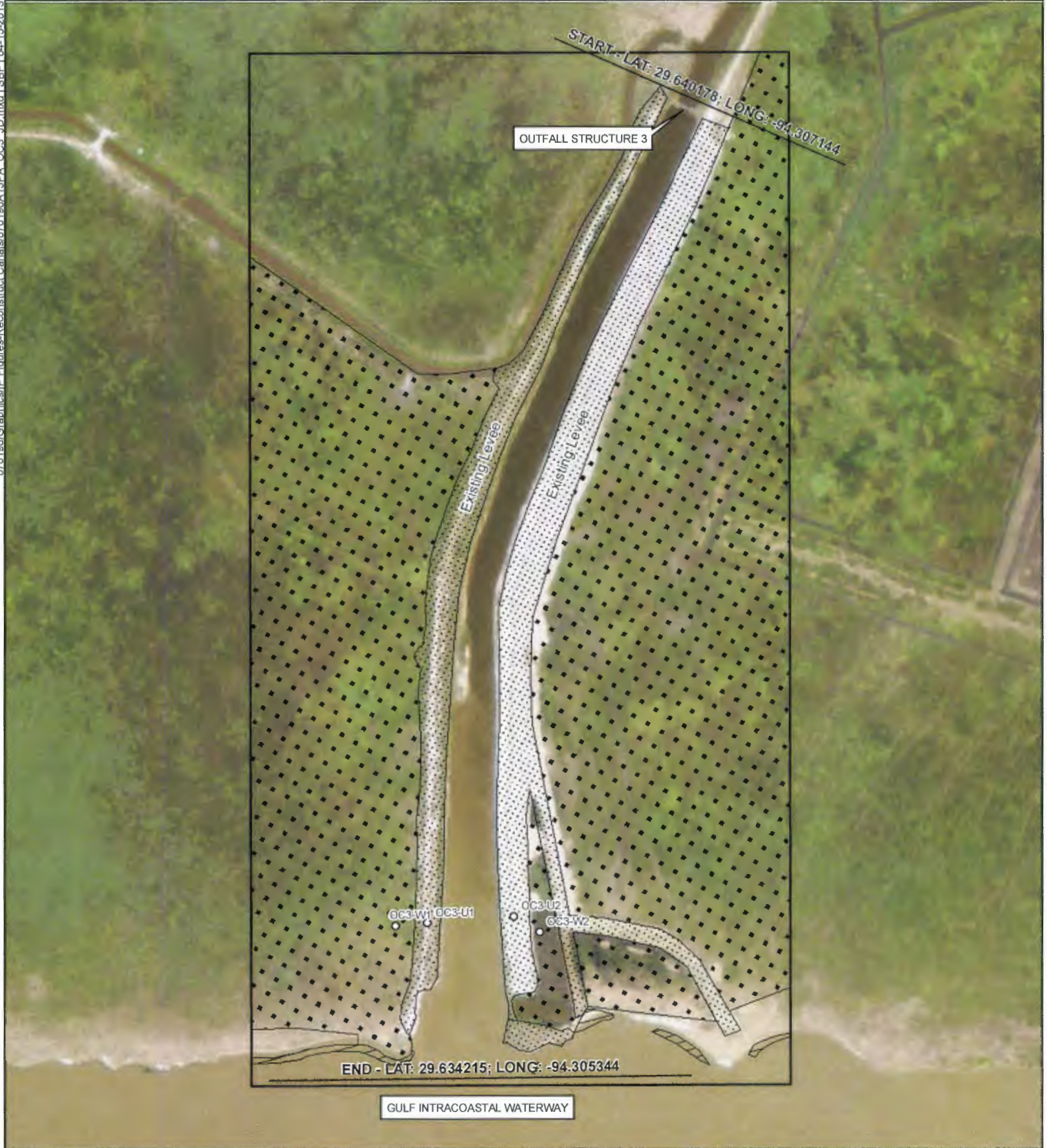


FIGURE 12

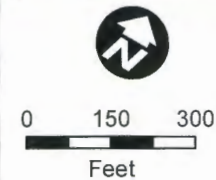
OUTFALL CANAL 3
2012 AERIAL PHOTOGRAPHY
RECONSTRUCTION OF OUTFALL CANALS
CHAMBERS AND JEFFERSON COUNTIES, TEXAS
SWG-2008-00352

Horizon
Environmental Services, Inc.

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MAP SOURCE: USDA, JEFFERSON CO., 2012.



Legend

- Project Area
- Project Limits
- Existing Levee
- Wetland Data Point

Jurisdictional Area

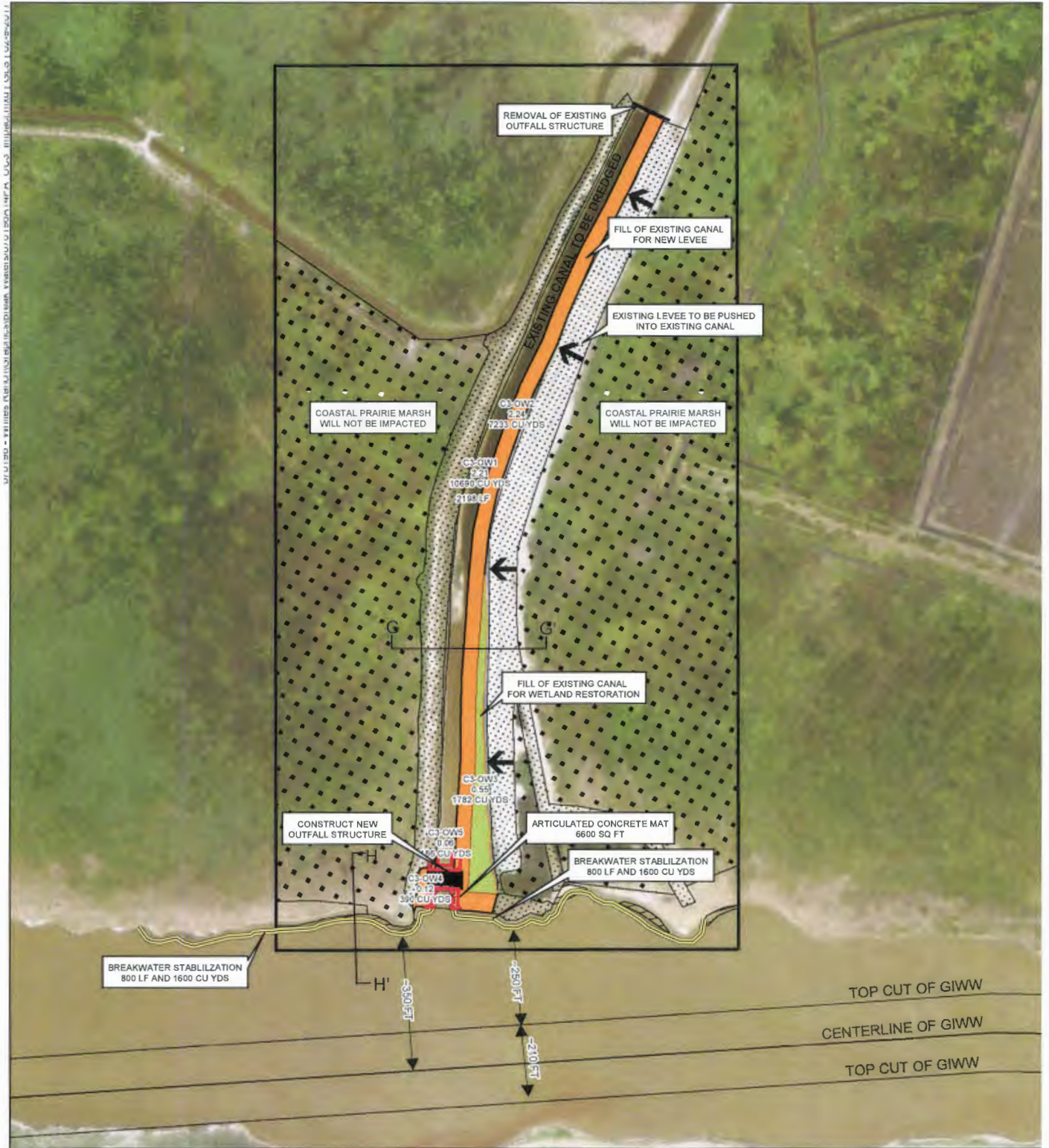
- Coastal Prairie Marsh
- Unvegetated Flat



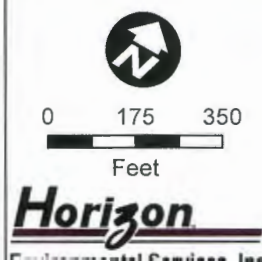
FIGURE 13

OUTFALL CANAL 3
 JURISDICTIONAL DETERMINATION MAP
 RECONSTRUCTION OF OUTFALL CANALS
 CHAMBERS AND JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352

Horizon
 Environmental Services, Inc.



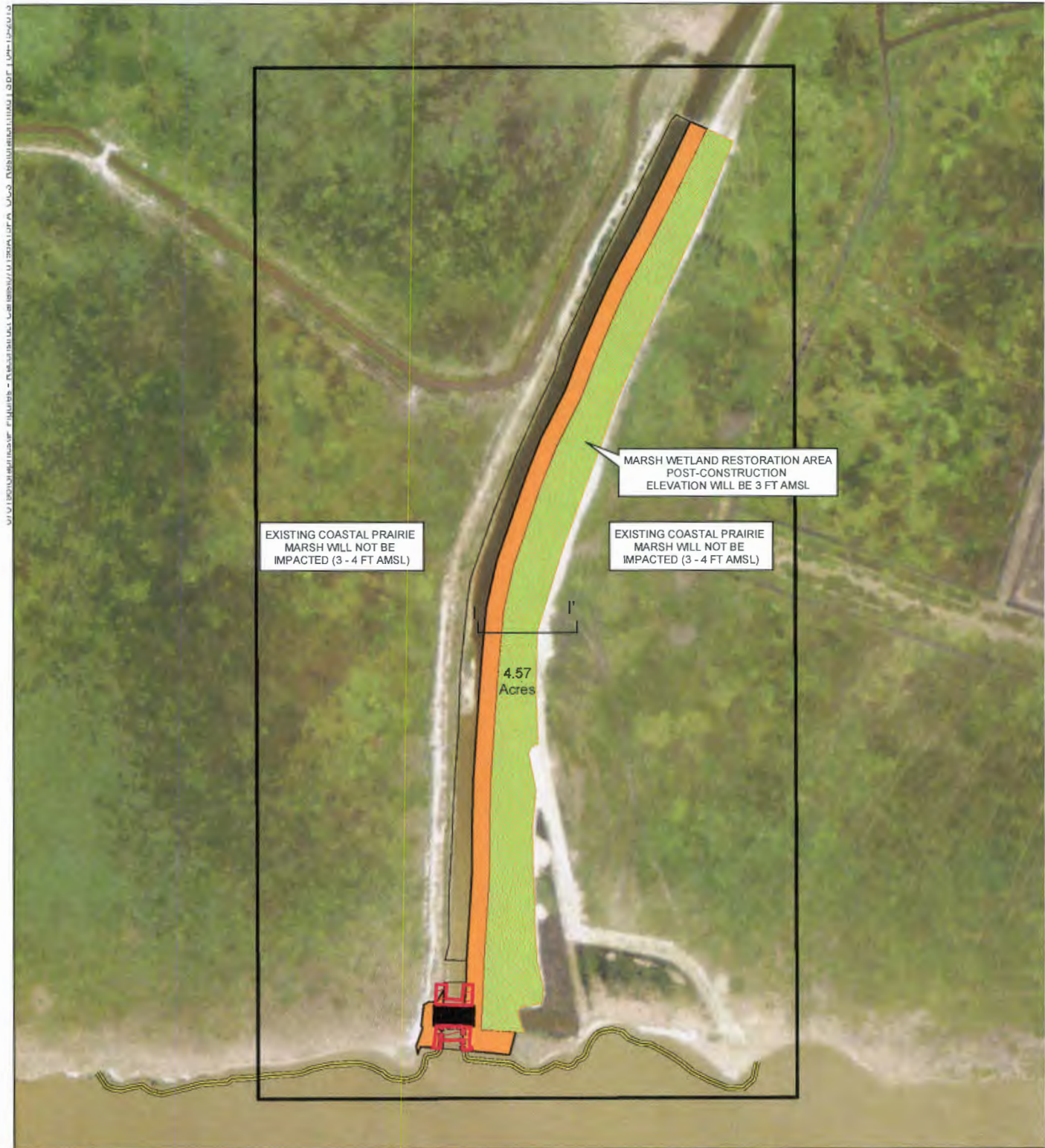
MAP SOURCE: USDA, JEFFERSON CO., 2012.



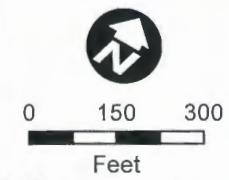
Legend	
	Project Area
	Outfall Structure 3
	Existing Levee
Jurisdictional Area	
	Coastal Prairie Marsh
	Unvegetated Flat
Impact Area	
Construction Activity	
	Excavation - Existing Canal
	Fill - New Levee
	Fill - Wetland Restoration
	Fill - New Outfall Structure
	Articulated Concrete Mat Polygon
	Breakwater



FIGURE 14 REV
 OUTFALL CANAL 3
 RECONSTRUCTION OF OUTFALL CANAL MAP
 CHAMBERS AND JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352



MAP SOURCE: USDA, JEFFERSON CO., 2012.



- Legend**
- Project Area
 - Marsh Wetland Restoration
 - Articulated Concrete Mat Polygon
 - Articulated Concrete Mat
 - Breakwater

- Impact Area**
- Construction Activity**
- Excavation - Existing Canal
 - Fill - New Levee
 - Fill - New Outfall Structure



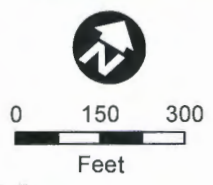
FIGURE 15 REV

OUTFALL CANAL 3
 RESTORATION PLAN
 CHAMBERS AND
 JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352

070196\Graphics\IP_Figures-Reconstruct_Canals\070196A16PA_OC4_2012Aer.mxd | SBF | 04-15-2013



MAP SOURCE: USDA, JEFFERSON CO., 2012.



Legend
Project Area



FIGURE 16
OUTFALL CANAL 4
2012 AERIAL PHOTOGRAPHY
RECONSTRUCTION OF OUTFALL CANALS
CHAMBERS AND JEFFERSON COUNTIES, TEXAS
SWG-2008-00352

Horizon
Environmental Services, Inc.

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MAP SOURCE: USDA, JEFFERSON CO., 2012.



0 125 250
 Feet

Horizon
 Environmental Services, Inc.

Legend

- Project Area
- Project Limits
- Existing Levee
- Wetland Data Point

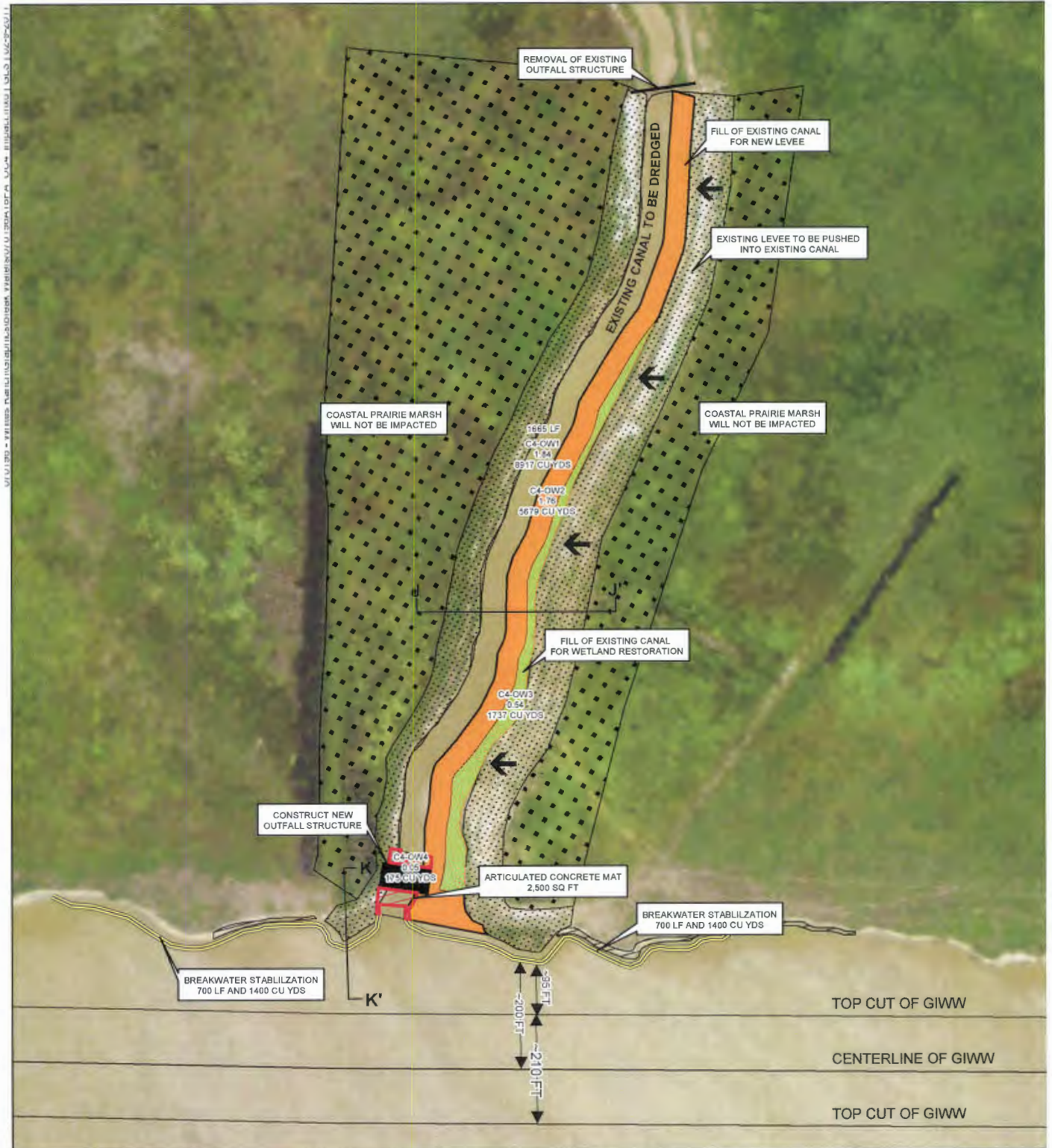
Jurisdictional Area

- Coastal Prairie Marsh
- Unvegetated Flat



FIGURE 17

OUTFALL CANAL 4
 JURISDICTIONAL DETERMINATION MAP
 RECONSTRUCTION OF OUTFALL CANALS
 CHAMBERS AND JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352



MAP SOURCE: USDA, JEFFERSON CO., 2012.

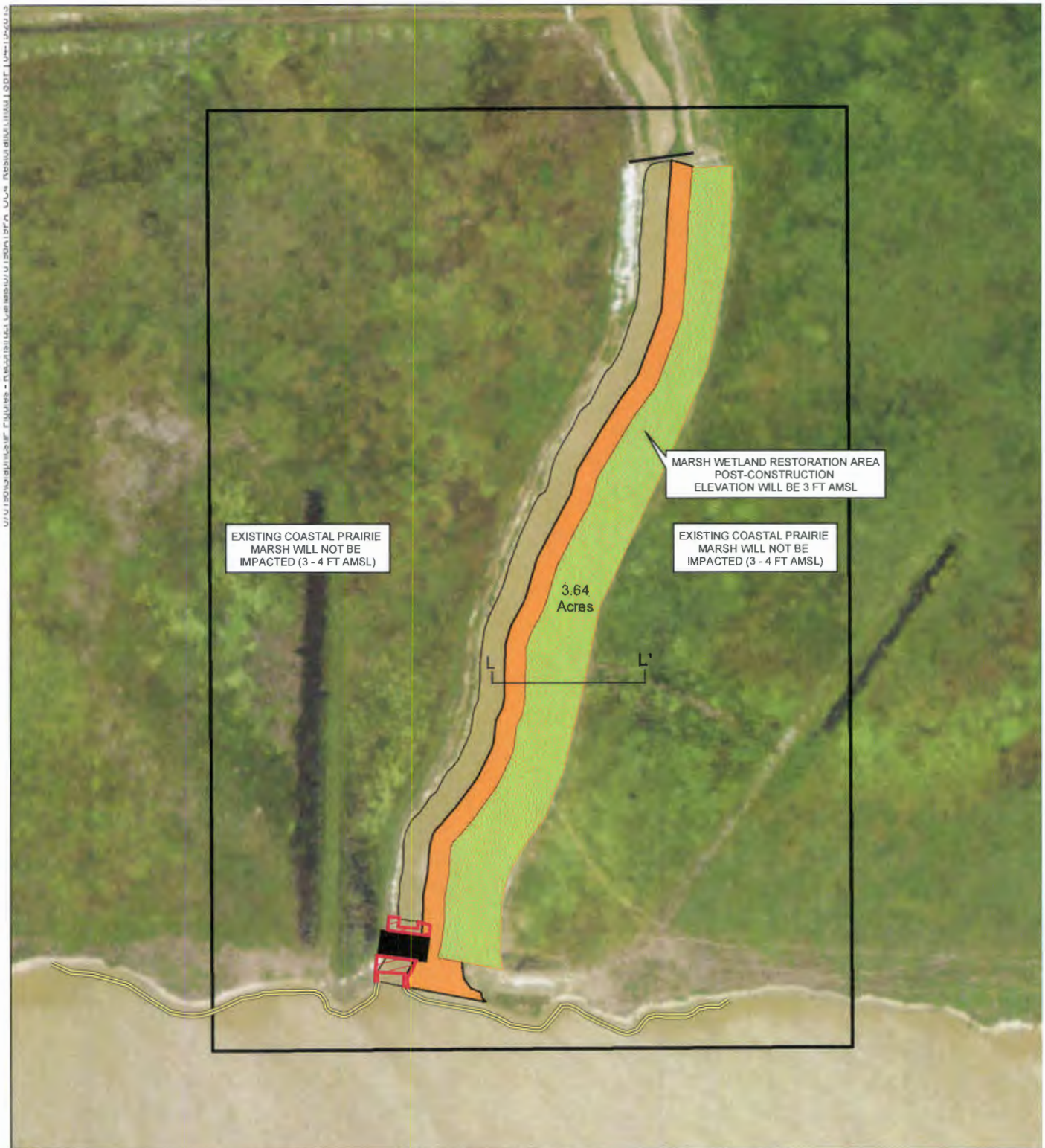
Horizon
 Environmental Services, Inc.

- Legend**
- Impact Area**
- Construction Activity**
- Excavation - Existing Canal
 - Fill - New Levee
 - Fill - Wetland Restoration
 - Outfall Structure 4
- Jurisdictional Area**
- Fill - New Outfall Structure
 - Coastal Prairie Marsh
 - Unvegetated Flat
 - Existing Levee
 - Articulated Concrete Mat Polygon
 - Breakwater



FIGURE 18 REV

OUTFALL CANAL 4
 RECONSTRUCTION OF OUTFALL CANAL MAP
 CHAMBERS AND JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352



MAP SOURCE: USDA, JEFFERSON CO., 2012.

0 125 250
 Feet

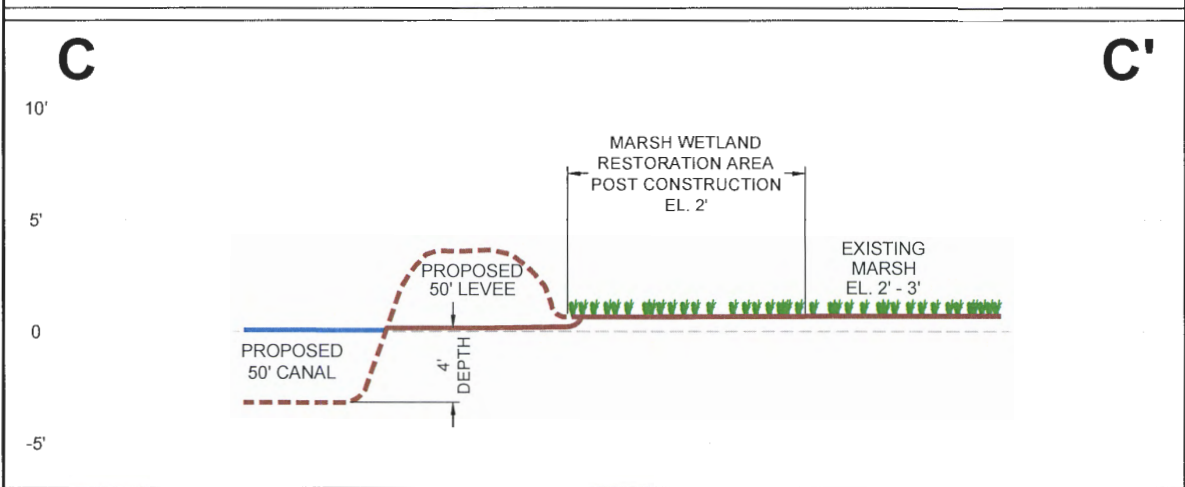
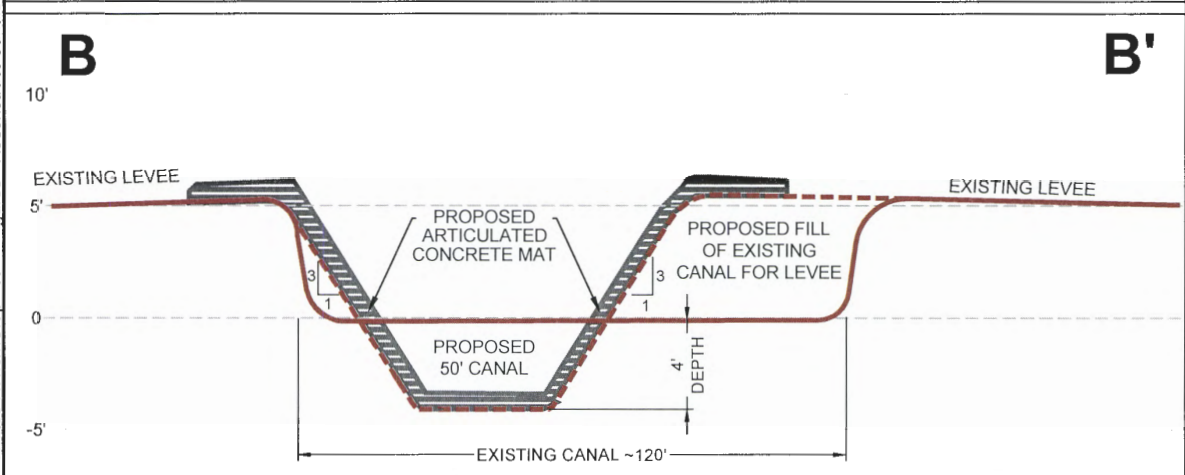
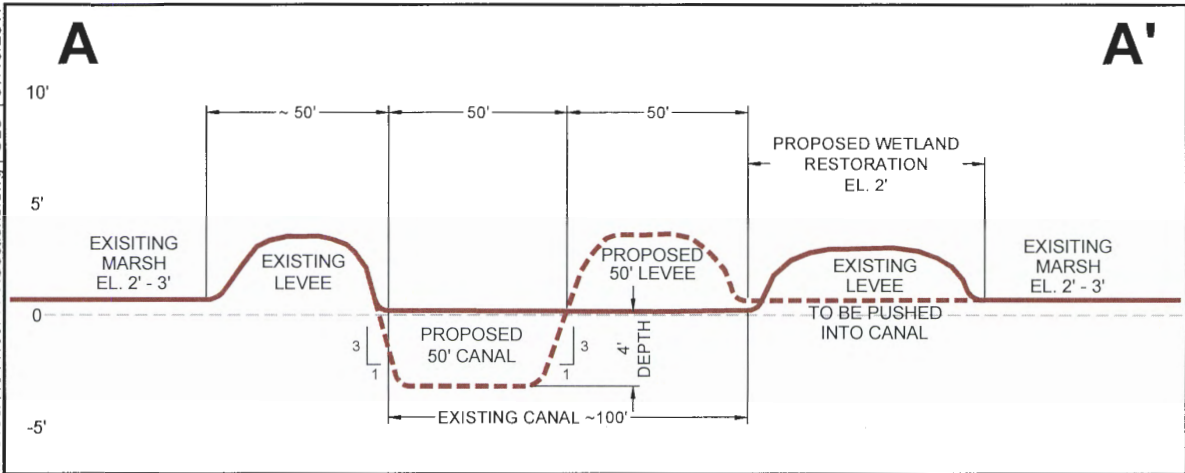
Horizon
 Environmental Services, Inc.

- Legend**
- Articulated Concrete Mat Polygon
 - Breakwater
 - Outfall Structure 4
 - Project Area
 - Marsh Wetland Restoration
- Impact Area**
- Construction Activity**
- Excavation - Existing Canal
 - Fill - New Levee
 - Fill - New Outfall Structure



FIGURE 19 REV
 OUTFALL CANAL 4
 RESTORATION PLAN
 CHAMBERS AND
 JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352

070196 - Whites Ranch\Graphics\IP_Figures - Reconstruct Canals\070196A43-A469PA_XSections.dwg | GLS | 07/19/2017



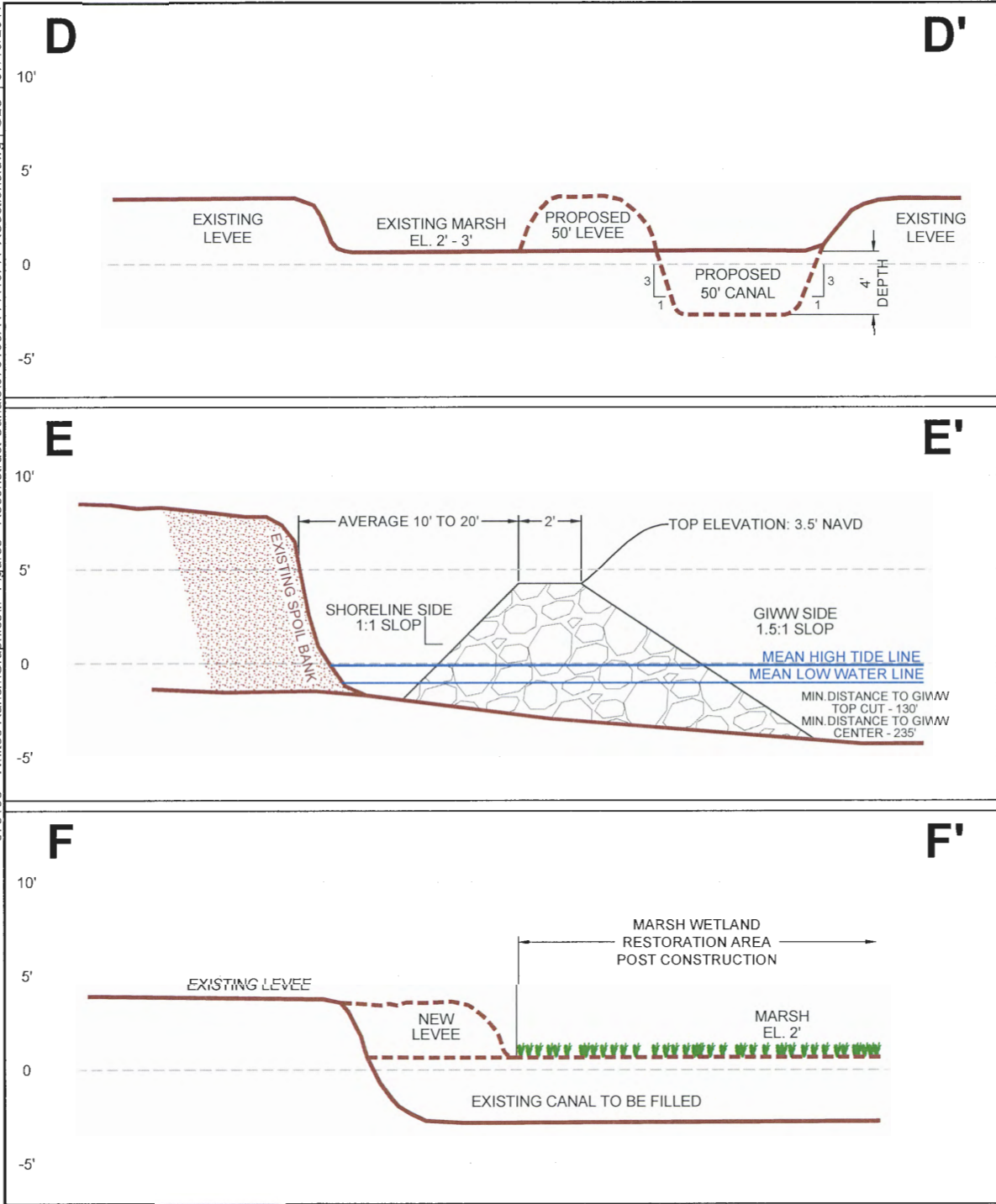
NOT TO SCALE



Horizon
 Environmental Services, Inc.

FIGURE 20 REV
 CROSS SECTIONS A-A' & B-B' OUTFALL AND
 POST CONSTRUCTION CROSS SECTION C-C' OUTFALL
 CANAL 1 - WHITE RANCH
 RECONSTRUCTION OF OUTFALL CANALS
 CHAMBERS AND JEFFERSON COUNTIES, TEXAS

070196 - Whites Ranch\Graphics\IP Figures - Reconstruct Canals\070196A44-A46PA_XSections.dwg | GLS | 07/19/2017



NOT TO SCALE



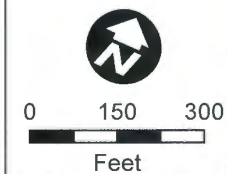
Do Not Scale This Drawing



FIGURE 22
 CROSS SECTIONS D-D' & E-E' OUTFALL AND
 POST CONSTRUCTION CROSS SECTION F-F' OUTFALL
 CANAL 2 - WHITE RANCH
 RECONSTRUCTION OF OUTFALL CANALS
 CHAMBERS AND JEFFERSON COUNTIES, TEXAS



MAP SOURCE: USDA, JEFFERSON CO., 2012.



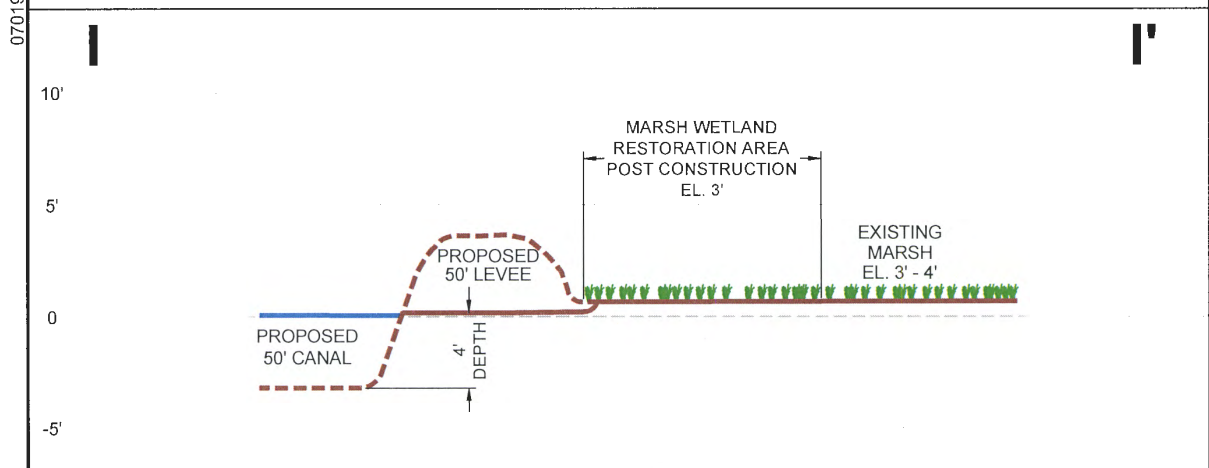
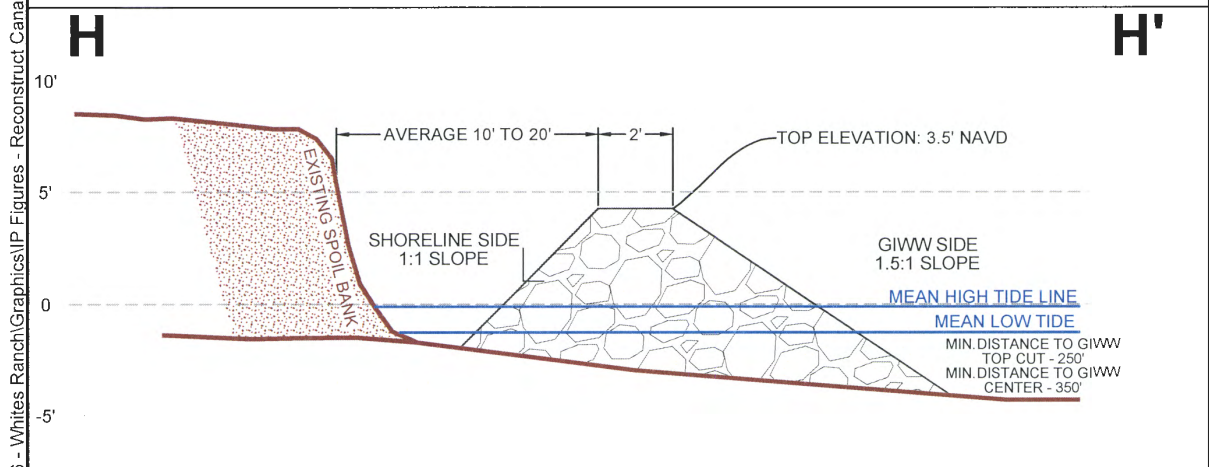
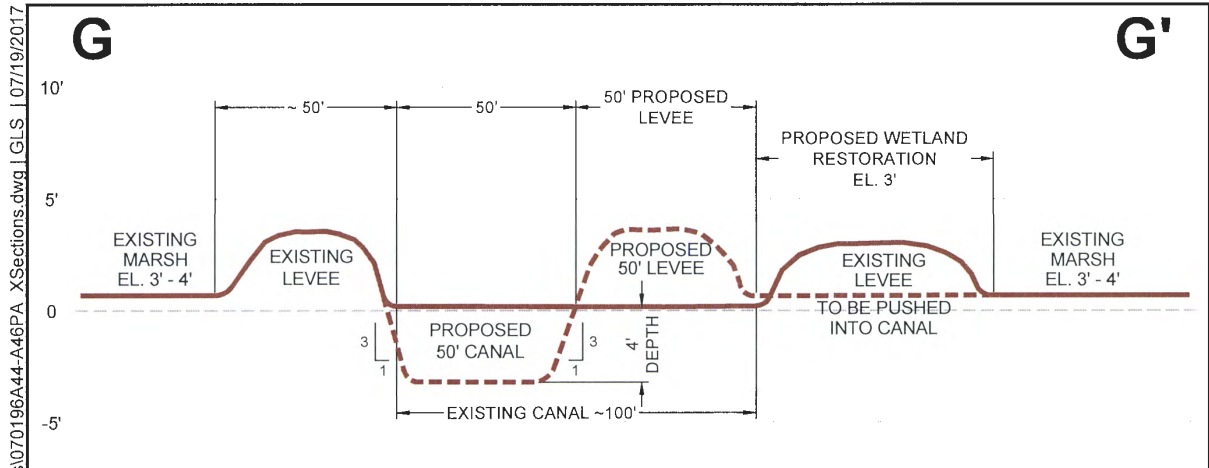
- Legend**
- Articulated Concrete Mat Polygon
 - Breakwater
 - Outfall Structure 4
 - Proposed Wetland Restoration Elevation (ft)
 - Existing Elevation (ft)
 - Marsh Wetland Restoration

- Impact Area**
- Construction Activity**
- Excavation - Existing Canal
 - Fill - New Levee
 - Fill - New Outfall Structure



FIGURE 23 REV

CANAL 2
 PROPOSED WETLAND RESTORATION ELEVATIONS
 RESTORATION PLAN
 CHAMBERS AND JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352



NOT TO SCALE

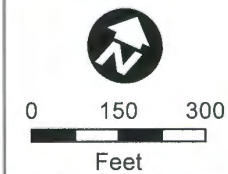
FIGURE 24 REV
 CROSS SECTIONS G-G' & H-H' OUTFALL AND
 POST CONSTRUCTION CROSS SECTION I-I' OUTFALL
 CANAL 3 - WHITE RANCH
 RECONSTRUCTION OF OUTFALL CANALS
 CHAMBERS AND JEFFERSON COUNTIES, TEXAS

Horizon
 Environmental Services, Inc.

Do Not Scale This Drawing



MAP SOURCE: USDA, JEFFERSON CO., 2012.



- Legend**
- Articulated Concrete Mat Polygon
 - Breakwater
 - Outfall Structure 4
 - Proposed Wetland Restoration Elevation (ft)
 - Existing Elevation (ft)
 - Marsh Wetland Restoration

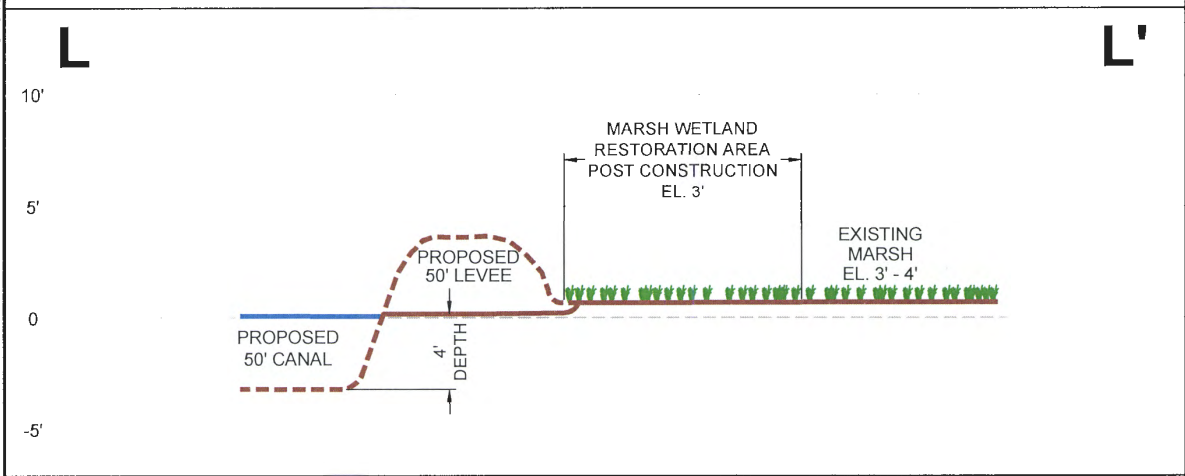
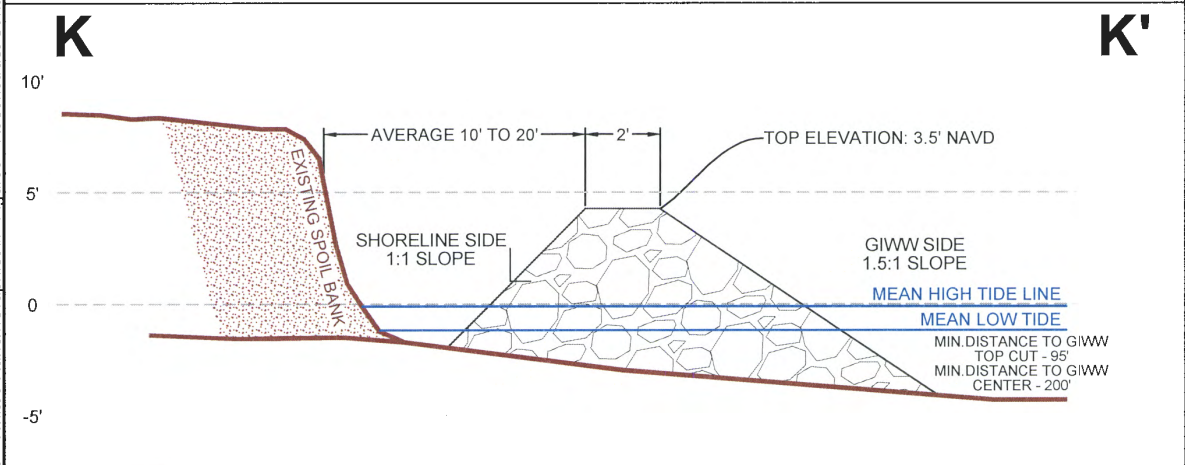
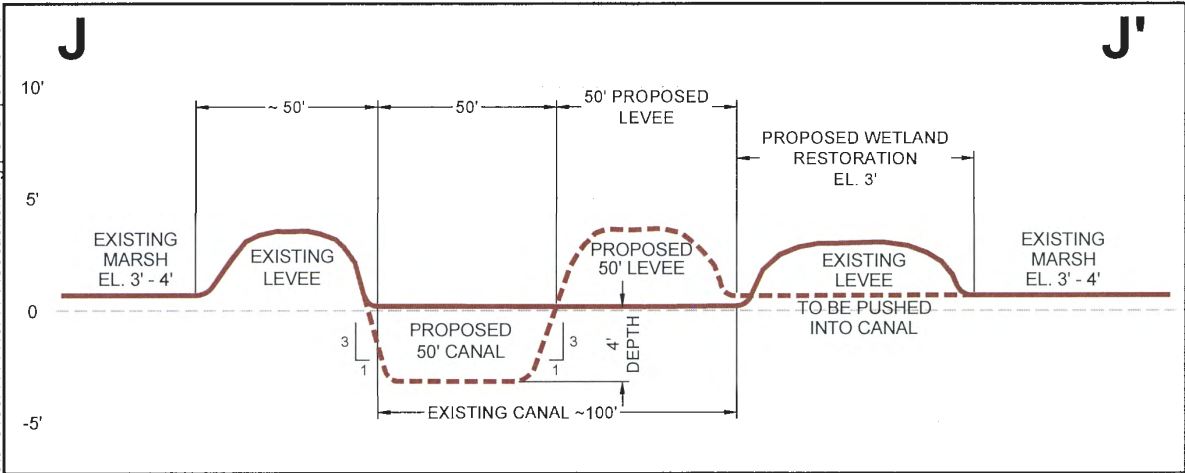
- Impact Area**
- Construction Activity**
- Excavation - Existing Canal
 - Fill - New Levee
 - Fill - New Outfall Structure



FIGURE 25 REV

CANAL 3
 PROPOSED WETLAND RESTORATION ELEVATIONS
 RESTORATION PLAN
 CHAMBERS AND JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352

070196 - Whites Ranch\Graphics\IP Figures - Reconstruct Canals\070196A44-A46PA_XSections.dwg | GLS | 07/19/2017



NOT TO SCALE



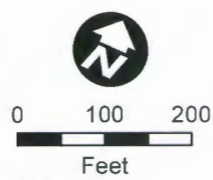
Horizon
 Environmental Services, Inc.

FIGURE 26 REV
 CROSS SECTIONS J-J' & K-K' OUTFALL AND
 POST CONSTRUCTION CROSS SECTION L-L' OUTFALL
 CANAL 4 - WHITE RANCH
 RECONSTRUCTION OF OUTFALL CANALS
 CHAMBERS AND JEFFERSON COUNTIES, TEXAS

Do Not Scale This Drawing



MAP SOURCE: USDA, JEFFERSON CO., 2012.



- Legend**
- Proposed Wetland Restoration Elevation (ft)
 - Existing Elevation (ft)
 - Marsh Wetland Restoration
 - Articulated Concrete Mat Polygon
 - Breakwater
 - Outfall Structure 4

- Impact Area**
- Excavation - Existing Canal
 - Fill - New Levee
 - Fill - New Outfall Structure



FIGURE 27 REV

CANAL 4
 PROPOSED WETLAND RESTORATION ELEVATION:
 RESTORATION PLAN
 CHAMBERS AND JEFFERSON COUNTIES, TEXAS
 SWG-2008-00352