

Deepwater Port License Application Blue Marlin Offshore Port (BMOP) Project

*Volume IIb – Onshore Project Components Environmental Evaluation (Public)
Topic Report 6: Cultural Resources*

Submitted to:



Maritime Administration
Office of Deepwater Ports and Offshore
Activities
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Deepwater Port License Application Blue Marlin Offshore Port (BMOP) Project

- Volume I: General (Public), including Deepwater Port License Application and Appendices
(under separate cover)
- Volume IIa: Offshore Project Components Environmental Evaluation (Public)
(under separate cover)
- Volume IIb: Onshore Project Components, Environmental Evaluation (Public)**
(herein)
- Volume III: Technical Information
[**Confidential**]
(under separate cover)
- Volume IV: Company and Financial Information
[**Confidential**]
(under separate cover)

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TABLE OF CONTENTS

6.0	CULTURAL RESOURCES	6-1
6.1	PROJECT OVERVIEW	6-1
6.1.1	Abandonment and Conversion of Existing Facilities	6-2
6.1.2	Major Onshore Project Components.....	6-2
6.2	EXISTING ENVIRONMENT.....	6-5
6.2.1	Geology.....	6-5
6.2.2	Archaeological Sites	6-6
6.2.2.1	Archaeological Sites- Sabine Lake.....	6-7
6.2.3	Built Resources and Cemeteries	6-7
6.3	CULTURAL RESOURCE EVALUATIONS	6-7
6.3.1	Cultural Resource Surveys.....	6-8
6.3.1.1	Objectives.....	6-8
6.3.1.2	Data Analysis Procedures.....	6-8
6.3.1.3	Airboat Survey, Pedestrian Survey and Shovel Test Excavations.....	6-8
6.3.1.4	Archaeological Resources Investigated.....	6-9
6.3.1.5	Aboveground Structures.....	6-10
6.3.1.6	Cemeteries	6-11
6.3.1.7	Unanticipated Discovery of Artifacts or Human Remains	6-11
6.3.1.8	Data Analysis Procedures – Sabine Lake	6-11
6.3.1.9	Archaeological Resources Investigated – Sabine Lake	6-12
6.4	ENVIRONMENTAL CONSEQUENCES	6-13
6.4.1	Archaeological Resources.....	6-13
6.4.1.1	Construction and Installation.....	6-13
6.4.1.2	Operations.....	6-14
6.4.1.1	Upsets and Accidents	6-14
6.4.1.1	Decommissioning.....	6-15
6.5	CUMULATIVE IMPACTS.....	6-15
6.6	MITIGATION MEASURES	6-15
6.7	SUMMARY OF POTENTIAL IMPACTS	6-15

LIST OF TABLES

TABLE 6-1 Previously Recorded Site.....6-7

LIST OF FIGURES

FIGURE 6-1 Project Overview Map6-3
FIGURE 6-2 Onshore Project Component Overview Map.....6-4

DEEPWATER PORT LICENSE APPLICATION APPENDICES

LIST OF APPENDICES	
Topic Report	Volume I General (Public)
A	Figures
B	Project Schedule
C	Permit Applications
C-1	U.S. Army Corps of Engineers Section 10/404 Permit Application/Coastal Zone Consistency Form / Louisiana Coastal Use Permit (CUP) Application; Section 408 Application
C-2	U.S. Environmental Protection Agency National Pollutant Discharge Elimination System (NPDES) Permit Applicability Evaluation
C-3	LDEQ General Permit No. LAG670000
C-4	U.S. Environmental Protection Agency Region 6 Prevention of Significant Deterioration (PSD) Air Permit Application (Public)
C-5	Title V Application
C-6	112g Application (Public)
Appendix	Volume IIa Offshore Project Components Environmental Evaluation (Public)
A	Offshore Project Mapping
B	Agency and Stakeholder Correspondence
B-1	Agency Correspondence
B-2	Meeting Minutes
C	Cumulative Impacts Analysis – Offshore and Onshore
D	Essential Fish Habitat Assessment
E	Marine Mammal Assessment
F	Oil Spill Consequence Analysis and Risk Assessment
F-1	Evaluation of Hydrocarbon Discharges from the Blue Marlin Offshore Port Project Using OILMAPLAND and SIMAP Trajectory, Fate, and Effects Modeling (Public Version)
F-2	Oil Spill Risk (Probability) Assessment for Blue Marlin Offshore Port (BMOP) Project
F-3	Blue Marlin Offshore Port Tactical Response Plan (Public Version)
G	Air Emissions Calculations
G-1	Emissions Calculations for Offshore Construction, Stationary, and Mobile Sources
G-2	National Environmental Policy Act Air Dispersion Modeling Report
Appendix	Volume IIb Onshore Project Components Environmental Evaluation (Public)
A	Onshore Project Mapping
A-1	USGS Topographic Quadrangle Maps
A-2	Aerial Alignment Sheets
A-3	National Wetland Inventory (NWI) Maps
A-4	Natural Resource Conservation (NRCS) Soils Maps
A-5	Land Use Maps
B	Typical and Site-Specific Detail Drawings
B1	Typical Drawings
B1-1	Typical Upland Crossing ROW Configuration

LIST OF APPENDICES	
B1-2	Typical Upland Workspace Construction Area - Parallel Transmission Line & Foreign Pipeline
B1-3	Typical Upland Workspace Construction Area - Parallel Transmission Line & Foreign Pipeline
B1-4	Typical Agricultural Crossing ROW Configuration
B1-5	Typical Push/Pull Wetland Crossing ROW Configuration
B1-6	Typical Saturated Wetland Crossing ROW Configuration
B1-7	Typical Unsaturated Wetland Crossing ROW Configuration
B1-8	Typical Lake Construction ROW Configuration
B1-9	Typical Waterbody Wet Open Cut Construction Configuration
B1-10	Typical Construction Bored Road Crossing
B1-11	Typical Construction Shore to Shore HDD
B1-12	Typical Shore to Water HDD Construction
B1-13	Typical Construction Water to Shore HDD
B1-14	Typical Water to Water HDD Construction
B1-15	Typical 42-inch Pipeline Dredged HDD Hole Overbend Tie-In Method
B1-16	Typical Lake Barge Dredging
B1-17	Typical Lake Barge Pipe Lay
B1-18	Typical Construction Straw Bale Dewatering Structure
B1-19	Typical Construction Filter Bag
B1-20	Typical Onshore Pipeline Launcher
B1-21	Typical Mainline Valve
B1-22	Typical Mainline Valve on Platform
B2	Site-Specific Drawings of Onshore Facility Components
B2-1	Site-Specific Drawing – BMOP Pump Station
B2-2	Site-Specific Drawing – Station 501
B2-3	Site-Specific Drawing – Stingray Tap Removal Site
B2-4	Site-Specific Drawing - Station 701
B3	Site-Specific HDD Drawings
C	Onshore Project Construction and Mitigation Plans
C-1	Onshore Construction Best Management Practice (BMP) Plan
C-2	Revegetation Plan
C-3	Spill Prevention and Response (SPAR) Plan
C-4	Unanticipated Discovery Plan
C-5	Horizontal Directional Drill (HDD) Contingency Plan
D	Natural Resource Field Survey Reports
D-1	Wetland and Waterbody Delineation Report
D-2	Listed Species Report (Public Version)
D-3	Benthic (Oyster) Survey Report [Final Report to be submitted at a later date] TPWD and LDWF correspondence included.

LIST OF APPENDICES	
E	Onshore Air Quality Calculations
F	Noise Assessment for HDD Operations
Appendix	Volume III Confidential Information
A	Landowner List
B	Oil Spill Consequence Analysis
B-1	Evaluation of Hydrocarbon Discharges from the Blue Marlin Offshore Port Project Using OILMAPLAND and SIMAP Trajectory, Fate, and Effects Modeling (Full Version)
B-2	Blue Marlin Offshore Port Tactical Response Plan (Full Version)
C	Geotechnical Investigation
D	Geophysical and Hazard Survey
E	Archeological Investigations (Onshore and Offshore)
E-1	Onshore Texas Archeological Investigations
E-2	Onshore Louisiana Archeological Investigations
E-3	Offshore Archeological Investigations
E-4	Sabine Lake Archeological Investigations
F	DWP Design Basis
G	Port Operations Manual
H	MetOcean Criteria Report
I	DWP Components and Layout
J	Pipeline Conversion Study with Stingray Mainline Integrity Assessment
K	BSEE ROW and Conversion Application Material
L	Listed Species Report (Full Version)
M	Air Permit Applications
M-1	U.S. Environmental Protection Agency Region 6 Prevention of Significant Deterioration (PSD) Air Permit Application (Full Version)
M-2	112g Application (Full Version)
Appendix	Volume IV Confidential Company and Financial Information
A	Applicant, Affiliate, and Consultant Information
B	Affidavit of Citizenship
C	Certificate of Formation
D	Limited Liability Company Operating Agreement
E	Financial Plan, Annualized Projections and Operating Costs, Throughput
F	Affiliate Financial Reports
G	Cost Estimates
G-1	Construction Cost Estimate
G-2	Decommissioning Cost Estimate
G-3	Operations Cost Estimate
H	Proposals and Agreements

ABBREVIATIONS AND ACRONYMS

APE	Area of Potential Effect
Applicant	Blue Marlin Offshore Port LLC
BMOP	Blue Marlin Offshore Port
bph	barrel per hour
bs	below surface
BSEE	Bureau of Safety and Environmental Enforcement
CALM	Catenary Anchor Leg Mooring
CFR	Code of Federal Regulations
DWP	Deepwater Port
DWPA	Deepwater Port Act
EC	East Cameron
FERC	Federal Energy Regulatory Commission
GOM	Gulf of Mexico
LQ	living quarters
MARAD	United States Maritime Administration
MLV	mainline valve
MP	milepost
NRHP	National Register of Historic Places
NT	Nederland Terminal
OCS	Outer Continental Shelf
OD	outer diameter
PLEMs	Pipeline End Manifolds
Project	Blue Marlin Offshore Port Project
ROW	right-of-way
THC	Texas Historical Commission
U.S.	United States
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
VBT	Vent Boom Tripod
VLCCs	very large crude carriers
WC	West Cameron

PROJECT FAST FACTS

General Project Terminology	
Applicant	Blue Marlin Offshore Port LLC
Project Name	Blue Marlin Offshore Port (BMOP)

BMOP Location and General Information	
Nederland Terminal (NT)	The location where the oil for BMOP originates. This is the existing Sunoco Partners Marketing & Terminals L.P. facility located in Nederland, Jefferson County, Texas
New 42-inch Pipeline	37.02 miles of 42-inch pipeline from NT to Station 501
Existing Mainline from Cameron parish Louisiana to WC 509	Cameron Parish, Louisiana Louisiana State Blocks: WC 11, 20, 21 OCS Blocks: WC 21, 44, 43, 58, 79, 78, 95, 114, 113, 132, 133, 148, 169, 170, 183, 196, 205, 212, 213, 224, 230, 241, 245, 246, 255, 258, 259, 266, 269, 276, 275, 277, 282, 408, 431, 432, 433, 456, 459, 482, 483, 484, 508, 509
Deepwater Port Location (Platform – CALM Buoys)	West Cameron Block 509 (WC 509) West Cameron 508 (WC 508) East Cameron 263 (EC 263)
Deepwater Port Water Depth	156 to 162 feet water depth
Loading Capacity	80,000 barrels per hour (bph)

BMOP Deepwater Port Components	
Existing Stingray Pipeline (Mainline)	One existing 36-inch Outer Diameter (OD) pipeline, approximately 104 miles long from Station 501 in Cameron Parish, Louisiana to WC 509. This line consists of the existing 36-inch OD subsea line from WC 509 to Station 701 and the existing 36-inch OD onshore line from Station 501 to Station 701.
Deep Water Port (DWP)	The offshore loading facility site located in WC 509, WC 508, and EC 263. The facilities consist of the existing WC 509 Platform Complex; two new PLEMs and CALM Buoys in WC 508 and EC 263; two new Crude Oil Loading Pipelines from the WC 509 Platform Complex to the PLEMs and the flexible hoses attached to the CALM Buoys. The WC 509 Platform Complex will be converted from gas service to oil and gas service. The converted platforms will support oil export and natural gas transportation.
WC 509 Platform Complex (509 Complex)	The existing WC 509 Platform Complex consists of three platforms and two Vent Boom Tripods (VBT). The WC 509A Platform is the natural gas gathering platform. This will also house the 36-inch riser and pig barrel of the crude oil Mainline. The WC 509B Platform currently is the natural gas compression and control platform. It houses natural gas compressors, separators, the Control Room and Platform Complex’s utilities. The WC 509B Platform will continue to house the natural gas separation facilities and the Platform Complex’s utilities. It will also house the crude oil Control Room, metering facilities, and pig barrels for the two Crude Oil Loading Lines. The WC 509C Platform is the Living Quarters (LQ) platform and will continue in that role. The WC 509 VBTs are utilized to bridge the natural gas vent piping to a point approximately 660 feet from the 509B Platform and will continue in this role for any planned and emergency natural gas blowdowns.

BMOP Deepwater Port Components	
WC 148 Platform	The existing WC 148 Platform will be converted from natural gas transportation service to oil transportation service. All gas piping facilities on the deck will be removed and replaced with new pipe and a new Mainline Valve (MLV). This valve will be able to be remotely operated.
Catenary Anchor Leg Mooring (CALM) System	There will be two floating Calm Buoys installed approximately 4,710 feet and 6,085 feet from the WC 509B Platform. The CALM Buoys will be installed with a minimum of 5,000 feet separation. Each Buoy will be moored in place with 6 or more anchor chains connected to engineered anchors installed at locations around the Buoy. Flexible hoses will be connected from the PLEMs to the Calm Buoys. Floating flexible hoses will also be connected to the CALM Buoy and, during loading, the opposite end will be connected to the ship. CALM Buoy No. 1 will be installed in WC 508 and CALM Buoy No. 2 will be installed in EC 263.
Crude Oil Loading Pipelines	Two 36-inch diameter pipelines from the existing WC 509B Platform to the PLEMs.
Pipeline End Manifold (PLEM)	One PLEM will be installed on the seafloor at each CALM Buoy. Each PLEM will be connected to a 36-inch Crude Oil Loading Pipeline from the WC 509B Platform and a CALM Buoy floating above the PLEM. The two PLEMs will be in WC 508 and EC 263.
VLCC or other Crude Carrier	Very Large Crude Carriers (VLCCs), Suezmax, Aframax or other large capacity seafaring vessels.
Meter for Measuring Departing Crude Oil	The DWP will have two-meter stations with associated prover and lab facilities. One of the meter stations will be located at the new BMOP Pump Station adjacent to the NT and one will be located on the offshore crude export platform (WC 509B Platform).
Pre-fabrication Yards	Existing yards will be used along the northern Gulf of Mexico (GOM) coast.
Support Facility	An onshore support base will be established at an existing port facility to provide the necessary security to support the DWP operations.

BMOP Onshore Pipeline Components	
BMOP Pump Station	The onshore metering, pumping, and pig launcher station will be located in Nederland, Texas, adjacent to the existing NT.
Onshore Crude Oil Pipeline	A new, approximate 37.02-mile, 42-inch OD pipeline connecting the existing NT in Jefferson County, extending across Orange County, Texas to the existing 36-inch OD Mainline at Station 501 in Cameron Parish, Louisiana.
Station 501	The existing NGPL/Stingray interconnect facility (Station 501) will be abandoned and demolished. A new pig receiver and launcher will be installed to connect the new 42-inch OD onshore pipeline with the existing 36-inch OD onshore Stingray Mainline.
Station 701	The existing compressor Station 701 in Cameron Parish, Louisiana will be demolished. All existing natural gas equipment will be removed from the Station except for several large 10,000-barrel storage tanks. Approximately 1,000 feet of new 36-inch pipe, surge tanks, surge valves, and a new MLV will be installed. The existing 10,000-barrel tanks located at Station 701 will be converted to surge relief tanks.
Stingray ANR Tap Removal Site	BMOP will remove the tap and install 36-inch pipe in its place.

BMOP Onshore Pipeline Components	
Mainline Valves (MLV)	Six new MLVs will be installed within the permanent pipeline right-of-way (ROW) of the new build pipeline. MLVs will also be installed at the BMOP Pump Station, Station 501, and Station 701. These valves will be used for isolation and spill control purposes.
Pipeline Pig Launchers and Receivers	Pig Launchers/Receivers will be located at the BMOP Pump Station, Station 501, and the DWP. These are utilized for cleaning the pipelines and running intelligent devices to assess pipeline integrity.
Access Roads and Canals	The Project will utilize existing access roads and canals. One new temporary access road and four new permanent access roads will be required.
Pipe and Contractor Yards	BMOP will utilize existing facilities along the northern GOM coast, U.S. or international locations for manufacturing pipe and for fabricating the PLEMs, CALM Buoys, and end connectors. Pipe coating activities will be performed at existing facilities along the northern GOM coast. Selection of the marine contractor will be completed after the MARAD filing; however, the successful contractor(s) will utilize existing fabrication and logistical facilities located along the northern GOM coast.

PROJECT ENVIRONMENTAL EVALUATION ASSESSMENT CRITERIA

Environmental Evaluation Assessment Criteria		
Criteria	Values	Definition
Outcome	Direct	<i>Direct effects</i> are “caused by the action and occur at the same time and place” of the Project (40 CFR § 1508.8).
	Indirect	<i>Indirect effects</i> are “caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect impacts may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems” (40 CFR § 1508.8). Indirect impacts are caused by the Project, but do not occur at the same time or place as the direct impacts.
	Cumulative	<i>Cumulative impact</i> is “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR § 1508.7).
Type	Adverse (Negative)	<i>Adverse</i> would cause unfavorable or undesirable outcomes for the natural or social environment. Negative impacts result in a net loss to the resource.
	Beneficial (Positive)	<i>Beneficial</i> impact would cause positive or desirable outcomes for the natural or social environment. Beneficial impacts result in a net benefit to the resource.
Duration	Short-term (Temporary)	<i>Short-term (or temporary)</i> impacts are those that would occur only during a specific phase of the proposed Project, such as noise during construction or certain installation activities. Short-term impacts would end at the time, or shortly after, construction activities ceased. The duration of most short-term impacts would be a few hours to a few days.
	Long-term	<i>Long-term</i> impacts would occur either continually or periodically throughout the life of the Project (e.g., operational air emissions, stormwater discharge), or would last for years after an impact-producing activity occurred (e.g., removal of wildlife habitat).
Magnitude	Negligible	<i>Negligible</i> impacts are generally those that might be perceptible, but in certain cases may be undetectable.
	Minor	<i>Minor</i> effects are those that could be perceptible but are of very low intensity and may be too small to measure.
	Moderate	<i>Moderate</i> impacts are more perceptible, can often be quantified, and may approach the thresholds for major impacts.
	Major	<i>Major</i> impacts, based on their context and intensity (or severity), have the potential to meet the thresholds for significance set forth in CEQ regulations (40 CFR § 1508.27). Major impacts warrant additional attention in a NEPA analysis and a review of potential mitigation measures that would fulfill the policies set forth in NEPA, which include avoiding, minimizing, or mitigating major impacts.
Likelihood	Unlikely	Low probability.
	Potential	Possible or probable.
	Likely	Certain.

6.0 CULTURAL RESOURCES

6.1 PROJECT OVERVIEW

Blue Marlin Offshore Port LLC (the Applicant) is proposing to develop the Blue Marlin Offshore Port (BMOP) Project (Project) in the Gulf of Mexico (GOM) to provide crude oil transportation and loading services for crude oil produced in the continental United States (U.S.). A Project overview map is provided in **Figure 6-1**. The Deepwater Port (DWP) will be utilized to load the transported crude oil onto very large crude carriers (VLCCs) (and other crude oil carriers) for export to the global market. The Applicant is filing this application for a license to construct, own, and operate the Deepwater Port (DWP) pursuant to the Deepwater Port Act (DWPA) of 1974, as amended, and in accordance with U.S. Coast Guard (USCG) and U.S. Maritime Administration (MARAD) implementing regulations.

The primary purpose of the Project will be to provide for safe and reliable long-term supply of crude oil for export to the global market. Oil for export will be transported out of the existing Sunoco Partners Marketing and Terminals, L.P., a terminal and storage facility in Jefferson County, Texas (Nederland Terminal or NT). This terminal is connected to multiple crude oil pipelines connecting to production from across the U.S. In addition, an affiliate of the Applicant owns the Stingray Pipeline System and has confirmed that its subsea pipeline and offshore platforms are suitable for converting to facilitate crude oil export from a DWP in the northern GOM. The Applicant has the exclusive right to lease or purchase the Stingray Pipeline System for use in the Project.

The DWP will be located in federal waters within and adjacent to the Outer Continental Shelf (OCS) in West Cameron Lease Blocks (WC) 509 and 508 and East Cameron Block 263. The DWP will be approximately 99 statute miles off the coast of Cameron Parish, Louisiana, with an approximate water depth of 162 feet. Crude oil will be routed from pumps at Nederland, through a new 42-inch outer diameter (OD) onshore pipeline to the existing Stingray Mainline at Station 501 (see Section 6.1.1), and from there through the existing Stingray Mainline to the DWP.

As depicted in **Figure 6-1**, the BMOP facilities consist of the pumps and meters at NT; a new approximate 37-mile, 42-inch OD pipeline; the existing 36-inch OD Mainline; an existing fixed, manned platform complex at WC 509; an existing platform at WC 148; two new Crude Oil Loading Pipelines; and two new PLEM and CALM Buoys located in WC 508 and EC 263. A Project overview map of the onshore Project components is provided in **Figure 6-2**. Details of the Project's offshore facilities are provided in Topic Report 1, "Project Description, Purpose, and Need" (Volume IIa). This Topic Report includes details of the onshore Project facilities.

This Topic Report identifies and discusses cultural resources in the onshore Project area, the potential impacts of construction, operation, and decommissioning on these resources, and measures that will be implemented to reduce and mitigate potential Project-related impacts. Characterization of cultural resources potentially impacted by construction and operation of the onshore components of the Project is based on field surveys, publicly available data, and agency consultation. Appendix E of Volume III [Confidential] includes copies of the cultural resource field survey investigations. Agency correspondence referenced within this report are provided in Volume IIa, Appendix B.

To avoid and minimize potential impacts to cultural resources during construction and operation of the Project, the Applicant will implement construction and operation Best Management Practices (BMPs) included in the Project-specific Onshore Construction BMP Plan (**Appendix C-1**), Revegetation Plan (**Appendix C-2**), and Spill Prevention and Response Plan (SPAR Plan, **Appendix C-3**), Unanticipated

Discovery Plan (**Appendix C-4**), and Horizontal Directional Drill (HDD) Contingency Plan (**Appendix C-5**).

6.1.1 Abandonment and Conversion of Existing Facilities

The Stingray Pipeline is currently comprised of a 36-inch pipeline (Mainline) that is fed natural gas and natural gas liquids by multiple lateral pipelines from various suppliers and producers that feed natural gas into the Mainline. Stingray transports natural gas and liquids on the Mainline from the WC 509 Platform Complex to the onshore compressor station facility (Station 701) near Holly Beach in Cameron, Louisiana, and northward approximately four additional miles to the NGPL/Stingray interconnect (Station 501). The Stingray facilities from WC 509 to Station 501 will be abandoned through a FERC 7(b) Order. This work will be completed by Stingray. Stingray will assign the existing right-of-way (ROW) Grant (and associated facilities—platforms at WC 148 and WC 509) to BMOP or another affiliate of ET for use in the BMOP Project. The Applicant intends to operate the new facilities under 49 Code of Federal Regulations (CFR) Part 195. Details of the existing offshore Stingray Mainline facilities are provided in Topic Report 1 (Volume IIa).

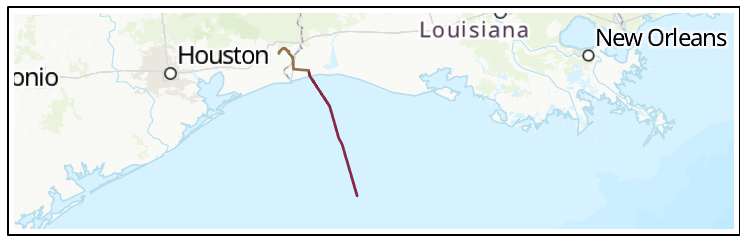
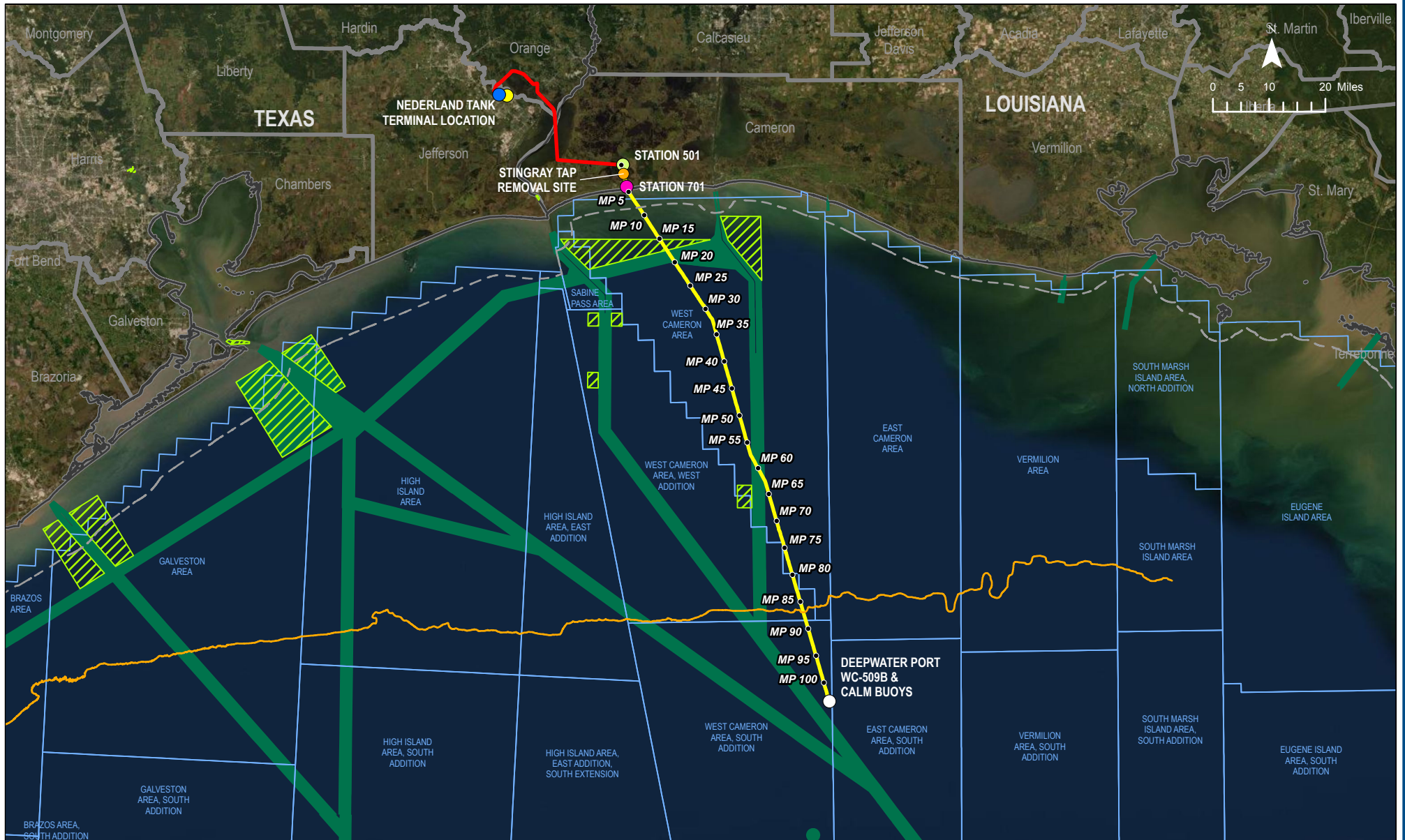
6.1.2 Major Onshore Project Components

All facilities for the proposed BMOP Project will be designed, constructed, tested, operated, and maintained in accordance with the U.S. Department of Transportation (USDOT) regulations in 49 CFR Part 195 (Transportation of Hazardous Liquids by Pipeline) and all other applicable federal and state regulations. Details of the offshore supply components are provided in Topic Report 1 (Volume IIa). The Project will consist of construction and operation of the following onshore components:

New Onshore Facilities

- A new, approximate 37-mile, 42-inch OD pipeline connecting the existing NT in Jefferson County, Texas, to the existing 36-inch OD Mainline at Station 501 in Cameron Parish, Louisiana.
- A new pump station (BMOP Pump Station) located adjacent to the existing NT in Jefferson County, Texas at MP 0.0. The land where the BMOP Pump Station site is located is to be filled as part of the “Nederland Terminal Buildout Project,” which is anticipated to commence construction in January 2021, prior to construction of the BMOP Project. The pump station will include:
 - A pipeline header;
 - MLV;
 - Metering and pump equipment;
 - Electrical substation; and
 - Permanent access road.
- Six new MLVs will be installed within the permanent pipeline right-of-way (ROW) of the new build pipeline. MLVs will also be installed at the BMOP Pump Station, Station 501, and Station 701. These valves will be used for isolation and spill control purposes.

BMOP PROJECT - FIGURE 6-1 - PROJECT OVERVIEW MAP

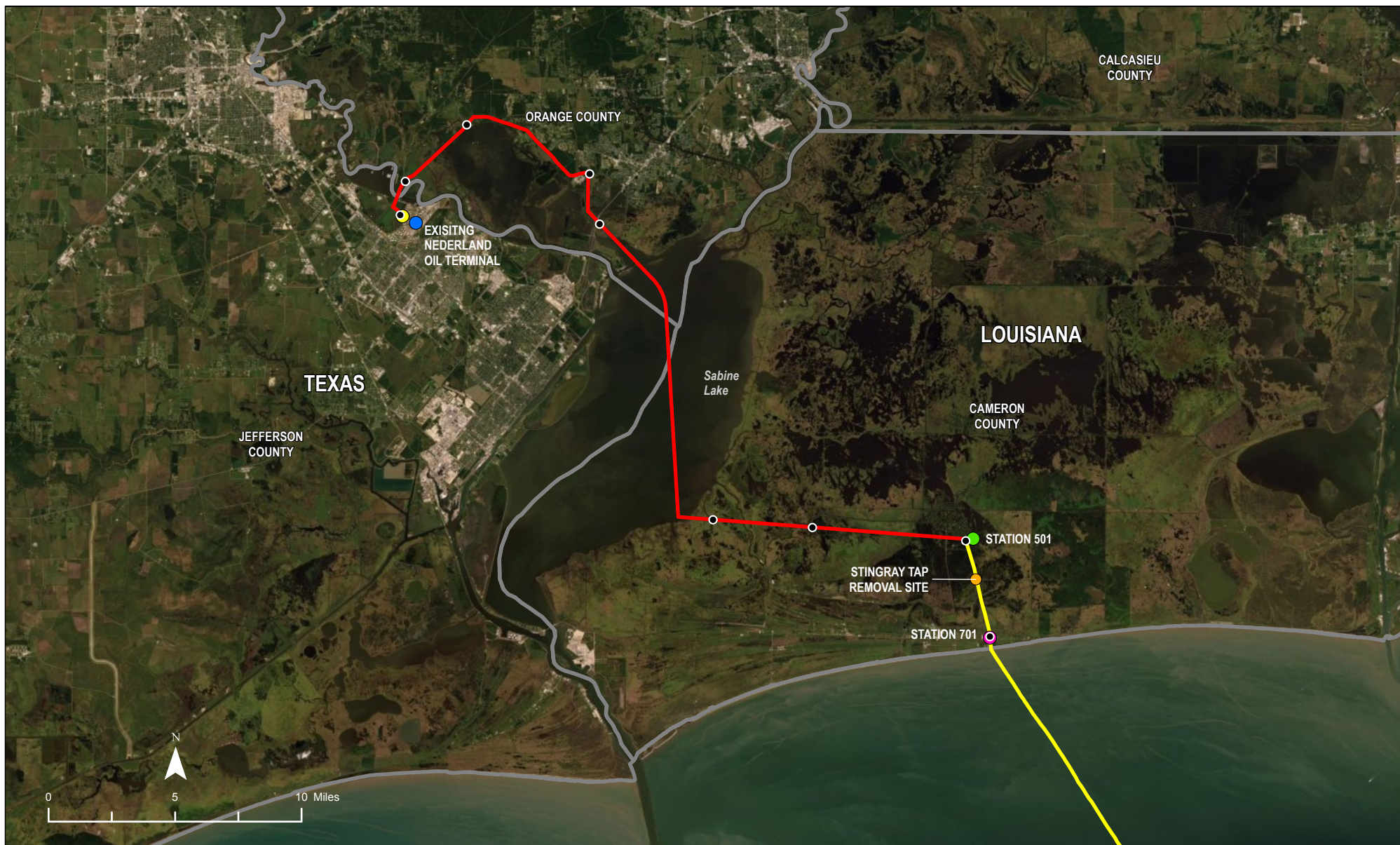


LEGEND	
● EXISTING OFFSHORE PIPELINE MILEPOSTS	— EXISTING PIPELINE TO BE CONVERTED TO OIL SERVICE
● STINGRAY TAP REMOVAL SITE	— PROPOSED ONSHORE PIPELINE (NEW BUILD)
● NEDERLAND TANK TERMINAL LOCATION	— DEPTH CONTOUR -108'
● NEDERLAND PUMP STATION	— STATE WATERS BOUNDARY
● STATION 701 (TO BE CONVERTED TO OIL SERVICE)	▨ SAFETY ANCHORAGES
● STATION 501 (TO BE CONVERTED TO OIL SERVICE)	▨ PROTRACTION AREA
○ DEEPWATER PORT WC-509B AND CALM BUOYS	▨ SHIPPING FAIRWAY
	▨ COUNTY / PARISH
	▨ STATE BOUNDARY

BLUE MARLIN OFFSHORE PORT PROJECT	
PROJECT OVERVIEW MAP	
COUNTY/PARISH: VARIOUS	DRAWN BY: CA
STATE: TX/LA	CHECKED BY: CW
DATE: 2020/09/17	PROJECTION: NAD 1983 UTM Zone 18N

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BLUE MARLIN OFFSHORE PORT PROJECT FIGURE 6-1	
DWG: 0802-01-005	SHEET: 1 OF 1

BMOP PROJECT - FIGURE 6-2 ONSHORE PROJECT COMPONENT OVERVIEW MAP



LEGEND

- MAINLINE VALVE
- NEDERLAND PUMP STATION
- STATION 501 (TO BE CONVERTED TO OIL SERVICE)
- STATION 701 (TO BE CONVERTED TO OIL SERVICE)
- EXISTING NEDERLAND OIL TERMINAL
- STINGRAY TAP REMOVAL SITE
- EXISTING PIPELINE TO BE CONVERTED TO OIL SERVICE
- PROPOSED 42-INCH PIPELINE
- COUNTY / PARISH

BLUE MARLIN OFFSHORE PORT PROJECT
FIGURE 6-2 - ONSHORE PROJECT COMPONENT OVERVIEW MAP

COUNTY/PARISH: VARIOUS	DRAWN BY: CA
STATE: TX/LA	CHECKED BY: CW

DATE: 2020/08/17 PROJECTION: NAD 1983 UTM Zone 18N

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BLUE MARLIN OFFSHORE PORT PROJECT
FIGURE 6-2

DWG: 0802-01-009 SHEET: 1 OF 1

Conversion of Existing Onshore Facilities

- The existing Station 501 is located at approximate MP 37 of the new 42-inch pipeline in Cameron Parish, Louisiana. All existing natural gas-related equipment owned by BMOP will be removed from the station and new pipeline facilities will be installed. The new 42-inch pipeline will tie into the existing 36-inch Mainline at the site. The conversion of Station 501 will be expanded to include:
 - A pig receiver for the new 42-inch pipeline termination;
 - Pig launcher for existing 36-inch Mainline; and
 - MLV.
- The existing compressor Station 701 in Cameron Parish, Louisiana, located at approximate MP 3.9 on the converted Stingray Mainline in Cameron Parish, Louisiana, will be demolished. All existing natural gas equipment will be removed from the station except for several large 10,000-barrel storage tanks. Approximately 1,000 feet of new 36-inch pipe, surge tanks, surge valves, and a new MLV will be installed. The existing 10,000-barrel tanks located at Station 701 will be converted to surge relief tanks.
- The existing ANR Tap (Stingray Tap Removal Site) is located at approximate MP 1.6 on the converted Stingray Mainline in Cameron Parish, Louisiana (approximate MP 38.6 on the BMOP pipeline system). BMOP will install a 36-inch OD pipe segment following removal of the tap.
- The existing Mainline from Station 501 to the Station 701 will be converted to crude oil service.

Onshore Support Facilities

- Temporary use of existing pipe and contractor yards; and
- Use of existing public roads, highways, and canals and construction of new temporary and permanent access roads.

6.2 EXISTING ENVIRONMENT

The terrestrial Project Area of Potential Effect (APE) for direct effects within Texas consists of a proposed 91-m-wide (300-ft-wide) pipeline corridor that extends from the Texas/Louisiana state line north and west into Texas for a length measuring approximately 25 km (15.5 mi). The areal extent of the terrestrial APE in Texas measures 228 hectares (563 acres). Of this, a total of 13.2 km (8.2 mi) of proposed corridor length in Texas was available for systematic subsurface investigation (i.e., shovel testing) with the remaining length of the proposed Project corridor available for examination by airboat survey. Within Jefferson and Orange Counties, Texas, the total portion of the 91-m wide (300 ft) proposed BMOP Project corridor that was examined for the presence of cultural resources measured 12.9 km (8.0 mi) in length and 117 ha (291 ac) in extent. Within Louisiana, the Project APE extends south and east from the Texas/Louisiana state line within Sabine Lake for a length measuring 28.3 km (17.6 mi). The terrestrial portion of the Project APE measured 17.6 km (10.9 mi) in length and was examined by using an airboat to access the Project corridor.

6.2.1 Geology

Within the Texas portion of the BMOP Project area, the Coastal Plain of Texas can be characterized as an area of diverse modern environment, the result of substantial changes in paleoenvironmental conditions over the last 12,000 years. This region consists of relatively flat coastal prairies north of extensive coastal marshes underlain by unconsolidated, Mesozoic and Cenozoic sedimentary strata that slope down towards the Gulf Coast. These strata, however, only outcrop within the interior sections of the Coastal Plain, while Tertiary and Pleistocene deposits are found in the southeastern portions of the Coastal Plain that border on the Gulf of Mexico. Elevations within the coastal plain range between mean sea level and 8.53 m (28 ft) above mean sea level.

The Coastal Plain has a long history of natural environmental change. In addition to the rise and fall of sea level, a variety of processes (i.e., shoreline erosion and estuarine deposition, headward stream erosion, chenier accretion and strand plain development, and marsh and lagoon deposition) have affected the location, size, and distribution of active and relict natural systems (e.g., fluvial and deltaic, barrier-strand plain-chenier, and bay-estuary lagoon systems) present within the Coastal Plain.

During the Pleistocene, the Texas portion of the study area experienced four principal glacial episodes, each separated by interglacial periods. Sea level was approximately 137.2 m (450 ft) lower during periods of maximum glaciation than sea level during interglacial periods. Sea level during these interglacial periods approximated present-day sea level. During periods of maximum glaciation, then extant river systems transported vast amounts of suspended mud and sand from remote areas of Texas to deltas within broad embayments, creating sandy point bars deposited in shifting meander loops and natural levees along riverbanks. The final glacial period ended by about 18,000 years B.P. and sea level began to rise. Between 18,000 and 4,500 years B.P. point bar sand and overbank mud began filling the entrenched river valleys; rivers continued to meander within their entrenched valleys. The continued rise of sea level filled the lower reaches of the Sabine Valley with brackish and marine deposits.

After the sea level rose again to essentially modern levels, ca. 3000 B.P., floodplains and channels flooded and formed a series of bays, estuaries, and small-scale meander ridges and microrelief features, namely small depressions and pimple mounds, that became fully developed by approximately 2000 years ago.

The primary physiographic features associated with the Louisiana portion of the BMOP Project region are the coastal marshes and cheniers that border the Gulf of Mexico, the large lakes scattered throughout the area, and the coastal prairies found in the northern portion of the Project region. More specifically, the Project is positioned near the interface of the Holocene-age chenier plains of the West Gulf Coastal Plain physiographic province and the older Pleistocene Terrace Complex. This region is comprised of isolated Pleistocene outcrops surrounded by flat coastal wetlands and chenier plains. The landscape is dominated by marsh and mudflats that have aggraded to slightly above sea level and by wooded areas confined to the localized higher elevations. The landscape also is interspersed with tidal channels, rivers, ponds, and lakes that are scattered throughout the area. With the exception of Pleistocene outcrops, the region surrounding the proposed Project corridor formed during Holocene times (i.e., within the past 12,000 years).

Chenier plains are characterized by a series of narrow, elevated landforms parallel to the coast that represent relict beach ridges that were created by the accretion and reworking of marine sands and shells along former Gulf of Mexico shorelines. Erosion by wave action winnowed the coarse sediments to form the cheniers during the Holocene epoch. Much of the material that forms these chenier plains was derived from sediments associated with the Red River delta.

The Red River deltaic complex marks the southern edge of the Pleistocene-age terrace complexes; this deltaic plain extends over much of southwestern Louisiana and to just west of the Calcasieu River. The Red River delta formed by approximately 70,000 years ago and is included in the Prairie Complex. Red River deltaic plain deposits overlie much of the near-shore Gulf marine deposits, although near-shore marine deposits can be found as outcrops in isolated areas near the Project area. Within the marine deposits are a series of barrier ridges that display parallel to the coast accretion ridges. The outcrops of marine deposits are the remnants of beach ridges, some of which formed before the Red River delta covered the area.

6.2.2 Archaeological Sites

Fourteen archeological sites are located within 0.8 km (0.5 miles) of the proposed pipeline centerline; none of the sites are situated within or immediately adjacent to the proposed pipeline corridor. The fourteen sites include a prehistoric site (i.e., 41JF5) and a historic site with a prehistoric isolate (i.e., 41JF99) in Jefferson

County, and prehistoric sites (i.e., 41OR8, 41OR9, 41OR21, 41OR31, 41OR41, 41OR47, 41OR75, 41OR76, 41OR78, 41OR79, 41OR110) and a historic site (i.e., 41OR108) in Orange County. Almost all of these sites possess an undetermined eligibility for listing in the National Register of Historic Places (NRHP). Sites 41JF99 and 41OR110 have been determined to be ineligible for listing in the NRHP.

A single previously identified archeological site was recorded within 0.8 km (0.5 mi) of the current Project corridor centerline in Louisiana. Site 16CM141 originally was recorded as a prehistoric and historic artifact scatter in 1985. The site is situated along a relict beach ridge. Site 16CM141 is recorded as ineligible for listing in the NRHP on the Louisiana NRHP Eligibility Database. The site is partially situated within the BMOP Project corridor in Cameron Parish.

6.2.2.1 Archaeological Sites- Sabine Lake

Fourteen archaeological sites were identified within a half-mile radius from the centerline of the pipeline using the records of the Texas Historical Commission. With two exceptions, these sites are partially or totally submerged Native American shell middens, one exception being the Bessie Heights Oil Field (Site 41OR108). Two of these middens produced temporally diagnostic cultural materials—principally ceramics—that linked them with the Attacapa / Ordoquiza culture; the remainder could not be assigned to a specific temporal period. The other exception is Site 41JF99, which primarily represents a modern deposit of trash and debris.

6.2.3 Built Resources and Cemeteries

No NRHP-listed properties or Historic Standing Structures were identified within 0.8 km (0.5 mi) of the current Project corridor (i.e., in both Texas and Louisiana). Two cemeteries are situated within 0.8 km (0.5 miles) of the proposed pipeline centerline in Texas; neither of the cemeteries is situated within or immediately adjacent to the proposed pipeline corridor. The cemetery in Jefferson County is situated within an existing petrochemical facility near the southern terminus of the proposed pipeline corridor in Texas. The cemetery in Orange County is known as the Thomas Cemetery. No additional information on either cemetery was available.

6.3 CULTURAL RESOURCE EVALUATIONS

As a result of the current investigation, a single archeological locus was identified within the limits of the proposed pipeline corridor in Cameron Parish, Louisiana. Previously recorded Site 16CM141 is situated partially within the proposed pipeline corridor, and it was previously determined to be ineligible for listing in the NRHP. Pedestrian survey as well as shovel and auger testing within the portion of Site 16CM141 that is situated within the current Project corridor did not identify intact features or produce any cultural material. The evaluation of this resource indicates the portion of Site 16CM141 that is situated within the current Project corridor is not eligible for listing in the NRHP, and no further work at this location is recommended. No built resources (i.e., engineering structures or historic standing structures) or cemeteries were recorded within or adjacent to the limits of the currently proposed pipeline corridor in Texas or Louisiana.

TABLE 6-1 Previously Recorded Site		
Louisiana Site Number	Cultural Affiliation	NRHP Status
Original Status		
16CM141	Prehistoric/Historic	Not Eligible
Results After Current Project		

TABLE 6-1 Previously Recorded Site		
Louisiana Site Number	Cultural Affiliation	NRHP Status
16CM141	Prehistoric/Historic	Not Eligible ^a
Notes:		
^a That portion of the site within the proposed Project corridor.		

6.3.1 Cultural Resource Surveys

Within Jefferson and Orange Counties, Texas, a 12.9 km (8.0 mi) portion of the 91-m-wide (300-ft-wide) proposed BMOP Project corridor that totaled 117 ha (291 ac) in extent was examined for cultural resources. Portions of the Project corridor in Texas crossed the Lower Neches Wildlife Management Area. A total of 153 shovel tests were excavated during the examination of the proposed BMOP corridor in Texas. No cultural resources were identified as a result of the examination of the proposed BMOP Project corridor in Texas and no further investigation is recommended.

Within Cameron Parish, Louisiana, the entire terrestrial portion of the 91-m-wide (300-ft-wide) proposed BMOP Project corridor that measured 17.6 km (10.9 mi) in length and 162 ha (399.4 ac) in extent was examined for cultural resources. The majority of the proposed Project corridor consisted of inundated marsh. A total of 31 auger and shovel tests were excavated along the corridor. Site 16CM141, the Dreary Island Site, was mapped as partially situated within the Project corridor. No artifacts or other evidence of the site was observed within the examined portion of Site 16CM141. No additional testing of Site 16CM141 is recommended. No cultural resources were identified as a result of the examination of the remainder of the proposed BMOP Project corridor in Louisiana and no further investigation is recommended.

6.3.1.1 Objectives

The cultural resources investigation was designed to identify all cultural resources (i.e., archeological sites, isolated finds, historic standing structures, and cemeteries) located within or immediately adjacent to the proposed Project corridor that may be impacted adversely as a result of the planned undertaking.

6.3.1.2 Data Analysis Procedures

Initial data analysis included a review of available historical maps and aerial photographs; examination of applicable sources at local and regional archives and other relevant public records; detailed review of the online Texas archeological site files maintained by the THC, the site files maintained by the Louisiana Division of Archaeology, the NRHP files for both Texas and Louisiana, and cemetery databases. The intent of this literature search was to identify previously recorded archeological sites, historic standing structures, historic cemeteries, and NRHP properties located within or adjacent to the proposed Project corridor. The collected information then was used to develop the Project-specific archeological and historic contexts to employ during the assessment of the significance of any cultural resources identified within the Project area.

No cultural materials were recovered during the execution of this investigation, and no above ground features were identified. Data analysis of these classes of cultural material was not undertaken.

6.3.1.3 Airboat Survey, Pedestrian Survey and Shovel Test Excavations

In Texas, archeological field survey included airboat survey, pedestrian survey, and systematic and/or judgmentally placed shovel testing, when possible, within 200 m (656 ft) of all wetlands and water

crossings, as well as within 100 m (328 ft) of all known archeological sites. Within the Lower Neches Wildlife Management Area, airboat survey as well as pedestrian survey and systematic and/or judgmentally placed shovel testing was completed, when possible, along the entire length of the proposed pipeline right-of-way (ROW). Shovel tests were spaced at 50-m (164-ft) intervals along three parallel survey transects spaced 30 m (98 ft) apart within those portions of the proposed pipeline ROW that were determined to possess a high probability of containing cultural deposits. Those portions of the investigated Project corridor that are inundated were examined via airboat. Shovel tests within the low probability segments of the proposed pipeline ROW were placed at 100-m (328-ft) intervals along three parallel survey transects spaced 30 m (98 ft) apart. Each excavated shovel test measured approximately 30 cm (12 in) in diameter, and each was excavated to a minimum depth of 100 cm (39 in) below surface (bs), to sterile clay or to subsoil, or until an influx of groundwater hindered the excavation process. All shovel test fill was screened through 0.64 cm (0.25 in) hardware cloth; extremely wet soils and clays were hand-sifted, troweled, and examined visually for cultural material. Each shovel test was excavated in 10-cm (4-in) artificial levels within natural strata and the fill from each level was screened separately. Munsell® Soil Color Charts were used to record soil color; texture and other identifiable characteristics also were recorded using standard soils nomenclature. All shovel tests were backfilled immediately upon completion of the archeological recordation process, and all shovel test locations were recorded using GPS units with sub-meter accuracy. Those portions of the proposed pipeline ROW that cross inundated private property were examined by employing an airboat along the inundated segments.

In Louisiana, airboat survey as well as pedestrian survey and systematic and/or judgmentally placed shovel testing, when possible, was conducted along the entire length of the proposed BMOP Project corridor. Access to the Project area was only possible by airboat. Within the Project corridor, visual inspection and pedestrian survey was augmented by the systematic and/or judgmentally placed excavation of shovel or auger tests, where possible, at elevated landforms or other features. Some areas located along the Project corridor were heavily eroded and inundated to such an extent that shovel or auger testing could not be conducted. These areas were visually inspected from the airboat for cultural material and/or possible features. Shovel tests were not excavated in areas that contained standing water or in areas characterized by excessive disturbance. Within the bounds of the single previously identified cultural resource, shovel testing was conducted at 10-m (33-ft) intervals, when possible.

All shovel tests measured at least 30 cm (12 in) in diameter and each was excavated to depths of at least 50 cm below surface (bs) (20 inbs) or until a known sterile subsoil was reached or the influx of water hampered the excavation process. All shovel test fill was screened through 0.64-cm (0.25-in) hardware cloth; extremely wet soils and clays were hand-sifted, troweled, and examined visually for cultural material. Each shovel test was excavated in 10-cm (4-in) artificial levels within natural strata and the fill from each level was screened separately. Munsell® Soil Color Charts were used to record soil color; soil texture and other identifiable characteristics also were recorded using standard soils nomenclature. All shovel tests were backfilled immediately upon completion of the archeological recordation process.

Locations of transects and shovel tests within survey segments, changes in vegetation and topography, as well as the presence of natural and artificial features were recorded on shovel test and transect record forms. Transect survey (which included pedestrian survey transects, shovel test transects, and airboat transects) within each of the survey segments was utilized to assure complete and thorough coverage of the proposed Project items. In addition, the Project corridor was examined for the presence of historic structures and cemeteries.

6.3.1.4 Archaeological Resources Investigated

The single previously identified archeological resource, Site 16CM141, was delineated to ascertain its nature, size, depth, integrity, age, and affiliation. In addition, information was gathered that was used in the

subsequent NRHP eligibility assessment of that portion of this cultural resource that was partially situated within the Project corridor, applying the NRHP Criteria for Evaluation (36 CFR §§ 60.4 [a-d]). Archeological site recordation and delineation included a combination of the following: (1) establishment of a site datum; (2) intensive surface reconnaissance of the site area; and (3) the excavation of tightly spaced shovel or auger tests at 10-m (33-ft) intervals along rays emanating from datum to delineate both the horizontal and vertical extent of the site as well as its configuration.

Information generated during the examination was used to compile the site description and to support a clear and concise statement regarding site integrity and significance for the examined portion of Site 16CM141. A State of Louisiana Archeological Site Update Form was completed for the archeological site delineated during this investigation.

Dreary Island Site

Site 16CM141, the Dreary Island Site, was situated along and partially within the currently proposed Project corridor at survey Segment JCL060420A. Approximately one-third of the southern boundary of the site extends into the Project corridor. The site had previously been examined in 1985 and 1992 during Phase I cultural resources investigations conducted for well site and access road projects. Both of these investigations identified prehistoric and historic artifacts, shell, and faunal material at the site. The 1985 investigation did not locate artifacts from subsurface contexts at the site; however, the 1992 investigation did determine that a possible *in situ* deposit of prehistoric artifacts, faunal bone, and shell was present approximately 90 m (295 ft) north of the southern tip of Dreary Island. This *in situ* portion of Site 16CM141 was recommended as eligible for listing on the NRHP. This previously identified feature appears to be located north and outside of the currently proposed BMOP Project corridor. The LA SHPO has determined the entire site to be ineligible for listing in the NRHP.

During the course of the current Phase I examination of Site 16CM141, a total of 17 tests (4 shovel tests and 13 auger tests) were excavated at 10-m (33-ft) intervals within the portion of the site that extended into the currently proposed Project corridor. The examined area was located on a slight rise surrounded on both sides by inundated marsh. Eight of the 17 excavated tests (4 auger tests and 4 shovel tests) contained small amounts of heavily fragmented oyster, *Rangia*, and other types of marine shell mixed with silty clay to depths that ranged from the surface to 50 cm (20 in). No artifacts or evidence of intact features was identified. It is possible that the shell fragments identified at the currently examined portion of Site 16CM141 may represent shell hash that was part of Deep Bayou Road that once extended all the way north to Dreary Island from Gulf Beach Highway (Route 82). No artifacts or other evidence of the site was observed within the examined portion of Site 16CM141.

NRHP Eligibility Evaluation for Site 16CM141

The examined portion of Site 16CM141 does not make a contribution to major patterns of American history (NRHP Criterion A), is not associated with significant people of the American past (NRHP Criterion B), does not have great artistic value and is not the work of a master (NRHP Criterion C), and does not yield or is not likely to yield information important to prehistory or history (NRHP Criterion D). The portion of Site 16CM141 examined during the current investigation does not possess those qualities of significance and integrity as defined by the NRHP Criteria for Evaluation (36 CFR §§ 60.4 [a-d]). No boundary changes are proposed as a result of the current work at Site 16CM141. No additional work is recommended within the portion of Site 16CM141 examined during the current Phase I cultural resources survey.

6.3.1.5 Aboveground Structures

No aboveground structures were recorded within or immediately adjacent to the proposed Project corridor.

6.3.1.6 Cemeteries

No cemeteries were identified as present within or immediately adjacent to the proposed Project corridor.

6.3.1.7 Unanticipated Discovery of Artifacts or Human Remains

Should unanticipated discovery of artifacts or human remains be made, the protocols detailed in **Appendix C-4** will be implemented.

6.3.1.8 Data Analysis Procedures – Sabine Lake

RCG&A conducted detailed cultural resources analyses of all remote sensing data. All data were analyzed using currently acceptable scientific methodologies. The data then were correlated with a variety of shipwreck databases, geomorphic and historical research results, nautical charts, and any observations noted in survey logs during data collection. Submerged cultural resources include shipwrecks and disposal sites, and submerged prehistoric and historic archaeological sites. These objects and deposits normally can be detected with a remote sensing array that includes a marine magnetometer, side scan sonar, and a sub-bottom profiler.

Side scan sonar records were analyzed to help distinguish topographic features on the seabed and any objects protruding above the bottom sediments. The interpretation of side scan sonar records involves recognition of any distinct patterns indicating projection or depression; descriptions of all sonar contacts included measurements such as length, area, and approximate height above seabed. For archaeological materials (e.g., shipwrecks), higher side scan frequencies and shorter ranges increase the likelihood of detecting older sites with small acoustic profiles.

Magnetic data collected during survey were examined carefully following post processing. For each magnetic anomaly, the profile was examined to determine amplitude, duration, signature (monopole, dipole or complex) and areal distribution (detectable across multiple track lines. Particular attention was paid to anomalies that indicated areas of high density, to anomalies exhibiting complex magnetic signatures, to clusters of anomalies, and to anomalies of unusually high amplitude and duration that were recorded on multiple transects. Contour mapping was used to ascertain the nature of any features and the distribution of magnetic anomalies.

The sub-bottom profiler detects sediment horizons beneath the seabed and can help identify paleolandforms that may have supported human habitation in the past. The identification of potentially significant cultural resources from side scan sonar, magnetometer, and sub-bottom profiler records involves correlation of data from across the entire remote sensing array.

RCG&A uses an in-house categorization to aid magnetic analyses in its initial review. Amplitudes are classified as low (0-50 nT), medium (51-100 nT) and high (>100 nT), and durations are divided into short (<67 ft [20.4 m]), medium (67-201 ft [20.4-61.2 m]) and long (>201 ft [61.2 m]). A magnetic anomaly's predicted mass is calculated on an as-needed basis, by applying a formula using distance to object and gamma response. Following the initial criteria, the process is expanded to consider associated magnetic anomalies that may represent a single source and include those that were previously excluded from the high amplitude/long duration criteria. The third step is to examine magnetic anomalies that may not meet the high amplitude/long duration but can be associated with a compelling side scan sonar contact or sub-bottom anomaly or a charted or associated shipwreck location. RCG&A carefully weighs all these factors before determining whether an anomaly should be called a target (i.e., a potential cultural resource). Some magnetic anomalies can be eliminated from consideration if they are determined to represent utilities (i.e.,

submarine power cables) or infrastructure (i.e., pipelines/platforms, etc.). Based on the examples provided, several potential cultural resources would be missed by only applying a nT/duration criterion.

6.3.1.9 Archaeological Resources Investigated – Sabine Lake

Investigations resulted in 273 ac (1.1 km²) surveyed in Texas state waters and 331 ac (1.3 km²) in Louisiana state waters. Review of remote sensing data identified 257 magnetic anomalies and 9 side scan sonar contacts. Bathymetric and sub-bottom profiler data also were incorporated into the analyses. As a result of these investigations, no targets indicative of submerged cultural resource resources was noted within the 400-ft (121.9-m) wide pipeline corridor. No relict geomorphic features deemed potentially archaeologically significant were identified within the Project's APE. Therefore, a determination of “No historic properties affected” (36 CFR § 800.4) is recommended and concurrence with this recommendation is sought from the Louisiana Division of Archaeology and THC.

6.4 ENVIRONMENTAL CONSEQUENCES

This section includes a discussion of the potential impacts that would likely result from the construction and operation of the onshore components of the Project. The study area within which potential impacts were assessed includes the area that would be affected physically by Project activities during construction and operation. As described in Table 1-10 in Section 1.10.2 (Evaluation Criteria) of Topic Report 1 (Volume IIb), the Project's potential effects on cultural resources have been evaluated based on their potential to:

- Directly or indirectly affect terrestrial and submerged cultural resources;
- Cause irretrievable or irreversible damage to a prehistoric or historic property that is listed or eligible for listing on the NRHP;
- Alter or impair a viewshed, scenic quality, or aesthetic value related to a historic property not consistent with applicable laws or regulations (minor to major depending on extent of alteration);
- Adversely affect a prehistoric or historic property that is listed or eligible for listing on the NRHP;
- Violate cultural resource standards by affecting resources that are of value to Native American culture and heritage; and/or
- Disturb human remains, including those interred outside of formal cemeteries.

The following sections provide information and discussion of potential consequences to onshore cultural resources.

6.4.1 Archaeological Resources

6.4.1.1 Construction and Installation

Onshore Pipeline

As currently designed, the construction and installation of the onshore pipeline component to Station 501 of the Project is not anticipated to: cause irretrievable or irreversible damage to a prehistoric or historic property that is listed or eligible for listing on the NRHP; alter or impair a viewshed, scenic quality, or aesthetic value related to a historic property not consistent with applicable laws or regulations; adversely affect a prehistoric or historic property that is listed or eligible for listing on the NRHP; violate cultural resource standards by affecting resources that are of value to Native American culture and heritage; and/or disturb human remains, including those interred outside of formal cemeteries.

Aboveground Facilities

As currently designed, the construction and installation of aboveground facilities (i.e., mainline valves, BMOP Pump Station, Station 501) that are situated within the proposed Project corridor are not anticipated to: cause irretrievable or irreversible damage to a prehistoric or historic property that is listed or eligible for listing on the NRHP; alter or impair a viewshed, scenic quality, or aesthetic value related to a historic property not consistent with applicable laws or regulations; adversely affect a prehistoric or historic property that is listed or eligible for listing on the NRHP; violate cultural resource standards by affecting resources that are of value to Native American culture and heritage; and/or disturb human remains, including those interred outside of formal cemeteries. Locations of Station 701 and the Stingray Tap were not investigated during the current investigation.

Access Roads and Canals

No access roads and/or canals located outside the proposed Project corridor ROW were investigated during the current investigation.

6.4.1.2 Operations

Onshore Pipeline

As currently designed, the operation of the onshore pipeline component to Station 501 of the Project is not anticipated to: cause irretrievable or irreversible damage to a prehistoric or historic property that is listed or eligible for listing on the NRHP; alter or impair a viewshed, scenic quality, or aesthetic value related to a historic property not consistent with applicable laws or regulations; adversely affect a prehistoric or historic property that is listed or eligible for listing on the NRHP; violate cultural resource standards by affecting resources that are of value to Native American culture and heritage; and/or disturb human remains, including those interred outside of formal cemeteries.

Aboveground Facilities

As currently designed, operation of aboveground facilities (i.e., mainline valves, BMOP Pump Station, Station 501) that are situated within the proposed Project corridor are not anticipated to: cause irretrievable or irreversible damage to a prehistoric or historic property that is listed or eligible for listing on the NRHP; alter or impair a viewshed, scenic quality, or aesthetic value related to a historic property not consistent with applicable laws or regulations; adversely affect a prehistoric or historic property that is listed or eligible for listing on the NRHP; violate cultural resource standards by affecting resources that are of value to Native American culture and heritage; and/or disturb human remains, including those interred outside of formal cemeteries. Locations of Station 701 and the Stingray Tap were not investigated during the current investigation.

6.4.1.1 Upsets and Accidents

Onshore Pipeline

As currently designed, any onshore pipeline upsets and/or accidents that occur and which are restricted to the proposed Project corridor to Station 501 are not anticipated to: cause irretrievable or irreversible damage to a prehistoric or historic property that is listed or eligible for listing on the NRHP; alter or impair a viewshed, scenic quality, or aesthetic value related to a historic property not consistent with applicable laws or regulations; adversely affect a prehistoric or historic property that is listed or eligible for listing on the NRHP; violate cultural resource standards by affecting resources that are of value to Native American culture and heritage; and/or disturb human remains, including those interred outside of formal cemeteries.

Aboveground Facilities

As currently designed, any upsets and/or accidents that occur and which are restricted to the proposed Project corridor at aboveground facilities (i.e., mainline valves, BMOP Pump Station, Station 501) situated within the proposed Project corridor are not anticipated to: cause irretrievable or irreversible damage to a prehistoric or historic property that is listed or eligible for listing on the NRHP; alter or impair a viewshed, scenic quality, or aesthetic value related to a historic property not consistent with applicable laws or regulations; adversely affect a prehistoric or historic property that is listed or eligible for listing on the NRHP; violate cultural resource standards by affecting resources that are of value to Native American culture and heritage; and/or disturb human remains, including those interred outside of formal cemeteries.

Locations of the existing Station 701 and the Stingray Tap were not investigated during the current investigation.

6.4.1.1 Decommissioning

Onshore Pipeline

As currently designed, any decommissioning of portions of the onshore pipeline to Station 501 is not anticipated to: cause irretrievable or irreversible damage to a prehistoric or historic property that is listed or eligible for listing on the NRHP; alter or impair a viewshed, scenic quality, or aesthetic value related to a historic property not consistent with applicable laws or regulations; adversely affect a prehistoric or historic property that is listed or eligible for listing on the NRHP; violate cultural resource standards by affecting resources that are of value to Native American culture and heritage; and/or disturb human remains, including those interred outside of formal cemeteries.

Aboveground Facilities

As currently designed, the decommissioning of aboveground facilities (i.e., mainline valves, BMOP Pump Station, Station 501) situated within the proposed Project corridor are not anticipated to: cause irretrievable or irreversible damage to a prehistoric or historic property that is listed or eligible for listing on the NRHP; alter or impair a viewshed, scenic quality, or aesthetic value related to a historic property not consistent with applicable laws or regulations; adversely affect a prehistoric or historic property that is listed or eligible for listing on the NRHP; violate cultural resource standards by affecting resources that are of value to Native American culture and heritage; and/or disturb human remains, including those interred outside of formal cemeteries. Locations of Station 701 and the Stingray Tap were not investigated during the current investigation.

6.5 CUMULATIVE IMPACTS

A complete discussion of cumulative impacts is included in Volume IIa, Appendix C, “Framework for Cumulative Impacts Analysis.”

6.6 MITIGATION MEASURES

As currently designed, no mitigation measures are necessary for incidents or actions that are restricted spatially to the proposed Project corridor to Station 501.

6.7 SUMMARY OF POTENTIAL IMPACTS

The terrestrial and submerged cultural resources investigation of the proposed pipeline corridor to Station 501 has not identified any potential impacts resulting from the Project.