Office of Energy Projects

May 2019

FERC/EIS – 0286F

# *FINAL ENVIRONMENTAL IMPACT STATEMENT*
# for the
# Plaquemines LNG and Gator Express Pipeline Project

**Venture Global Plaquemines LNG, LLC** **Docket Nos. CP17-66-000**
**Venture Global Gator Express, LLC** **CP17-67-000**

Federal Energy Regulatory Commission
Office of Energy Projects
Washington, DC 20426

DOE/EIS-0539: Appendices

**Cooperating Agencies:**

U.S. Environmental Protection Agency

U.S. Army Corps of Engineers

U.S. Coast Guard

Pipeline and Hazardous Materials Safety Administration

U.S. Department of Energy

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# DISTRIBUTION LIST FOR NOTICE OF AVAILABILITY

## APPENDIX A
## DISTRIBUTION LIST

### FEDERAL GOVERNMENT AGENCIES

Council on Environmental Quality, Associate Director for NEPA Oversight, Edward Boling, DC

Office of Federal Programs, Advisory Council on Historic Preservation, Assistant Director for Federal Program Development, Charlene D. Vaughn, DC

Senate Energy and Natural Resources Committee, Chairman, Lisa Murkowski, DC

U.S. Air Force, Office of the Deputy Assistant Secretary of the Air Force (Installations), SAF/IEI, Liaison, DoD Siting Clearinghouse, DC

U.S. Army Corps of Engineers, New Orleans District, CEMVN-OD-S, Western Evaluation Section Regulatory Branch, Chief, Mr. Darrell Barbara, LA

U.S. Army Corps of Engineers, New Orleans District, Chief Regulatory Branch, Mr. Martin Mayer, LA

U.S. Army Corps of Engineers, Planning and Policy Division, Senior Policy Advisor, John Furry, DC

U.S. Army Corps of Engineers, Stephanie Castaing, LA

U.S. Army, Office of the Deputy Assistant Secretary of the Army (Energy & Sustainability), Liaison, DoD Siting Clearinghouse, DC

U.S. Coast Guard, Facility Compliance Branch, MSTC Jason Spence, LA

U.S. Coast Guard, Commandant (CG-OES-4) Chief (Acting), Deepwater Ports Standards Division, Attorney/Advisor, Curtis E. Borland, DC

U.S. Coast Guard, Commanding Officer, Captain Randall Ogrydziak, TX

U.S. Coast Guard, Commanding Officer, Commander Monica Rochester, LA

U.S. Coast Guard, Executive Officer, Lieutenant Commander Jennifer Andrew, LA

U.S. Department of Agriculture, Conservation and Environmental Program Division, FSA, National Environmental Compliance Manager, Nell Fuller, DC

U.S. Department of Agriculture, Forest Service, Ecosystem Management Coordination, Assistant Director, NEPA, Joe Carbone, DC

U.S. Department of Agriculture, Natural Resources Conservation Service, State Conservationist, Mr. Kevin D. Norton, LA

U.S. Department of Agriculture, Natural Resources Conservation Service, National Environmental Coordinator, Andree DuVarney, DC

U.S. Department of Commerce, National Oceanic and Atmospheric Administration National Marine Fisheries Service, Southwest Region, Regional Administrator, Dr. Roy Crabtree, FL

**FEDERAL GOVERNMENT AGENCIES (CONT'D)**

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Habitat Conservation Division, Assistant Regional Administrator, Mr. Miles Croom, FL

U.S. Department of Commerce, National Oceanic and Atmospheric Administration National Marine Fisheries Service, Protected Resources Division, Assistant Regional Administrator for Fishery Resources, Mr. Dave Bernhart, FL

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Habitat Conservation Division, Fishery Biologist/Team Leader, Mr. Richard Hartman, LA

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, NEPA Coordinator, MD

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Habitat Conservation Division, Fishery Biologist, Twyla Cheatwood, LA

U.S. Department of Defense, DOD Siting Clearinghouse, Steve Sample, DC

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U.S. Department of Energy, Division of Natural Gas Regulatory Activities, Director, John Anderson, DC

U.S. Department of Energy, Office of Environmental Management, Principal Deputy Assistant Secretary, Mark Whitney, DC

U.S. Department of Energy, Office of Fossil Energy, Natural Gas Analyst, Kyle Moorman, DC

U.S. Department of Energy, Office of NEPA Policy and Compliance, Acting Director, OGC, Brian Costner, DC

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Environmental Health, Division of Emergency and Environmental Health Services, Director, Sharunda Buchanan, GA

U.S. Department of Health and Human Services, Chief Environmental Officer, Mr. Everett Bole, CHMM, DC

U.S. Department of Homeland Security, U.S. Customs and Border Protection, Branch Chief, Christopher Oh, DC

U.S. Department of Housing and Urban Development, Office of Environment and Energy, Community Planner, Danielle Schopp, DC

U.S. Department of Justice, Environment and Natural Resources Division, NEPA Coordinator, DC

U.S. Department of State, Bureau of Oceans and International Environmental and Scientific Affairs, Foreign Affairs Officer, Alexander Yuan, DC

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**FEDERAL GOVERNMENT AGENCIES (CONT'D)**

U.S. Department of the Interior, Bureau of Indian Affairs, B.J. Howerton, VA

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U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement, Chief, Environmental Compliance Division, David Fish, VA

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U.S. Department of Transportation, Office of Assistant Secretary for Transportation Policy, Environmental Policy Team Coordinator, Camille Mittelholtz, DC

U.S. Department of Transportation, Office of Assistant Secretary for Transportation Policy, Senior Environmental Attorney Advisor, Helen Serassio, DC

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U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Engineering and Research Division, Office of Pipeline Safety, Director, Kenneth Y Lee, DC

U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Associate Administrator for Hazardous Materials Safety, William Schoonover, DC

U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, Attorney Advisor, Melanie Stevens, DC

U.S. Department of Transportation, Surface Transportation Board, Chief, Section of Environmental Analysis, Victoria Rutson, DC

U.S. Environmental Protection Agency-Region 6, Environmental Scientist, Keith Hayden, TX

U.S. Environmental Protection Agency, Air Permits Section Chief, Mr. Jeffrey Robinson, TX

**FEDERAL GOVERNMENT AGENCIES (CONT'D)**

U.S. Environmental Protection Agency, Office of Enforcement and Compliance Assurance, Assistant Administrator, Lawrence Starfield, DC

U.S. Environmental Protection Agency, Office of Federal Activities, Director, Susan E Bromm, DC

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U.S. Environmental Protection Agency, Region 6, Jeff Riley, TX

U.S. Environmental Protection Agency, Region 6, Office of Planning and Coordination, Chief, Michael Jansky (6EN-XP), TX

U.S. Environmental Protection Agency, Regional Administrator, Mr. Ron Curry, TX

U.S. Environmental Protection Agency, Wetlands Section, Dr. Raul Gutierrez, TX

U.S. Fish and Wildlife Service, Fish and Wildlife Biologist, Mr. Joshua Marceaux, LA

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U.S. Fish and Wildlife Service, Regional Energy Coordinator, Barret Fortier, LA

U.S. Geological Survey, Environmental Management Branch, Chief, Mark Leeper, VA

**FEDERAL SENATORS AND REPRESENTATIVES**

U.S. House of Representatives, U.S. Representative, Representative Cedric Richmond, DC

U.S. House of Representatives, U.S. Representative, Representative Cedric Richmond, LA

U.S. House of Representatives, U.S. Representative, Representative Clay Higgins, DC

U.S. House of Representatives, U.S. Representative, Representative Clay Higgins, LA

U.S. House of Representatives, U.S. Representative, Representative Steve Scalise, DC

U.S. House of Representatives, U.S. Representative, Representative Steve Scalise, LA

U.S. Senate, U.S. Senator, Senator Bill Cassidy, DC

U.S. Senate, U.S. Senator, Senator Bill Cassidy, LA

U.S. Senate, U.S. Senator, Senator John Kennedy, DC

U.S. Senate, U.S. Senator, Senator John Kennedy, LA

**STATE SENATORS AND REPRESENTATIVES**

Louisiana House of Representatives, State Representative, District 103, Representative Raymond E. Garofalo, Jr., LA

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Louisiana State Senate, State Senator, District 8, Senator John Alario Jr., LA

**STATE GOVERNMENT OFFICIALS AND AGENCIES**

Coastal Protection and Restoration Authority of Louisiana, Chairman, Mr. Chip Kline, LA

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Louisiana Department of Culture, Recreation and Tourism, Division of Archaeology, State Archaeologist and Director, Dr. Charles (Chip) McGimsey, LA

Louisiana Department of Culture, Recreation, and Tourism, Division of Archaeology, Section 106 Review and Compliance, Rachel Watson, LA

Louisiana Department of Environmental Quality- Water Permits Division, Environmental Scientist, Elizabeth Hill, LA

Louisiana Department of Environmental Quality, Office of Environmental Services, Environmental Scientist, Bryan Johnston, LA

Louisiana Department of Environmental Quality, Office of Environmental Sciences, Assistant Secretary, Ms. Tegan Treadaway, LA

Louisiana Department of Environmental Quality, Secretary, Ms. Peggy Hatch, LA

Louisiana Department of Environmental Quality, Water Permits Division, Water Permits Administrator, Mr. Scott Guilliams, LA

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Louisiana Department of Natural Resources, Assistant Secretary, Mr. Keith Lovell, LA

Louisiana Department of Natural Resources, Coastal Resources Scientist Manager, Ms. Christine Charrier, LA

Louisiana Department of Natural Resources, Permits and Mitigation Division, Administrator, Mr. Karl Morgan, LA

**STATE GOVERNMENT OFFICIALS AND AGENCIES (CONT'D)**

Louisiana Department of Natural Resources, Secretary, Secretary Stephen Chustz, LA

Louisiana Department of Transportation and Development, Dr. Secretary, Shawn Wilson, LA

Louisiana Department of Transportation and Development, Environmental Engineer Administrator, Noel Ardoin, LA

Louisiana Department of Wildlife and Fisheries, Biologist Program Manager, Mr. Kyle Balkum, LA

Louisiana Department of Wildlife and Fisheries, Secretary, Mr. Robert Barham, LA

Louisiana Department of Wildlife and Fisheries, T&E Species, Biologist, Zach Chain, LA

Louisiana Economic Development, Secretary of Economic Development, Mr. Steven Grissom, LA

Louisiana Economic Development, Secretary, Mr. Stephen Moret, LA

Louisiana Economic Development, Senior Director of Business Development, Mr. Donald Pierson Jr., LA

Louisiana Economic Development, Small Business Development and Community Services, Director, Mr. Patrick Witty, LA

Louisiana Office of State, Fire Marshall's Office, State Fire Marshall, Chief, Mr. Butch Browning, LA

Louisiana State Police, Command Inspector, Region II, Major Bryson Williams, LA

Louisiana State Police, Troop B, Commander, Captain Donovan Archote, LA

Louisiana State University Center for Energy Studies, Executive Director, Dr. David Dismukes, LA

Louisiana Workforce Commission, Manager LMI & BLS Programs at Louisiana Workforce Commission, Mr. Sachin Chinatwar, LA

Louisiana Workforce Commission, Ms. Stephanie Moris, LA

Louisiana Workforce Commission/WIOA, Linda Galloway, LA

Regional Planning Commission, Executive Director, Mr. Walter R. Brooks, LA

Louisiana Department of Environmental Quality, ec. 401 Water Quality Certification, Ms. Elizabeth Johnson, LA

State of Louisiana, Attorney General, Attorney General Jeff Landry, LA

State of Louisiana, Governor, Governor John Bel Edwards, LA

State of Louisiana, Lieutenant Governor, Lieutenant Billy Nungesser, LA

State of Louisiana, Secretary of State, Secretary Tom Schedler, LA

**NATIVE AMERICAN GROUPS**

Alabama Coushatta Tribe of Texas, Council Chairwoman, Chairwoman Nita Battise, TX

Alabama Coushatta Tribe of Texas, Historic Preservation Officer, Mr. Bryant Celestine, TX

**NATIVE AMERICAN GROUPS (CONT'D)**

Chitimacha Tribe of Louisiana, Chairman, Chairman John Paul Darden, LA

Chitimacha Tribe of Louisiana, Tribal Historic Preservation Officer, Kimberly S. Walden, LA

Choctaw Nation of Oklahoma, Chief, Chief Gary Batton, OK

Choctaw Nation of Oklahoma, Tribal Historic Preservation Officer, Dr. Ian Thompson, OK

Coushatta Tribe of Louisiana, Chairman, Chairman Lovelin Poncho, LA

Coushatta Tribe of Louisiana, Tribal Historic Preservation Officer, Dr. Linda Langley, LA

Jena Band of Choctaw Indians, Chief, Chief B. Cheryl Smith, LA

Jena Band of Choctaw Indians, Deputy THPO, Alina Shively, LA

Mississippi Band of Choctaw Indians, Chief, Chief Phyllis J. Anderson, MS

Mississippi Band of Choctaw Indians, Tribal Archaeologist, Mr. Ken Carleton, MS

Tunica-Biloxi Political Action Committee, Tribal Chairman, Tribal Chairman Joey P. Barbry, LA

Tunica-Biloxi Tribe of Louisiana, Tribal Historic Preservation Officer, Earl J. Barbry, Jr., LA

**LOCAL GOVERNMENT AGENCIES**

Belle Chasse Volunteer Fire Department, District 2, Fire Chief, Chief Roy Robichaux Jr., LA

City of Gretna Police Department, Chief of Police, Chief Arthur Lawson, LA

City of Gretna Police Department, Deputy Chief of Police, Deputy Chief Christiana Anthony, LA

City of Gretna Volunteer Fire Department, Fire Chief, Chief Michael Labruzza, LA

City of Gretna, City Clerk, Ms. Norma Cruz, LA

City of Gretna, District 1, Councilman, Councilman Milton Crosby, LA

City of Gretna, District 2, Councilman, Councilman Joseph Marino, LA

City of Gretna, District 3, Councilman, Councilman Mark Miller, LA

City of Gretna, District 4, Councilman, Councilman Jackie Berthelot, LA

City of Gretna, Mayor Pro-Tem, Councilman at Large, Councilman Wayne Rau, LA

City of Gretna, Mayor, Mayor Belinda Constant, LA

City of Gretna, Planning and Zoning Official, Ms. Azalea Roussell, LA

City of Gretna, Public Works, Director, Mr. Danny Lasyone, LA

Consolidated Recreation & Community Center and Playground District No. 2, LA

Gretna Economic Development Association, President, Mr. Anthony Buckley, LA

**LOCAL GOVERNMENT AGENCIES (CONT'D)**

Jefferson Parish Drainage Department, Director, Mitchell T. Theriot, P.E., LA

Jefferson Parish Economic Development Commission, Executive Director, Mr. Jerry Bologna, LA

Jefferson Parish Environmental Department, Kathy Russo, LA

Jefferson Parish Public School Board, District I, Board Member, Mr. Mark D. Morgan, LA

Jefferson Parish Public School Board, District II, Board Member, Mr. Ricky Johnson, LA

Jefferson Parish Public School Board, District III, Vice President, Mr. Ray St. Pierre, LA

Jefferson Parish Public School Board, District IV, Board Member, Ms. Melinda Bourgeois, LA

Jefferson Parish Public School Board, District V, President, Mr. Cedric Floyd, LA

Jefferson Parish Public School Board, District VI, Board Member, Mr. Larry Dale, LA

Jefferson Parish Public School Board, District VII, Board Member, Ms. Melinda Doucet, LA

Jefferson Parish Public School Board, District VIII, Board Member, Mr. Marion Bonura, LA

Jefferson Parish Public School Board, District XI, Board Member, Ms. Sandy Denapolis-Bosarge, LA

Jefferson Parish School Board, LA

Jefferson Parish Streets Department, Director, Randy Nicholson, LA

Jefferson Parish, Council Clerk, Ms. Eula Lopez, LA

Jefferson Parish, District 1, Councilman, Councilman Ricky Templet, LA

Jefferson Parish, District 2, Councilman Paul W. Johnston, Councilman, LA

Jefferson Parish, District 3, Councilman, Councilman Mark D. Spears, LA

Jefferson Parish, District 4, Councilman, Councilman E. "Ben" Zahn, LA

Jefferson Parish, District 5, Councilwoman, Councilwoman Cynthia Lee-Sheng, LA

Jefferson Parish, Division A, Councilman-at-Large, Council Chairman, Councilman Christopher L. Roberts, LA

Jefferson Parish, Division B, Councilman-at-Large, Councilman Elton M. Lagasse, LA

Jefferson Parish, Eastbank Consolidated Fire Department, Fire Department, Director, Mr. Joseph Greco Sr., LA

Jefferson Parish, Emergency Management, Director, Mr. Charles Hudson, LA

Jefferson Parish, Environmental Affairs, Director, Ms. Marnie Winter, LA

Jefferson Parish, Floodplain Management and Hazard Mitigation, Director, Ms. Michelle Gonzales, LA

Jefferson Parish, Parish Attorney, Ms. Deborah Cunningham Foshee, LA

**LOCAL GOVERNMENT AGENCIES (CONT'D)**

Jefferson Parish, Parish President, Parish President John Young, LA

Jefferson Parish, Sheriff, Sheriff Newell Normand, LA

Lafitte, Barataria, Crown Point Volunteer Fire Department, Fire Chief, Chief Linton Duet, LA

Lake Hermitage Volunteer Fire Department, District 6, Fire Chief, Chief Donald Durr, LA

Marrero-Estelle Volunteer Fire Department, Fire Chief, Deputy Chief Blake Hunter, LA

New Orleans District Department of Transportation, LA

Plaquemines Department of Transportation, Land Superintendent, Blair Rittiner, LA

Plaquemines Parish Government, Blair Rittiner, LA

Plaquemines Parish Government, LA

Plaquemines Parish School Board, District 1, Board Member, Ms. Jan Morgan, LA

Plaquemines Parish School Board, District 2, Board Member, Mr. Daniel Morrill, LA

Plaquemines Parish School Board, District 3, Board Member, Mr. Corey Arbourgh, LA

Plaquemines Parish School Board, District 4, Board Member, Ms. Joyce Lamkin, LA

Plaquemines Parish School Board, District 5, Board Member, Ms. Shayne Meyers, LA

Plaquemines Parish School Board, District 6, Board Member, Ms. Fran Bayhi-Martinez, LA

Plaquemines Parish School Board, District 7, Board Member, Mr. Carlton LaFrance, LA

Plaquemines Parish School Board, District 8, Board Member, Mr. Paul W. Lemaire, LA

Plaquemines Parish School Board, District 9, Board Member, Mr. Chuck Soileau, LA

Plaquemines Parish School Board, LA

Plaquemines Parish School Board, Sharon Zilucca, LA

Plaquemines Parish, Clerk of Court, Ms. Dorothy Lundin, LA

Plaquemines Parish, Director of Coastal Restoration, Mr. Vincent W. Frelich, LA

Plaquemines Parish, Director of Economic Development and Tourism, Mr. Stan Mathes, LA

Plaquemines Parish, Director of Operations, Mr. Stanley Wallace, LA

Plaquemines Parish, District 1, Council Member, Councilman John Barthelemy, LA

Plaquemines Parish, District 2, Council Member, Councilman Beau Black, LA

Plaquemines Parish, District 3, Council Member, Councilman Kirk Lepine, LA

Plaquemines Parish, District 4, Council Member, Councilman Irvin Juneau, LA

**LOCAL GOVERNMENT AGENCIES (CONT'D)**

Plaquemines Parish, District 5, Council Chairman, Chairman Benny Rousselle, LA

Plaquemines Parish, District 6, Council Member, Councilman Charlie Burt, LA

Plaquemines Parish, District 7, Council Member, Councilwoman Audrey Trufant-Salvant, LA

Plaquemines Parish, District 8, Council Member, Councilman Jeff Edgecombe, LA

Plaquemines Parish, District 9, Council Member, Councilwoman Nicole Smith Williams, LA

Plaquemines Parish, Homeland Security and Emergency Preparedness, Director, Mr. Guy Laigast, LA

Plaquemines Parish, Mr. District Attorney, Charles Ballay, LA

Plaquemines Parish, Parish President, Parish President Amos Cormier Jr., LA

Plaquemines Parish, Sheriff, Sheriff Lonnie Greco Sr., LA

Plaquemines Port Harbor & Terminal District, LA

St. Charles Parish, District IV Councilman, Paul Hogan, LA

Town of Jean Lafitte, Chief of Police, Chief Marcell Rodriguez, LA

Town of Jean Lafitte, Councilman, Councilman, Calvin LeBeau, LA

Town of Jean Lafitte, Councilman, Mr. Barry Bartholomew, LA

Town of Jean Lafitte, Councilwoman, Councilman Verna Smith, LA

Town of Jean Lafitte, Councilwoman, Councilwoman Christy Creppel, LA

Town of Jean Lafitte, Councilwoman, Councilwoman Shirley Guillie, LA

Town of Lafitte, Mayor, Mayor Timothy Kerner, LA

**LIBRARIES**

Jefferson Parish Library, Library Director, Ms. Marilyn Haddican, LA

Lafitte Library, LA

Library Director, Gretna Public Library, LA

Plaquemines Parish Library, Assistant Director, Ms. Patricia Walker, LA

**NON-PROFIT ORGANIZATIONS**

Center for Human-Environmental Research, Rusty Graves, LA

**MEDIA**

The Plaquemines Gazette, Public Notices, Shanice Mack, LA

**COMPANIES AND ORGANIZATIONS**

A/C Heating & Plumbing Inc Domino's, LA

America's Natural Gas Alliance, Mr. Charlie Riedl, DC

American Petroleum Institute, Senior Counsel, Mr. Ben Norris, DC

Apache Louisiana Minerals LLC, Timothy Allen, LA

**COMPANIES AND ORGANIZATIONS (CONT'D)**

Apache Louisiana Minerals LLC, TX

Associated Branch Pilots, President, Captain Mike Lorino, LA

Bear Associates Inc., LA

Belle Chasse Marine Transportation, LA

BNB Partners LLC, LA

Bradish-Johnson Co Ltd, c/o Camilla Jones Strachan, Gen Manager, LA

Buras Levee District, LA

Colmac Corp, LA

Crescent River Port Pilots Association, Captain, Captain Allen "A.J." Gibbs, LA

Defelice Land Co., LLC, c/o Ronald H. Kilgen, Ph.D., LA

Entergy Louisiana Properties LLC, Mail Unit L-ENT-12B, LA

ESC Properties LLC, LA

Gene H. Koss LLC, LA

Go Do Your Business LLC, LA

Hero Lands Co, LA

Hero Wall Co, LA

Industrial Pipe Inc, LA

International Marine Terminals, LA

Jefferson Business Council, Executive Director, Mr. Tony Ligi, LA

Jefferson Chamber of Commerce, Mr. Todd Murphy, President, LA

Jefferson Homeowners Association, Mr. Lawrence Caillouet, LA

Jefferson Parish Farm Bureau, Parish President, Mr. Bruce Kennair, LA

Louisiana Land & Exploration Co, Ashley Golmon, LA

Louisiana Land & Exploration Co, c/o Conoco Phillips, TX

Louisiana Oil and Gas Association, Assistant to the President, Ms. CeCe Richter, LA

Louisiana Oil and Gas Association, Vice President, Mr. Gifford Briggs, LA

MCMK LLC, LA

New City Co, LA

New Orleans Baton Rouge Steamship Pilots Association, Captain, Captain Steve Hawthorne, LA

Phillips 66 Co, PTRRC, OK

Plaquemines Association of Business & Industry, Chair, Ms. Denise Buford, LA

Plaquemines Association of Business & Industry, Executive Director, Mr. Bobby Thomas, LA

Plaquemines Parish Canal Co, c/o Camilla Jones Strachan, Gen Manager, LA

Plaquemines Parish Farm Bureau, LA

Plaquemines Port, Deputy Port Director, Mr. Paul Matthews, LA

Plaquemines Port, Executive Director, Mr. Maynard Jackson (Sandy) Sanders, LA

Plaquemines Port, Port Security and Vessels, Director, Mr. Donald Durr, LA

**COMPANIES AND ORGANIZATIONS (CONT'D)**

Ridgeland Properties LLC, LA

River Rest LLC, LA

Rotary Club of West Bank/Gretna, President, Mr. Tony Sciacca, LA

Southwest Louisiana Association of Realtors, CEO, Ms. Lisa Verrette, LA

Springwood Estates Homeowners Association, President, Mr. Shawn Coco, LA

Stone Energy Corp, LA

Stonebridge Property Owners Association, President, Ms. Suzanne Farrar, LA

Tennessee Gas Pipeline Co, Property Tax Dept, TX

The Parks of Plaquemines Homeowners Association, LA

United Bulk Terminals Davant LLC, c/o Tracy Ohmart, TX

Warves & Docks Co LLC, LA

William (Billy) Nungesser, Duckland LLC, LA

Woodland Borrow Pits LLC, LA

Woodland Borrow Pits, LLC, Phyllis Adams, LA

**INDIVIDUALS**

Adah J. Watt, c/o William G Christian Jr., TX

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Betty A. Kuehne, LA

Beverly Palmisano, LA

Beverly S. Jarvis, LA

Bonnie T. Hinyup, LA

Bonnie Tonglet, LA

Brian H. Anderson, LA

Brian K. Falgout, LA

Bruce M. Comeaux, LA

Bryan A. Ragas, LA

Bryan S. Fisher, LA

Carey A. Borgeois, LA

Carol Gaudet, LA

Carol P. Riley, LA

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Celeste D. Ancar, LA

Charles Iv Andres, LA

Charles Jones, TX

Charles R. Falcone, Jr., LA

Cheryl D. Entwisle, LA

Christie Nielsen, LA

Clayton P. Hinyup, Jr., LA

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**INDIVIDUALS (CONT'D)**

Connely J. Wright, LA

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Cynthia C. Caster, LA

Cynthia L. Lawson, LA

Daniel E. Levasseur, LA

Daniel T Carroll, c/o Lisa Voisin Carroll, VA

Danny Trusclair, LA

Darrell J. Behre, LA

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David F Hardesty, KY

David Cole Bostrom-Wilson, c/o Cindy Ann Loup, LA

David E. Banks III & Sandra G. Banks, LA

David M. Wooton, LA

Dian B. Campbell, LA

Dill Family Trust Dated December 4, 2009, LA

Don C. Adams, LA

Donna H. Comeaux, LA

Douglas M. Lanasa, Jr., LA

Edward Flanagan, Jr., c/o Clayton P. Hinyup, Jr. & Julie A. Hinyup, LA

Elaine P. Trapani, LA

Eleanor Coman, LA

Ellied P. Riley Jr., LA

Eric J. Paolini & Melissa A. M. Paolini, LA

Errance Plaisance, LA

Etole C. Furrow Estate, LA

Evelyn Edwards, LA

Foster Creppel, LA

Frank A. Trapani, LA

Frank R. Penton, LA

Frederick G. Willhoft Jr., LA

Frederick H Jr Gondrella, LA

Gail D. Penton, LA

Genice R. Rivit, c/o Mary Ann Matherne, LA

Gerard J. Tonglet Jr., LA

Gills Parria, Sr, LA

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Grant M. Gaudet, LA

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Gretchen L Lopez, c/o Janeth Gaile Lachmann, LA

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**INDIVIDUALS (CONT'D)**

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Jacob Brand, LA

James C. Holbrook Jr., LA

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James W. Crawford, LA

James Wason, LA

Janeth Gaile Lachmann, LA

Jeffrey G. Kiefer, LA

Joel Frederick, LA

John E & Kimberly Rauch

John E. Hourcade, Jr., LA

John N & Carolyn T Guidry, LA

John R. Coman, Jr., LA

John Rojas, Et Al, c/o Andrew Nolan, LA

John Thornton, LA

John Wisniewski, VA

Jonathan M. Hymel, LA

Judith B. Exsterstein, LA

Julie H. Hinyup, LA

Junius Plaisance, MS

Justin Casey, FL

Karen Bonvillian, LA

Karen S. Des Roches, LA

Katherine B. May, LA

Katie S. Daigle Et Al, GA

Kay L. Joyner, LA

Keith E. May, LA

Kelli S. Morris, LA

Kenneth J. Morrison, LA

Kenneth P Morrison, LA

Kevin M. Horner, LA

Laddis M. Hinyup, LA

Larry A. Pizani, c/o Annette Pizani, LA

Larry T. Ancar, LA

Lena L. B. R. Curol, Et Al, c/o Mrs John A. Rojas, Sr, LA

Lenora Levasseur, LA

Leon Rojas Est, Et Al, c/o Wayne J. Nolan, LA

Linda Johnson, LA

Linda Rousselle, LA

Louis E. Mcanespy, LA

**INDIVIDUALS (CONT'D)**

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Lucien A. Jeanfreau, LA

Lynn P. Perez, c/o United Bulk Terminal Devant LLC, TX

Madelyn M. O'Donohue, MS

Mark E. Comeaux, LA

Mary Nell B Poole, LA

Matthew Wall, LA

Maude L. Mann, c/o David M Hunter, Jones Walker, LA

Maunsel Hickey, Maunsel White Sr. Heirs et al, FL

May Nguyen, LA

Melanie C. Horner, LA

Michael A. Entwisle, LA

Michael Boyle, VA

Michael C. Kuehne, LA

Michael W & Helms, c/o Stephen Helms, TX

Mike Gartman, FL

Mike Kuehne, LA

Mildred R. Collins Est, c/o Carl Navarre, Jr., LA

Miriam Blanchard Powers, c/o Kaia Schindler, LA

Morgan M. Perrin Jr., LA

Murray Stabol, TX

Nancy K. Juge, LA

Ned Randolph, LA

Numa C. Hero & Son, LA

Pamela A. Adams, LA

Pamela Plaisance, MS

Patricia S. Wright, LA

Paul J. Von Bodungen, LA

Paul Matthews, LA

Peter R. Monrose et al, c/o Marcy Monrose, LA

Philip, Salvadore & Carolyn T St, LA

Rachel M. Jones, TX

Ray T. Johnson, LA

Richard A. Juge, LA

Richard C & Boni P Palazzo, LA

Richard E. Waldner, LA

Robert D. Wilson Jr., LA

Robert J. O'Donohue III, MS

Richard Leonhard, LA

Richie Blink, LA

Robert L. Seals, LA

Robert S. Campbell, LA

Roberta L. Beaver, LA

Rodney J. Barthelemy, LA

Rodney J. Bonvillian, LA

Roland J. Melancon, III, LA

**INDIVIDUALS (CONT'D)**

Ross M. Easley, LA

Russell A. Easley, LA

Sandra B. Chauvin, LA

Sarah V. Levron, LA

Scott Eustis, LA

Shawn E Townsend, LA

Sidney D Bieber Jr, LA

Stanley Hebert, LA

Stanley J Jr & Kimberly M Holliday, LA

Stephen C. Hourcade, LA

Sterling P. Chauvin, III, LA

Sterling P. Chauvin, Jr., LA

Steve C. Small, LA

Steven Armstrong, LA

Susan L. Murrell, LA

Tammy C. Graf, LA

The Estate of Isidore Antoine, c/o Mary Roth, LA

The Living Trust of Hugh R & Evelyn Revocable Babylon, LA

Timothy P. Gaudet, Jr., LA

Tracy C. Orvis, LA

Trang T. Pham, TN

Troy D. Borgeois, LA

Trudy Newberry, LA

Tuan Q. Nguyen, LA

Verda A. Anderson, LA

Wade T. Des Roches, LA

Wayne P. Perrin, LA

W. Beau Black, LA

Wilbert J. Levron, LA

William A & Kathy N Lutz, LA

William Caster Sr., LA

William E. Adam, c/o Adelaide Fabre, LA

William K. Bergeron, LA

Zane G. Elliott, LA

George Howard, NC

Rick Clute, IL

Rev. Tyronne Edwards, LA

Jason Placke, LA

## APPENDIX B

## FIGURES

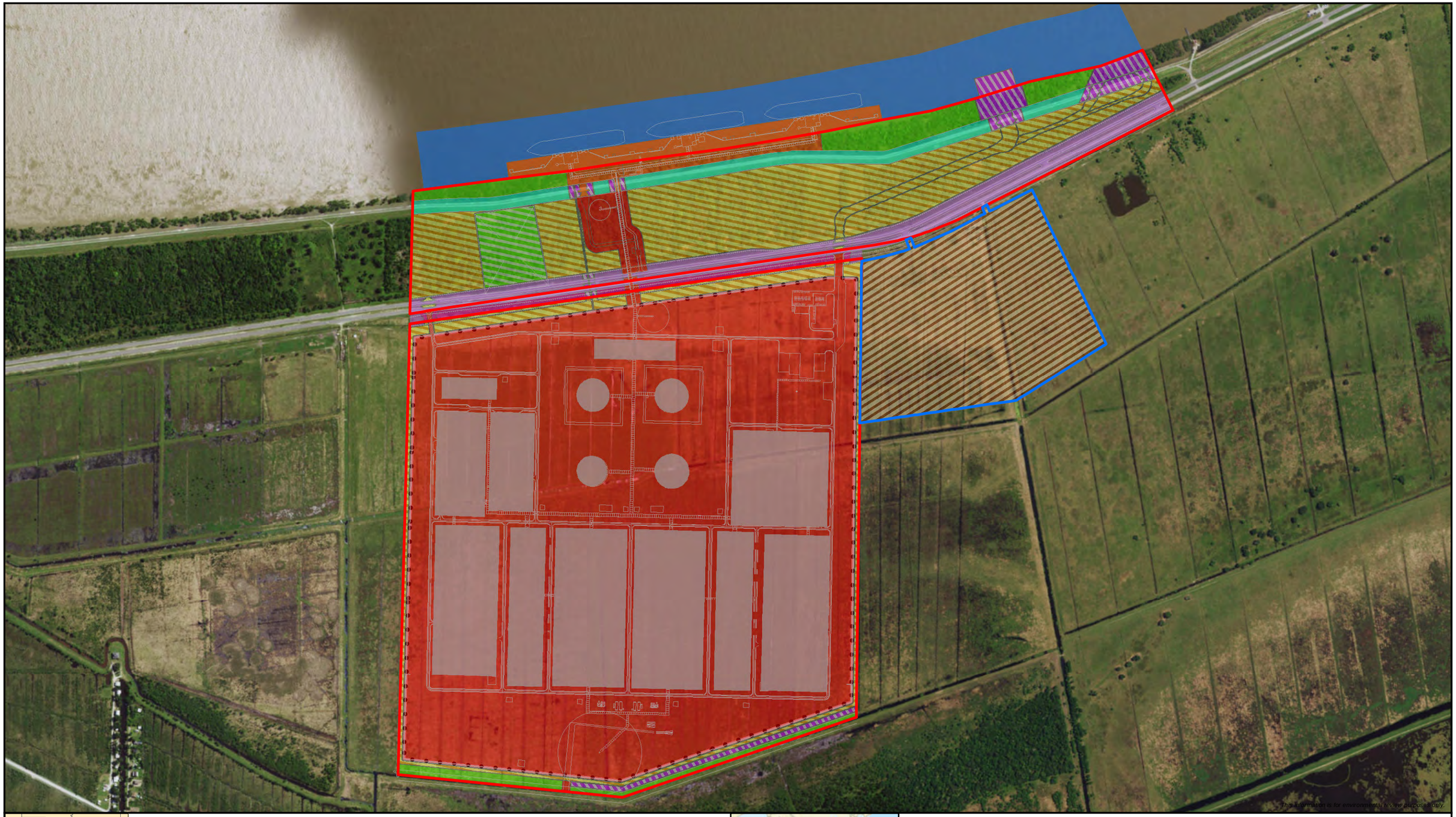


**Figure B-1**
**Proposed Workspace Layout at Terminal Site (Aerial Map)**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR01_Plaquemines_RR01_1_3_13.mxd | REVISED: 02/14/2017 | SCALE: 1:12,000 when printed at 11x17

DRAWN BY: JSnyder



Alternative Sites

MS 55 = Mississippi River Mile 55 Site
MS 56 = Mississippi River Mile 56 Site

1:1,468,419

N

0 20 40 Miles

**Figure B-2a**
**Terminal Site Alternatives**
**Overview**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR10_Plaquemines_RR10_5_1_1_Overview.mxd | REVISED: 02/17/2017 | SCALE: 1:1,468,419 when printed at 11x17

DRAWN BY: GIS



1:24,000

0 1,000 2,000 Feet

N

**Figure B-2b**
**Terminal Site Alternatives**
**Mississippi River Mile 56 Site**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR10_Plaquemines_RR10_5_1_1.mxd | REVISED: 02/17/2017 | SCALE: 1:24,000 when printed at 11x17

DRAWN BY: GIS



1:24,000

N

0 1,000 2,000 Feet

**Figure B-3c**
**Terminal Site Alternatives**
**Mississippi River Mile 55 Site - East Bank**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR10_Plaquemines_RR10_5_1_1.mxd | REVISED: 02/17/2017 | SCALE: 1:24,000 when printed at 11x17

DRAWN BY: GIS


**Figure B-2d**
**Terminal Site Alternatives**
**Cutrone Property Site**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR10_Plaquemines_RR10_5_1_1.mxd | REVISED: 02/17/2017 | SCALE: 1:24,000 when printed at 11x17

DRAWN BY: GIS


**Figure B-2e**
**Terminal Site Alternatives**
**Carlyss I Site**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR10_Plaquemines_RR10_5_1_1.mxd | REVISED: 02/17/2017 | SCALE: 1:24,000 when printed at 11x17

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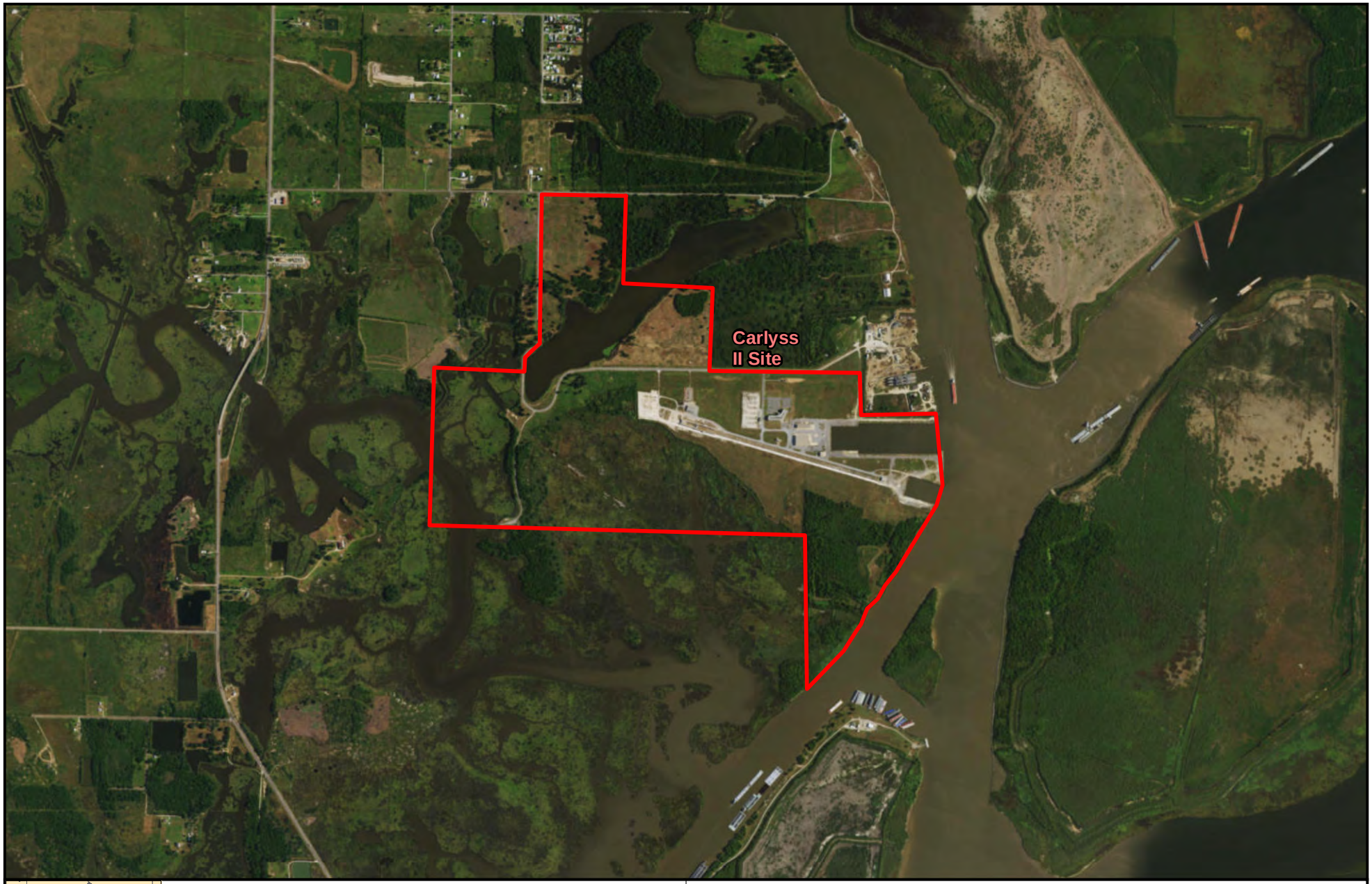



1:24,000

0 1,000 2,000 Feet

N

**Figure B-2f**
**Terminal Site Alternatives**
**Carlyss II Site**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR10_Plaquemines_RR10_5_1_1.mxd | REVISED: 02/17/2017 | SCALE: 1:24,000 when printed at 11x17

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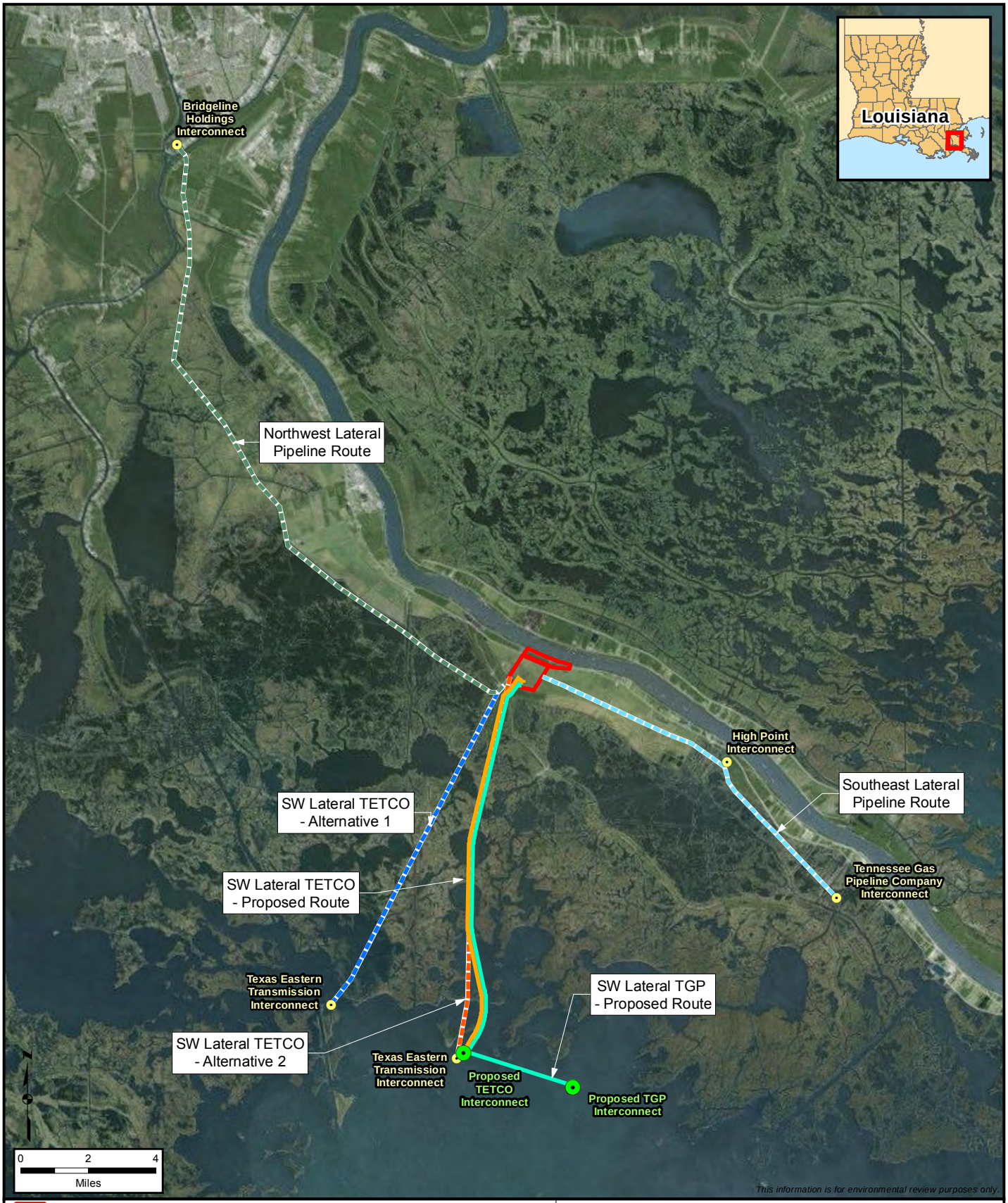



Terminal Site Boundary
SW Lateral TETCO – Proposed Route
SW Lateral TGP – Proposed Route
Northwest Lateral Pipeline Route
SW Lateral TETCO Alternative 1
SW Lateral TETCO Alternative 2
Southeast Lateral Pipeline Route
Proposed Interconnect and Meter Station
Alternative Interconnect and Meter Station

**Figure B-3**
**Alternative Pipeline Routes**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR10_Plaquemines_RR10_5_3_1.mxd | REVISED: 02/17/2017 | SCALE: 1:253,440 DRAWN BY: GIS

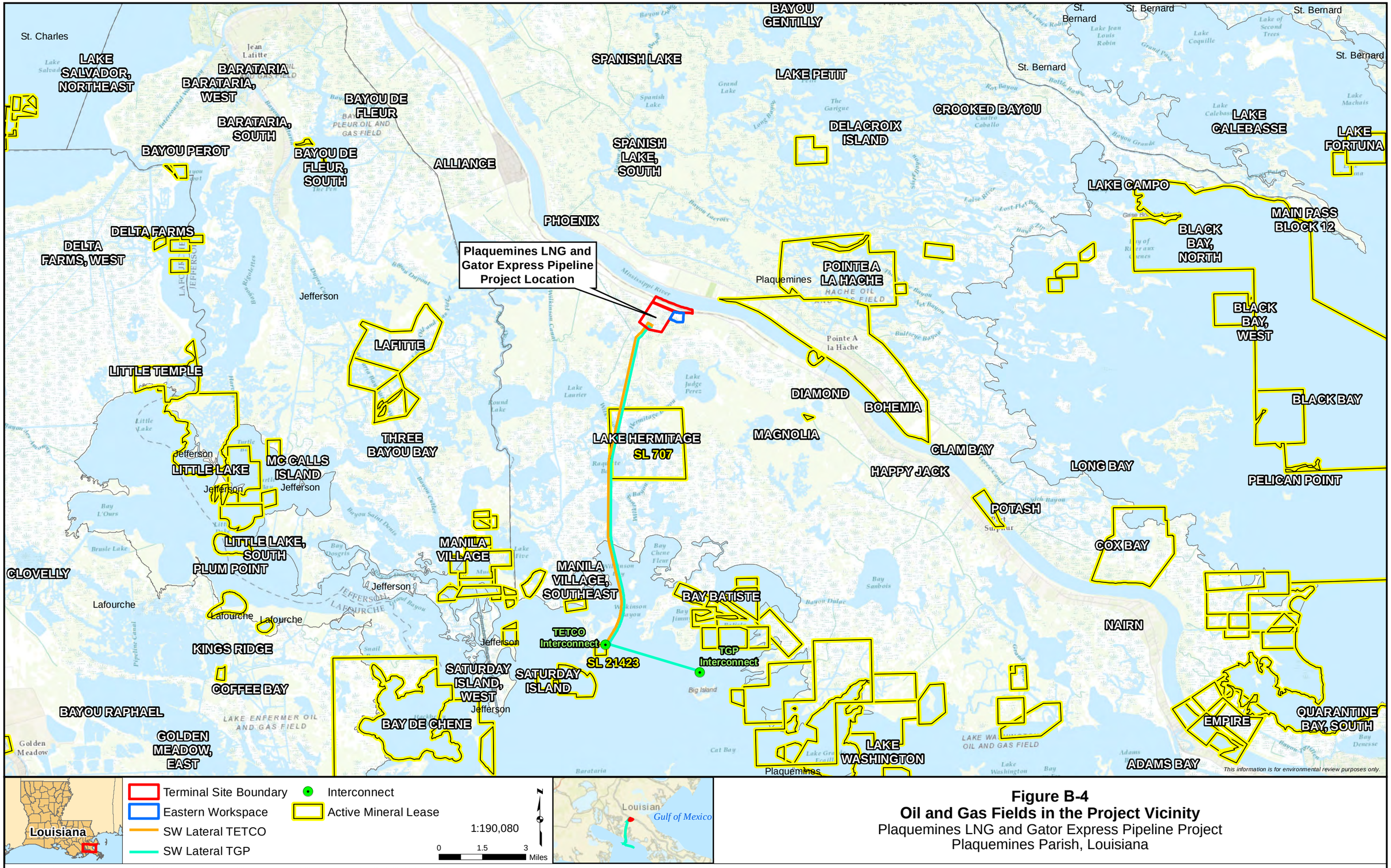
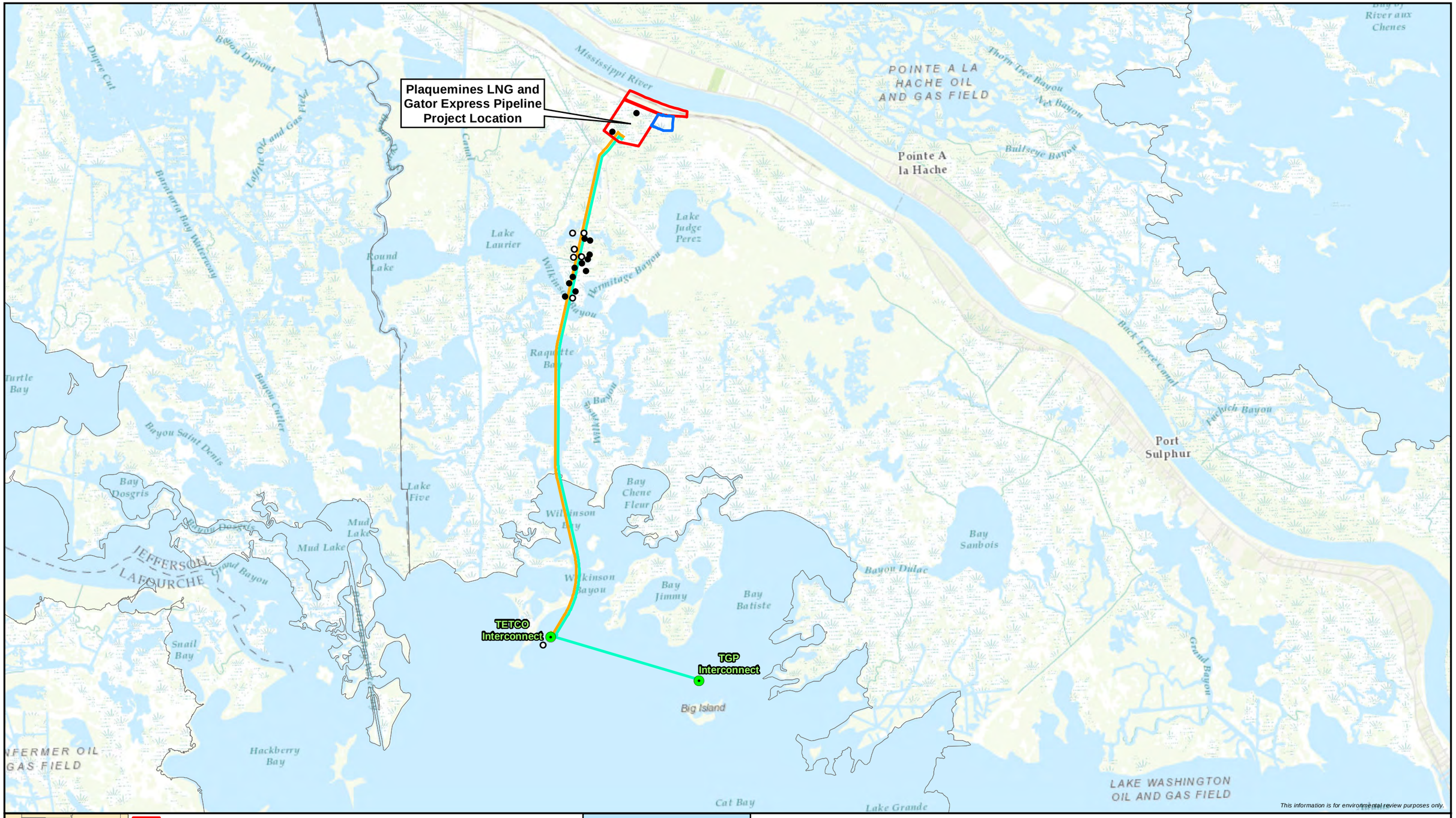



**Figure B-4**
**Oil and Gas Fields in the Project Vicinity**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR06_Plaquemines_RR06_3_1.mxd | REVISED: 01/20/2017 | SCALE: 1:190,080 when printed at 11x17 | DRAWN BY: JMS




Louisiana Department of Natural Resources. 2014. Strategic Online Natural Resources Information System Oil/Gas Wells Data Layer. Available online at: http://sonris-www.dnr.state.la.us/gis/agsweb/IE/JSViewer/index.html?TemplateID=181. Accessed December 2014.

**Figure B-5**
**Oil and Gas Wells Within 0.25 mile of the Project**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR06_Plaquemines_RR06_3_2.mxd | REVISED: 01/23/2017 | SCALE: 1:126,720 when printed at 11x17

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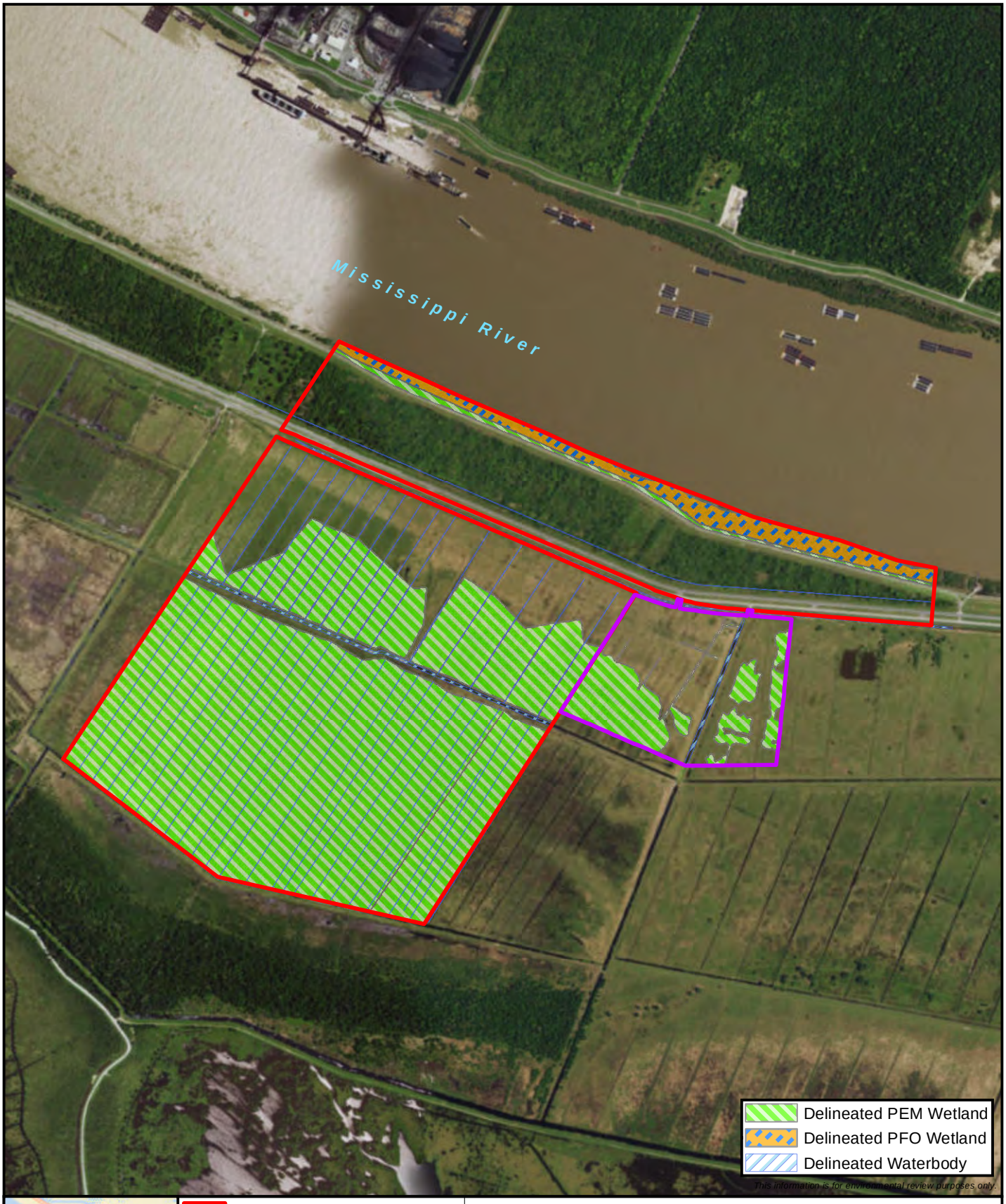
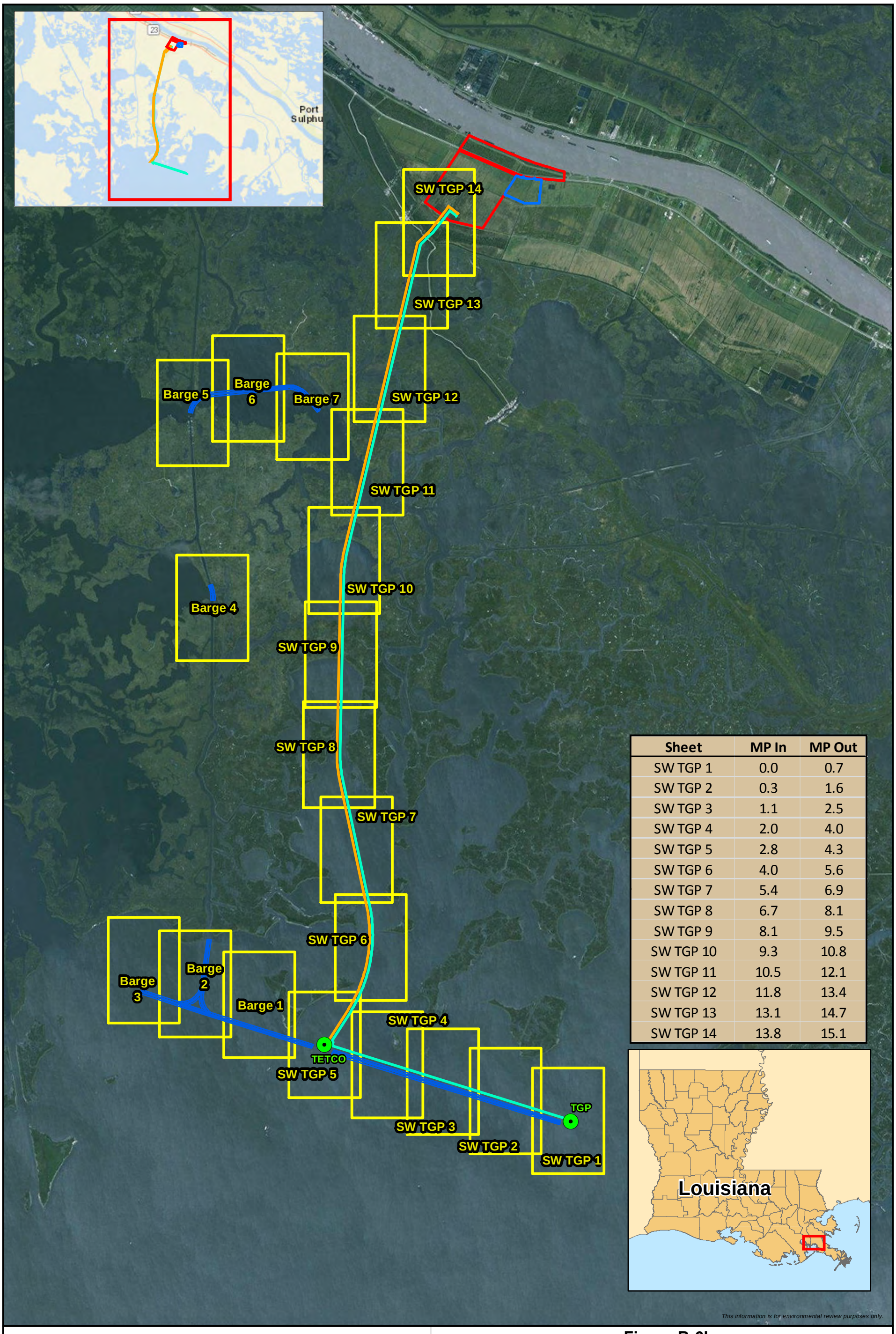



**Figure B-6a**
**Field Delineated Wetlands and Waterbodies at the Terminal Site**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_3_Terminal.mxd | REVISED: 02/13/2017 | SCALE: 1:18,000 DRAWN BY: TG



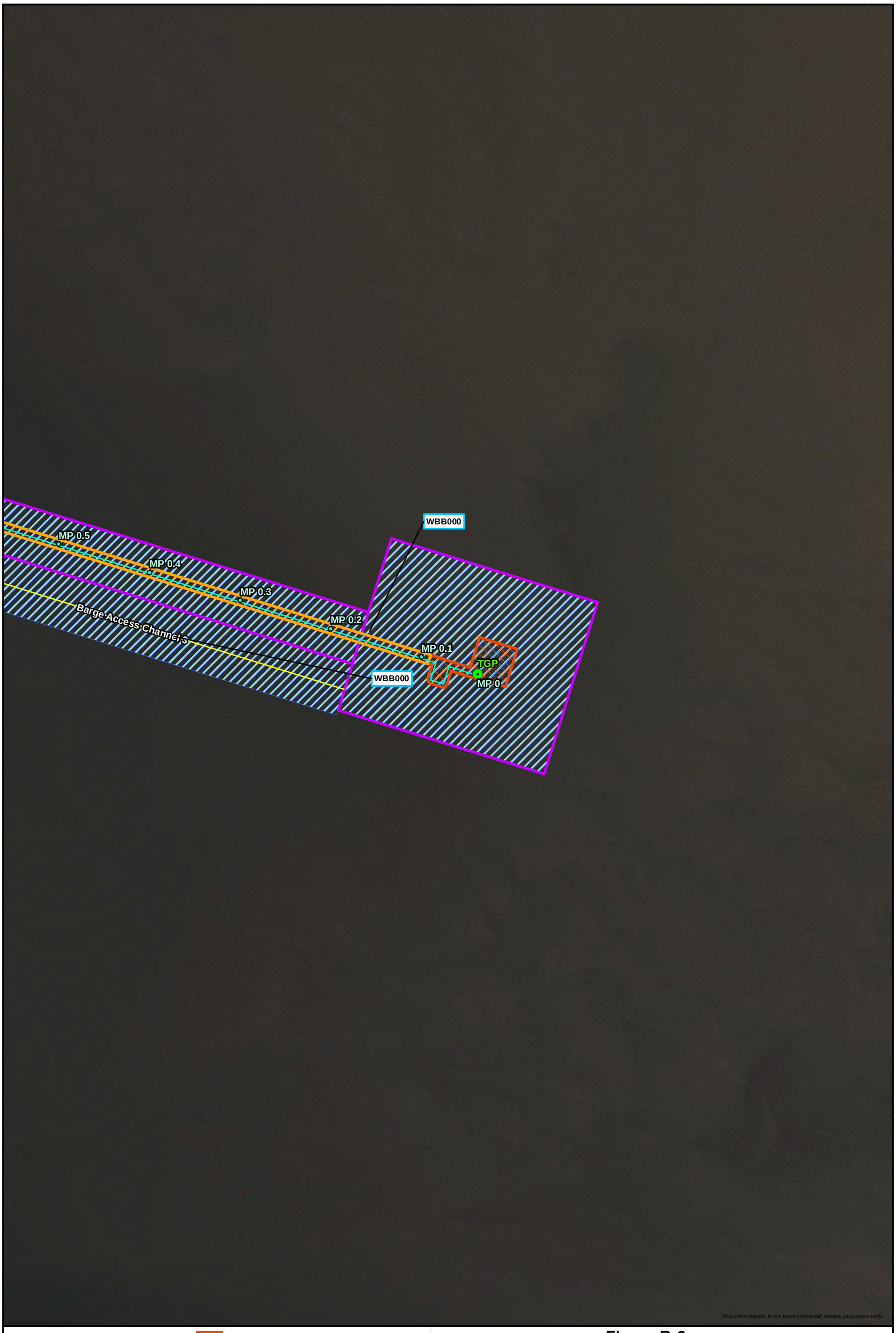

| Sheet | MP In | MP Out |
|---|---|---|
| SW TGP 1 | 0.0 | 0.7 |
| SW TGP 2 | 0.3 | 1.6 |
| SW TGP 3 | 1.1 | 2.5 |
| SW TGP 4 | 2.0 | 4.0 |
| SW TGP 5 | 2.8 | 4.3 |
| SW TGP 6 | 4.0 | 5.6 |
| SW TGP 7 | 5.4 | 6.9 |
| SW TGP 8 | 6.7 | 8.1 |
| SW TGP 9 | 8.1 | 9.5 |
| SW TGP 10 | 9.3 | 10.8 |
| SW TGP 11 | 10.5 | 12.1 |
| SW TGP 12 | 11.8 | 13.4 |
| SW TGP 13 | 13.1 | 14.7 |
| SW TGP 14 | 13.8 | 15.1 |

Terminal Site Boundary
Eastern Workspace
SW Lateral TETCO
SW Lateral TGP
Interconnect and Meter Station
Sheet
Barge Access Channels

1:75,000
0 0.5 1 Miles

**Figure B-6b**
**Overview of Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System** Plaquemines LNG and Gator Express Pipeline Project Plaquemines Parish, Louisiana
Sheet Index

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW_Overview.mxd | REVISED: 02/17/2017 | SCALE: 1:75,000 when printed at 11x17 DRAWN BY: GIS




TGP Lateral Milepost
SW Lateral TGP
Barge Access Channel
Interconnect and Meter Station
Temporary Workspace
Permanent Easement
Meter Station
Delineated Waterbody

1:6,000
0 250 500 Feet

N

**Figure B-6c**
**Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 1 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17

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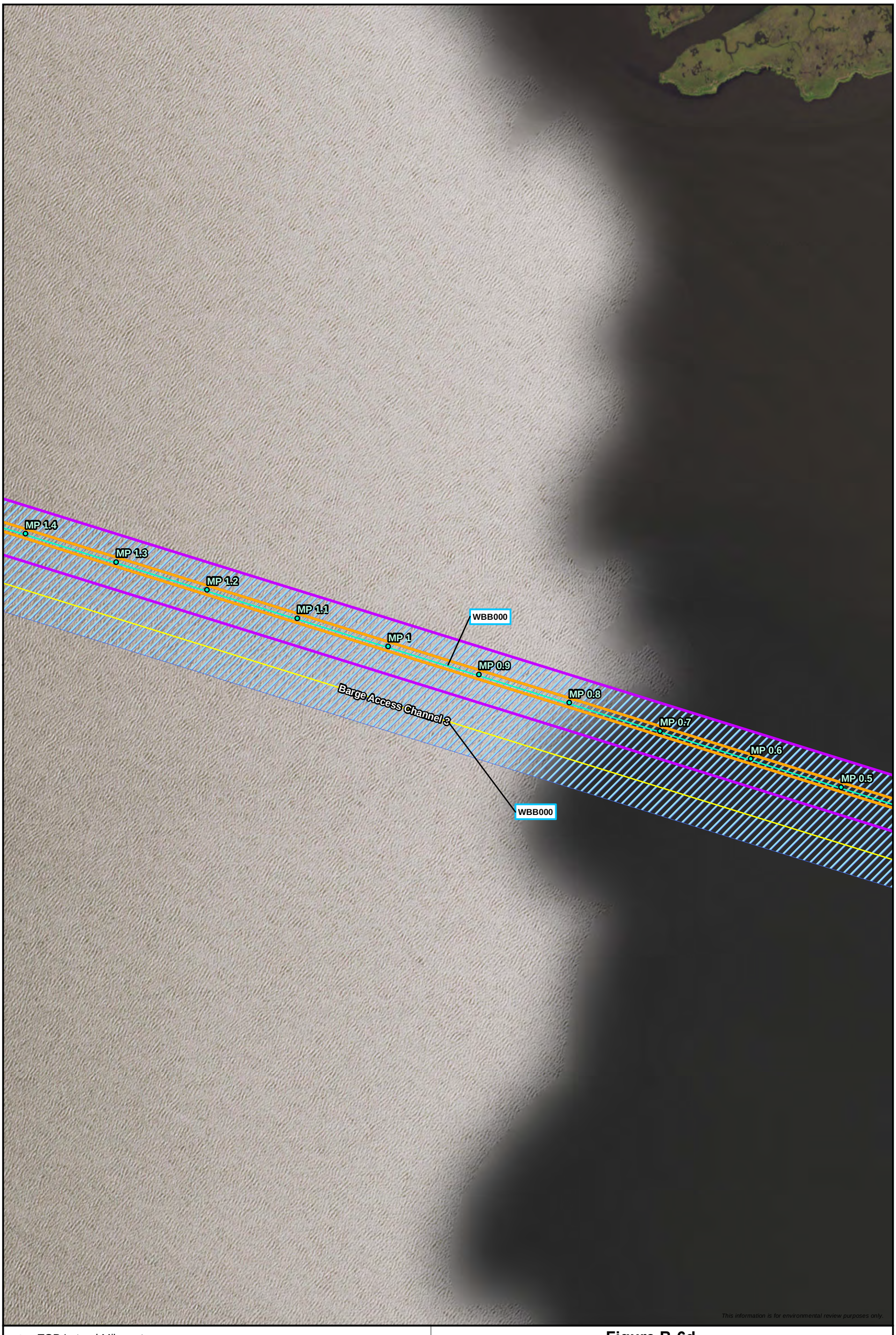



TGP Lateral Milepost
SW Lateral TGP
Barge Access Channel
Temporary Workspace
Permanent Easement
Delineated Waterbody

N

1:6,000

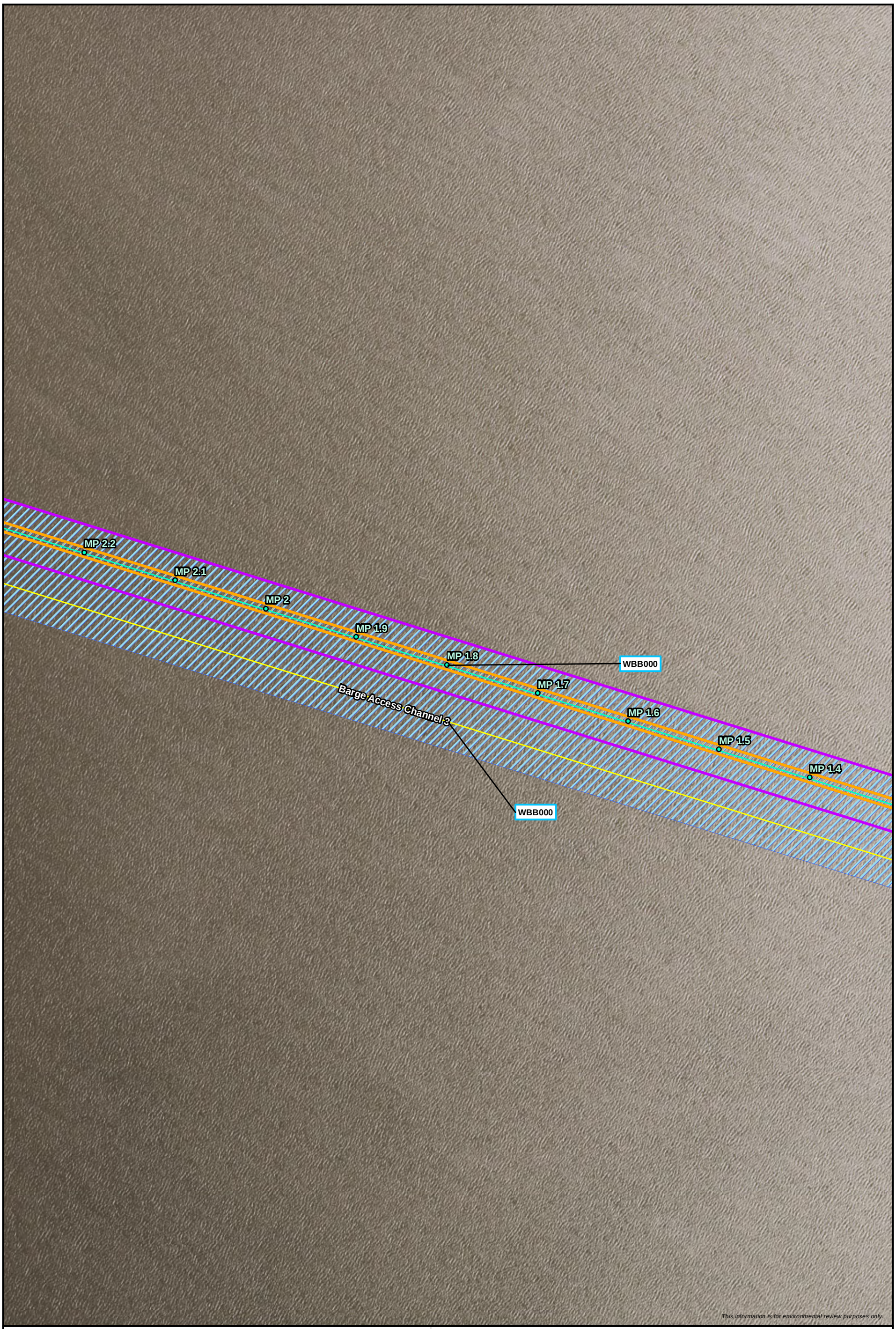
0 250 500 Feet

**Figure B-6d**

**Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System**

Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 2 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS




TGP Lateral Milepost
SW Lateral TGP
Barge Access Channel
Temporary Workspace
Permanent Easement
Delineated Waterbody

N

1:6,000

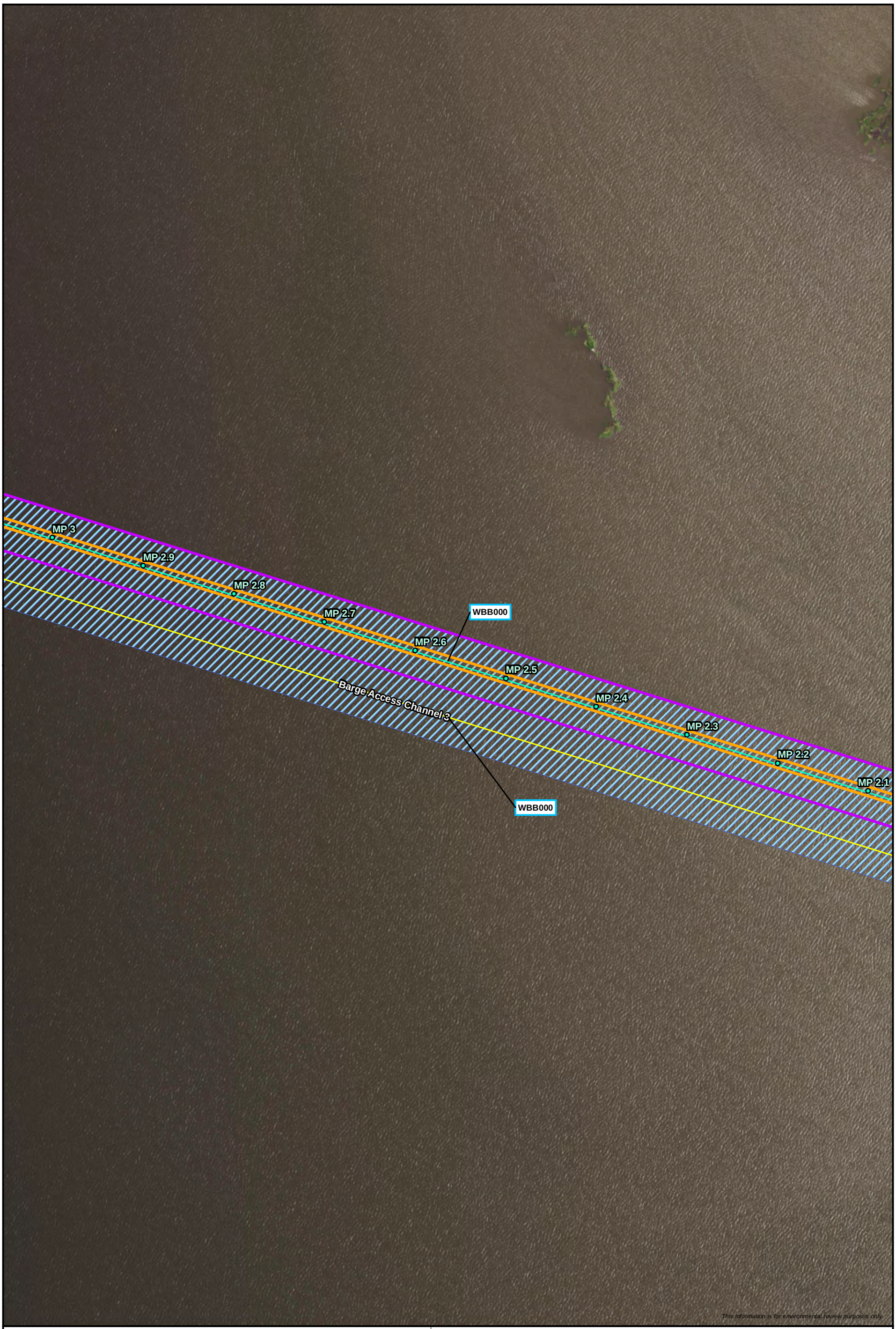
0 250 500 Feet

**Figure B-6e**

**Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System**

Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 3 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS




TGP Lateral Milepost
SW Lateral TGP
Barge Access Channel
Temporary Workspace
Permanent Easement
Delineated Waterbody

N

1:6,000

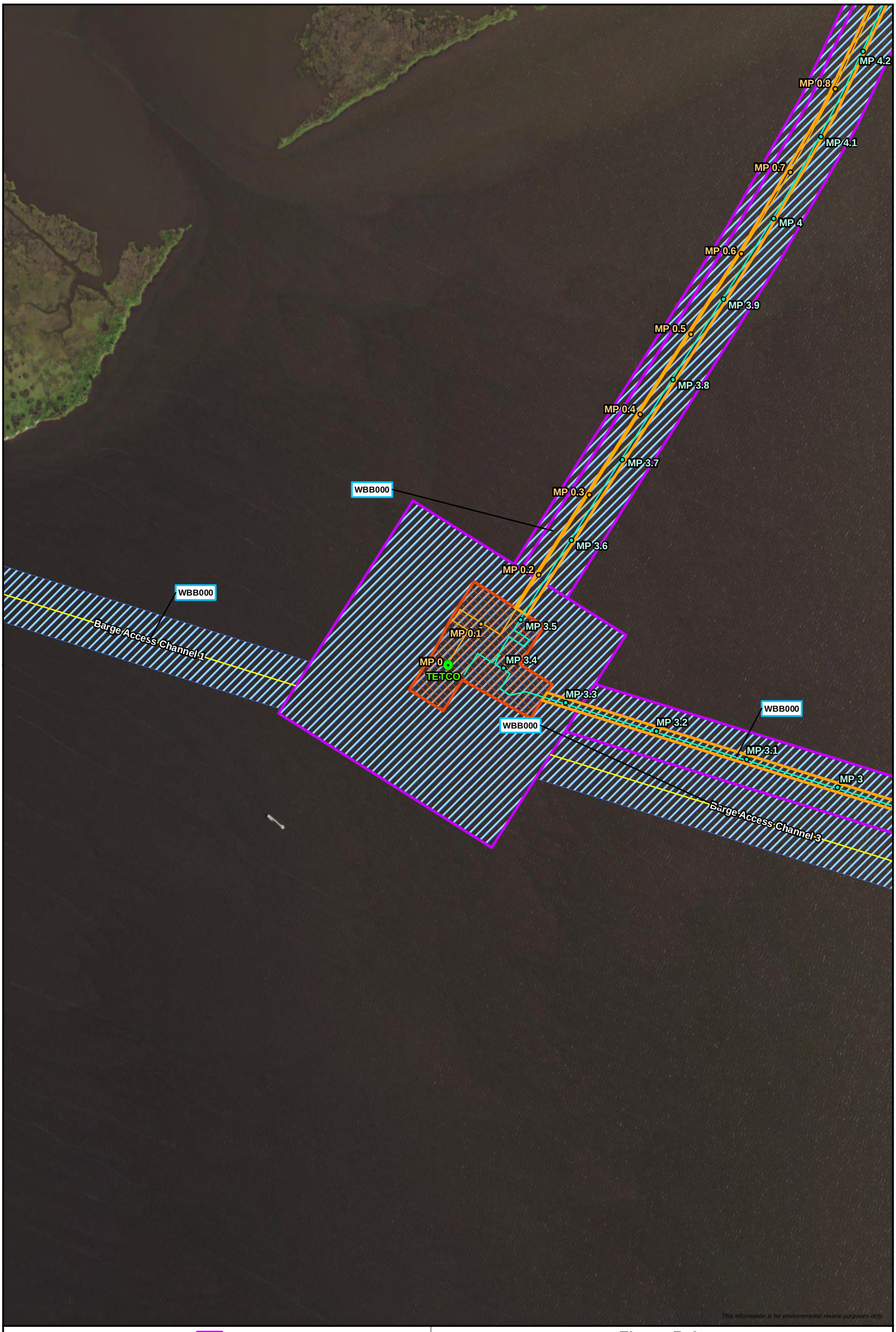
0 250 500 Feet

**Figure B-6f**

**Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System**

Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 4 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS




TETCO Lateral Milepost
TGP Lateral Milepost
SW Lateral TETCO
SW Lateral TGP
Barge Access Channel
Interconnect and Meter Station

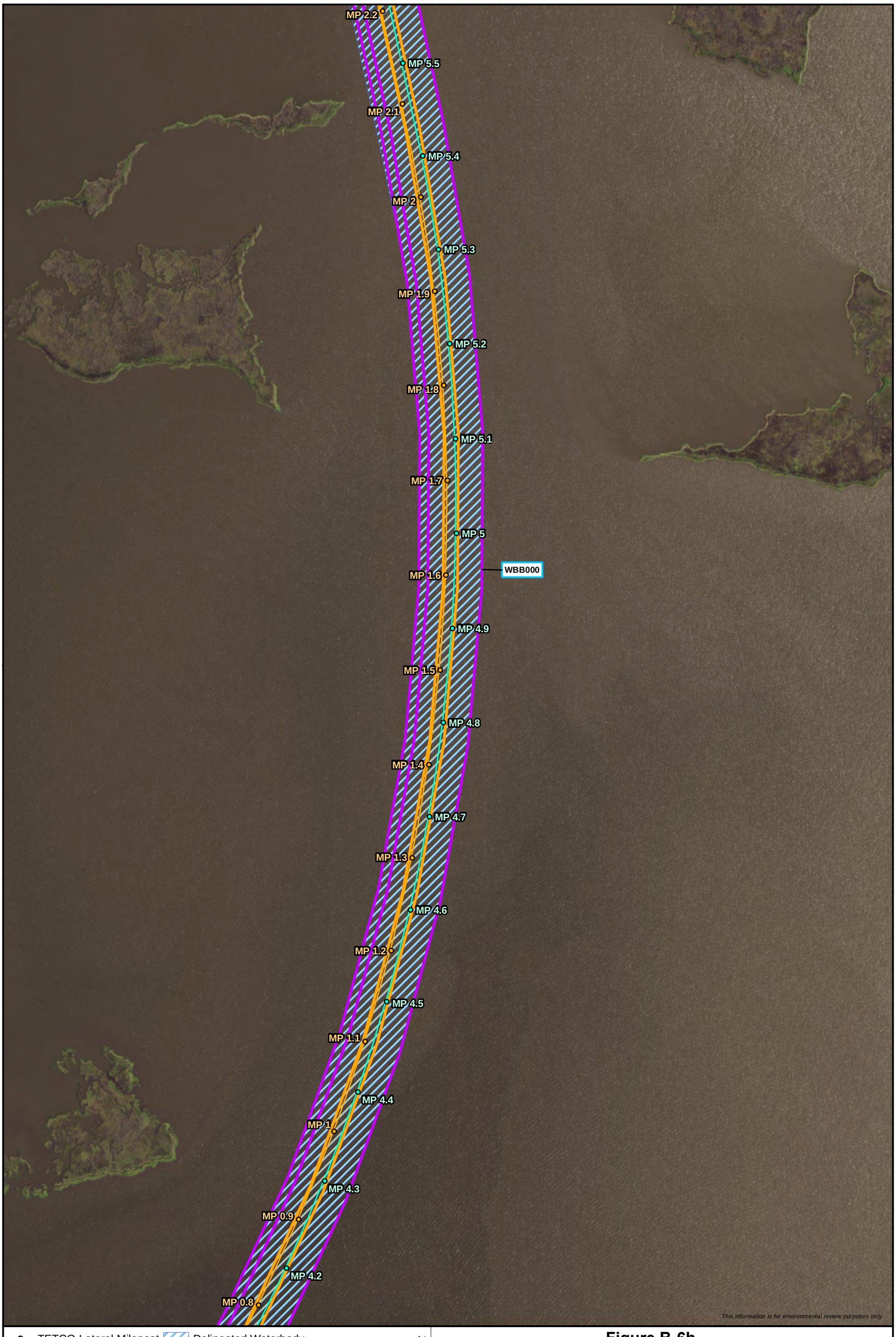
Temporary Workspace
Permanent Easement
Meter Station
Delineated Waterbody

1:6,000
0 250 500 Feet

N

**Figure B-6g**
**Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 5 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS




TETCO Lateral Milepost
TGP Lateral Milepost
SW Lateral TETCO
SW Lateral TGP
Temporary Workspace
Permanent Easement
Delineated Waterbody

N

1:6,000

0 250 500 Feet

# Figure B-6h

**Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System**

Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 6 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS


TETCO Lateral Milepost
TGP Lateral Milepost
SW Lateral TETCO
SW Lateral TGP
ATWS
Temporary Workspace
Permanent Easement
Delineated Waterbody

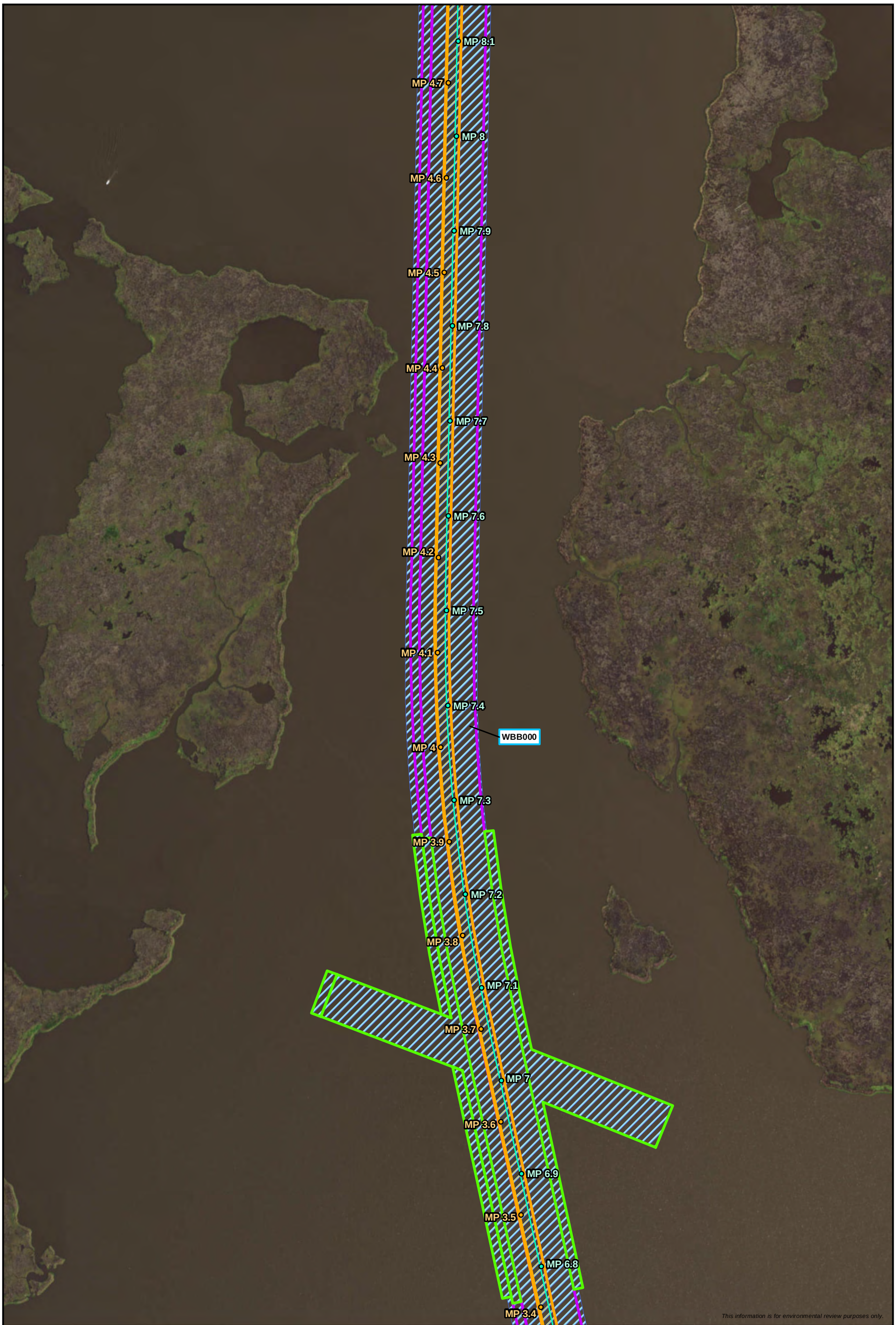
N

1:6,000

0 250 500 Feet

**Figure B-6i**
**Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 7 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS




TETCO Lateral Milepost
TGP Lateral Milepost
SW Lateral TETCO
SW Lateral TGP
ATWS
Temporary Workspace
Permanent Easement
Delineated Waterbody

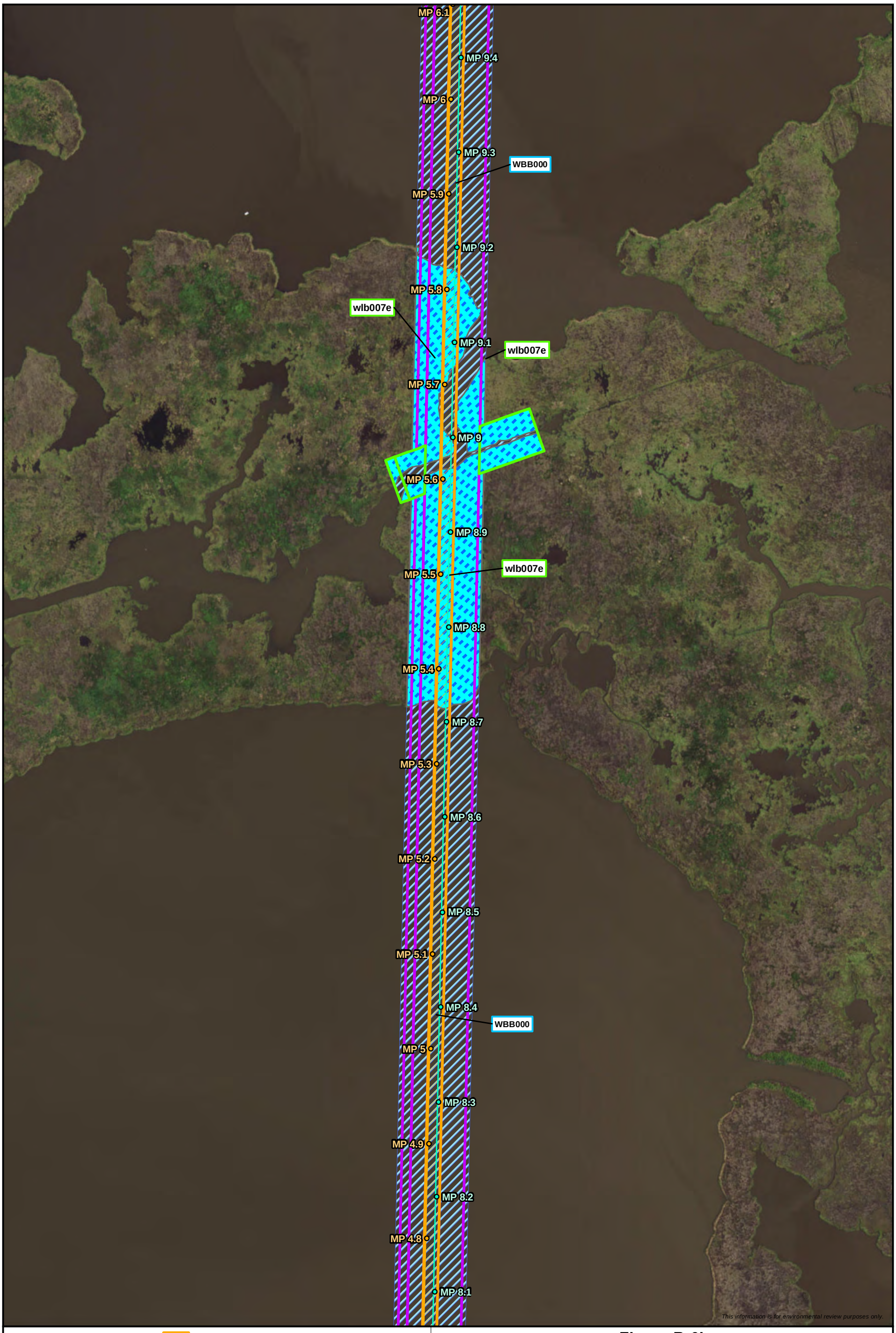
N

1:6,000

0 250 500 Feet

**Figure B-6j**
**Field Delineated Wetlands and Waterbodies**
**Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 8 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS




TETCO Lateral Milepost
TGP Lateral Milepost
SW Lateral TETCO
SW Lateral TGP
ATWS
Temporary Workspace
Permanent Easement
Delineated E2EM Wetland
Delineated Waterbody

N

1:6,000

0 250 500 Feet

# Figure B-6k
## Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System

Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 9 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS

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MP 7.3
MP 10.6
MP 7.2
MP 10.5
MP 7.1
wlb010e
MP 10.4
MP 7
MP 10.3
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MP 10.1
MP 6.7
MP 10
WBB000
MP 6.6
MP 9.9
MP 6.5
MP 9.8
MP 6.4
MP 9.7
MP 6.3
MP 9.6
MP 6.2
MP 9.5
MP 6.1
MP 9.4
MP 6



TETCO Lateral Milepost
TGP Lateral Milepost
SW Lateral TETCO
SW Lateral TGP
Temporary Workspace
Permanent Easement
Delineated E2EM Wetland
Delineated Waterbody

N

1:6,000

0 250 500 Feet

**Figure B-6l**
**Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 10 of 21

wlb004e
MP 12
wlb004s
MP 8.6
wlb004e
WBB000
MP 11.9
MP 8.5
MP 11.8
MP 8.4
MP 11.7
MP 8.3
wlb004e
WBB000
MP 11.6
MP 8.2
MP 11.5
Barge Access Channel 2
MP 8.1
WBB000
MP 11.4
MP 8
wlb004e
MP 11.3
MP 7.9
WBB000
MP 11.2
MP 7.8
MP 11.1
MP 7.7
MP 11
MP 7.6
MP 10.9
MP 7.5
MP 10.8
wlb010e
MP 7.4
MP 10.7
MP 7.3



TETCO Lateral Milepost
TGP Lateral Milepost
SW Lateral TETCO
SW Lateral TGP
Barge Access Channel
ATWS
Temporary Workspace
Permanent Easement
Delineated E2SS Wetland
Delineated E2EM Wetland
Delineated Waterbody

N

1:6,000

0 250 500 Feet

**Figure B-6m**
**Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project Plaquemines Parish, Louisiana
Sheet 11 of 21

MP 13.3
MP 9.9
WBB000
wlb004e
WBB000
MP 13.2
wlb004e
MP 9.8
WBB000
wlb004e
MP 13.1
MP 9.7
wlb004e
MP 13
MP 9.6
MP 12.9
MP 9.5
wlb004e
WBB000
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MP 8.8
wlb004e
MP 12.1
WBB000
MP 8.7
MP 12
wlb004s
MP 8.6
wlb004e
wlb004e
MP 11.9



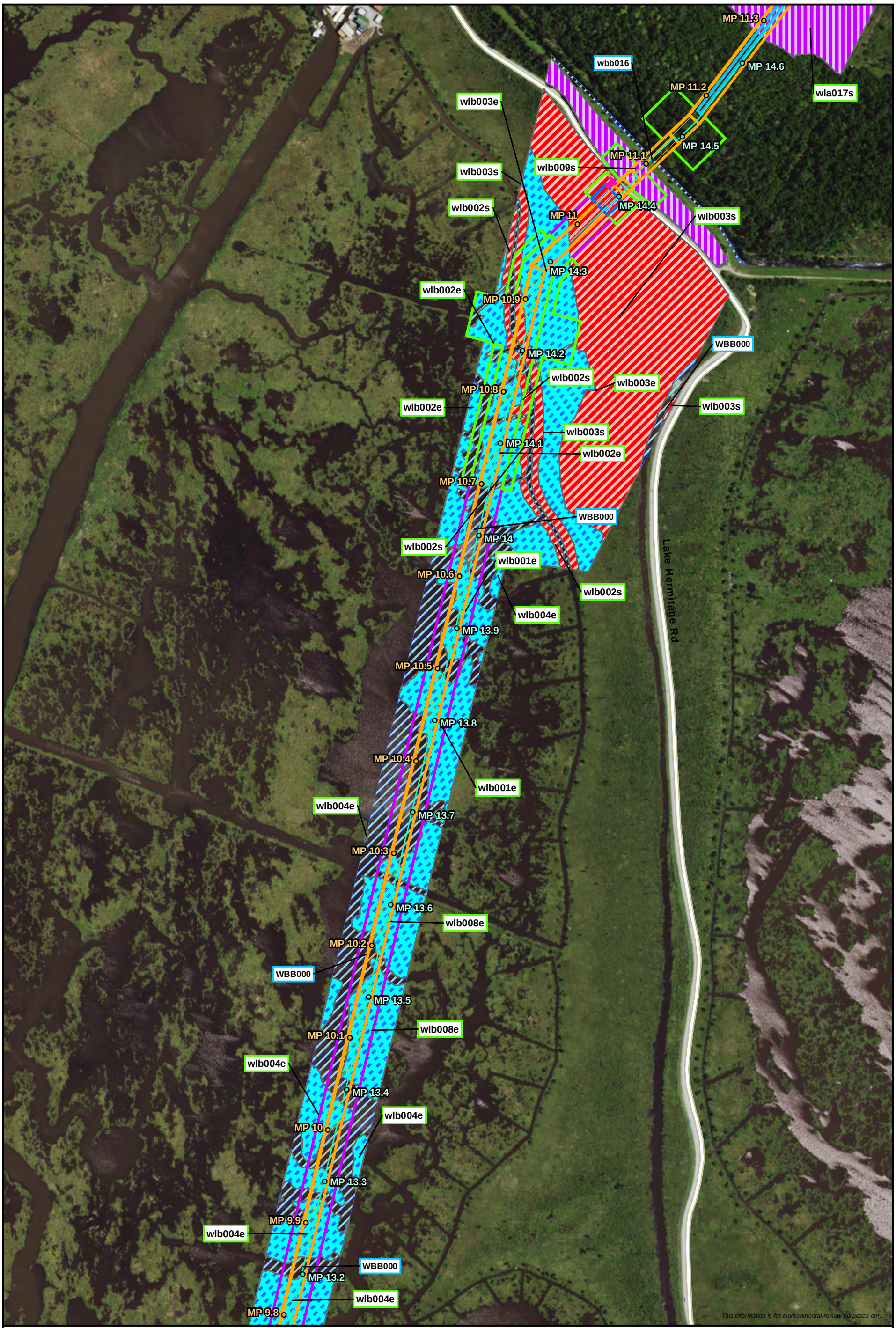
TETCO Lateral Milepost
TGP Lateral Milepost
SW Lateral TETCO
SW Lateral TGP
Temporary Workspace
Permanent Easement
Delineated E2SS Wetland
Delineated E2EM Wetland
Delineated Waterbody

N

1:6,000

0 250 500 Feet

# Figure B-6n
## Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 12 of 21




TETCO Lateral Milepost
TGP Lateral Milepost
SW Lateral TETCO
SW Lateral TGP
ATWS
Temporary Workspace
Permanent Easement
Main Line Block Valve Site
Permanent Access Road
Temporary Access Road
Delineated E2SS Wetland
Delineated PSS Wetland
Delineated E2EM Wetland
Delineated Waterbody

N

1:6,000

0 250 500 Feet

# Figure B-6o
## Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 13 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17

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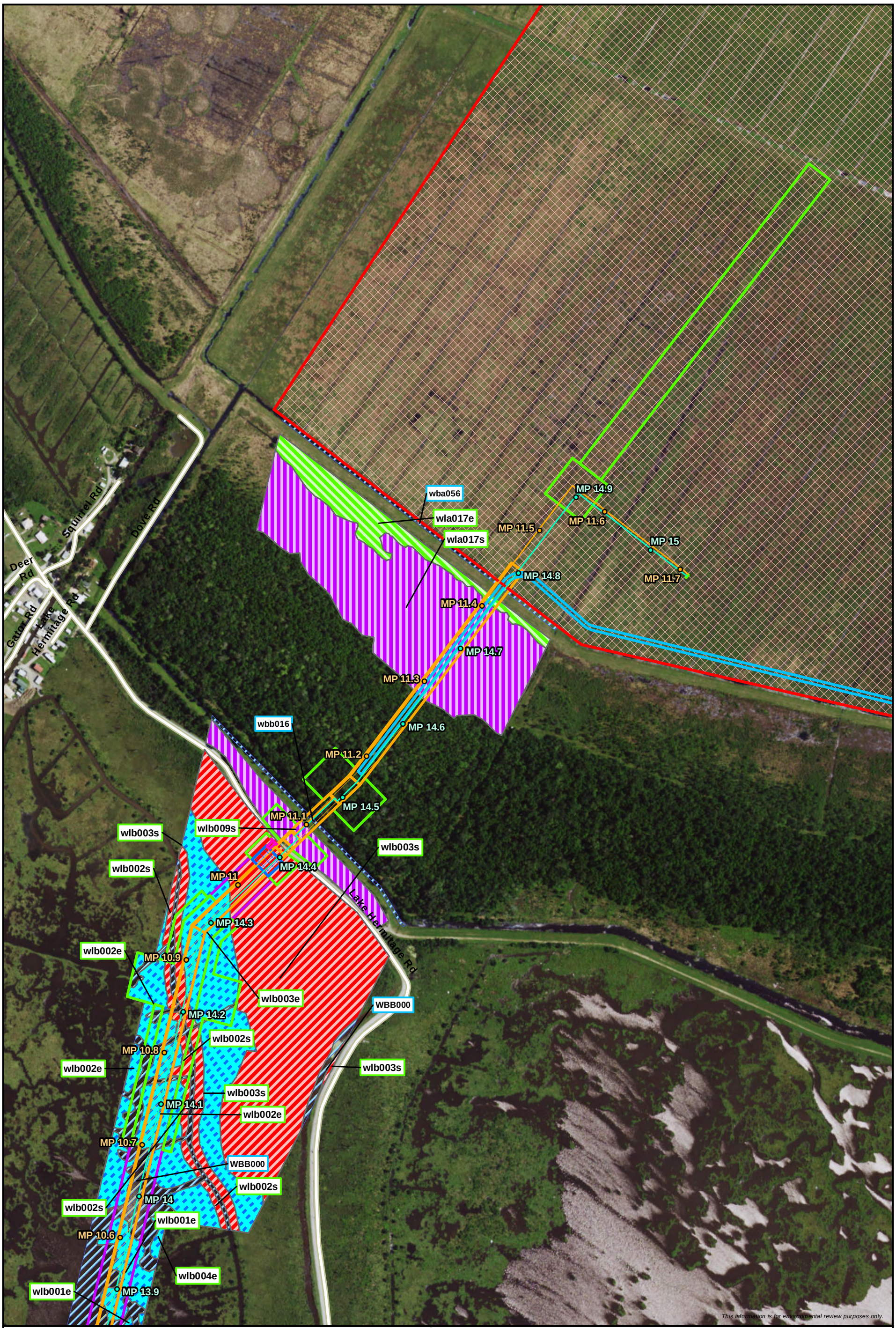



Terminal Site
TETCO Lateral Milepost
TGP Lateral Milepost
SW Lateral TETCO
SW Lateral TGP
ATWS

Temporary Workspace
Permanent Easement
Main Line Block Valve Site
Permanent Access Road
Temporary Access Road
Delineated E2SS Wetland

Delineated PEM Wetland
Delineated PSS Wetland
Delineated E2EM Wetland
Delineated Waterbody

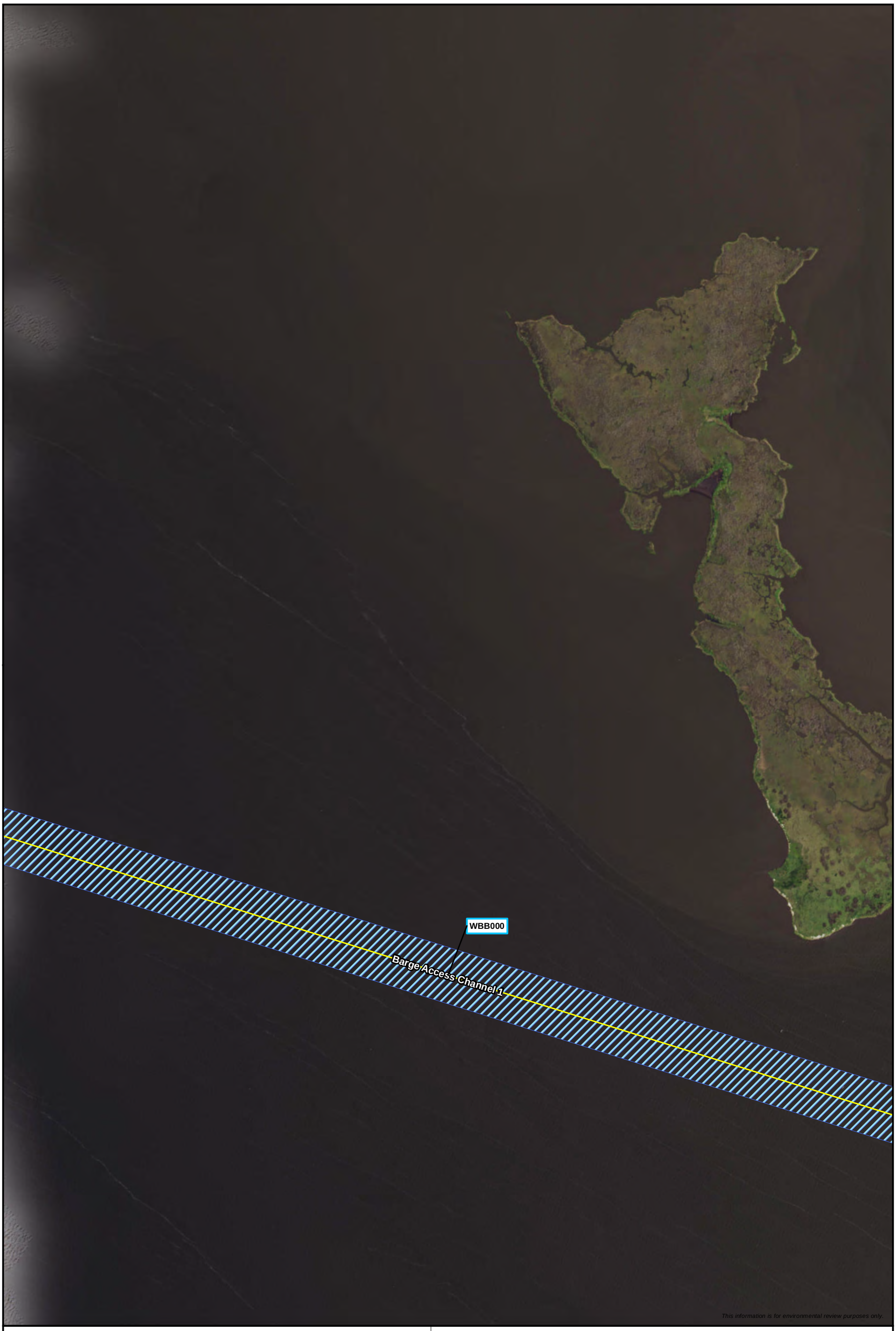
N

1:6,000

0 250 500 Feet

**Figure B-6p**
**Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project Plaquemines Parish, Louisiana
Sheet 14 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS




Barge Access Channel
Delineated Waterbody

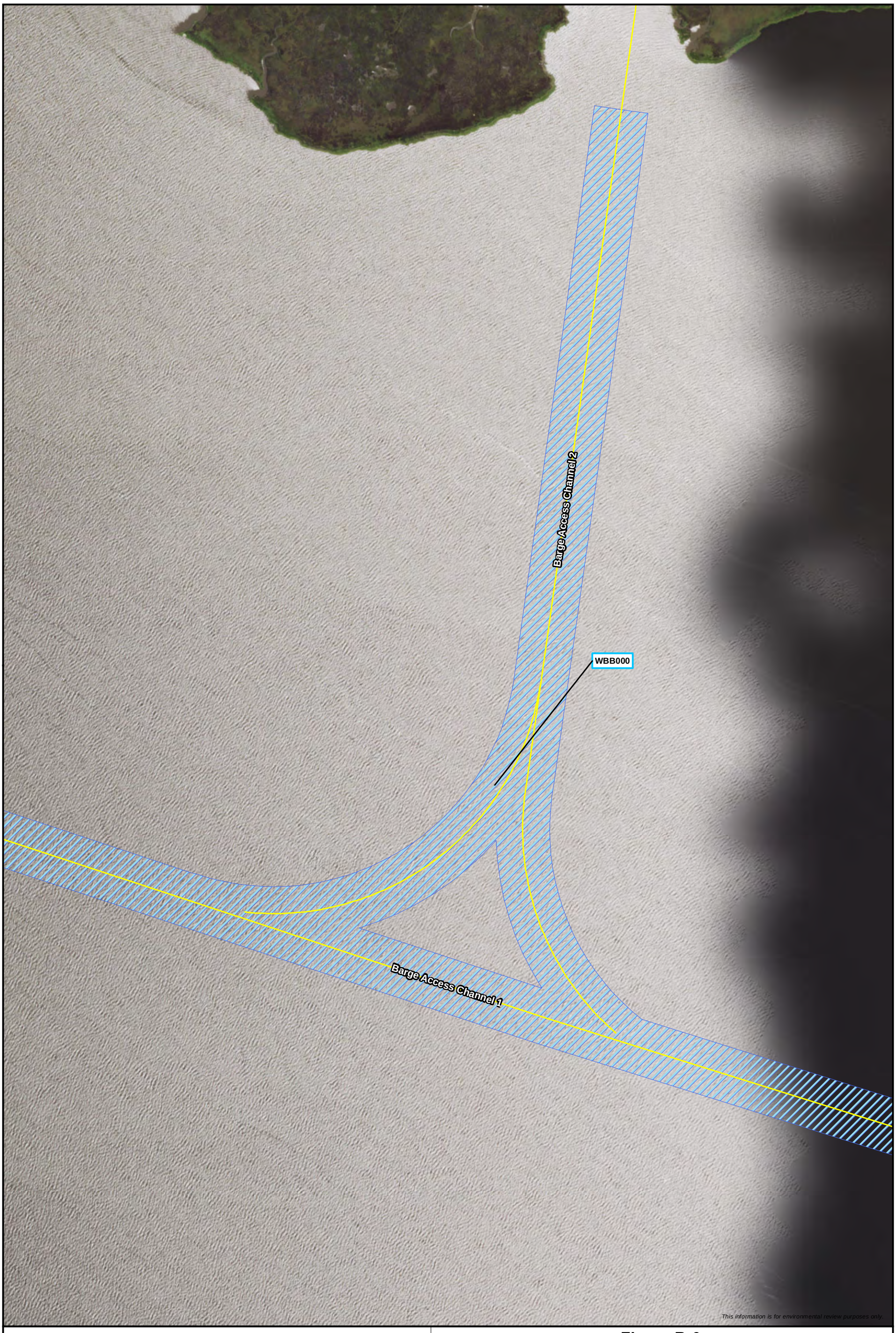
N

1:6,000

0 250 500 Feet

**Figure B-6q**
**Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 15 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS




Barge Access Channel
Delineated Waterbody

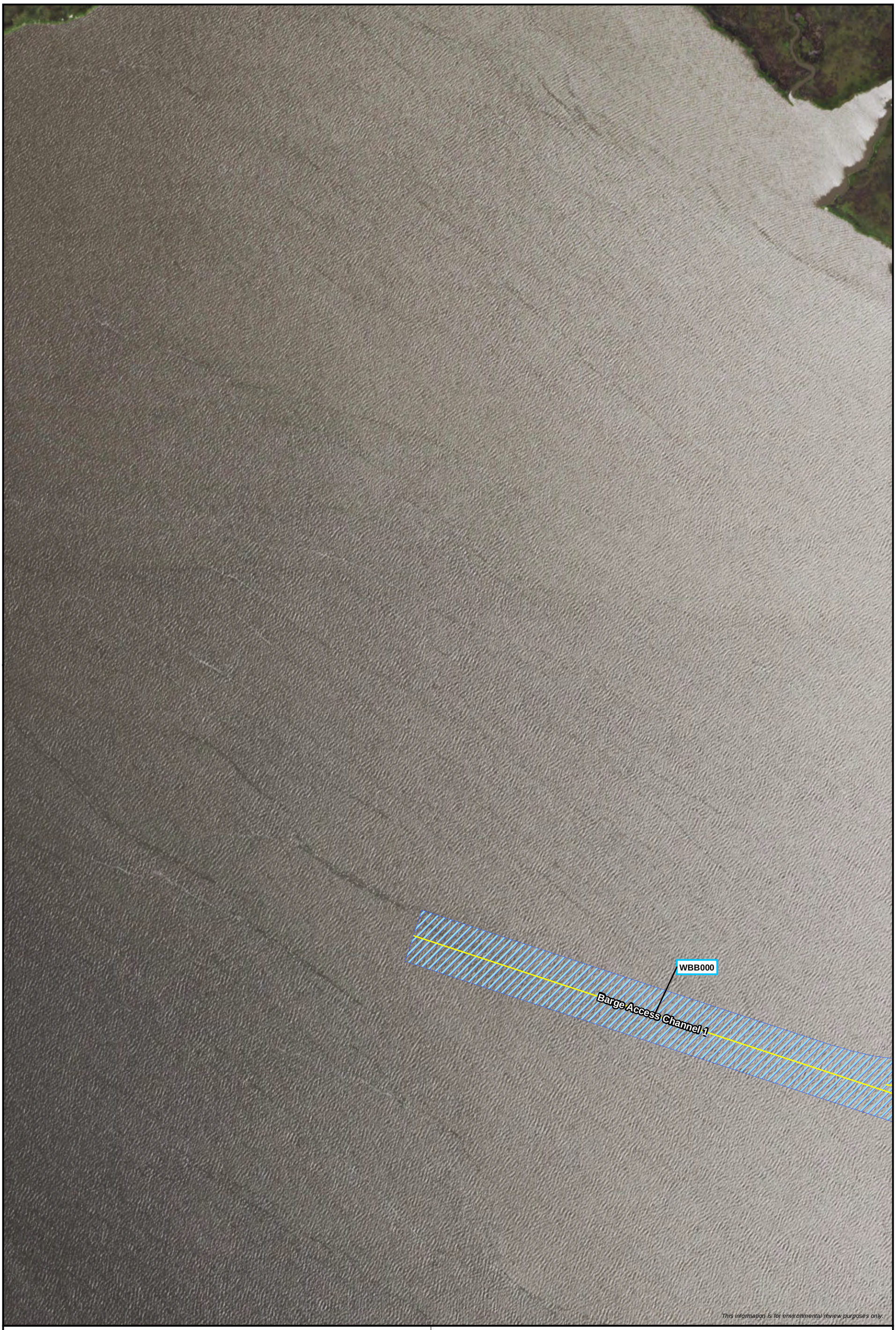
N

1:6,000

0 250 500
Feet

**Figure B-6r**
**Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 16 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS




Barge Access Channel
Delineated Waterbody

N

1:6,000

0 250 500
Feet

**Figure B-6s**
**Field Delineated Wetlands and Waterbodies**
**Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 17 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS


Barge Access Channel
Delineated Waterbody

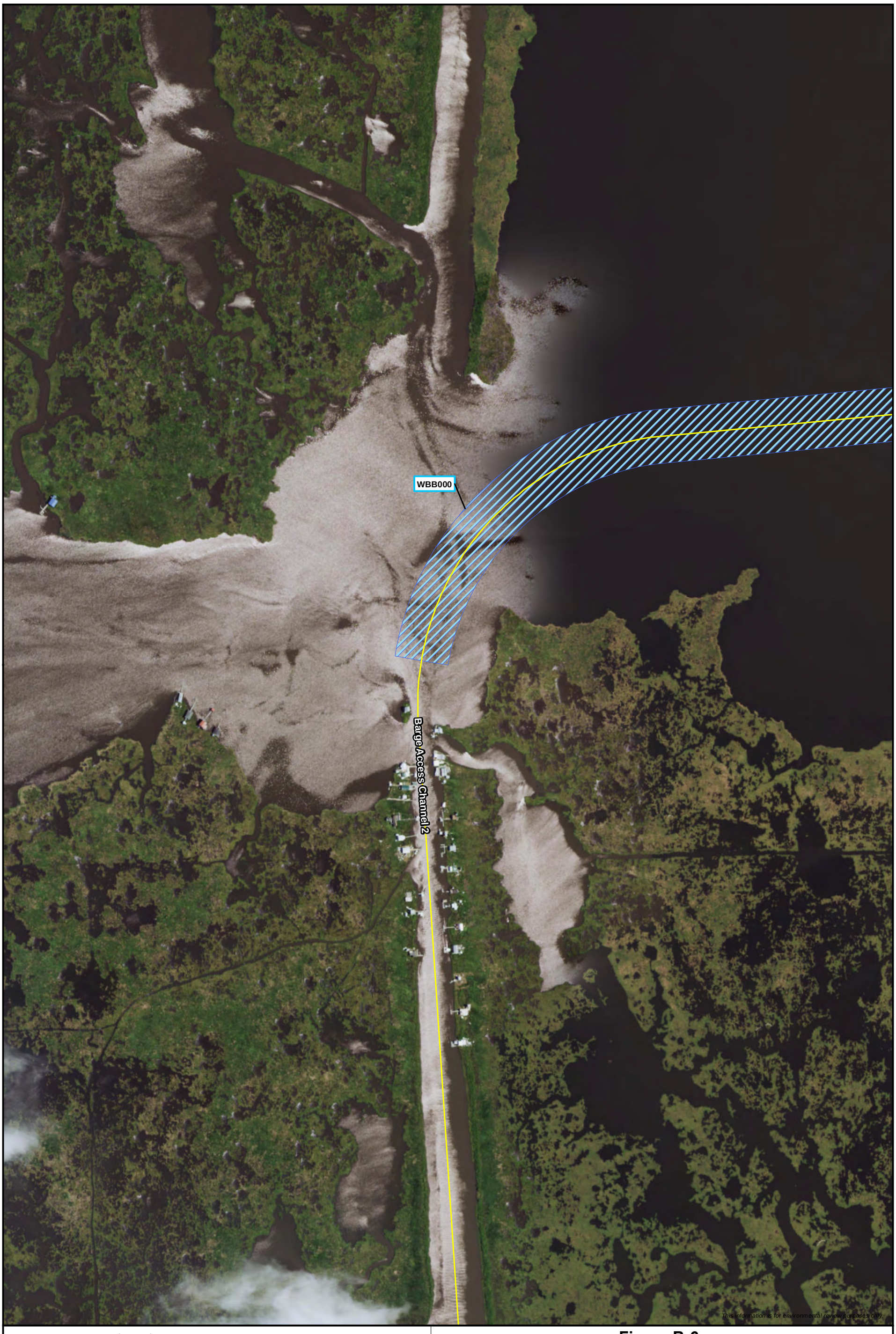
N

1:6,000

0 250 500
Feet

**Figure B-6t**
**Field Delineated Wetlands and Waterbodies**
**Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 18 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS




Barge Access Channel
Delineated Waterbody

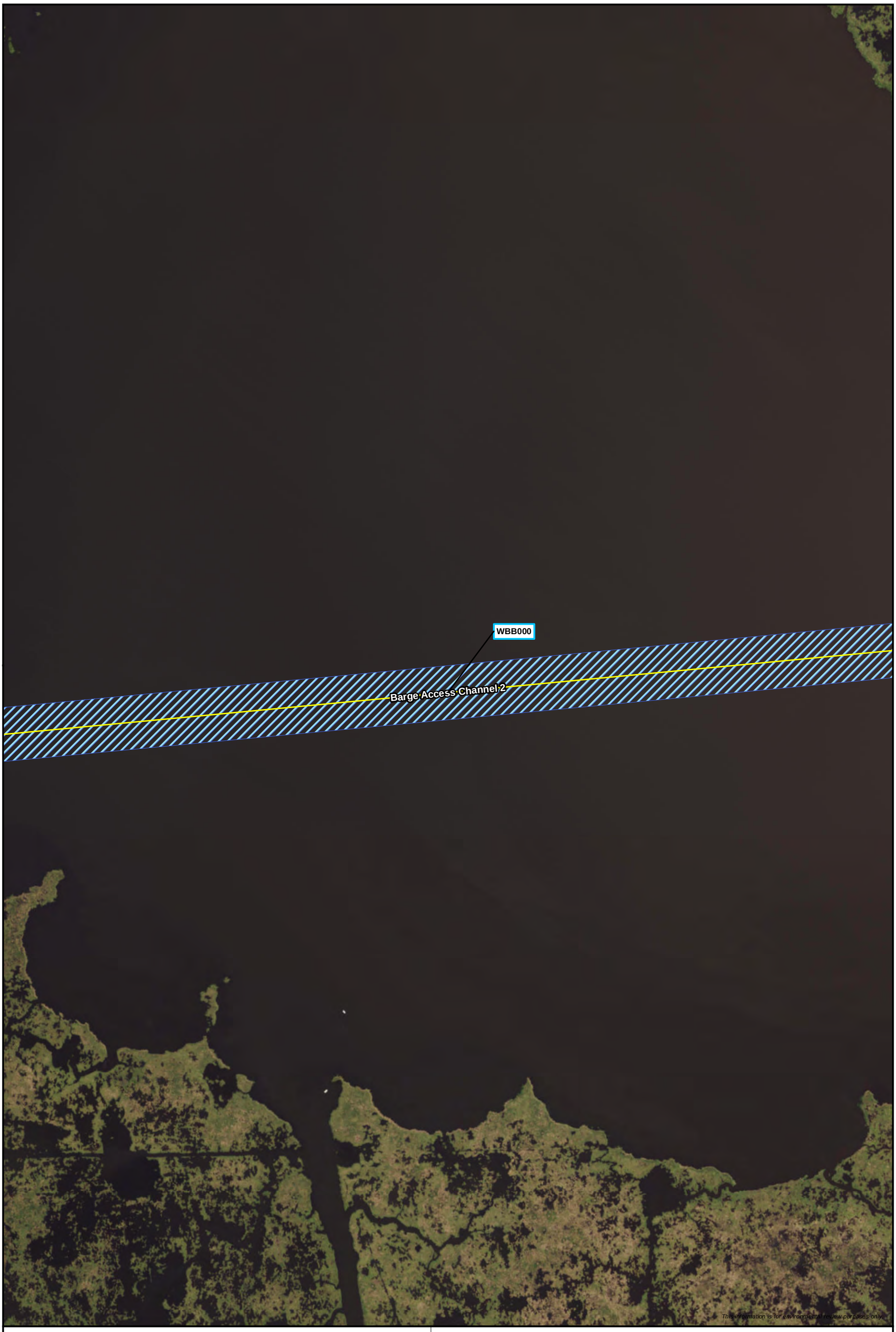
N

1:6,000

0 250 500 Feet

**Figure B-6u**
**Field Delineated Wetlands and Waterbodies**
**Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 19 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS




Barge Access Channel
Delineated Waterbody

N

1:6,000

0 250 500 Feet

**Figure B-6v**
**Field Delineated Wetlands and Waterbodies Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 20 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS


Barge Access Channel
ATWS
Delineated Waterbody

N

1:6,000

0 250 500 Feet

**Figure B-6w**
**Field Delineated Wetlands and Waterbodies**
**Crossed by the Proposed Pipeline System**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana
Sheet 21 of 21

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR02_Plaquemines_RR02_2_3_2_4_SW.mxd | REVISED: 02/17/2017 | SCALE: 1:6,000 when printed at 11x17 DRAWN BY: GIS

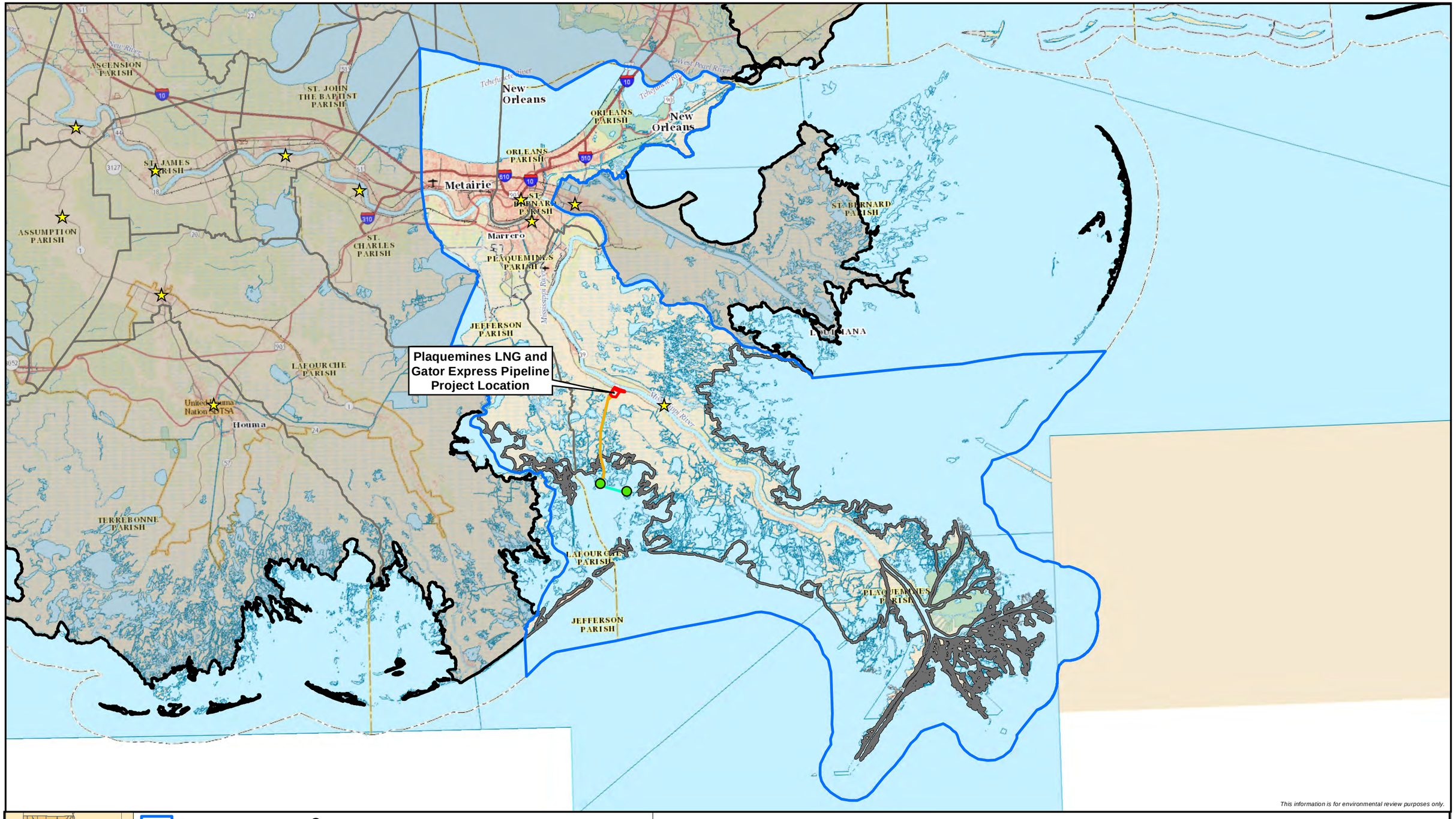



**Figure B-7**
**Socioeconomic Study Area and Overview**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR05_Plaquemines_RR05_Socio.mxd | REVISED: 08/04/2016 | SCALE: 1:715,000 when printed at 11x17

DRAWN BY: JSnyder


**Figure B-8**
**Plaquemines Parish Census Tracts**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR05_Plaquemines_RR05_Census.mxd | REVISED: 01/24/2017 | SCALE: 1:570,240 when printed at 11x17

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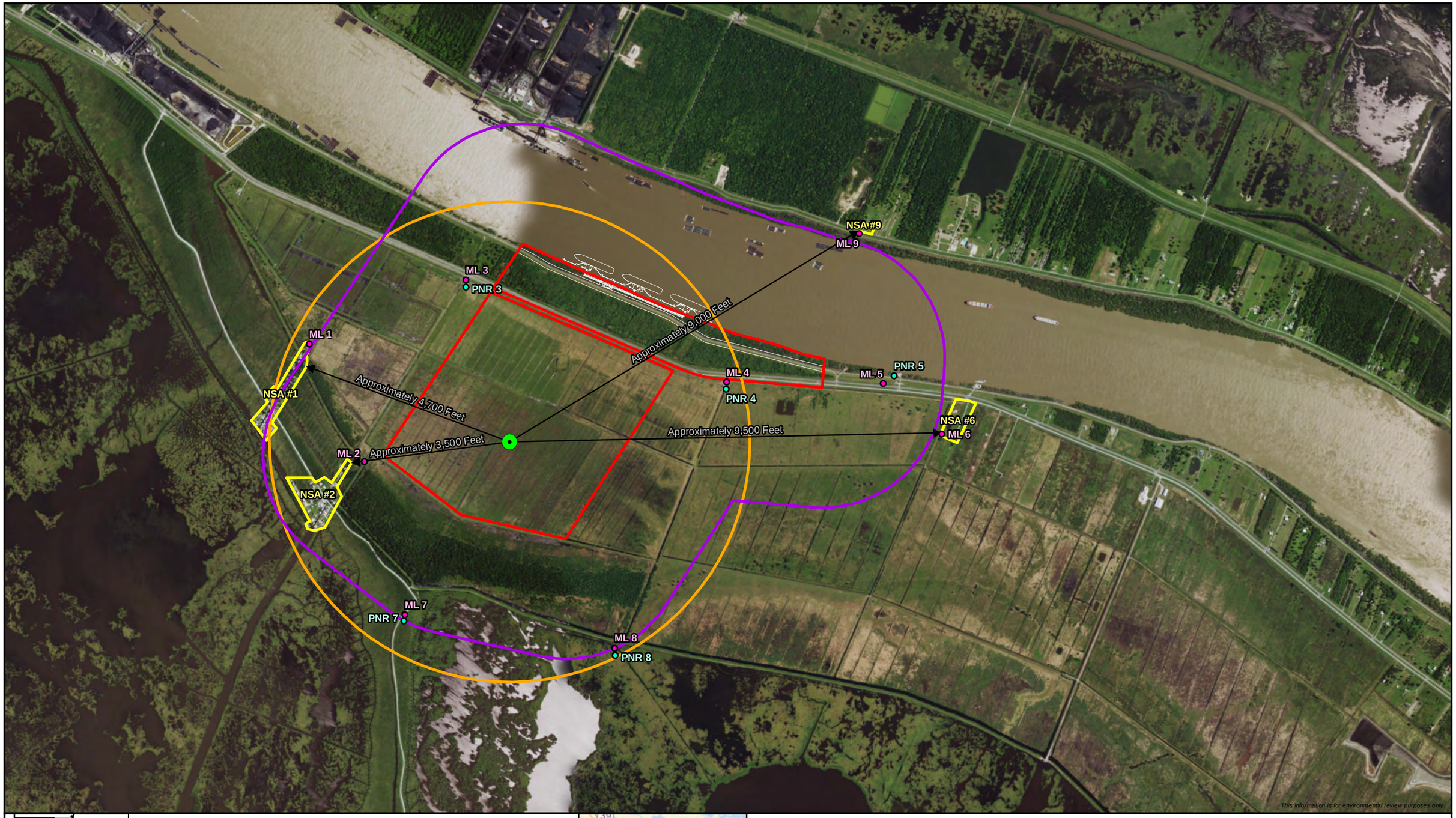


**Figure B-9**
Noise-Sensitive Areas within 0.5 mile of Terminal Site
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR09_Plaquemines_RR09_3_3_1.mxd | REVISED: 02/14/2017 | SCALE: 1:24,000 when printed at 11x17

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Louisiana

PLAQUEMINES PARISH

Round Lake

Lake Lauriers

Lake Five

Bayou Dupont

Canal

Wilkinson Bay

Raquette Bay

Jimmy Bay

Bay Chene

Batiste Platform

St. Mary's Point

Big Island

Deer Range

Bellevue

Nero

Davant

Junior

Woodland

LOWER COAST

LEVEE

Back

Grand

PIPELINE

TETCO

TGP

OAKS

BAYOU

INDEFINITE

0 0.5 1 Miles

This information is for environmental review purposes only.

Terminal Site Boundary

SW Lateral TETCO

SW Lateral TGP

Barge Access Channel - Dredge/Excavation Proposed

Barge Access Channel - No Dredge Required

Interconnect and Meter Station

Noise-Sensitive Area

0.5-mile Radius Study Area

**Figure B-10**
**Noise-Sensitive Areas within 0.5 mile of Proposed Pipline System (Topographic Map)**
Plaquemines LNG and Gator Express Pipeline Project
Plaquemines Parish, Louisiana

FILE: M:\Clients\V-X\VGL\Plaquemines_ArcGIS_ResourceReports\RR09_Plaquemines_RR09_3_3_3.mxd | REVISED: 02/15/2017 | SCALE: 1:63,360 when printed at 11x17 DRAWN BY: GIS

# APPENDIX C

# UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN; WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES; AND MODIFICATIONS TO THE PLAN AND PROCEDURES

## Proposed Modifications to the Federal Energy Regulatory Commission's Plan

Venture Global's project-specific Plan includes proposed modifications to FERC's Plan (appendix C). FERC allows project sponsors to request modifications to its Plan. The FERC Plan directs applicants to specify in their application any individual measures that they consider unnecessary, technically infeasible, or unsuitable due to local conditions, and to describe the alternative measures they propose to use. They must also explain how their proposed alternative measures would achieve a comparable level of mitigation as the FERC measures.

The project-specific Plan includes numerous minor wording changes to specify the project sponsor and provide clarifications that do not require our specific approval. Those proposed modifications that are substantive and for which we have determined that Venture Global provided adequate justification are listed in table 1. The table includes the original text from FERC's Plan, the modified text in the project-specific Plan, and our determination regarding the proposed modification.

**Appendix C, TABLE 1**
**Requested Modifications to the Federal Energy Regulatory Commission's Plan**

| Section Number | FERC Plan | Venture Global Plan | FERC Determination |
|---|---|---|---|
| II.A.1 | The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected. | The number and experience of Environmental Inspectors (EIs) assigned the project shall be appropriate for the size of the construction area, the level of activity, and the number/significance of resources affected**.** | FERC accepts that the proposed alternative measure will achieve a comparable level of mitigation. |
| III.G | The project sponsor shall develop project-specific Spill Prevention and Response Procedures, as specified in section IV of the staff's Procedures. | The project sponsors will develop project-specific Spill Prevention and Response Procedures, as contained in a Spill Prevention, Control, and Countermeasure Plan or comparable document, as specified in section IV of the staff's Procedures. | FERC accepts that the proposed alternative measure will achieve a comparable level of mitigation. |
| IV.A.2 | The construction right-of-way width for a project shall not exceed 75 feet or that described in the FERC application unless otherwise modified by a FERC Order. However, in limited, non-wetland areas, this construction right-of-way width may be expanded by up to 25 feet without Director approval to accommodate full construction right-of-way topsoil segregation and to ensure safe construction where topographic conditions (e.g., side-slopes) or soil limitations require it. Twenty-five feet of extra construction right-of-way width may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists. | The project will require a nominal 130-foot-wide right-of-way due to the parallel installation of two 42-inch-diameter pipelines. | This is not a necessary modification because the wording in the FERC Plan allows for and anticipates evaluating project-specific rights-of-way in the EIS. |

| | | | |
|---|---|---|---|
| IV.F.3.c | Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody. | The project terrain has limited elevation changes yielding few downslopes. However, the soils in upland areas, as well as wetland areas, are of types that will tend to slough when stacked as spoil. The workspace width (130 feet) will limit sediment migration laterally off the construction right-of-way. At upland and wetland/waterbody interfaces within the construction right-of-way, sediment barriers will be installed as practicable. | FERC accepts that this measure will achieve a comparable level of mitigation in areas sufficiently inundated to allow installation by the push method. |

## Proposed Modifications to the Federal Energy Regulatory Commission's Procedures

Venture Global's project-specific Procedures regarding wetland and waterbody crossings include certain proposed modifications to FERC's Procedures (appendix C). Just as with our Plan, FERC's Procedures directs applicants to specify in their application any individual measures that they consider unnecessary, technically infeasible, or unsuitable due to local conditions, and to describe the alternative measures they propose to use. They must also explain how their proposed alternative measures would achieve a level of mitigation comparable to the FERC measures.

The project-specific Procedures include numerous minor wording changes to specify the project sponsor and provide clarifications that do not require our specific approval. Those proposed modifications that are substantive and for which we have determined Venture Global provided adequate justification are listed in table 2. This table includes the original text from FERC's Procedures, the modified text in the project-specific Procedures, and our determination regarding the proposed modification. One modification that was proposed by Venture Global regarding the time-of-year for crossing waterbodies is already allowed by the FERC Procedures and is not included in the following table.

**Appendix C, TABLE 2**
**Requested Modifications to the Federal Energy Regulatory Commission's Procedures**

| Section Number | FERC Procedure | Venture Global Procedure (Modified wording in bold) | FERC Determination |
|---|---|---|---|
| II.A.2 | Site-specific justifications for the use of a construction right-of-way greater than 75-feet-wide in wetlands. | Site-specific justifications for the use of a construction right-of-way greater than 75-feet-wide in wetlands. The project requires a 130-foot-wide construction right-of-way for pipeline installation where the push method is used, due to the need for a relatively wide and deep trench to ensure the required depth of cover in the wet, poorly cohesive, and easily sloughed substrate, and the consequent need for increased space to sidecast relatively high spoil volumes.<br><br>The project requires a 300-foot-wide construction right-of-way for pipeline installation in open waters, where the barge lay method is used, to accommodate an approximately 100- | FERC accepts that this proposed modification is necessary because the combination of pipe size, the inundated or saturated soil conditions, and the pervasiveness and extent of wetlands and open water in the project area make the 75-foot-wide right-of-way infeasible.<br><br>The requirement to identify specific wetlands that require more than a 75-foot-wide right-of-way remains. See section 4.3.2.3 for further discussion |

| Appendix C, TABLE 2<br>Requested Modifications to the Federal Energy Regulatory Commission's Procedures | | | |
|---|---|---|---|
| **Section Number** | **FERC Procedure** | **Venture Global Procedure (Modified wording in bold)** | **FERC Determination** |
| | | foot-wide floatation channel for lay barge and supply barge access, and up to approximately 100 feet on either side of the floatation channel for construction workspace to deposit sidecast trench material. The 300-foot-wide construction right-of-way allows safe and wholly waterborne construction. | |
| IV.A.1.d | …all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary. These activities can occur closer only if the Environmental Inspector determines that there is no reasonable alternative, and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill; | In construction locations where there is no reasonable alternative other than to locate upland refueling sites less than 100 feet from wetlands or waterbodies, the project will maintain at least a 10-foot setback. All refueling and equipment storage procedures, irrespective of proximity to wetlands or waterbodies, will be undertaken in accordance with the Spill Prevention, Control, and Countermeasure Plans to reduce the potential for spills during construction and to mitigate the environmental impacts if a spill should occur. | FERC accepts that this proposed modification is necessary because the pervasiveness and extent of wetlands and open water in the project area make this measure infeasible and the alternative measure would achieve a comparable level of mitigation. |
| IV.A.1.e | …hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 100 feet of a wetland, waterbody, or designated municipal watershed area, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas; | Equipment used in wetlands and open water would often operate at long distances (up to several miles) from the nearest upland refueling station. To track the equipment out of the wetland or open water for refueling, possibly on multiple occasions, is logistically impractical and potentially more environmentally damaging than refueling in situ. To minimize the environmental damage caused by excessive tracking, towed fuel barges will accompany amphibious equipment as construction progresses. Equipment operators will be fully trained in refueling procedures and the Spill Prevention, Control, and Countermeasure Plans. | FERC accepts that this proposed modification is necessary because the pervasiveness and extent of wetlands and open water in the project area make this measure infeasible and the alternative measure would achieve a comparable level of mitigation. |
| VB.2.A | Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. | Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from water's edge, except where indicated on alignment sheets as located in and within a waterbody. Selected additional temporary workspace (ATWS) in and within 50 feet of the waterbody are necessary due to the lack of cohesiveness in the saturated soil within the pipeline construction right-of-way, and the consequent need for adjacent areas in which the additional volumes of loosely aggregated spoil generated at foreign | FERC accepts that this proposed modification is necessary because the pervasiveness and extent of wetlands and open water in the project area make this measure infeasible. The project sponsors will provide FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to project construction. |

| Appendix C, TABLE 2<br>Requested Modifications to the Federal Energy Regulatory Commission's Procedures | | | |
|---|---|---|---|
| **Section Number** | **FERC Procedure** | **Venture Global Procedure (Modified wording in bold)** | **FERC Determination** |
| | | pipeline crossings can be temporarily stored. These ATWS will only be used for placement of spoil; any equipment used for this purpose will work from barges or other similar platforms and will be within a secondary containment structure to reduce the risk of spills of fuels or other pollutants from entering the waterbody. The same secondary containment provisions will apply for equipment operating within the ATWS located at the meter station platforms and the barge staging area. | |
| V.B.4.b | Use sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody. | Use sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody. For pipeline construction, the poor compaction of the native soil in marshland and open water is not conducive to the installation of sediment barriers. Due to the poor cohesiveness of the native spoil, as well as its low angle of repose after sidecasting, the use of sediment barriers, such as silt fences, to prevent the flow of spoil or to contain the spoil would require the barrier to withstand the pressure of the weight of the spoil against the barrier. It is anticipated that the native soil would not offer enough lateral support to withstand the pressure of unconsolidated spoil against the barrier. Therefore, at waterbody crossings during pipeline construction, spoil will be placed in the construction right-of-way and ATWS without lateral silt fencing, with the anticipation that the width of these areas will be sufficient to preclude spoil migration beyond their boundaries.<br><br>During pipeline installation using the barge lay method, the dredge barge will cast the flotation canal and pipe trench spoil to either side of the right-of-way centerline, keeping the spoil below the water surface, where feasible, to minimize wave-generated turbidity. The spoil will be placed parallel to the trench in 500-foot-long piles, with 50-foot-wide openings to allow the passage of local watercraft. | FERC accepts that this proposed modification is necessary due to the pervasiveness and extent of wetlands and open water in the project area and the alternative measure achieving a comparable level of mitigation. |
| V.B.10 | Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately after initial disturbance of the waterbody or adjacent upland. | Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately prior to initial disturbance of the waterbody or adjacent upland. The | FERC accepts that this proposed modification is necessary due to the pervasiveness and extent of |

| Appendix C, TABLE 2<br>Requested Modifications to the Federal Energy Regulatory Commission's Procedures | | | |
|---|---|---|---|
| **Section Number** | **FERC Procedure** | **Venture Global Procedure (Modified wording in bold)** | **FERC Determination** |
| | | project sponsors will install sediment barriers, as practicable. | wetlands and open water in the project area and the alternative measure achieving a comparable level of mitigation. |
| V.B.10.a, b, and c | {Specific measures related to installation of sediment barriers and trench plugs} | Venture Global will implement these measures "Except where the project's push and barge lay method is used on the construction right-of-way." | FERC accepts that this proposed modification is necessary due to the pervasiveness and extent of wetlands and open water in the project area. |
| VI.A.3 | Limit the width of the construction right-of-way to 75 feet or less. Prior written approval of the Director is required where topographic conditions or soil limitations require that the construction right-of-way width within the boundaries of a federally delineated wetland be expanded beyond 75 feet. Early in the planning process the project sponsor is encouraged to identify site-specific areas where excessively wide trenches could occur and/or where spoil piles could be difficult to maintain because existing soils lack adequate unconfined compressive strength. | The project will require a nominal 130-foot-wide right-of-way using the push method for the lateral pipelines in wetlands due to soil conditions along the proposed routes. The soils in the project area are characteristically poorly cohesive and prone to sloughing. This is exacerbated in the inundated or saturated soil conditions found in the marshland and open water areas that characterize the routes. It is anticipated that, to maintain side slopes with a sufficiently shallow angle to prevent collapse, the pipeline trenches will require relatively wide tops and bases. Consequently, a relatively high volume of trench spoil will be generated, necessitating storage piles on both sides of the trench line. Because of the excavated material's lack of cohesion, the storage piles will be relatively wide and low. The 130-foot-wide right-of- way is needed to accommodate the wide trench, the two wide-based storage piles, and equipment that must operate at some distance from the trench line to avoid edge cave-in. The use of the push method for pipeline installation, while reducing equipment-related disturbance, does not preclude the spoil storage issues associated with trench excavation.<br><br>Installation of silt fences or other containment structures along the outer edges of the construction right-of-way in marshland and open water is technically infeasible, given the poorly compacted benthic substrate and average water depth of several feet. Compared to a narrower workspace, the 130-foot workspace width means that laterally migrating spoil is more likely to remain in an authorized area (the workspace), | FERC accepts that this proposed modification is necessary because of the inundated or saturated soil conditions found in the marshland and open water areas, which make constructing within a 75-foot-wide right-of-way infeasible. The alternative measures would achieve a comparable level of mitigation. |

| Appendix C, TABLE 2<br>Requested Modifications to the Federal Energy Regulatory Commission's Procedures | | | |
|---|---|---|---|
| **Section Number** | **FERC Procedure** | **Venture Global Procedure (Modified wording in bold)** | **FERC Determination** |
| | | where any remedial measures can be readily and effectively deployed.<br><br>The project will require a 300-foot-wide right-of-way using the barge lay method, used to install the pipelines in open water along the proposed routes. In water depths of less than 8 feet, it is anticipated that the dredge barge will first excavate the flotation canal. Afterwards the pipe trench will be excavated along the bottom of the flotation canal. The dredge barge will cast the flotation canal and pipe trench spoil to either side of the right-of-way centerline, keeping the spoil below the water surface, where feasible, to minimize wave-generated turbidity. The spoil will be placed parallel to the trench in 500-foot-long piles, with 50-foot-wide openings to allow the passage of local watercraft. | |
| VI.A.6 | Do not locate aboveground facilities in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations. | While avoidance and minimization of wetland impacts was integral to site selection, construction of the project's aboveground facilities will permanently impact some wetlands, as well as uplands. All wetlands impacted will be appropriately mitigated, and construction of the aboveground structures will result in no net loss of wetlands. The project sponsors will provide FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to project construction. | FERC accepts that this proposed modification is necessary because the site and size of the LNG terminal make avoiding wetlands infeasible. The project sponsors will provide FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to project construction. |
| VI.B.1.a | Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. | Several ATWSs are necessarily located in wetlands and waterbodies due to their intended use and the limited availability of suitable upland sites. These include ATWSs required at the mainline valve sites and HDD exit and/or entry locations, set-up sites for push method operations, bore exit and/or entry locations, and crossing sites of multiple foreign pipelines. The project sponsors believe there are no feasible location alternatives for these ATWSs that would cause less significant environmental impacts. Moreover, most of the ATWSs are required for HDD, push method pipeline installation, and bore crossings, methods that have been selected to minimize or avoid greater environmental impacts elsewhere. | FERC accepts that this proposed modification is necessary because the pervasiveness and extent of wetlands and open water in the project area make this measure infeasible. The project sponsors will provide FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to project construction. |

| Appendix C, TABLE 2<br>Requested Modifications to the Federal Energy Regulatory Commission's Procedures | | | |
|---|---|---|---|
| **Section Number** | **FERC Procedure** | **Venture Global Procedure (Modified wording in bold)** | **FERC Determination** |
| VI.B.1.c | In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way | In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Project construction is primarily located within wetlands and waterbodies, and certain work areas may require access via the construction right-of-way across wetland areas or waterbodies. The push method will be used to install portions of the lateral pipelines with limited equipment traffic crossing the wetlands. At certain locations, such as tie-ins or foreign line crossings, additional equipment will be required to complete the pipeline installation. To access these locations, multiple passes of construction equipment through the wetlands will be required using the construction right-of-way. Access channels through open water will be used to mobilize construction equipment to install the majority length of the lateral pipelines using the barge lay method. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way | FERC accepts that this proposed modification is necessary because the pervasiveness and extent of wetlands and open water in the project area make this measure infeasible. The project sponsors will provide FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to project construction. |
| VI.B.1.d | The only access roads, other than the construction right-of-way, that can be used in wetlands are those existing roads that can be used with no modifications or improvements, other than routine repair, and no impact on the wetland. | The only access roads, other than the construction right-of-way, that can be used in wetlands are those existing roads that can be used with no modifications or improvements, other than routine repair, and no impact on the wetland. The project will require one new permanent access road to access two mainline valve sites during project operation; this road will also be used during construction. The project will require one new temporary access road to access pipe bridge and HDD sites during construction. Both roads cross some wetlands, but they represent the shortest travel distance to the sites and, given the extensive wetlands in their area, there are no practicable alternative routes with less wetland impacts. All impacts will be appropriately mitigated in accordance with applicable regulatory requirements. | FERC accepts that this proposed modification is necessary because the pervasiveness and extent of wetlands in the project area make avoiding them with all access roads infeasible. The project sponsors will provide FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to project construction. |
| VI.B.2.d | Minimize the length of time that topsoil is segregated and the trench is open. Do not trench the wetland | Minimize the length of time that topsoil is segregated and the trench is open. The project will use the push method for | FERC accepts that the proposed alternative measure will achieve a |

| Appendix C, TABLE 2<br>Requested Modifications to the Federal Energy Regulatory Commission's Procedures | | | |
|---|---|---|---|
| **Section Number** | **FERC Procedure** | **Venture Global Procedure (Modified wording in bold)** | **FERC Determination** |
| | until the pipeline is assembled and ready for lowering in. | portions of the SW TETCO and TCP laterals, requiring the excavation of the pipe trench prior to pipeline assembly in order for the assembled pipeline segment to be floated and lowered into in the open trench. Do not trench the wetland until the pipeline is assembled and ready for lowering in. | comparable level of mitigation. |
| VI.B.3 | Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately after initial disturbance of the wetland or adjacent upland. | Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately prior to initial disturbance of the wetland or adjacent upland. | FERC accepts that the proposed alternative measure will achieve a comparable level of mitigation. |
| VI.B.3.a | Install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland. | Except for the project's push method use on the construction right-of-way, install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland | FERC accepts that this measure is unnecessary in areas sufficiently inundated to allow installation by the push method. |
| VI.B.3.b | Where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the wetland. | Except for the project's push method use on the construction right-of-way, where wetlands are adjacent to the construction right-of-way and the right-of- way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the wetland | FERC accepts that this measure is unnecessary in areas sufficiently inundated to allow installation by the push method. |
| VI.B.3.c | Install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup. | Except for the project's push method use on the construction right-of-way, install sediment barriers along the edge of the construction right-of- way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup. | FERC accepts that this measure is unnecessary in areas sufficiently inundated to allow installation by the push method. |
| VI.C.6 | Until a project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre (unless standing water is present). | Until a project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre or other species at a rate acceptable to the USACE and LDNR (unless standing water is present). | FERC accepts that the proposed alternative measure will achieve a comparable level of mitigation. |

VENTURE GLOBAL LNG

PLAQUEMINES
GATOR EXPRESS

**VENTURE GLOBAL PLAQUEMINES LNG, LLC**

**VENTURE GLOBAL GATOR EXPRESS, LLC**

**PLAQUEMINES LNG AND GATOR EXPRESS PIPELINE PROJECT**

# UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

**Docket No.**

**February 2017**

# VENTURE GLOBAL PLAQUEMINES LNG, LLC
# VENTURE GLOBAL GATOR EXPRESS, LLC

# PLAQUEMINES LNG AND GATOR EXPRESS PIPELINE PROJECT

# UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

Table 1.0 below identifies all changes proposed to the Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) for the Plaquemines LNG and Gator Express Pipeline Project (Project). Within the text of the Plan, the changes are ***bolded and italicized***.

TABLE 1.0

**Plaquemines LNG and Gator Express Pipeline Project**
**Table of Changes**

| Section | Original Text | Proposed Text (Changes bolded and italicized) |
|---|---|---|
| II.A.1 | The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected. | The number and experience of Environmental Inspectors assigned ***the Project shall be appropriate for the size of the construction area, the level of activity, and the number/significance of resources affected.*** |
| III.A.1 | The project sponsor must ensure that appropriate cultural resources and biological surveys are conducted, as determined necessary by the appropriate federal and state agencies. | ***The Project sponsors will*** ensure that appropriate cultural resources and biological surveys are conducted, as determined necessary by the appropriate federal and state agencies. |
| III.A.2 | Project sponsors are encouraged to consider expanding any required cultural resources and endangered species surveys in anticipation of the need for activities outside of authorized work areas. | ***The Project sponsors will expand*** any required cultural resources and endangered species surveys in anticipation of the need for activities outside of authorized work areas. |
| III.B | Drain Tile and Irrigation Systems | ***There are no known drain tile irrigation systems in use within the Project area; however, if the Project sponsors become aware of a drain tile system, they will:*** |
| III.G | The project sponsor shall develop project-specific Spill Prevention and Response Procedures, as specified in section IV of the staff's Procedures. | ***The Project sponsors will*** develop project-specific Spill Prevention and Response Procedures, ***as contained in a Spill Prevention, Control, and Countermeasure Plan or comparable document***, as specified in section IV of the staff's Procedures. |
| III.H | For all properties with residences located within 50 feet of construction work areas, project sponsors shall: | For all properties with residences located within 50 feet of construction work areas, ***the Project sponsors will***: |
| III.I | Winter Construction Plans | ***The Project location is in a geographic region not likely to be affected by winter weather conditions. Winter construction plans are not anticipated for the Project.*** |
| IV.A.2 | The construction right-of-way width for a project shall not exceed 75 feet or that described in the FERC application unless otherwise modified by a FERC Order. However, in limited, non-wetland areas, this construction right-of- way width may be expanded by up to 25 feet without Director approval to accommodate full construction right-of-way topsoil segregation and to ensure safe construction where topographic conditions (e.g., side-slopes) or soil limitations require it. Twenty-five feet of extra construction right-of-way width may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists. | ***The Project will require a nominal 130-foot-wide right-of-way due to the parallel installation of two 42-inch-diameter pipelines.*** |
| IV.F.3.c | Where wetlands or waterbodies are adjacent to and | ***The Project terrain has limited elevation changes*** |

| | | |
|---|---|---|
| | downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody. | ***yielding few downslopes. However, the soils in upland areas, as well as wetland areas, are of types that will tend to slough when stacked as spoil. The workspace width (130 feet) will limit sediment migration laterally off the construction right-of-way. At upland and wetland/waterbody interfaces within the construction right-of-way, sediment barriers will be installed as practicable.*** |

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# VENTURE GLOBAL PLAQUEMINES LNG, LLC
# VENTURE GLOBAL GATOR EXPRESS, LLC

# PLAQUEMINES LNG AND GATOR EXPRESS PIPELINE PROJECT

# UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

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# Plaquemines LNG and Gator Express Pipeline Project Upland Erosion Control, Revegetation, and Maintenance Plan

## I. APPLICABILITY

Venture Global Plaquemines LNG, LLC (Plaquemines LNG) and Venture Global Gator Express, LLC (Gator Express Pipeline)[1] are adopting the FERC Plan (May 2013 version) for the Plaquemines LNG and Gator Express Pipeline Project (or Project), with modifications. All modifications to the original wording are shown in ***bold italic font***. This Plan will apply to all non-wetland areas of the Project. Wetland and waterbody features are addressed in Plaquemines LNG's and Gator Express Pipeline's Project-specific *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures).

Deviations that involve measures different from those contained in this Plan will only be permitted as certificated by the Commission or by written approval of the Director of the Office of Energy Projects (OEP), or his/her designee, unless specifically required in writing by another federal, state, or land managing agency for the portion of the Project on its land. The Project sponsors will file other agency requirements with the Secretary of the Commission (Secretary) prior to construction.

## II. SUPERVISION AND INSPECTION

### A. ENVIRONMENTAL INSPECTION

1. At least one Environmental Inspector is required for each construction spread during construction and restoration (as defined by section V). The number and experience of Environmental Inspectors assigned to ***the Project shall be appropriate for the size of the construction area, the level of activity, and the number/significance of resources affected.***

2. Environmental Inspectors shall have peer status with all other activity inspectors.

3. Environmental Inspectors shall have the authority to stop activities that violate the environmental conditions of the FERC's Orders, stipulations of other environmental permits or approvals, or landowner easement agreements; and to order appropriate corrective action.

### B. RESPONSIBILITIES OF ENVIRONMENTAL INSPECTORS

At a minimum, the Environmental Inspector(s) shall be responsible for:

1. Inspecting construction activities for compliance with the requirements of this Plan, the Procedures, the environmental conditions of the FERC's Orders, the mitigation measures proposed by the project sponsor (as approved and/or modified by the Order), other environmental permits and approvals, and environmental requirements in landowner easement agreements.

[1] Venture Global Plaquemines LNG, LLC and Venture Global Gator Express, LLC are wholly owned subsidiaries of Venture Global LNG, Inc.

2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;

3. Verifying that the limits of authorized construction work areas and locations of access roads are visibly marked before clearing, and maintained throughout construction;

4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements along the construction work area;

5. Identifying erosion/sediment control and soil stabilization needs in all areas;

6. Ensuring that the design of slope breakers will not cause erosion or direct water into sensitive environmental resource areas, including cultural resource sites, wetlands, waterbodies, and sensitive species habitats;

7. Verifying that dewatering activities are properly monitored and do not result in the deposition of sand, silt, and/or sediment into sensitive environmental resource areas, including wetlands, waterbodies, cultural resource sites, and sensitive species habitats; stopping dewatering activities if such deposition is occurring and ensuring the design of the discharge is changed to prevent reoccurrence; and verifying that dewatering structures are removed after completion of dewatering activities;

8. Ensuring that subsoil and topsoil are tested in agricultural fields, defined as actively managed cropland, and residential areas to measure compaction and determine the need for corrective action;

9. Advising the Chief Construction Inspector when environmental conditions (such as wet weather or frozen soils) make it advisable to restrict or delay construction activities to avoid topsoil mixing or excessive compaction;

10. Ensuring restoration of contours and topsoil;

11. Verifying that the soils imported for agricultural or residential use are certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner;

12. Ensuring that erosion control devices are properly installed to prevent sediment flow into sensitive environmental resource areas (e.g., wetlands, waterbodies, cultural resource sites, and sensitive species habitats) and onto roads, and determining the need for additional erosion control devices;

13. Inspecting and ensuring the maintenance of temporary erosion control measures at least:

    a. on a daily basis in areas of active construction or equipment operation;

    b. on a weekly basis in areas with no construction or equipment operation; and

c. within 24 hours of each 0.5 inch of rainfall;

14. Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts;

15. Keeping records of compliance with the environmental conditions of the FERC's Orders, and the mitigation measures proposed by the project sponsor in the application submitted to the FERC, and other federal or state environmental permits during active construction and restoration;

16. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase; and

17. Verifying that locations for any disposal of excess construction materials for beneficial reuse comply with section III.E.

## III. PRECONSTRUCTION PLANNING

The project sponsor shall do the following before construction:

### A. CONSTRUCTION WORK AREAS

1. Identify all construction work areas (e.g., construction right-of-way, extra work space areas, pipe storage and contractor yards, borrow and disposal areas, access roads) that would be needed for safe construction. The ***Project sponsors will*** ensure that appropriate cultural resources and biological surveys are conducted, as determined necessary by the appropriate federal and state agencies.

2. The ***Project sponsors will expand*** any required cultural resources and endangered species surveys in anticipation of the need for activities outside of authorized work areas.

3. Plan construction sequencing to limit the amount and duration of open trench sections, as necessary, to prevent excessive erosion or sediment flow into sensitive environmental resource areas.

### B. DRAIN TILE AND IRRIGATION SYSTEMS

***There are no known drain tile irrigation systems in use within the Project area; however, if the Project sponsors become aware of a drain tile system, they will:***

1. Attempt to locate existing drain tiles and irrigation systems.

2. Contact landowners and local soil conservation authorities to determine the locations of future drain tiles that are likely to be installed within 3 years of the authorized construction.

3. Develop procedures for constructing through drain-tiled areas, maintaining irrigation systems during construction, and repairing drain tiles and irrigation systems after construction.

4. Engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the project area, if available.

C. GRAZING DEFERMENT

Develop grazing deferment plans with willing landowners, grazing permittees, and land management agencies to minimize grazing disturbance of revegetation efforts.

D. ROAD CROSSINGS AND ACCESS POINTS

Plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration.

E. DISPOSAL PLANNING

Determine methods and locations for the regular collection, containment, and disposal of excess construction materials and debris (e.g., timber, slash, mats, garbage, drill cuttings and fluids, excess rock) throughout the construction process. Disposal of materials for beneficial reuse must not result in adverse environmental impact and is subject to compliance with all applicable survey, landowner or land management agency approval, and permit requirements.

F. AGENCY COORDINATION

The project sponsor must coordinate with the appropriate local, state, and federal agencies as outlined in this Plan and/or required by the FERC's Orders.

1. Obtain written recommendations from the local soil conservation authorities or land management agencies regarding permanent erosion control and revegetation specifications.

2. Develop specific procedures in coordination with the appropriate agencies to prevent the introduction or spread of invasive species, noxious weeds, and soil pests resulting from construction and restoration activities.

3. Develop specific procedures in coordination with the appropriate agencies and landowners, as necessary, to allow for livestock and wildlife movement and protection during construction.

4. Develop specific blasting procedures in coordination with the appropriate agencies that address pre- and post-blast inspections; advanced public notification; and mitigation measures for building foundations, groundwater wells, and springs. Use appropriate methods (e.g., blasting mats) to prevent damage to nearby structures and to prevent debris from entering sensitive environmental resource areas.

G. SPILL PREVENTION, CONTAINMENT, AND COUNTERMEASURES

***The Project sponsors will*** develop project-specific Spill Prevention and Response Procedures, ***as contained in a Spill Prevention, Control, and Countermeasure Plan or comparable document***, as specified in section IV of the staff's Procedures.

A copy must be filed with the Secretary of the FERC (Secretary) prior to construction and made available in the field on each construction spread. The filing requirement does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.

H. RESIDENTIAL CONSTRUCTION

For all properties with residences located within 50 feet of construction work areas, ***the Project sponsors will:*** avoid removal of mature trees and landscaping within the construction work area unless necessary for safe operation of construction equipment, or as specified in landowner agreements; fence the edge of the construction work area for a distance of 100 feet on either side of the residence; and restore all lawn areas and landscaping immediately following cleanup operations, or as specified in landowner agreements. If seasonal or other weather conditions prevent compliance with these time frames, maintain and monitor temporary erosion controls (sediment barriers and mulch) until conditions allow completion of restoration.

I. WINTER CONSTRUCTION PLANS

***The Project location is in a geographic region not likely to be affected by winter weather conditions. Winter construction plans are not anticipated for the Project.***

If construction is planned to occur during winter weather conditions, project sponsors shall develop and file a project-specific winter construction plan with the FERC application. This filing requirement does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations.

The plan shall address:

1. Winter construction procedures (e.g., snow handling and removal, access road construction and maintenance, soil handling under saturated or frozen conditions, topsoil stripping);

2. Stabilization and monitoring procedures if ground conditions will delay restoration until the following spring (e.g., mulching and erosion controls, inspection and reporting, stormwater control during spring thaw conditions); and

3. Final restoration procedures (e.g., subsidence and compaction repair, topsoil replacement, seeding).

## IV.INSTALLATION

A. APPROVED AREAS OF DISTURBANCE

1. Project-related ground disturbance shall be limited to the construction right-of-way, extra work space areas, pipe storage yards, borrow and disposal areas, access roads, and other areas approved in the FERC's Orders. Any project-related ground disturbing activities outside these areas will require prior Director approval. This requirement does not apply to activities needed to comply with the Plan and Procedures (i.e., slope breakers, energy-dissipating devices,

dewatering structures, drain tile system repairs) or minor field realignments and workspace shifts per landowner needs and requirements that do not affect other landowners or sensitive environmental resource areas. All construction or restoration activities outside of authorized areas are subject to all applicable survey and permit requirements, and landowner easement agreements.

***The Project will require a nominal 130-foot-wide right-of-way due to the parallel installation of two 42-inch-diameter pipelines.***

Project use of these additional limited areas is subject to landowner or land management agency approval and compliance with all applicable survey and permit requirements. When additional areas are used, each one shall be identified and the need explained in the weekly or biweekly construction reports to the FERC, if required. The following material shall be included in the reports:

a. The location of each additional area by station number and reference to previously filed alignment sheets, or updated alignment sheets showing the additional areas;

b. Identification of the filing at FERC containing evidence that the additional areas were previously surveyed; and

c. A statement that landowner approval has been obtained and is available in project files.

Prior written approval of the Director is required when the authorized construction right-of-way width would be expanded by more than 25 feet.

B. TOPSOIL SEGREGATION

1. Unless the landowner or land management agency specifically approves otherwise, prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area (ditch plus spoil side method) in:

    a. Cultivated or rotated croplands, and managed pastures;

    b. Residential areas;

    c. Hayfields; and

    d. Other areas at the landowner's or land managing agency's request.

2. In residential areas, importation of topsoil is an acceptable alternative to topsoil segregation.

3. Where topsoil segregation is required, the project sponsor must:

    a. Segregate at least 12 inches of topsoil in deep soils (more than 12 inches of topsoil); and

    b. Make every effort to segregate the entire topsoil layer in soils with

less than 12 inches of topsoil.

4. Maintain separation of salvaged topsoil and subsoil throughout all construction activities.

5. Segregated topsoil may not be used for padding the pipe, constructing temporary slope breakers or trench plugs, improving or maintaining roads, or as a fill material.

6. Stabilize topsoil piles and minimize loss due to wind and water erosion with use of sediment barriers, mulch, temporary seeding, tackifiers, or functional equivalents, where necessary.

C. DRAIN TILES

1. Mark locations of drain tiles damaged during construction.

2. Probe all drainage tile systems within the area of disturbance to check for damage.

3. Repair damaged drain tiles to their original or better condition. Do not use filter-covered drain tiles unless the local soil conservation authorities and the landowner agree. Use qualified specialists for testing and repairs.

4. For new pipelines in areas where drain tiles exist or are planned, ensure that the depth of cover over the pipeline is sufficient to avoid interference with drain tile systems. For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s).

D. IRRIGATION

Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.

E. ROAD CROSSINGS AND ACCESS POINTS

1. Maintain safe and accessible conditions at all road crossings and access points during construction.

2. If crushed stone access pads are used in residential or agricultural areas, place the stone on synthetic fabric to facilitate removal.

3. Minimize the use of tracked equipment on public roadways. Remove any soil or gravel spilled or tracked onto roadways daily or more frequent as necessary to maintain safe road conditions. Repair any damages to roadway surfaces, shoulders, and bar ditches.

F. TEMPORARY EROSION CONTROL

Install temporary erosion controls immediately after initial disturbance of the soil. Temporary erosion controls must be properly maintained throughout construction (on a daily basis) and reinstalled as necessary (such as after backfilling of the trench)

until replaced by permanent erosion controls or restoration is complete.

1. Temporary Slope Breakers

    a. Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction right-of-way. Temporary slope breakers may be constructed of materials such as soil, silt fence, staked hay or straw bales, or sand bags.

    b. Install temporary slope breakers on all disturbed areas, as necessary to avoid excessive erosion. Temporary slope breakers must be installed on slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbody, wetland, and road crossings at the following spacing (closer spacing shall be used if necessary):

| Slope (%) | Spacing (feet) |
|---|---|
| 5 - 15 | 300 |
| >15 - 30 | 200 |
| >30 | 100 |

    c. Direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction right-of-way.

    d. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive environmental resource areas.

2. Temporary Trench Plugs

Temporary trench plugs are intended to segment a continuous open trench prior to backfill.

    a. Temporary trench plugs may consist of unexcavated portions of the trench, compacted subsoil, sandbags, or some functional equivalent.

    b. Position temporary trench plugs, as necessary, to reduce trenchline erosion and minimize the volume and velocity of trench water flow at the base of slopes.

3. Sediment Barriers

Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments beyond approved workspaces or into sensitive resources.

    a. Sediment barriers may be constructed of materials such as silt fence, staked hay or straw bales, compacted earth (e.g., driveable berms across travelways), sand bags, or other appropriate materials.

    b. At a minimum, install and maintain temporary sediment barriers

across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetland, or road crossing until revegetation is successful as defined in this Plan. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.

c. ***The Project terrain has limited elevation changes yielding few downslopes. However, the soils in upland areas, as well as wetland areas, are of types that will tend to slough when stacked as spoil. The workspace width (130 feet) will limit sediment migration laterally off the construction right-of-way. At upland and wetland/waterbody interfaces within the construction right-of-way, sediment barriers will be installed as practicable.***

4. Mulch

a. Apply mulch on all slopes (except in cultivated cropland) concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Spread mulch uniformly over the area to cover at least 75 percent of the ground surface at a rate of 2 tons/acre of straw or its equivalent, unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing.

b. Mulch can consist of weed-free straw or hay, wood fiber hydromulch, erosion control fabric, or some functional equivalent.

c. Mulch all disturbed upland areas (except cultivated cropland) before seeding if:

(1) Final grading and installation of permanent erosion control measures will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas), as required in section V.A.1; or

(2) Construction or restoration activity is interrupted for extended periods, such as when seeding cannot be completed due to seeding period restrictions.

d. If mulching before seeding, increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 3 tons/acre of straw or equivalent.

e. If wood chips are used as mulch, do not use more than 1 ton/acre and add the equivalent of 11 lbs/acre available nitrogen (at least 50 percent of which is slow release).

f. Ensure that mulch is adequately anchored to minimize loss due to wind and water.

g. When anchoring with liquid mulch binders, use rates recommended by the manufacturer. Do not use liquid mulch binders within 100 feet of wetlands or waterbodies, except where the product is certified environmentally non-toxic by the appropriate state or federal agency or independent standards-setting organization.

h. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat, unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

## V. RESTORATION

### A. CLEANUP

1. Commence cleanup operations immediately following backfill operations.

   Complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). If seasonal or other weather conditions prevent compliance with these time frames, maintain temporary erosion controls (i.e., temporary slope breakers, sediment barriers, and mulch) until conditions allow completion of cleanup.

   If construction or restoration unexpectedly continues into the winter season when conditions could delay successful decompaction, topsoil replacement, or seeding until the following spring, file with the Secretary for the review and written approval of the Director, a winter construction plan (as specified in section III.I). This filing requirement does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations.

2. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed as specified in section IV.F. and inspected and maintained as specified in sections II.B.12 through 14. When access is no longer required the travel lane must be removed and the right-of-way restored.

3. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench shall be considered construction debris, unless approved for use as mulch or for some other use on the construction work areas by the landowner or land managing agency.

4. Remove excess rock from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area shall be similar to adjacent areas not disturbed by construction. The landowner or land management agency may approve other provisions in writing.

5. Grade the construction right-of-way to restore pre-construction contours and

leave the soil in the proper condition for planting.

6. Remove construction debris from all construction work areas unless the landowner or land managing agency approves leaving materials onsite for beneficial reuse, stabilization, or habitat restoration.

7. Remove temporary sediment barriers when replaced by permanent erosion control measures or when revegetation is successful.

B. PERMANENT EROSION CONTROL DEVICES

1. Trench Breakers

a. Trench breakers are intended to slow the flow of subsurface water along the trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam. Do not use topsoil in trench breakers.

b. An engineer or similarly qualified professional shall determine the need for and spacing of trench breakers. Otherwise, trench breakers shall be installed at the same spacing as and upslope of permanent slope breakers.

c. In agricultural fields and residential areas where slope breakers are not typically required, install trench breakers at the same spacing as if permanent slope breakers were required.

d. At a minimum, install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or wetland. Install trench breakers at wetland boundaries, as specified in the Procedures. Do not install trench breakers within a wetland.

2. Permanent Slope Breakers

a. Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction right-of-way, and prevent sediment deposition into sensitive resources. Permanent slope breakers may be constructed of materials such as soil, stone, or some functional equivalent.

b. Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, unless requested by the landowner, using spacing recommendations obtained from the local soil conservation authority or land managing agency.

In the absence of written recommendations, use the following spacing unless closer spacing is necessary to avoid excessive erosion on the construction right-of-way:

| Slope (%) | Spacing (feet) |
|---|---|
| 5 - 15 | 300 |
| >15 - 30 | 200 |
| >30 | 100 |

c. Construct slope breakers to divert surface flow to a stable area without causing water to pool or erode behind the breaker. In the absence of a stable area, construct appropriate energy-dissipating devices at the end of the breaker.

d. Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction right-of-way, they are subject to compliance with all applicable survey requirements.

C. SOIL COMPACTION MITIGATION

1. Test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to approximate preconstruction conditions. Use penetrometers or other appropriate devices to conduct tests.

2. Plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil.

   If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.

3. Perform appropriate soil compaction mitigation in severely compacted residential areas.

D. REVEGETATION

1. General

   a. The project sponsor is responsible for ensuring successful revegetation of soils disturbed by project-related activities, except as noted in section V.D.1.b.

   b. Restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

2. Soil Additives

Fertilize and add soil pH modifiers in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner. Incorporate recommended soil pH modifier and fertilizer into the top 2 inches of soil as soon as practicable after application.

3. Seeding Requirements

   a. Prepare a seedbed in disturbed areas to a depth of 3 to 4 inches using appropriate equipment to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed.

   b. Seed disturbed areas in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or the request of the landowner or land management agency. Seeding is not required in cultivated croplands unless requested by the landowner.

   c. Perform seeding of permanent vegetation within the recommended seeding dates. If seeding cannot be done within those dates, use appropriate temporary erosion control measures discussed in section IV.F and perform seeding of permanent vegetation at the beginning of the next recommended seeding season. Dormant seeding or temporary seeding of annual species may also be used, if necessary, to establish cover, as approved by the Environmental Inspector. Lawns may be seeded on a schedule established with the landowner.

   d. In the absence of written recommendations from the local soil conservation authorities, seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting, subject to the specifications in section V.D.3.a through V.D.3.c.

   e. Base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing.

   f. Treat legume seed with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydro).

   g. In the absence of written recommendations from the local soil conservation authorities, landowner, or land managing agency to the contrary, a seed drill equipped with a cultipacker is preferred for seed application.

      Broadcast or hydroseeding can be used in lieu of drilling at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker or roller after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment,

other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by the Environmental Inspector.

## VI.OFF-ROAD VEHICLE CONTROL

To each owner or manager of forested lands, offer to install and maintain measures to control unauthorized vehicle access to the right-of-way. These measures may include:

1. Signs;

2. Fences with locking gates;

3. Slash and timber barriers, pipe barriers, or a line of boulders across the right-of-way; and

4. Conifers or other appropriate trees or shrubs across the right-of-way.

## VII. POST-CONSTRUCTION ACTIVITIES AND REPORTING

### A. MONITORING AND MAINTENANCE

1. Conduct follow-up inspections of all disturbed areas, as necessary, to determine the success of revegetation and address landowner concerns. At a minimum, conduct inspections after the first and second growing seasons.

2. Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful when upon visual survey, crop growth and vigor are similar to adjacent undisturbed portions of the same field, unless the easement agreement specifies otherwise.

    a. Continue revegetation efforts until revegetation is successful.

3. Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in agricultural areas until restoration is successful.

4. Restoration shall be considered successful if the right-of-way surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless otherwise approved by the landowner or land managing agency per section V.A.6), revegetation is successful, and proper drainage has been restored.

5. Routine vegetation mowing or clearing over the full width of the permanent right-of-way in uplands shall not be done more frequently than every 3 years. However, to facilitate periodic corrosion/leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In no case shall routine vegetation mowing or clearing occur during the migratory bird nesting season between April 15 and August 1 of any year unless specifically approved in writing by the responsible land management agency or the U.S. Fish and Wildlife Service.

6. Efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the project. Maintain signs, gates, and permanent access roads as necessary.

B. REPORTING

1. The project sponsor shall maintain records that identify by milepost:

    a. Method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;

    b. Acreage treated;

    c. Dates of backfilling and seeding;

    d. Names of landowners requesting special seeding treatment and a description of the follow-up actions;

    e. The location of any subsurface drainage repairs or improvements made during restoration; and

    f. Any problem areas and how they were addressed.

2. The project sponsor shall file with the Secretary quarterly activity reports documenting the results of follow-up inspections required by section VII.A.1; any problem areas, including those identified by the landowner; and corrective actions taken for at least 2 years following construction.

    The requirement to file quarterly activity reports with the Secretary does not apply to projects constructed under the automatic authorization, prior notice, or advanced notice provisions in the FERC's regulations.

# PLAQUEMINES LNG AND GATOR EXPRESS PIPELINE PROJECT
# Resource Report 1
# APPENDIX 1D
# Project-specific Wetland and Waterbody Construction and Mitigation Procedures

VENTURE GLOBAL LNG

PLAQUEMINES
GATOR EXPRESS

**VENTURE GLOBAL PLAQUEMINES LNG, LLC**

**VENTURE GLOBAL GATOR EXPRESS, LLC**

**PLAQUEMINES LNG AND GATOR EXPRESS PIPELINE PROJECT**

# WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

**Docket No.**

**February 2017**

# VENTURE GLOBAL PLAQUEMINES LNG, LLC
# VENTURE GLOBAL GATOR EXPRESS, LLC

# PLAQUEMINES LNG AND GATOR EXPRESS PIPELINE PROJECT

# WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

Table 1.0 below identifies all changes proposed to the Wetland and Waterbody Construction and Mitigation Procedures for the Plaquemines LNG and Gator Express Pipeline Project (Project). Within the text of the Procedures, the changes are ***bolded and italicized***.

TABLE 1.0

**Plaquemines LNG and Gator Express Pipeline Project**
**Table of Changes**

| Section | Original Text | Proposed Text (Changes bolded and italicized) |
|---|---|---|
| II.A.2 | Site-specific justifications for the use of a construction right-of-way greater than 75-feet-wide in wetlands. | Site-specific justifications for the use of a construction right-of-way greater than 75-feet-wide in wetlands. ***The Project requires a 130-foot-wide construction right-of-way for pipeline installation where the Push method is used, due to the need for a relatively wide and deep trench to ensure the required depth of cover in the wet, poorly cohesive, and easily sloughed substrate, and the consequent need for increased space to sidecast relatively high spoil volumes. The Project requires a 300-foot-wide construction right-of-way for pipeline installation in open waters, where the Barge Lay method is used, to accommodate an approximately 100-foot-wide floatation channel for lay barge and supply barge access, and up to approximately 100 feet on either side of the floatation channel for construction workspace to deposit sidecast trench material. The 300-foot-wide construction right-of-way allows safe and wholly waterborne construction.*** |
| II.B.2 | Project sponsor will revise the schedule as necessary to provide FERC staff at least 14 days advance notice. | The ***Project sponsors*** will revise the schedule as necessary to provide FERC staff at least 14 days advance notice. |
| III.B. | The Environmental Inspector's responsibilities are outlined in the Upland Erosion Control, Revegetation, and Maintenance Plan (Plan). | The Environmental Inspector's responsibilities are outlined in ***Plaquemines LNG's and Gator Express Pipeline's Project-specific Upland Erosion Control, Revegetation, and Maintenance Plan (Plan)***. |
| IV.A | The project sponsor shall develop project-specific Spill Prevention and Response Procedures that meet applicable requirements of state and federal agencies. | ***The Project sponsors will*** develop project-specific Spill Prevention and Response Procedures that meet applicable requirements of state and federal agencies. |
| IV.A.1 | It shall be the responsibility of the project sponsor and its contractors to structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. The project sponsor and its contractors must, at a minimum, ensure that: | It ***will be*** the responsibility of ***Project sponsors*** and ***their*** contractors to structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. The ***Project sponsors*** and **their** contractors must, at a minimum, ensure that: |

TABLE 1.0

**Plaquemines LNG and Gator Express Pipeline Project**
**Table of Changes**

| Section | Original Text | Proposed Text (Changes bolded and italicized) |
|---|---|---|
| IV.A.1.d | … all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary. These activities can occur closer only if the Environmental Inspector determines that there is no reasonable alternative, and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill; | ***In construction locations where is no reasonable alternative other than to locate upland refueling sites less than 100 feet from wetlands or waterbodies, the Project will maintain at least a 10-foot setback. All refueling and equipment storage procedures, irrespective of proximity to wetlands or waterbodies, will be undertaken in accordance with Plaquemines LNG's and Gator Express Pipeline's Spill Prevention, Control, and Countermeasure Plans to reduce the potential for spills during construction and to mitigate the environmental impacts if a spill should occur.*** |
| IV.A.1.e | … hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 100 feet of a wetland, waterbody, or designated municipal watershed area, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas; | ***Equipment used in wetlands and open water would often operate at long distances (up to several miles) from the nearest upland refueling station. To track the equipment out of the wetland or open water for refueling, possibly on multiple occasions, is logistically impractical and potentially more environmentally damaging than refueling in situ. To minimize the environmental damage caused by excessive tracking, towed fuel barges will accompany amphibious equipment as construction progresses. Equipment operators will be fully trained in refueling procedures and Plaquemines LNG's and Gator Express Pipeline's Spill Prevention, Control, and Countermeasure Plans;*** |
| IV.A.2 | The project sponsor and its contractors must structure their operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum, the project sponsor and its contractors must: | The ***Project sponsors*** and ***their*** contractors ***will*** structure ***their*** operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum, the ***Project sponsors*** and their contractors ***will***: |
| IV.B | The project sponsor must coordinate with the appropriate local, state, and federal agencies as outlined in these Procedures and in the FERC's Orders. | The ***Project sponsors will*** coordinate with the appropriate local, state, and federal agencies as outlined in these Procedures and in the FERC's Orders. |
| V.B.1.b | Coolwater and warmwater fisheries - June 1 through November 30. | Coolwater and warmwater fisheries - June 1 through November 30. ***The schedule for pipeline construction in open waters will necessarily be integrated with the overall Project schedule, such that certain Terminal facilities can receive gas supply at the appropriate time. As such, pipeline construction cannot be restricted to a specific seasonal timeframe. Use of the Push and Barge Lay installation methods will minimize impacts over reasonable alternative methods. Similarly, marine facility construction on the Mississippi River cannot be restricted to a specific seasonal timeframe, based on the anticipated length of the construction period and the need for an integrated schedule across the multiple Project facilities.*** |

TABLE 1.0

**Plaquemines LNG and Gator Express Pipeline Project**
**Table of Changes**

| Section | Original Text | Proposed Text (Changes bolded and italicized) |
|---|---|---|
| V.B.4.b. | Use sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody. | Use sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody. ***For pipeline construction, the poor compaction of the native soil in marshland and open water is not conducive to the installation of sediment barriers. Due to the poor cohesiveness of the native spoil, as well as its low angle of repose after sidecasting, the use of sediment barriers, such as silt fences, to prevent the flow of spoil or to contain the spoil would require the barrier to withstand the pressure of the weight of the spoil against the barrier. It is anticipated that the native soil would not offer enough lateral support to withstand the pressure of unconsolidated spoil against the barrier. Therefore, at waterbody crossings during pipeline construction, spoil will be placed in the construction right-of-way and ATWS without lateral silt fencing, with the anticipation that the width of these areas will be sufficient to preclude spoil migration beyond their boundaries. During pipeline installation using the Barge Lay method, the dredge barge will cast the flotation canal and pipe trench spoil to either side of the right-of-way centerline, keeping the spoil below the water surface, where feasible, to minimize wave-generated turbidity. The spoil will be placed parallel to the trench in 500-foot-long piles, with 50-foot-wide openings to allow the passage of local watercraft.*** |
| V.B.9 | Crossings of Major Waterbodies | The Project involves the crossing of major waterbodies. The ***Project sponsors will comply with the following requirements:*** |
| V.B.10 | Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately after initial disturbance of the waterbody or adjacent upland. | Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately ***prior to*** initial disturbance of the waterbody or adjacent upland. The ***Project sponsors will install sediment barriers as practicable.*** |
| V.B.10.a. | Install sediment barriers across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. Removable sediment barriers (or drivable berms) must be installed across the travel lane. These removable sediment barriers can be removed during the construction day, but must be re-installed after construction has stopped for the day and/or when heavy precipitation is imminent; | ***Except for the Project's Push and Barge Lay Method use on the construction right-of-way,*** install sediment barriers across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. Removable sediment barriers (or drivable berms) must be installed across the travel lane. These removable sediment barriers can be removed during the construction day, but must be re-installed after construction has stopped for the day and/or when heavy precipitation is imminent; |
| V.B.10.b. | Where waterbodies are adjacent to the construction right-of-way and the right-of-way slopes toward the waterbody, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the waterbody; and | ***Except for the Project's Push and Barge Lay Method use on the construction right-of-way,*** where waterbodies are adjacent to the construction right-of-way and the right-of-way slopes toward the waterbody, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the waterbody; and |
| V.B.10.c. | …use temporary trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody. | ***Except for the Project's Push and Barge Lay Method use on the construction right-of-way,*** use temporary trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody. |

TABLE 1.0

**Plaquemines LNG and Gator Express Pipeline Project**
**Table of Changes**

| Section | Original Text | Proposed Text (Changes bolded and italicized) |
|---|---|---|
| V.C.8. | In addition, install sediment barriers as outlined in Plan. | In addition, install sediment barriers as outlined in ***Plaquemines LNG's and Gator Express Pipeline's Project-specific Upland Erosion Control, Revegetation, and Maintenance Plan***. |
| VI.A.1 | The project sponsor shall conduct a wetland delineation using the current federal methodology and file a wetland delineation report with the Secretary before construction. | ***The Project sponsors will*** conduct a wetland delineation using the current federal methodology and file a wetland delineation report with the Secretary before construction. |
| VI.A.3 | Limit the width of the construction right-of-way to 75 feet or less. Prior written approval of the Director is required where topographic conditions or soil limitations require that the construction right-of-way width within the boundaries of a federally delineated wetland be expanded beyond 75 feet. Early in the planning process the project sponsor is encouraged to identify site-specific areas where excessively wide trenches could occur and/or where spoil piles could be difficult to maintain because existing soils lack adequate unconfined compressive strength. | ***The Project will require a nominal 130-foot-wide right-of-way using the Push method for the lateral pipelines in wetlands due to soil conditions along the proposed routes. The soils in the project area are characteristically poorly cohesive and prone to sloughing. This is exacerbated in the inundated or saturated soil conditions found in the marshland and open water areas that characterize the routes. Project anticipates that, to maintain side slopes with a sufficiently shallow angle to prevent collapse, the pipeline trenches will require relatively wide tops and bases. Consequently, a relatively high volume of trench spoil will be generated, necessitating storage piles on both sides of the trench line. Because of the excavated material's lack of cohesion, the storage piles will be relatively wide and low. The 130-foot wide right-of-way is needed to accommodate the wide trench, the two wide-based storage piles, and equipment that must operate at some distance from the trench line to avoid edge cave-in. The use of the Push Method for pipeline installation, while reducing equipment-related disturbance, does not preclude the spoil storage issues associated with trench excavation.***<br><br>***Installation of silt fences or other containment structures along the outer edges of the construction right-of-way in marshland and open water is technically infeasible, given the poorly compacted benthic substrate and average water depth of several feet. Compared to a narrower workspace, the 130-foot workspace width means that laterally migrating spoil is more likely to remain in an authorized area (the workspace), where any remedial measures can be readily and effectively deployed.***<br><br>***The Project will require a 300-foot-wide right-of-way using the Barge Lay Method, used to install the pipelines in open water along the proposed routes. In water depths of less than 8 feet, it is anticipated that the dredge barge will first excavate the flotation canal. Afterwards the pipe trench will be excavated along the bottom of the flotation canal. The dredge barge will cast the flotation canal and pipe trench spoil to either side of the right-of-way centerline, keeping the spoil below the water surface, where feasible, to minimize wave-generated turbidity. The spoil will be placed parallel to the trench in 500-foot-long piles, with 50-foot-wide openings to allow the passage of local watercraft.*** |

TABLE 1.0

**Plaquemines LNG and Gator Express Pipeline Project**
**Table of Changes**

| Section | Original Text | Proposed Text (Changes bolded and italicized) |
|---|---|---|
| VI.A.6 | Do not locate aboveground facilities in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations. | ***While avoidance and minimization of wetland impacts was integral to site selection, construction of the Project's aboveground facilities will permanently impact some wetlands, as well as uplands. All wetlands impacted will be appropriately mitigated, and construction of the aboveground structures will result in no net loss of wetlands. The Project sponsors will provide the FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to Project construction.*** |
| VI.B | Installation | ***Project access roads may be constructed in delineated wetland areas. Project will provide appropriate mitigation for the unavoidable loss of wetlands due to Project construction. The Project sponsors will provide the FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to Project construction.*** |
| VI.B.1.a | Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. | ***Several ATWSs are necessarily located in wetlands and waterbodies due to their intended use and the limited availability of suitable upland sites. These include ATWSs required at the mainline valve sites and HDD exit and/or entry locations, set-up sites for Push Method operations, bore exit and/or entry locations, and crossing sites of multiple foreign pipelines. The Project sponsors believe there are no feasible location alternatives for these ATWSs that would cause less significant environmental impacts. Moreover, most of the ATWSs are required for HDD, Push Method pipeline installation, and bore crossings, methods that have been selected to minimize or avoid greater environmental impacts elsewhere.*** |
| VI.B.1.b | The project sponsor file with the Secretary for review and written approval by the Director, site-specific justification for each extra work area with a less than 50-foot setback from wetland boundaries, except where adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification must specify the site-specific conditions that will not permit a 50-foot setback and measures to ensure the wetland is adequately protected. | The ***Project sponsors will*** file with the Secretary for review and written approval by the Director, site-specific justification for each extra work area with a less than 50-foot setback from wetland boundaries, except where adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification must specify the site-specific conditions that will not permit a 50-foot setback and measures to ensure the wetland is adequately protected. |

TABLE 1.0

**Plaquemines LNG and Gator Express Pipeline Project**
**Table of Changes**

| Section | Original Text | Proposed Text (Changes bolded and italicized) |
|---|---|---|
| VI.B.1.c | In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas***.***<br>Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way | In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas***. Project construction is primarily located within wetlands and waterbodies and certain work areas may require access via the construction right-of-way across wetland areas or waterbodies. The Push Method will be used to install portions of the lateral pipelines with limited equipment traffic crossing the wetlands. At certain locations, such as tie-ins or foreign line crossings, additional equipment will be required to complete the pipeline installation. To access these locations multiple passes of construction equipment through the wetlands will be required , using the construction right-of-way. Access channels through open water will be used to mobilize construction equipment to install the majority length of the lateral pipelines using the Barge Lay Method.*** Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way |
| VI.B.1.d | The only access roads, other than the construction right-of-way, that can be used in wetlands are those existing roads that can be used with no modifications or improvements, other than routine repair, and no impact on the wetland***.*** | The only access roads, other than the construction right-of-way, that can be used in wetlands are those existing roads that can be used with no modifications or improvements, other than routine repair, and no impact on the wetland***. The Project will require one new permanent access road, to access two mainline valve sites during Project operation; this road will also be used during construction. Project will require one new temporary access road to access pipe bridge and HDD sites during construction. Both roads cross some wetlands but they represent the shortest travel distance to the sites and given the extensive wetlands in their area, there are no practicable alternative routes with less wetland impacts. All impacts will be appropriately mitigated in accordance with applicable regulatory requirements.*** |
| VI.B.2.d | Minimize the length of time that topsoil is segregated and the trench is open. Do not trench the wetland until the pipeline is assembled and ready for lowering in. | Minimize the length of time that topsoil is segregated and the trench is open. ***The Project will use the Push Method for portions of the SW Laterals, requiring the excavation of the pipe trench prior to pipeline assembly in order for the assembled pipeline segment to be floated and lowered into in the open trench.*** Do not trench the wetland until the pipeline is assembled and ready for lowering in. |
| VI.B.3 | Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately after initial disturbance of the wetland or adjacent upland. | Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately ***prior to*** initial disturbance of the wetland or adjacent upland. |
| VI.B.3.a | Install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland | ***Except for the Project's Push Method use on the construction right-of-way,*** install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland |
| VI.B.3.b | Where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the wetland | ***Except for the Project's Push Method use on the construction right-of-way,*** where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the wetland |

TABLE 1.0

**Plaquemines LNG and Gator Express Pipeline Project**
**Table of Changes**

| Section | Original Text | Proposed Text (Changes bolded and italicized) |
|---|---|---|
| VI.B.3.c | Install sediment barriers along the edge of the construction right-of- way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup | ***Except for the Project's Push Method use on the construction right-of-way,*** install sediment barriers along the edge of the construction right-of- way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup |
| VI.C6. | Until a project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre (unless standing water is present). | Until a project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre ***or other species at a rate acceptable to the USACE and LDNR*** (unless standing water is present). |

# VENTURE GLOBAL PLAQUEMINES LNG, LLC
# VENTURE GLOBAL GATOR EXPRESS, LLC

# PLAQUEMINES LNG AND GATOR EXPRESS PIPELINE PROJECT

# WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

## TABLE OF CONTENTS

# Plaquemines LNG and Gator Express Pipeline Project

# Wetland and Waterbody Construction and Mitigation Procedures

## I. APPLICABILITY

A. Venture Global Plaquemines LNG, LLC (Plaquemines LNG) and Venture Global Gator Express, LLC (Gator Express Pipeline)[1] (hereinafter referred to as the Project sponsors) are adopting the FERC Procedures (May 2013 Version) for the Plaquemines LNG and Gator Express Pipeline Project, or Project, with requested modifications necessary to differentiate the Terminal Site, as a discrete facility, from the pipeline construction requirements. All modifications to the original wording are showing in ***bold italic font***. These Procedures will apply to Project construction in all wetlands and waterbodies.

Deviations that involve measures different from those contained in this Procedures document will only be permitted as certificated by the Commission or by written approval of the Director of the Office of Energy Projects (OEP), or his/her designee, unless specifically required in writing by another federal, state, or land managing agency for the portion of the Project on its land. The Project sponsors will file other agency requirements with the Secretary of the Commission (Secretary) prior to construction.

The Project sponsors have identified individual measures in these Procedures that are considered unnecessary, technically infeasible, or unsuitable due to local conditions and fully describes any alternative measures they would use. The Project sponsors also explain how these alternative measures would achieve a comparable level of mitigation.

B. DEFINITIONS

1. "Waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes:

   a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of crossing;

   b. "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of crossing; and

   c. "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of crossing.

2. "Wetland" includes any area that is not in actively cultivated or rotated

[1] Venture Global Plaquemines LNG, LLC and Venture Global Gator Express, LLC are wholly owned subsidiaries of Venture Global LNG, Inc.

cropland and that satisfies the requirements of the current federal methodology for identifying and delineating wetlands.

## II. PRECONSTRUCTION FILING

A. The following information must be filed with the Secretary of the FERC (Secretary) prior to the beginning of construction, for the review and written approval by the Director:

1. Site-specific justifications for extra work areas that would be closer than 50 feet from a waterbody or wetland; and

***2.*** Site-specific justifications for the use of a construction right-of-way greater than 75-feet-wide in wetlands***. The Project requires a 130-foot-wide construction right-of-way for pipeline installation where the Push method is used, due to the need for a relatively wide and deep trench to ensure the required depth of cover in the wet, poorly cohesive, and easily sloughed substrate, and the consequent need for increased space to sidecast relatively high spoil volumes. The Project requires a 300-foot-wide construction right-of-way for pipeline installation in open waters, where the Barge Lay method is used, to accommodate an approximately 100-foot-wide floatation channel for lay barge and supply barge access, and up to approximately 100 feet on either side of the floatation channel for construction workspace to deposit sidecast trench material. The 300-foot-wide construction right-of-way allows safe and wholly waterborne construction.***

B. The following information must be filed with the Secretary prior to the beginning of construction. These filing requirements do not apply to projects constructed under the automatic authorization provisions in the FERC's regulations:

1. Spill Prevention and Response Procedures specified in section IV.A;

2. A schedule identifying when trenching or blasting will occur within each waterbody greater than 10 feet wide, within any designated coldwater fishery, and within any waterbody identified as habitat for federally-listed threatened or endangered species. The ***Project sponsors*** will revise the schedule as necessary to provide FERC staff at least 14 days advance notice. Changes within this last 14-day period must provide for at least 48 hours advance notice;

3. Plans for horizontal directional drills (HDD) under wetlands or waterbodies, specified in section V.B.6.d;

4. Site-specific plans for major waterbody crossings, described in section V.B.9;

5. A wetland delineation report as described in section VI.A.1, if applicable; and

6. The hydrostatic testing information specified in section VII.B.3.

## III. ENVIRONMENTAL INSPECTORS

A. At least one Environmental Inspector having knowledge of the wetland and waterbody conditions in the Project area is required for each construction spread. The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.

B. The Environmental Inspector's responsibilities are outlined in ***Plaquemines LNG's and Gator Express Pipeline's Project-specific Upland Erosion Control, Revegetation, and Maintenance Plan (Plan)***.

## IV.PRECONSTRUCTION PLANNING

A. The ***Project sponsors will*** develop project-specific Spill Prevention and Response Procedures that meet applicable requirements of state and federal agencies. A copy must be filed with the Secretary prior to construction and made available in the field on each construction spread. This filing requirement does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.

1. It ***will*** be the responsibility of the ***Project sponsors*** and ***their*** contractors to structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. The ***Project sponsors*** and ***their*** contractors must, at a minimum, ensure that:

   a. All employees handling fuels and other hazardous materials are properly trained;

   b. All equipment is in good operating order and inspected on a regular basis;

   c. Fuel trucks transporting fuel to on-site equipment travel only on approved access roads;

   ***d. In construction locations where is no reasonable alternative other than to locate upland refueling sites less than 100 feet from wetlands or waterbodies, the Project will maintain at least a 10-foot setback. All refueling and equipment storage procedures, irrespective of proximity to wetlands or waterbodies, will be undertaken in accordance with Plaquemine LNG's and Gator Express Pipeline's Spill Prevention, Control, and Countermeasure Plans to reduce the potential for spills during construction and to mitigate the environmental impacts if a spill should occur*;**

   e. ***Equipment used in wetlands and open water would often operate at long distances (up to several miles) from the nearest upland refueling station. To track the equipment out of the wetland or open water for refueling, possibly on multiple occasions, is logistically impractical and potentially more environmentally damaging than refueling in situ. To minimize***

***the environmental damage caused by excessive tracking, towed fuel barges will accompany amphibious equipment as construction progresses. Equipment operators will be fully trained in refueling procedures and Plaquemines LNG's and Gator Express Pipeline's Spill Prevention, Control, and Countermeasure Plans;***

f. Concrete coating activities are not performed within 100 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use. These activities can occur closer only if the Environmental Inspector determines that there is no reasonable alternative, and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;

g. Pumps operating within 100 feet of a waterbody or wetland boundary utilize appropriate secondary containment systems to prevent spills; and

h. Bulk storage of hazardous materials, including chemicals, fuels, and lubricating oils have appropriate secondary containment systems to prevent spills.

2. The ***Project sponsors*** and ***their*** contractors ***will*** structure ***their*** operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum, the ***Project sponsors*** and ***their*** contractors ***will***:

a. Ensure that each construction crew (including cleanup crews) has on hand sufficient supplies of absorbent and barrier materials to allow the rapid containment and recovery of spilled materials and knows the procedure for reporting spills and unanticipated discoveries of contamination;

b. Ensure that each construction crew has on hand sufficient tools and material to stop leaks;

c. Know the contact names and telephone numbers for all local, state, and federal agencies (including, if necessary, the U. S. Coast Guard and the National Response Center) that must be notified of a spill; and

d. Follow the requirements of those agencies in cleaning up the spill, in excavating and disposing of soils or other material contaminated by a spill, and in collecting and disposing of waste generated during spill cleanup.

B. AGENCY COORDINATION

The ***Project sponsors will*** coordinate with the appropriate local, state, and federal agencies as outlined in these Procedures and in the FERC's Orders.

## V. WATERBODY CROSSINGS

### A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply to the U.S. Army Corps of Engineers (USACE), or its delegated agency, for the appropriate wetland and waterbody crossing permits.

2. Provide written notification to authorities responsible for potable surface water supply intakes located within 3 miles downstream of the crossing at least 1 week before beginning work in the waterbody, or as otherwise specified by that authority.

3. Apply for state-issued waterbody crossing permits and obtain individual or generic section 401 water quality certification or waiver.

4. Notify appropriate federal and state authorities at least 48 hours before beginning trenching or blasting within the waterbody, or as specified in applicable permits.

### B. INSTALLATION

1. Time Window for Construction

   Unless expressly permitted or further restricted by the appropriate federal or state agency in writing on a site-specific basis, instream work, except that required to install or remove equipment bridges, must occur during the following time windows:

   a. Coldwater fisheries - June 1 through September 30; and

   ***b.*** Coolwater and warmwater fisheries - June 1 through November 30. ***The schedule for pipeline construction in open waters will necessarily be integrated with the overall Project schedule, such that certain Terminal facilities can receive gas supply at the appropriate time. As such, pipeline construction cannot be restricted to a specific seasonal timeframe. Use of the Push and Barge Lay installation methods will minimize impacts over reasonable alternative methods. Similarly, marine facility construction on the Mississippi River cannot be restricted to a specific seasonal timeframe, based on the anticipated length of the construction period and the need for an integrated schedule across the multiple Project facilities.***

2. Extra Work Areas

   a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land.

   b. The Project sponsors will file with the Secretary for review and written approval by the Director, site-specific justification for each

extra work area with a less than 50-foot setback from the water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification must specify the conditions that will not permit a 50-foot setback and measures to ensure the waterbody is adequately protected.

c. Limit the size of extra work areas to the minimum needed to construct the waterbody crossing.

3. General Crossing Procedures

a. Comply with the USACE, or its delegated agency, permit terms and conditions.

b. Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit.

c. Where pipelines parallel a waterbody, maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way, except where maintaining this offset will result in greater environmental impact.

d. Where waterbodies meander or have multiple channels, route the pipeline to minimize the number of waterbody crossings.

e. Maintain adequate waterbody flow rates to protect aquatic life, and prevent the interruption of existing downstream uses.

f. Waterbody buffers (e.g., extra work area setbacks, refueling restrictions) must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

g. Crossing of waterbodies when they are dry or frozen and not flowing may proceed using standard upland construction techniques in accordance with the Plan, provided that the Environmental Inspector verifies that water is unlikely to flow between initial disturbance and final stabilization of the feature. In the event of perceptible flow, the project sponsor must comply with all applicable Procedure requirements for "waterbodies" as defined in section I.B.1.

4. Spoil Pile Placement and Control

a. All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction right-of-way at least 10 feet from the water's edge or in additional extra work areas as described in section V.B.2.

***b.*** Use sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody. ***For pipeline construction, the poor compaction of the native soil in marshland and open water is not conducive to the installation of sediment barriers. Due to***

***the poor cohesiveness of the native spoil, as well as its low angle of repose after sidecasting, the use of sediment barriers, such as silt fences, to prevent the flow of spoil or to contain the spoil would require the barrier to withstand the pressure of the weight of the spoil against the barrier. It is anticipated that the native soil would not offer enough lateral support to withstand the pressure of unconsolidated spoil against the barrier. Therefore, at waterbody crossings during pipeline construction, spoil will be placed in the construction right-of-way and ATWS without lateral silt fencing, with the anticipation that the width of these areas will be sufficient to preclude spoil migration beyond their boundaries. During pipeline installation using the Barge Lay method, the dredge barge will cast the flotation canal and pipe trench spoil to either side of the right-of-way centerline, keeping the spoil below the water surface, where feasible, to minimize wave-generated turbidity. The spoil will be placed parallel to the trench in 500-foot-long piles, with 50-foot-wide openings to allow the passage of local watercraft.***

5. Equipment Bridges

    a. Only clearing equipment and equipment necessary for installation of equipment bridges may cross waterbodies prior to bridge installation. Limit the number of such crossings of each waterbody to one per piece of clearing equipment.

    b. Construct and maintain equipment bridges to allow unrestricted flow and to prevent soil from entering the waterbody. Examples of such

        (1) equipment pads and culvert(s);
        (2) equipment pads or railroad car bridges without culverts;
        (3) clean rock fill and culvert(s); and
        (4) flexi-float or portable bridges.

        Additional options for equipment bridges may be utilized that achieve the performance objectives noted above. Do not use soil to construct or stabilize equipment bridges.

    c. Design and maintain each equipment bridge to withstand and pass the highest flow expected to occur while the bridge is in place. Align culverts to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of the culverts.

    d. Design and maintain equipment bridges to prevent soil from entering the waterbody.

    e. Remove temporary equipment bridges as soon as practicable after permanent seeding.

    f. If there will be more than 1 month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the right-of-way is available, remove temporary equipment bridges

as soon as practicable after final cleanup.

g. Obtain any necessary approval from the USACE, or the appropriate state agency for permanent bridges.

6. Dry-Ditch Crossing Methods

a. Unless approved otherwise by the appropriate federal or state agency, install the pipeline using one of the dry-ditch methods outlined below for crossings of waterbodies up to 30 feet wide (at the water's edge at the time of construction) that are state-designated as either coldwater or significant coolwater or warmwater fisheries, or federally- designated as critical habitat.

b. Dam and Pump

(1) The dam-and-pump method may be used without prior approval for crossings of waterbodies where pumps can adequately transfer streamflow volumes around the work area, and there are no concerns about sensitive species passage.

(2) Implementation of the dam-and-pump crossing method must meet the following performance criteria:

(i) use sufficient pumps, including on-site backup pumps, to maintain downstream flows;
(ii) construct dams with materials that prevent sediment and other pollutants from entering the waterbody (e.g., sandbags or clean gravel with plastic liner);
(iii) screen pump intakes to minimize entrainment of fish;
(iv) prevent streambed scour at pump discharge; and
(v) continuously monitor the dam and pumps to ensure proper operation throughout the waterbody crossing.

c. Flume Crossing

The flume crossing method requires implementation of the following steps:

(1) Install flume pipe after blasting (if necessary), but before any trenching;

(2) Use sand bag or sand bag and plastic sheeting diversion structure or equivalent to develop an effective seal and to divert stream flow through the flume pipe (some modifications to the stream bottom may be required to achieve an effective seal);

(3) Properly align flume pipe(s) to prevent bank erosion and streambed scour;

(4) Do not remove flume pipe during trenching, pipelaying, or backfilling activities, or initial streambed restoration efforts; and

(5) Remove all flume pipes and dams that are not also part of the equipment bridge as soon as final cleanup of the stream bed and bank is complete.

d. Horizontal Directional Drill

For each waterbody or wetland that would be crossed using the HDD method, file with the Secretary for the review and written approval by the Director, a plan that includes:

(1) Site-specific construction diagrams that show the location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction;

(2) Justification that disturbed areas are limited to the minimum needed to construct the crossing;

(3) Identification of any aboveground disturbance or clearing between the HDD entry and exit workspaces during construction;

(4) A description of how an inadvertent release of drilling mud would be contained and cleaned up; and

(5) A contingency plan for crossing the waterbody or wetland in the event the HDD is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

The requirement to file HDD plans does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.

7. Crossings of Minor Waterbodies

Where a dry-ditch crossing is not required, minor waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

a. Except for blasting and other rock breaking measures, complete instream construction activities (including trenching, pipe installation, backfill, and restoration of the streambed contours) within 24 hours.

Streambanks and unconsolidated streambeds may require additional restoration after this period;

b. Limit use of equipment operating in the waterbody to that needed to construct the crossing; and

c. Equipment bridges are not required at minor waterbodies that do not have a state-designated fishery classification or protected status (e.g., agricultural or intermittent drainage ditches). However, if an equipment bridge is used it must be constructed as described in section V.B.5.

8. Crossings of Intermediate Waterbodies

   Where a dry-ditch crossing is not required, intermediate waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

   a. Complete instream construction activities (not including blasting and other rock breaking measures) within 48 hours, unless site-specific conditions make completion within 48 hours infeasible;

   b. Limit use of equipment operating in the waterbody to that needed to construct the crossing; and

   c. All other construction equipment must cross on an equipment bridge as specified in section V.B.5.

9. Crossings of Major Waterbodies

   The Project involves the crossing of major waterbodies. The ***Project sponsors will comply with the following requirements:***

   Before construction, the project sponsor shall file with the Secretary for the review and written approval by the Director a detailed, site-specific construction plan and scaled drawings identifying all areas to be disturbed by construction for each major waterbody crossing (the scaled drawings are not required for any offshore portions of pipeline projects). This plan must be developed in consultation with the appropriate state and federal agencies and shall include extra work areas, spoil storage areas, sediment control structures, etc., as well as mitigation for navigational issues. The requirement to file major waterbody crossing plans does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations.

   The Environmental Inspector may adjust the final placement of the erosion and sediment control structures in the field to maximize effectiveness.

10. Temporary Erosion and Sediment Control

    Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately ***prior to*** initial disturbance of the waterbody or adjacent upland. The ***Project sponsors will install sediment barriers as practicable.***

    Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan; however, the following specific measures must be implemented at stream crossings:

    a. ***Except for the Project's Push and Barge Lay Method use on the construction right-of-way,*** install sediment barriers across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. Removable sediment barriers (or drivable berms) must be installed

across the travel lane. These removable sediment barriers can be removed during the construction day, but must be re-installed after construction has stopped for the day and/or when heavy precipitation is imminent;

b. ***Except for the Project's Push and Barge Lay Method use on the construction right-of-way,*** where waterbodies are adjacent to the construction right-of-way and the right-of-way slopes toward the waterbody, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the waterbody; and

c. ***Except for the Project's Push and Barge Lay Method use on the construction right-of-way,*** use temporary trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody.

11. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in silt-laden water flowing into any waterbody. Remove the dewatering structures as soon as practicable after the completion of dewatering activities.

C. RESTORATION

1. Use clean gravel or native cobbles for the upper 1 foot of trench backfill in all waterbodies that contain coldwater fisheries.

2. For open-cut crossings, stabilize waterbody banks and install temporary sediment barriers within 24 hours of completing instream construction activities. For dry-ditch crossings, complete streambed and bank stabilization before returning flow to the waterbody channel.

3. Return all waterbody banks to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector.

4. Install erosion control fabric or a functional equivalent on waterbody banks at the time of final bank recontouring. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

5. Application of riprap for bank stabilization must comply with USACE, or its delegated agency, permit terms and conditions.

6. Unless otherwise specified by state permit, limit the use of riprap to areas where flow conditions preclude effective vegetative stabilization techniques such as seeding and erosion control fabric.

7. Revegetate disturbed riparian areas with native species of conservation grasses, legumes, and woody species, similar in density to adjacent undisturbed lands.

8. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent that are less than 50 feet from the waterbody, or as needed to prevent sediment transport into the waterbody. In addition, install sediment barriers as outlined in ***Plaquemines LNG's and Gator Express Pipeline's Project-specific Upland Erosion Control, Revegetation, and Maintenance Plan***.

   In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.

9. Sections V.C.3 through V.C.7 above also apply to those perennial or intermittent streams not flowing at the time of construction.

D. POST-CONSTRUCTION MAINTENANCE

1. Limit routine vegetation mowing or clearing adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot-wide corridor in an herbaceous state. In addition, trees that are located within 15 feet of the pipeline that have roots that could compromise the integrity of the pipeline coating may be cut and removed from the permanent right-of-way. Do not conduct any routine vegetation mowing or clearing in riparian areas that are between HDD entry and exit points.

2. Do not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.

3. Time of year restrictions specified in section VII.A.5 of the Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of riparian areas.

## VI.WETLAND CROSSINGS

A. GENERAL

1. The ***Project sponsors will*** conduct a wetland delineation using the current federal methodology and file a wetland delineation report with the Secretary before construction. The requirement to file a wetland delineation report does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.

   This report shall identify:

a. by milepost all wetlands that would be affected;

b. the National Wetlands Inventory (NWI) classification for each wetland;

c. the crossing length of each wetland in feet; and

d. the area of permanent and temporary disturbance that would occur in each wetland by NWI classification type.

The requirements outlined in this section do not apply to wetlands in actively cultivated or rotated cropland. Standard upland protective measures, including workspace and topsoiling requirements, apply to these agricultural wetlands.

2. Route the pipeline to avoid wetland areas to the maximum extent possible. If a wetland cannot be avoided or crossed by following an existing right-of-way, route the new pipeline in a manner that minimizes disturbance to wetlands. Where looping an existing pipeline, overlap the existing pipeline right-of-way with the new construction right-of-way. In addition, locate the loop line no more than 25 feet away from the existing pipeline unless site-specific constraints would adversely affect the stability of the existing pipeline.

***3. The Project will require a nominal 130-foot-wide right-of-way using the Push method for the lateral pipelines in wetlands due to soil conditions along the proposed routes. The soils in the project area are characteristically poorly cohesive and prone to sloughing. This is exacerbated in the inundated or saturated soil conditions found in the marshland and open water areas that characterize the routes. Project anticipates that, to maintain side slopes with a sufficiently shallow angle to prevent collapse, the pipeline trenches will require relatively wide tops and bases. Consequently, a relatively high volume of trench spoil will be generated, necessitating storage piles on both sides of the trench line. Because of the excavated material's lack of cohesion, the storage piles will be relatively wide and low. The 130-foot wide right-of-way is needed to accommodate the wide trench, the two wide-based storage piles, and equipment that must operate at some distance from the trench line to avoid edge cave-in. The use of the Push Method for pipeline installation, while reducing equipment-related disturbance, does not preclude the spoil storage issues associated with trench excavation.***

***Installation of silt fences or other containment structures along the outer edges of the construction right-of-way in marshland and open water is technically infeasible, given the poorly compacted benthic substrate and average water depth of several feet. Compared to a narrower workspace, the 130-foot workspace width means that laterally migrating spoil is more likely to remain in an authorized area (the workspace), where any remedial measures can be readily and effectively deployed.***

***The Project will require a 300-foot-wide right-of-way for the Barge Lay Method, used to install the pipelines in open water along the proposed routes. In water depths of less than 8 feet, it is anticipated that the dredge barge will first excavate the flotation canal. Afterwards the pipe trench will be excavated along the bottom of the flotation canal. The dredge barge will cast the flotation canal and pipe trench spoil to either side of the right-of-way centerline, keeping the spoil below the water surface, where feasible, to minimize wave-generated turbidity. The spoil will be placed parallel to the trench in 500-foot-long piles, with 50-foot-wide openings to allow the passage of local watercraft.***

4. Wetland boundaries and buffers must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

5. Implement the measures of sections V and VI in the event a waterbody crossing is located within or adjacent to a wetland crossing. If all measures of sections V and VI cannot be met, the project sponsor must file with the Secretary a site-specific crossing plan for review and written approval by the Director before construction. This crossing plan shall address at a minimum:

    a. spoil control;

    b. equipment bridges;

    c. restoration of waterbody banks and wetland hydrology;

    d. timing of the waterbody crossing;

    e. method of crossing; and

    f. size and location of all extra work areas.

***6. While avoidance and minimization of wetland impacts was integral to site selection, construction of the Project's aboveground facilities will permanently impact some wetlands, as well as uplands. All wetlands impacted will be appropriately mitigated, and construction of the aboveground structures will result in no net loss of wetlands. The Project sponsors will provide the FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to Project construction.***

B. INSTALLATION

***Project access roads may be constructed in delineated wetland areas. Project will provide appropriate mitigation for the unavoidable loss of wetlands due to Project construction. The Project sponsors will provide the FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to Project construction.***

1. Extra Work Areas and Access Roads

***a. Several ATWSs are necessarily located in wetlands and waterbodies due to their intended use and the limited availability of suitable upland sites. These include ATWSs required at the mainline valve sites and HDD exit and/or entry locations, set-up sites for Push Method operations, bore exit and/or entry locations, and crossing sites of multiple foreign pipelines. Project believes there are no feasible location alternatives for these ATWSs that would cause less significant environmental impacts. Moreover, most of the ATWSs are required for HDD, Push Method pipeline installation, and bore crossings, methods that have been selected to minimize or avoid greater environmental impacts elsewhere.***

b. The ***Project sponsors will*** file with the Secretary for review and written approval by the Director, site-specific justification for each extra work area with a less than 50-foot setback from wetland boundaries, except where adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification must specify the site-specific conditions that will not permit a 50-foot setback and measures to ensure the wetland is adequately protected.

c. The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right-of-way has been appropriately stabilized to avoid rutting (e.g., with timber riprap, prefabricated equipment mats, or terra mats).

In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas***. Project construction is primarily located within wetlands and waterbodies and certain work areas may require access via the construction right-of-way across wetland areas or waterbodies. The Push Method will be used to install portions of the lateral pipelines with limited equipment traffic crossing the wetlands. At certain locations, such as tie-ins or foreign line crossings, additional equipment will be required to complete the pipeline installation. To access these locations multiple passes of construction equipment through the wetlands will be required, using the construction right-of-way. Access channels through open water will be used to mobilize construction equipment to install the majority length of the lateral pipelines using the***

***Barge Lay Method.*** Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.

d. The only access roads, other than the construction right-of-way, that can be used in wetlands are those existing roads that can be used with no modifications or improvements, other than routine repair, and no impact on the wetland***. The Project will require one new permanent access road, to access two mainline valve sites during Project operation; this road will also be used during construction. Project will require one new temporary access road to access pipe bridge and HDD sites during construction. Both roads cross some wetlands but they represent the shortest travel distance to the sites and given the extensive wetlands in their area, there are no practicable alternative routes with less wetland impacts. All impacts will be appropriately mitigated in accordance with applicable regulatory requirements.***

2. Crossing Procedures

a. Comply with USACE, or its delegated agency, permit terms and conditions.

b. Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.

c. Use “Push Method” techniques to place the pipe in the trench where water and other site conditions allow.

d. Minimize the length of time that topsoil is segregated and the trench is open. ***The Project will use the Push Method for portions of the SW Laterals, requiring the excavation of the pipe trench prior to pipeline assembly in order for the assembled pipeline segment to be floated and lowered into in the open trench.*** Do not trench the wetland until the pipeline is assembled and ready for lowering in.

e. Limit construction equipment operating in wetland areas to that needed to clear the construction right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction right-of-way.

f. Cut vegetation just above ground level, leaving existing root systems in place, and remove it from the wetland for disposal.

The project sponsor can burn woody debris in wetlands, if approved by the USACE and in accordance with state and local regulations, ensuring that all remaining woody debris is removed for disposal.

g. Limit pulling of tree stumps and grading activities to directly over the trenchline. Do not grade or remove stumps or root systems from the rest of the construction right-of-way in wetlands unless the Chief

Inspector and Environmental Inspector determine that safety-related construction constraints require grading or the removal of tree stumps from under the working side of the construction right-of-way.

h. Segregate the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated. Immediately after backfilling is complete, restore the segregated topsoil to its original location.

i. Do not use rock, soil imported from outside the wetland, tree stumps, or brush riprap to support equipment on the construction right-of-way.

j. If standing water or saturated soils are present, or if construction equipment causes ruts or mixing of the topsoil and subsoil in wetlands, use low-ground-weight construction equipment, or operate normal equipment on timber riprap, prefabricated equipment mats, or terra mats.

k. Remove all project-related material used to support equipment on the construction right-of-way upon completion of construction.

3. Temporary Sediment Control

Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately ***prior to*** initial disturbance of the wetland or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench). Except as noted below in section VI.B.3.c, maintain sediment barriers until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan.

a. ***Except for the Project's Push Method use on the construction right-of-way,*** install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland.

b. ***Except for the Project's Push Method use on the construction right-of-way,*** where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the wetland.

c. ***Except for the Project's Push Method use on the construction right-of-way,*** install sediment barriers along the edge of the construction right-of- way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup.

4. Trench Dewatering

   Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in silt-laden water flowing into any wetland. Remove the dewatering structures as soon as practicable after the completion of dewatering activities.

C. RESTORATION

1. Where the pipeline trench may drain a wetland, construct trench breakers at the wetland boundaries and/or seal the trench bottom as necessary to maintain the original wetland hydrology.

2. Restore pre-construction wetland contours to maintain the original wetland hydrology.

3. For each wetland crossed, install a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from the wetland, or as needed to prevent sediment transport into the wetland. In addition, install sediment barriers as outlined in the Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the wetland.

4. Do not use fertilizer, lime, or mulch unless required in writing by the appropriate federal or state agency.

5. Consult with the appropriate federal or state agencies to develop a project-specific wetland restoration plan. The restoration plan shall include measures for re-establishing herbaceous and/or woody species, controlling the invasion and spread of invasive species and noxious weeds (e.g., purple loosestrife and phragmites), and monitoring the success of the revegetation and weed control efforts. Provide this plan to the FERC staff upon request.

6. Until a project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre ***or other species at a rate acceptable to the USACE and LDNR*** (unless standing water is present).

7. Ensure that all disturbed areas successfully revegetate with wetland herbaceous and/or woody plant species.

8. Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after revegetation and stabilization of adjacent upland areas are judged to be successful as specified in section VII.A.4 of the Plan.

## VII. HYDROSTATIC TESTING

### A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply for state-issued water withdrawal permits, as required.

2. Apply for National Pollutant Discharge Elimination System (NPDES) or state-issued discharge permits, as required.

3. Notify appropriate state agencies of intent to use specific sources at least 48 hours before testing activities unless they waive this requirement in writing.

### B. GENERAL

1. Perform 100 percent radiographic inspection of all pipeline section welds or hydrotest the pipeline sections, before installation under waterbodies or wetlands.

2. If pumps used for hydrostatic testing are within 100 feet of any waterbody or wetland, will require secondary containment and refueling of these pumps in the project's Spill Prevention, Control, and Countermeasure plan.

3. The project sponsor shall file with the Secretary before construction a list identifying the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location. This filing requirement does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations.

### C. INTAKE SOURCE AND RATE

1. Screen the intake hose to minimize the potential for entrainment of fish.

2. Do not use state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and/or local permitting agencies grant written permission.

3. Maintain adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users.

4. Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.

### D. DISCHARGE LOCATION, METHOD, AND RATE

1. Regulate discharge rate, use energy dissipation device(s), and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive streamflow.

2. Do not discharge into state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and local permitting agencies grant written permission.

# APPENDIX D

# HORIZONTAL DIRECTIONAL DRILLING CONTINGENCY PLAN

# Horizontal Directional Drilling Contingency Plan

## Gator Express Pipeline Project

**Submitted By:**

**EN Engineering**

**Warrenville, Illinois**

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**Prepared By:** ENengineering

**EN Engineering Project Number: 157407**

| Revision No. | Prepared By | Date | Checked By | Date | Approved By | Date | Client Approval By | Date | Revision Description |
|---|---|---|---|---|---|---|---|---|---|
| A | PT | 11/11/16 | ML | 11/11/16 | NP | 11/11/16 | | | Pipeline Lateral names update |
| B | ML | 02/22/17 | ML | 02/22/17 | NP | 02/22/17 | BF | 02/22/17 | Revised Per Client Comments |

# GATOR EXPRESS PIPELINE, LLC
# GATOR EXPRESS PIPELINE PROJECT
# HDD CONTINGENCY PLAN

## 1.0 PURPOSE AND NEED

As part of its Gator Express Pipeline Project (Project), Gator Express Pipeline, LLC (Gator Express Pipeline) proposes to use the Horizontal Directional Drilling (HDD) method to install pipe across various large spans of wetlands, waterbodies, roads, utilities and other obstacles obstructing the proposed pipeline alignment. The HDD method of installation reduces disturbances during pipeline construction by passing underneath sensitive features at the surface. The HDD method avoids disturbance to the bed and bank of a waterbody being crossed, keeps sensitive environmental resources and vegetation intact, and/or allows for a highway or other fixed feature to be crossed while avoiding open cut excavation between the drill entry and exit points. However, if a natural fracture or an unconsolidated area in the ground is encountered during drilling, an unexpected release of drilling mud could occur. For consistency within this HDD Contingency Plan, an unexpected release of drilling fluid will be referred to as an inadvertent return. Due to the potential of inadvertent returns, it is important to have a plan in place to establish the proper procedures and responsibilities of onsite personnel.

The objective of this HDD Contingency Plan is to:

- Provide procedures that will minimize the potential for release of drilling mud into sensitive resource areas such as wetlands and waterbodies, or onto adjacent upland surfaces;
- Provide for timely detection of inadvertent returns;
- Ensure the implementation of an organized, timely, and “minimum-impact” response in the event an inadvertent return of drilling fluid occurs;
- Ensure that all appropriate notifications are made in a timely manner;
- Provide for an alternative plan in case of drill failure; and,
- Establish the criteria by which Gator Express Pipeline will determine when a proposed HDD crossing is unsuccessful and must be abandoned.

## 2.0 HDD PROCESS

### 2.1 DRILLING BASICS

The HDD Method is a technically advanced process involving specialized equipment and skilled operators. The primary environmental risk associated with this construction method comes from the potential for inadvertent release of drilling mud. The supervision of inadvertent release monitoring is the responsibility of both the drilling Contractor and Gator Express Pipeline.

Minimal, consistent loss of drilling mud typically occurs during the HDD operation when layers of loose sand, gravel, or fractured rock are encountered and drilling mud fills voids in those sub-surface materials. However, a significant loss of returning drill mud and a reduction in drilling pressure indicates that excessive seepage is occurring outside of the drill hole.

## 2.2 DRILLING MUD AND DRILLING MUD SYSTEM

The HDD Method uses drilling mud consisting primarily of water and bentonite, a naturally occurring clay. Drilling mud removes the cuttings from the drill hole, stabilizes the walls of the drill hole, and acts as a coolant and lubricant to the drill bit during the drilling process. The drilling mud mixture consists of 1 to 5 percent bentonite clay and from 0 to 40 percent inert solids from the drill hole cuttings, with the remainder being water.

The drilling mud is prepared in a mixing tank using both new and clean recycled drilling mud. The mud is pumped at rates of 200 gallons per minute (gpm) to 1,000 gpm through the center of the drill pipe to the drilling tools. Return flow is through the annulus created between the wall of the drill hole and the drill pipe. During the pilot hole drilling operation, the cuttings are returned to a small excavation at the entry point called the entry pit. From the entry pit, the returned mud is pumped to the mud processing equipment. Typically, shaker screens, desanders, desilters, and centrifuges process and remove increasingly finer cuttings from the drilling mud. The clean mud is recycled to the mixing tank for reuse in the borehole. The cuttings removed by the cleaning process are disposed of at a site approved to accept this type of material.

Certain additives may be introduced into the drilling mud mix based on changing conditions during the drilling activities. Typical drilling fluid additives are listed below.

| Additive | Description | Purpose or Use | Approximate and Typical Concentration (% by volume) |
|---|---|---|---|
| Pargel 220® | A naturally occurring Wyoming bentonite clay with low sand content | Lubrication, stabilization of the borehole walls, and the suspension and removal of soil cuttings from the bore | 3.6 |
| Polypac R® | 100 percent carboxymethylcellulose sodium salt, a polyanionic cellulose polymer | To control fluid loss and increase the viscosity of the drilling fluid | 0.02 |
| Soda Ash | 100 percent sodium carbonate | To Increase the pH of the drilling fluids to precipitate calcium | 0.06 |
| Ringfree® | 60 to 100 percent acrylic polymer | To eliminate or cut mud bridging and free up borehole circulation; helps free stuck pipe because it dissolves sticky clays. | 0.02 (as a single 60-gallon slug) |
| FSF Polyswell® | 100 percent acrylamide polymer or copolymer | Primarily as a lost circulation material | 0.02 |
| My-Lo-Jal® | 100 percent pre-gelantized starch | Fluid loss agent and viscosifier | 0.02 |
| Smooth Grout 20 | Borehole plugging and grouting material | This product will be used to plug excessive losses | 0.1 |
| Smooth Bore/ Maxbore HDD | Premium grade, Wyoming sodium bentonite | Improves suspension properties and filtration control to freshwater fluids, as well as adds gel strength to compensate for low annular velocity. | As Required |

Various brands of drilling fluid products may be used based on: functionality, economics, geographic-location to suppliers, and type of geological formation anticipated at the drill site. Equivalent brands of products may be supplied as an alternative.

# 3.0 DRILLING MUD RELEASE

## 3.1 PREVENTION

The HDD method is typically used to avoid congested areas and/or to avoid disturbance of sensitive surface features, including wetlands and waterbodies. HDD does, however, present potential for surface disturbance through inadvertent drilling mud releases. Drilling mud releases are typically caused by blockage of the return flow path around the drill pipe where pressurization of the drilling mud rises above the containment capability of the overburden soil material. Pressurized drilling mud follows the path of least resistance, which may result in the drilling mud flowing to the ground surface should the annulus around the drill pipe become plugged. Releases may follow fractures in bedrock or other voids in the strata that allow the mud to penetrate the surface.

### 3.1.1 Suitable Material and Adequate Overburden Criteria

Prevention of drilling mud seepage is a major consideration in determining the profile of the HDD crossing. The primary factors in selecting the pipeline crossing profile include the type of soil and rock, the physical condition of the geological materials, and the depth of adequate overburden cover material. Cohesive soils, such as clays, dense sands and competent rock are considered ideal materials for horizontal drilling.

The areas that present the highest potential for drilling mud seepage are the drill entry and exit points where the overburden depth is minimal. At both the entry and exit points, above ground containment containers will provide temporary storage for the inadvertently released drilling mud or seepage until it can be pumped back into the drilling system.

### 3.1.2 Pipeline Geometry

The geometry of the pipeline drilling profile can also affect the potential for drilling fluid seepage. In a profile which forces the pipe to make compound or excessively tight radii turns, downhole pressures can build up, thereby, increasing the potential for drilling fluid seepage. The profiles for the proposed crossings minimize this potential, with very smooth and gradual vertical curves. HDD design and planning minimizes the potential for pressure buildup caused by pipeline drilling geometry.

### 3.1.3 General Observations Regarding Inadvertent Returns

The risk of HDD inadvertent returns can also be reduced by evaluating those subsurface conditions prior to construction that could be conducive to inadvertent returns or drill failure, including:

- Highly permeable soil such as gravel;
- Soil test bore holes in close proximity to the drill path;
- Presence of rock joints or other subsurface fractures;
- Considerable differences in the elevations of HDD entry and exit points; and,
- Disturbed soil, such as fill.

### 3.1.4 Responsibility of Drilling Contractor

Project specifications will require that the drilling Contractor be fully qualified and experienced with HDD construction. The HDD Contractor will be responsible for monitoring down-hole drilling fluid pressures and drilling fluid flows and keeping these parameters within safe limits. The Contractor will also be responsible for complying with all permit requirements, technical specifications, and this HDD Contingency Plan. The HDD Contractor will be required to submit a detailed pre-construction contingency plan that supplements this plan. The plan should include measured design considerations that the Contractor made in its HDD design to mitigate inadvertent returns. General HDD activities will be conducted consistent with Gator Express Pipeline's Storm Water Pollution Prevention Plan (SWPPP).

### 3.1.5 Training

Prior to the start of construction, the Construction Manager and Environmental Inspector (EI) will verify that the construction field crew members receive the following site-specific training:

- Review provisions of this HDD Contingency Plan, equipment maintenance and site-specific permit and monitoring requirements;
- Review location of sensitive environmental resources at the site and relevant permit conditions; review inspection procedures for inadvertent return prevention and be familiar with containment equipment and materials;
- Review Contractor/crew obligation to temporarily suspend forward progress of the drilling upon first evidence of the occurrence of an inadvertent return and to report any inadvertent returns to the EI;
- Review operation of the control equipment and the location of control materials, as necessary and appropriate; and,
- Review protocols for reporting observed inadvertent returns and communication with appropriate regulatory agencies.

## 3.2 DETECTION AND MONITORING PROCEDURES

The Contractor, Construction Inspector and EI will perform continuous monitoring of the HDD operation to ensure adequate protection/controls have been installed. As noted, field personnel will be trained regarding their responsibility to promptly report inadvertent releases to the EI on site.

The Contractor will provide a trained operator with experience in HDD techniques to monitor drilling fluid returns at the drilling mud return pits. If the EI or operator identifies seepage of drilling fluid, the EI has the authority to halt construction until the seepage is controlled and corrective action taken. The EI will be responsible for reporting any drilling fluid seepage or spill in monitoring reports and notifying the appropriate agencies as discussed below.

### 3.2.1 Monitoring Procedures Will Include:

1. Inspection along the drill path;

2. Continuous examination of drilling mud pressure gauges and return flows to the surface pits; and

3. Monitoring of drilling status information regarding drilling conditions and drill profile alignments.

### 3.2.2 If a Release Occurs in a Wetland or Waterbody:

1. The drilling mud will be contained where practicable;

2. Continue inspection to determine any potential for movement of released drilling mud within the wetland or waterbody;

3. Collect drilling mud returns at the location for future analysis, if required; and

4. EI to provide photographic documentation and other documentation of the release (Gator Express Pipeline will keep photographs of release events on record).

Throughout the drilling and inspection effort, the Contractor, Construction Inspector, and EI will work together to avoid any drilling operation shut-downs. Avoiding shut-downs increases the likelihood of a successful drill and can limit the timeframe of potential inadvertent returns.

## 4.0 NOTIFICATION PROCEDURES

If monitoring indicates a release is occurring or has occurred, the Contractor will begin containment immediately while the Construction Inspector or EI will notify Gator Express Pipeline construction management personnel immediately.

Gator Express Pipeline will notify the appropriate agencies (see appendix for contact information) immediately upon discovery of an inadvertent wetland or waterbody release, detailing the location and nature of the release, corrective actions being taken, and whether the release poses any threat to public health and safety.

## 5.0 CORRECTIVE ACTION

In the event that an inadvertent return is observed or suspected during an HDD crossing, it will be assessed to determine the amount of drilling mud (or slurry) being returned and the potential for the inadvertent return to reach the ground, wetland, or waterbody. Response measures will vary based on the location of inadvertent return as described below. At a minimum, the following containment, response, and clean-up equipment will be available at each bored crossing location at the time such crossing occurs:

- sand bags
- silt fence;
- plastic sheeting;
- turbidity barriers;
- shovels, pails;
- push brooms;
- squeegees;

- pumps and sufficient hose;
- mud storage tanks; and
- vacuum truck on 24-hour call (a vacuum truck may be on site to haul return mud back to the recirculating tank.)

Gator Express Pipeline will address an inadvertent release immediately upon discovery. The following measures will be implemented to minimize or prevent further release, contain the release, and clean up the affected area.

## 5.1 HDD ENTRY AND EXIT LOCATIONS

There is a greater potential for drilling fluid seepage at the entry and exit locations than other areas along the HDD. In the contingency planning for the pipeline crossing, drilling fluid seepage at the entry and exit locations has been considered, and preventative actions have been developed. To contain and control drilling fluid seepage on the land area, there will be earth-moving equipment such as backhoes or small bulldozers, portable pumps, sandbags, and straw bales available at each of the drilling sites. Any drilling fluid seepage will first be contained and isolated using sandbag berms, straw bales, silt screens or other suitable structures. For larger returns, a sump may need to be excavated for containment purposes. Once the return is effectively contained, pumps or vacuum trucks will be used to remove accumulated drilling fluid and, if practical, return it to the active drilling fluid system.

If public health and safety are threatened by an inadvertent release, drilling operations will be shut down until the threat is eliminated.

## 5.2 WATERBODY OR WETLAND RELEASE

Straw bales and silt fences will also be on site readily available for upland and wetland containment situations. Sufficient spill-absorbent material will be on-site in the event of an inadvertent return. All inadvertent returns will be immediately contained and reported as required.

Should an inadvertent return occur within a waterway, the Contractor will notify appropriate parties and evaluate the potential impact of the return on a site-specific basis in order to determine an appropriate course of action. In general, Gator Express Pipeline considers that trying to contain and collect drilling fluid returns in a waterway is not environmentally beneficial. HDD drilling fluids are nontoxic and discharge of the amounts normally associated with inadvertent returns do not pose a threat to public health and safety. Placement of containment structures and attempting to collect drilling fluid within a waterway often result in greater environmental impact than allowing the drilling fluid returns to dissipate naturally.

The Contractor will be responsible for using a drilling fluid with the appropriate viscosity, maintaining the appropriate amount of pressure, and for establishing and maintaining containment measures at each drill endpoint. If an inadvertent return is observed or suspected within a wetland or waterbody, the following measures will be implemented:

### 5.2.1 Wetland Locations

- Temporarily suspend forward drilling and promptly notify the Construction Manager and EI.

- Notification of an inadvertent return to the appropriate Regulatory Agencies listed in the appendix of this HDD Contingency Plan. As long as such notification is possible (e.g., there is phone service) and it does not interfere with response activities, the Regulatory Agencies mentioned above shall be notified within two (2) hours of the inadvertent return event.

- The Construction Manager and EI will evaluate wetland inadvertent returns and, in consultation with Gator Express Pipeline and regulatory agencies, implement appropriate response and cleanup measures. Inadvertent return slurries in or adjacent to wetlands will be removed to the extent practical and the area restored to its previous condition. Efforts to contain and recover slurry in wetlands may result in further disturbance by equipment and personnel, and possibly offset the benefit gained in removing the slurry. Because it is difficult to predict the effect of an inadvertent return and attempts to recover the slurry, any inadvertent returns within a wetland will be evaluated on a case-by-case basis, and an appropriate level of response will be implemented with the intent to minimize any further impact to the area.

    - If the amount of the inadvertent return slurry is too small to allow the practical physical collection from the affected area, it will be diluted with fresh water and/or the fluid will be allowed to dry and dissipate naturally.
    - If the amount of the slurry exceeds that which can be contained with hand-placed barriers, small collection sumps (less than 5 cubic yards) may be used to remove the slurry.
    - If the amount of the slurry exceeds that which can be contained and collected using small sumps, drilling operations will be suspended until the inadvertent return can be brought under control. Suspending drilling operations immediately is not ideal because the loss of pressure in the borehole could result in a collapse of the borehole.
    - The slurry will be stored in a temporary holding tank or other suitable structure, for reuse or disposal.

Secondary containment will be used for portable equipment brought onto the project site (such as portable pumps). Secondary containment will consist of spill basins large enough to contain the equipment or earthen berms designed to encompass the equipment, lined with polyethylene sheeting. After the inadvertent release is stabilized and any required removal is completed, document post-cleanup conditions with photographs and prepare incident report describing time, place, actions taken to remediate inadvertent release, and measures implemented to prevent recurrence, in accordance with SWPPP. Incident reports will be provided to Gator Express Pipeline and distributed to appropriate regulatory agencies.

If public health and safety are threatened, drilling mud circulation pumps will be turned off. This measure will be taken as a last resort because of the potential for the drill hole to collapse resulting from loss of down-hole pressure. If monitoring indicates that the intake water quality at adjacent or downstream user locations is impacted to the extent that it is no longer suitable for treatment, alternative water sources (i.e., trucked or bottled water) will be provided to impacted users. Gator Express Pipeline will assist agencies with any sampling they may require.

### 5.2.2 Waterbody Locations

- Temporarily suspend forward progress and notify the Construction Manager and EI. The EI will monitor the extent of the slurry plume.
- Notification of an inadvertent return to the appropriate regulatory agencies listed in the appendix of this HDD Contingency Plan. As long as such notification is possible (e.g., there is phone service) and it does not interfere with response activities, the Regulatory Agencies mentioned above shall be notified within two (2) hours of the inadvertent return event.
- Initiate containment measures and recovery of the slurry as appropriate. Containment is not always feasible for waterway inadvertent returns. However, conditions will be assessed as to whether hand-placed containment, recovery or other measures, such as silt curtains and turbidity barriers, would be effective and beneficial at the specific inadvertent return location. Returns will be contained using sandbags and contained mud recovered by pumping or other means effectively removing the mud to the best extent practical.
- Evaluate the current drill profile (e.g., drill pressures, pump volume rates, drilling mud consistency) to identify means to prevent further inadvertent return events. Drilling operations will be suspended if the return poses a threat to human health and safety or the environment.
- Once the return is mitigated and controlled, forward progress of the drilling may resume.

## 5.3 UNCONTROLLABLE RELEASE

If an inadvertent release of drilling mud exceeds that which can be contained and controlled either because of volume or rate, HDD activities will cease. An evaluation will provide the probable cause of the release and the stage of the drill installation. Based on the evaluation, the measures described in the following paragraphs will be implemented.

Depending on the current stage of the installation, the HDD Contractor may choose to plug the hole near the fracture with heavyweight material (i.e., sawdust, nut shells, bentonite pellets, or other commercially available non-toxic product). If the inadvertent release of drilling mud occurs while drilling the pilot hole, the HDD Contractor may choose to back out of the hole by a predetermined distance and then create a new hole by drilling out of the original hole. Therefore, Procedures 1 or 2 listed below could occur in either order.

1. Plug the fissures/fracture, then:

    a) Pump sealers such as sawdust, nutshells, bentonite pellets, or other commercially available non-toxic products into the drill hole;

    b) Let set for an appropriate period of time (dependent upon sealant used); and

    c) Resume HDD activities.

2. If a fissure/fracture cannot be plugged, then, if practical:

    a) Remove drill pipe from the existing drill hole to a point where a new drill path can be attempted by drilling out of the existing hole and creating a new hole. The original hole will be abandoned and filled with bentonite and cuttings. The cuttings that are returned to the hole should only be equal to those removed from the hole. The return should not be under high pressure, therefore additional releases would not be anticipated.

    b) Resume HDD activities.

3. If the original drill path cannot be utilized:

    a) Abandon the original drill hole by pumping bentonite and cuttings downhole, then seal the top 5 vertical feet with grout. Grouting abandoned drill holes is an industry standard practice and serves to prevent the abandoned hole from disrupting groundwater flow.

    b) Move the drill rig to a new, adjacent location.

    c) Verify that the new, adjacent location meets the requirements of all applicable project permits and approvals. If the new, adjacent location does not meet the requirements of all applicable project permits and approvals, operations will cease until new permits and approvals are received.

    d) Design an alternative alignment for the re-drill.

    e) Begin HDD re-drill activities.

If all HDD attempts fail, then the crossing will be constructed using an alternative method after all necessary permits and approvals have been received. Failure is defined in Section 6.0.

## 6.0 HDD FAILURE AND ABANDONMENT CRITERIA

Gator Express Pipeline considers the failure criteria described below as sufficient reason to abandon the HDD process and install the crossing using an approved alternative method.

### 6.1 PILOT HOLE STEP FAILURE

The HDD installation method will be considered a failure if there are two unsuccessful attempts at completing the pilot hole. If this happens, the HDD Contractor will demobilize its equipment from the site after approval from Gator Express Pipeline.

### 6.2 HOLE OPENING STEP FAILURE

The HDD installation method will be considered a failure if there is one unsuccessful attempt at opening the hole to the required diameter, as long as the failure does not include losing parts of the hole opening tool or loss of the entire hole opening tool downhole. The HDD Contractor will then be allowed 7 working days to attempt to retrieve the missing tool or parts from the hole and continue the hole opening process. If failure occurs, the HDD Contractor will demobilize its equipment from the site after approval from Gator Express Pipeline.

## 6.3 PULLBACK STEP FAILURE

The HDD installation method will be considered a failure if there is one unsuccessful attempt at completing the pullback, unless the pipe can be removed from the hole. In the latter case, a second attempt will be made after the hole has been reopened and reconditioned with any necessary hole opening passes as determined jointly by the HDD Contractor and Gator Express Pipeline. If failure occurs, the HDD Contractor will demobilize its equipment from the site after approval from Gator Express Pipeline.

## 6.4 MECHANICAL BREAKDOWN FAILURE

The HDD installation method will be considered a failure if, at any point during the HDD, the HDD Contractor has a major mechanical breakdown and after either repairing or replacing the broken drilling rig or vital ancillary equipment, the drill pipe, hole opening tool, or pipeline cannot be rotated or pulled. If failure occurs, the HDD Contractor will demobilize its equipment from the site after approval from Gator Express Pipeline.

## 7.0 HDD ABANDONMENT APPROVALS

Gator Express Pipeline will provide on-site inspection during the HDD process to keep adequate documentation, daily progress reports, as-built information, etc., and will describe the events leading up to the HDD failure. Gator Express Pipeline will submit this documentation to the appropriate agencies notifying them of the HDD failure and the schedule for implementing the approved alternate crossing method as described in Section 8.0. The HDD Contractor will not demobilize until Gator Express Pipeline's approval has been received. The alternative crossing method will not be implemented until Gator Express Pipeline has received confirmation that the Federal Energy Regulatory Commission (FERC) and U.S. Army Corps of Engineers (USACE) have received the documentation of HDD failure.

## 8.0 HDD CONTINGENCY

If HDD failure occurs, Gator Express Pipeline will construct the proposed pipeline facilities across both wetland/ waterbody complexes using the open cut trenching method that is described in Gator Express Pipeline's Project-specific Wetland and Waterbody Construction and Mitigation Procedures and is the approved method for crossings outside of the designated HDD areas. Push-pull/float installation will be used where hydrological conditions and sufficient pipeline length make this approach feasible.

Gator Express Pipeline will ensure that the necessary authorizations have been obtained from the appropriate federal (FERC/USACE) and state agencies prior to the implementation of any alternative crossing methods.

## 9.0 REGULATORY CONTACTS

### Agency Notification Requirements

1. U.S. Army Corps of Engineers –
   Safety, Security, and Occupational Health — Phone Number: 504-862-2207
   Construction Division — Phone Number: 504-862-2235

2. Louisiana Department of Environmental Quality –
   Southeast Regional Office (Mike Algero) — Phone Number: 504-736-7701

3. Louisiana Department of Natural Resources –
   Pipeline Incidents Hotline — Phone Number: 225-342-5505

4. Federal Energy Regulatory Commission –
   Hotline: — Phone Number: 202-502-8390

# APPENDIX E

# TRAFFIC SIMULATION STUDY

VENTURE GLOBAL PLAQUEMINES LNG, LLC

KBR

PLAQUEMINES

# TRAFFIC SIMULATION STUDY (CONSTRUCTION PEAK PERSONNEL PERIOD)

## G314
## LNG LIQUEFACTION AND EXPORT PROJECT

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## 1.0 EXECUTIVE SUMMARY

KBR performed a traffic simulation study for the VG Plaquemines LNG facility to assess and mitigate the impact of personnel traffic for the estimated construction peak period with a total of 3,300 craft and management personnel. This document summarizes the basis, methodology, and results of the study.

After the Base Case Scenario was defined and simulated, a Traffic Management Plan (TMP) was derived to address major issues observed. In fact, the Base Case Scenario results indicated potential heavy congestion as a result of undue queues from both construction entrances spilling back into SH-23. A number of alternative scenarios were run until the successful TMP could be formulated. The following is the list of specific TMP actions required during the personnel construction peak periods in order to minimize congestion problems:

- Eliminate traffic checkpoints along the proposed access roads between the designated personnel parking lots and SH-23 to allow free flow conditions
- Control construction personnel traffic demand by limiting the number of available passenger car parking permits on the designated parking lots.
- Designate the secondary site access (northern site access) to be used exclusively by the construction management personnel.
- Construct auxiliary turn lanes (southbound right and northbound left turn lanes) on SH-23 at the proposed intersection with the main site access point (southern site access).
- A police officer will be required to control the proposed intersection of SH-23 and main site access during the commuting rush hours (e.g. 6-7 AM and 5-6 PM).
- Provide a constant onsite bus shuttle service within the rush hours from designated parking lots to actual work locations to encourage uniform passenger car arrivals or departures within those rush hours.
- Restrict any project-generated truck traffic during the personnel commuting time windows at the labor peak period.

## 2.0 INTRODUCTION

KBR developed a Traffic Management Plan for the construction phase of the Venture Global (VG) Plaquemines LNG (PLNG) Project. The plan used a detailed microscopic road traffic simulation model built with Aimsun software by Transport Simulation systems (TSS) to mitigate the impact of the traffic generated during the peak construction personnel period. A base case model was created to represent likely projected conditions and assess traffic impacts for this period. Alternative scenario models were also developed in order to obtain effective congestion mitigation measures addressing specific traffic congestion issues from the base case model. The Traffic Management Plan is comprised of those successful measures.

## 3.0 STUDY BASIS

Based on initial estimates, this project would generate up to 3,300 craft and management personnel for peak period estimated to occur during the peak mechanical phase of construction.

One major construction shift is assumed with personnel arriving or departing within a one hour time window. The Base Case considered unrestricted traffic where everybody drives to the site construction.

Origin (housing) points of the personnel are assumed as follows:

- Craft personnel: 70% come from North SH-23 and 30% come from South SH-23
- Management personnel: 100% come from North SH-23

The following Figure 1 shows the proposed access points along SH-23 to the site. A transportation model was then created using the existing SH-23 configuration after overlaying the proposed intersections. Even though the actual site layout has changed (e.g. combi-walls as opposed to levee), access points shown from this model snapshot are still accurate for this study's purposes.


Figure 1 - Access Points (Traffic Model Snapshot)

Base Case Scenario also includes checkpoints at both entrances with average processing times of 10 seconds per vehicle.

Traffic volumes used were obtained from the following sources:

- Background traffic – obtained from the most recent traffic count data by the Louisiana Department of Transportation and Development (LADOTD) Database.
- Project traffic – Adds the construction peak project generated 3,300 personnel.

The model focuses in the morning peak operations (e.g. from 6:00 to 7:00AM) considered to be critical from the PLNG project construction productivity stand point and also from network impact perspective, once peak morning background traffic is added.

## 4.0 TRAFFIC MODEL RESULTS

### 4.1 Base Case Scenario

As stated before, the Base Case considered unrestricted traffic where everybody could drive to the construction site. Figure 2 shows a screen capture of the simulation model. Base Case Scenario results indicated potential heavy congestion as a result of undue queues from both construction entrances spilling back into SH-23. Such spillback would also create a major impact to background traffic along SH-23. The model also shows that about 44% of the PLNG construction personnel would report to work late (after 7:00AM) creating a direct hit in construction productivity and possibly compromising overall schedule. In summary, Base Case Scenario represented an unacceptable traffic operations impact and performance for both background and project generated traffic.

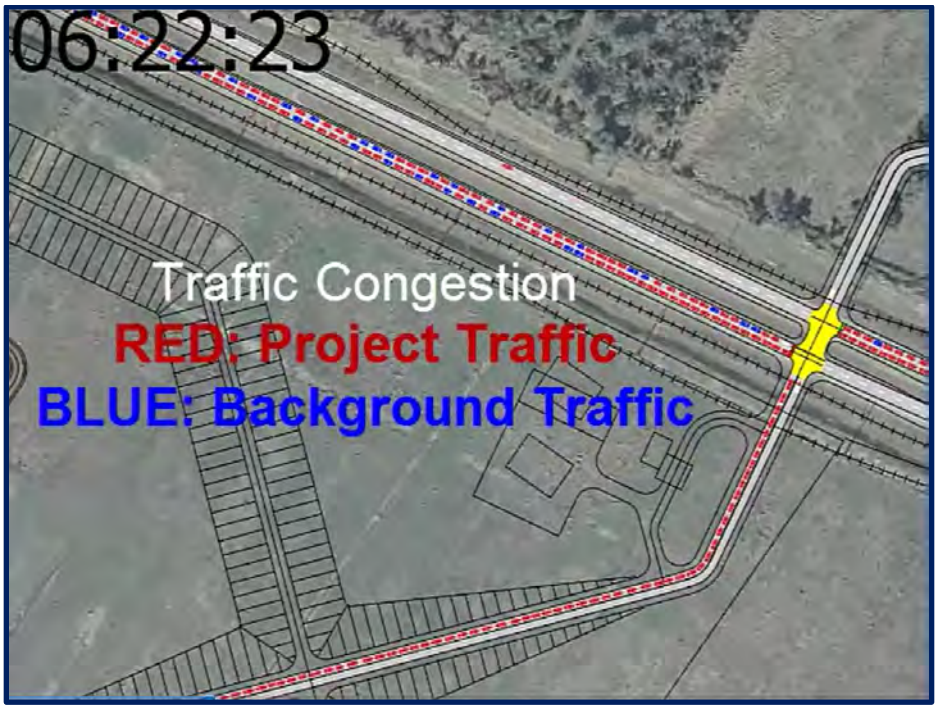



Figure 2 - Base Case Model Snapshot

### 4.2 Traffic Management Plan (TMP) Scenario

After running several alternatives, the following is a number of congestion mitigation measures found to effectively address issues of traffic congestion observed in the Base Case Scenario. The combined group of measures confirmed this scenario model referenced as the Traffic Management Plan. Results from this model confirm that these specific measures would effectively minimize traffic impacts during the labor construction peak period. Figure 3 shows a screen capture of the TMP model, where it can be seen that the red traffic is flowing stable with no queues along the entrances or SH-23. Furthermore, all PLNG construction personnel would report on time.

Note that a video clip of this simulation scenario is available for viewing.


Figure 3– Traffic Management Plan Model Snapshot

## 5.0 TRAFFIC MANAGEMENT PLAN (STUDY RECOMMENDATIONS)

The following is a list of complete congestion mitigation measures that comprise the proposed traffic management plan. It is strongly recommended to implement all of them prior to the construction peak period.

a) Eliminate the need of having any personnel traffic checkpoints along the proposed access roads between the designated personnel parking lots and SH-23. Models clearly demonstrate that such checkpoints would cause traffic queuing to extend beyond the access roads into SH-23. Access control would be maintained at the entrances to the construction site from the parking lot.

b) Control construction personnel traffic demand by limiting the number of available passenger car parking permits on the designated parking lots. This measure is linked to achieve average passenger car occupancy targets of no less than 2.0 persons per car for craft personnel and 1.25 persons per car for management personnel during the manpower peak period.

c) Designate the secondary site access (northern site access) to be used exclusively by the construction management personnel.

d) Construct auxiliary turn lanes (southbound right and northbound left turn lanes) along SH-23 at the proposed intersection with the main site access point (southern site access).

e) A police officer will be required to control the proposed intersection of SH-23 and main site access during the commuting rush hours (e.g. 6-7 AM and 5-6 PM). They will also block the east leg of this intersection leading to the marine offsite facility (no truck traffic is allowed at those times). This will allow control for the temporary T-intersection with just two phases during the morning and afternoon rush hours: 1) northbound/southbound through (with permissive right turns); and, 2) concurrent southbound right turn and northbound left turn movements (for inbound traffic in the morning) or concurrent eastbound right and left turn movements (for outbound traffic in the evening). Operating this intersection with just two phases will significantly improve capacity and simplify the intersection control task. In addition, the construction project is calling for widening the main access road to 50 feet which directly supports multi-lane configuration as required by the concurrent maneuvers for each phase.

f) Provide a continuous onsite bus shuttle service from designated parking lots to actual work locations. Such onsite bus service should run in a constant schedule for no less than one hour before and after the workday in an effort to spread out arrivals/departures of passenger cars to the external network and to operate a reasonable onsite bus fleet size.

g) An integral part of the overall Traffic Management Plan is to minimize the use of external trucks by transporting most construction freight (material, equipment, and modules) via water. To that extend, the project will build two separate site preparation berths to be in operation for Early Works. In addition a dedicated Marine Off-site Facility (MOF) will also be available for the mechanical scope of the project and throughout the labor peak construction period. As a result, truck traffic will be largely stay within the site boundaries of the site and off the public roads.

h) Finally, the plan calls for restricting any project-generated truck traffic during the personnel commuting time windows at the labor peak period.

Note that a video clip illustrating the impact of implementing these suggestions is available for viewing.

# PLAQUEMINES LNG AND GATOR EXPRESS PIPELINE PROJECT
## Resource Report 5
## APPENDIX 5C

## Traffic Management Plan for Pipeline System Construction

ENEngineering®

VENTURE GLOBAL LNG

# Traffic Management Plan for Pipeline Construction

## Gator Express Pipeline Project

**Submitted by:**

**EN Engineering**

**Warrenville, Illinois**

# TABLE OF CONTENTS



**Prepared By:** ENengineering

**EN Engineering Project Number: 157407**

| Revision No. | Prepared By | Date | Checked By | Date | Approved By | Date | Client Approval By | Date | Revision Description |
|---|---|---|---|---|---|---|---|---|---|
| A | ML | 03/22/16 | PT | 03/24/16 | NP | 03/24/16 | | | Issue for Client Review. |
| B | ML | 06/02/16 | PT | 06/03/16 | NP | 12/05/16 | | | Issue for Client Review. |
| C | ML | 06/02/16 | PT | 1/11/17 | NP | 1/13/17 | | | Revision to Table 1.1 |
| D | ML | 02/22/17 | ML | 02/22/17 | NP | 02/22/17 | BF | 02/22/17 | Revised Per Client Comments |

# List of Tables



# List of Figures



# List of Abbreviations and Acronyms

| | |
|---|---|
| Gator Express Pipeline Project | Project |
| Louisiana State Highway 23 | LA-23 |
| Main Line Valve | MLV |
| Meter and Regulator | M&R |
| Permanent Access Road | PAR |
| Right-of-Way | ROW |
| Temporary Access Road | TAR |
| Transportation Plan Exhibit | Exhibit |
| Traffic Management Plan for Pipeline Construction | TMP |
| Venture Global Gator Express, LLC | Gator Express Pipeline |

**GATOR EXPRESS PIPELINE PROJECT**
**TRAFFIC MANAGEMENT PLAN FOR PIPELINE CONSTRUCTION**

# 1. INTRODUCTION

The Gator Express Pipeline Project (Project) will include two natural gas pipeline laterals totaling approximately 26.8 miles in length. Proposed pipeline laterals comprise of two 42-inch-diameter lines (TGP Lateral – 15.1 miles and TETCO Lateral – 11.7 miles). The Project also includes the construction of meter and regulator (M&R) facilities associated with each proposed pipeline lateral. M&R facilities are to be located at proposed custody transfer locations, where natural gas will be received from existing pipelines. It is noteworthy that the TETCO Lateral will be constructed in parallel with the TGP Lateral and installed within a common ditch. See Table 1.1 for a summary of the details mentioned above.

The Project is located on the west side of the Mississippi River within the southern part of Plaquemines Parish, Louisiana. The proposed pipeline rights-of-way (ROW) will traverse varying terrain types including areas of upland, wetland, and open water. The differing types of terrain will dictate the construction methods used to install the proposed pipelines, resulting in various means of gaining access to the Project ROW for labor, equipment, and materials.

This document serves as a Traffic Management Plan (TMP) for Pipeline Construction for the proposed Project. The purpose of this TMP is to:

- Describe how Venture Global Gator Express, LLC (Gator Express Pipeline) will use, improve, and maintain roads for construction of the Project;
- Evaluate potential impacts of construction traffic on public roads and waterways near pipe delivery docks, contractor yards and storage/staging yards; and
- Describe how Gator Express Pipeline will execute equipment/employee access to and from the Project ROW.

Gator Express Pipeline will engage a competent contractor to carry out the construction stage of the Project. Gator Express Pipeline or the Contractor will obtain any permits necessary to use roads/cross roads described herein. The Contractor will adhere to the commitments outlined in this TMP.

**Table 1.1**
**Gator Express Pipeline Project**
**Pipeline Lateral Summary**

| Pipeline Lateral | Outer Diameter (inches) | Total Length (miles) | Approximate Custody Transfer Location (Lat./long.) |
|---|---|---|---|
| | | | |
| TGP Lateral | 42 | 15.05 | N29.242958° / W89.534649° |
| | | | |
| TETCO Lateral | 42 | 11.71 | N29.255748° / W89.553040° |

# 2. TRAFFIC MANAGEMENT

Construction activities will create short term impacts on the Louisiana transportation network. These impacts will be a result of construction activities crossing roads and waterways with the movement of construction personnel, equipment, and materials to Project locations such as the contractor yard, staging areas, designated parking locations, and the Project ROW. The Contractor will institute road signage alerting drivers to pipeline construction activities, as well as utilize flagman, where necessary, when equipment is crossing a road or traveling on a public road. The Contractor will be required to use appropriate signage in the vicinity of work areas and access road entrances, to clearly depict to the public where any potential traffic delays could occur.

Measures will be implemented to reduce impacts that the Project will have on the public transportation network. These measures will include, but are not limited to, utilizing minimally invasive pipeline installation techniques, as well as varying methods of equipment delivery for optimum efficiency. This TMP describes standards for which the Contractor shall follow in an effort to ensure that all federal, state, and local regulations are adhered to.

## 2.1 PUBLIC ROADS AND CONSTRUCTION ACCESS

### 2.1.1 Public Roads

As mentioned, the Project will have minimal impacts on the transportation network within a close proximity of where construction occurs. Walker Road and Louisiana State Highway 23 (LA-23) will experience increased traffic volume. Increased road traffic will be caused mainly by the construction of a pipe bridge over an existing levee and HDD operations for the 42" TGP and TETCO Laterals. A 16-mile stretch of LA-23, south of Walker road and north of the proposed LNG terminal, will be most impacted by construction activity. As may be expected, this activity will consist primarily of semi-trucks traversing to and from the pipe dock location to deliver pipe joints to their designated location. Walker Road will serve as a public road that would provide direct access to the proposed dock location. Limited use of Lake Hermitage Road will be required for the construction of the proposed pipeline laterals. See Figure A-1, in attachment A, for a Transportation Plan Exhibit (Exhibit) which illustrates the Project area and the public roads in the Project vicinity. Additional signage may be considered on Lake Hermitage Road where a variety of construction activities will occur including: a slick bore road crossing operation, construction related to the installation of a Main Line Valve (MLV), and above ground pipe bridge used to cross an existing non-federal levee.

To maintain safe conditions on roads that may be affected by pipeline construction, the Contractor will adhere to all state and county vehicle weight limit regulations and will remove excess soil that is left on the road surface from crossings of construction equipment. In addition, when it is necessary for equipment to cross paved roads, mats or other appropriate measures may be used to minimize damage to the road surface. In dry weather, necessary dust control measures will be taken by the Contractor, specifically on roads with unpaved surfaces such as Walker and Lake Hermitage Roads. If roadways are damaged during construction of the proposed Project, Gator Express Pipeline or its Contractor will repair or reconstruct the damaged roadway to the pre-construction condition.

### 2.1.2 Right-of-Way Access

#### 2.1.2.1 Temporary Access

In order for construction crews to gain access to the Project ROW, Gator Express Pipeline will require the use of one temporary access road (TAR). More specifically, the TAR will provide access for the Contractor to deliver pipe and equipment to the proposed HDD entry and exit sites. This access road will experience both light-duty and heavy-duty traffic due to the delivery of pipe and other major equipment used for construction. Due to existing soil conditions, the TAR may require construction matting or clearing. Upon completion of the Project, Gator Express Pipeline or its Contractor will return the land impacted by the TAR to its pre-construction condition. For additional information on the proposed TAR see Table B-1 (Attachment B).

To ensure the public's awareness, the Contractor will install and maintain appropriate construction fencing in applicable areas where construction access roads are directly adjacent to public access.

#### 2.1.2.2 Permanent Access

Gator Express Pipeline has proposed the construction of one road to be used as a permanent access road (PAR) for the Project. This PAR will be used throughout the lifetime of the pipeline for inspections and maintenance of the MLV facility located within the Project's proposed ROW. The traffic impact associated with these periodical site visits will be negligible and will typically consist of one worker in a pickup truck. VG will obtain the required permit(s) necessary to construct the PAR. Further details on this road are listed in Tables B-1 and B-2 (in Attachment B).

#### 2.1.2.3 Barge Access

Considering that the majority, approximately 25.25 miles, of the proposed pipeline length will be installed within open water, it will be necessary for barges to have access to the construction ROW. It is anticipated that the Contractor will primarily utilize the pipeline construction ROW for barge access. However, the Contractor will have the option to utilize existing canals and open water areas as practicable and will abide by federal, state and local regulations set forth for marine vessels. Figure A-1 in Attachment A illustrates the location of the proposed barge access routes.

### 2.1.3 Road Crossings

Lake Hermitage Road will be the only public road crossed by the lateral pipelines. This road crossing will be accomplished by a slick bore installation method, which will avoid the need to open cut a pipe trench through the existing road. The pipeline will be buried to a depth required by applicable road crossing permits and will be designed to withstand anticipated external loadings. To identify approaching construction, additional signage and traffic control personnel will be required during the installation of the crossing. Should a temporary road closure be required, the Contractor will avoid closing Lake Hermitage Road during peak traffic hours and will coordinate construction activities with appropriate local and state officials to avoid or minimize potential traffic delays/impacts.

## 2.2 PIPE AND EQUIPMENT DELIVERY

### 2.2.1 Pipe Delivery

Semi-truck and barge traffic associated with transporting pipe to the project area could cause delays in traffic flow, but such impacts will be temporary and short term. Pipe will be stored and then barged in from a pipe coating plant, such as the Bayou Coating plant located in New Iberia, Louisiana. It is anticipated that pipe will be delivered by barge, as needed, directly from the pipe coating plant. Depending on the location where the proposed pipe is to be installed, pipe will either be left on the barge and taken directly to lay barges or offloaded at a dock location. The Bayou Coating plant is approximately 150 miles away from the Project area. To reduce impacts associated with semi-truck traffic, Gator Express Pipeline will use barges to transport the pipe on an as needed basis. The location of Bayou Coating, relative to the project vicinity, is illustrated in Figure A-1.

The following quantities are based on specifications allowing pipe to be stacked 3x high and pyramid loaded;

#### 2.2.1.1 Pipe Delivered Directly to TGP/TETCO Lateral ROW

The majority of the pipe used for pipeline construction will arrive by barge and remain on the barge until it is installed through either a barge lay or push-pull type installation method. A rake-haul type barge will be used in conjunction with lay barges for immediate installation in open water areas. The rake-haul type barge is capable of handling an estimate of 45 concrete coated pipe segments which equates to approximately 1,800 linear feet of pipe. In order to maintain a consistent pipe supply, a single barge shipment containing 45 pipe segments will need to be delivered every other day, on average. The impact on marine traffic associated with this barge delivery rate will be minimal, with little effect on existing waterway capacities.

#### 2.2.1.2 Pipe Delivered to Barge Dock Location

Approximately 8,000 feet of pipe for the TGP and TETCO Laterals, will arrive by barge and be unloaded onto semi-trucks at a designated barge dock location. Semi-trucks will deliver the pipe segments to their proper staging location along the pipeline route. Public roads, as well as the TAR and PAR, will be utilized for pipe delivery. Walker Road and LA-23 will serve as the primary routes to and from the barge dock location and the pipe staging area. A box-haul type barge will be used when delivering pipe segments to the barge unloading dock. A box-haul type barge is estimated to carry 80 concrete coated pipe segments or 200 non-concrete coated pipe segments which equates to approximately 3,200 feet and 8,000 feet in length, respectively. It is expected that a full barge shipment will require two 12-hour working days for unloading. The estimated time for pipe unloading applies regardless of concrete coated (1 pipe segment per truck) or non-concrete coated (3 pipe segments per truck) pipe. This will equate to approximately 40 semi-truck trips from the unloading dock to the staging area and back per day. Most pipe delivered to the barge unloading site will be non-concrete coated as the majority of pipe needing to be delivered by trucks will be used for HDD. This type of truck traffic would be expected to last for approximately 2 working days. The Contractor will most likely elect to get ahead of the pipe schedule and store extra pipe within the construction ROW to avoid potential delays. Semi-trucks used for pipe delivery will not utilize the shoulder of public roads at any time throughout construction. Semi-trucks will leave the barge docking location and drive directly to the appropriate pipe staging location.

### 2.2.2 Construction Equipment Delivery

Similar to the delivery of pipe segments via semi-trucks, LA-23 will serve as the main public road used to deliver major construction equipment for the land based portion of the Project. Most equipment, such as excavators, will be delivered by a low-boy type semi-truck trailer directly to either the contractor yard location or to the pipeline construction ROW. Specialty equipment like the Horizontal Directional Drilling (HDD) rig and the crane used to place the proposed pipe bridge will require additional attention and a written plan from the Contractor. As previously stated, Gator Express Pipeline will adhere to all state and county vehicle weight and width limit regulations.

## 2.3 WORKER COMMUTE AND PARKING

The Project will temporarily increase traffic on local road networks due to construction employees commuting to and from work and trucks transporting equipment. Construction workers will likely be located within a 50-mile radius of the Project and will commute to and from the contractor yard or designated employee parking location. It is expected that during peak construction, approximately 100 employee transporting vehicles per day will be mobilized to these locations. These vehicles will be used to transport operators, welders, foremen, inspectors and miscellaneous laborers. Some of these vehicles will travel to the contractor staging yard before proceeding to the ROW. However, many of them, will go directly to a designated parking area near Myrtle Grove Marina. Crew members would be transported, via crew boats, from Myrtle Grove Marina to the Contractor's lay barge(s). Boats transporting workers from land to the lay barges can hold approximately 25 people. Multiple boats, which remain with the crew throughout the work day, will be needed to transport the employees. An estimate of 175 vehicles total (including equipment delivery) will be expected to travel LA-23 on a daily basis during construction.

Vehicle movements will generally occur during the daylight hours, with primary movements occurring between 5:00 AM and 6:00 AM and at 6:00 PM. Typically, the work week is six days, sometimes extending to seven days as required by the workload and construction schedule. During boring, directional drilling, and hydrostatic testing, work will be conducted on a 24-hour basis until the drilling and testing is complete. Vehicles will also be entering and leaving the contractor yard throughout the day. This will include construction management personnel, supply trucks, and vendors. Further, due to the linear and progressive nature of pipeline construction, workers will be dispersed along the ROW, and disruptions to traffic on local roads will be limited to short durations at any given location.

# 3. CONSTRUCTION METHODS

The Contractor will utilize three construction methods to install the proposed TGP and TETCO Laterals. The following table illustrates the average construction site duration, truck traffic and the anticipated increase in barge traffic (for delivery of pipe) associate with each installation method. The daily truck and barge traffic values, shown in the table below, represent a per day average required to maintain the corresponding installation method with no excessive pipe storage or deficit. For instance, an HDD site will require an average of 7.5 pipe segments per day. Since a barge is estimated to ship 200 non-concrete coated pipe segment per load, the estimated barge delivery per day is 0.04.

**Gator Express Pipeline Project**
**Construction Related Traffic**

| Pipeline Construction Operation | Average Site Duration (days) | Average Daily Semi-Truck Traffic (Trucks - Ea.) | Average Daily Barge Traffic (Barges - Ea.) |
|---|---|---|---|
| HDD | 14 | 2.5 | 0.038 |
| Push-Pull | 27 | 0 | 0.67 |
| Barge Lay | 31.25 | 0 | 0.5 |

## 3.1 HDD SITES

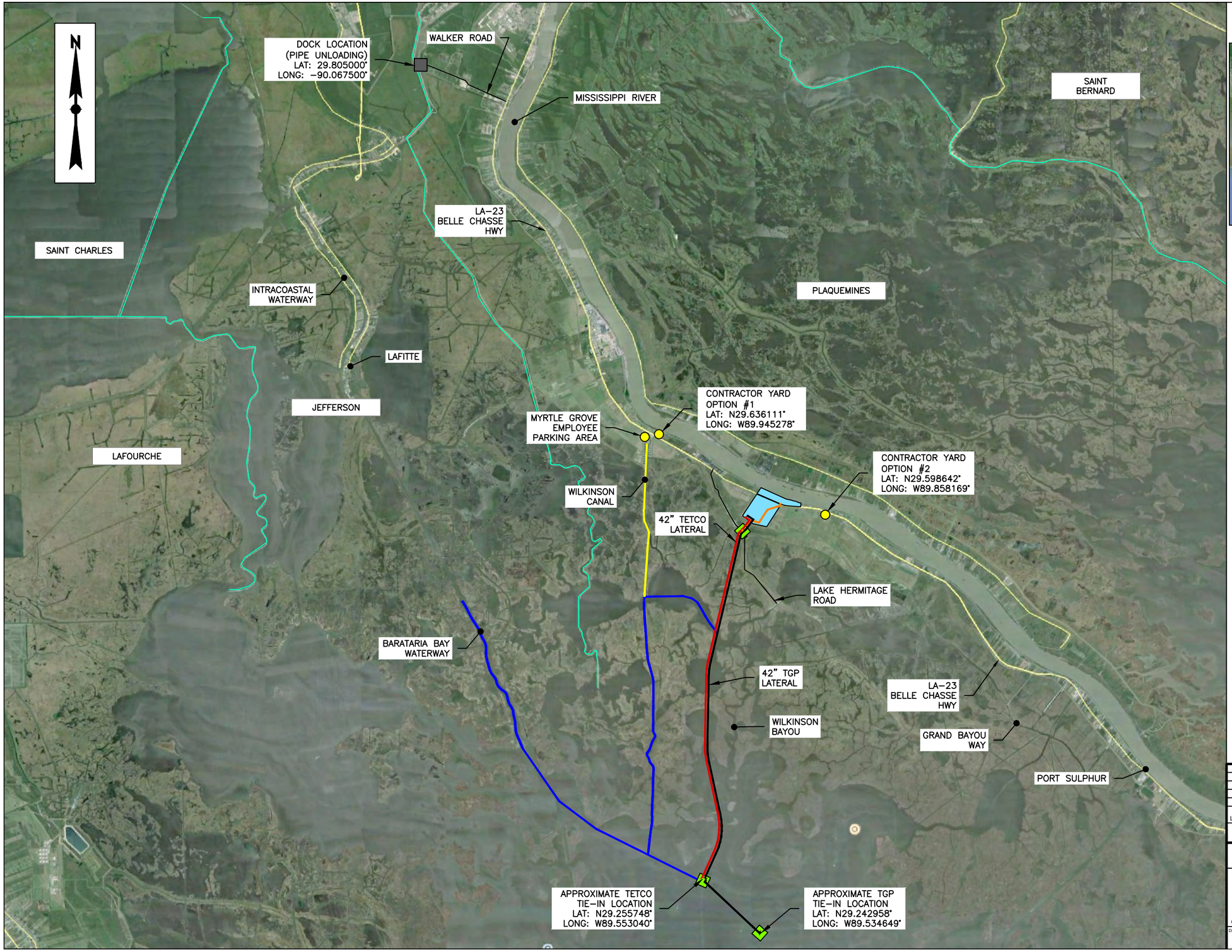
HDD equipment will be delivered on a low boy style semi-truck trailer and upon drill completion will be demobilized. Approximately 15-20 workers will be present onsite during HDD construction activities. It is anticipated that the Contractor will organize buses or car pool to the worksite and the increased traffic impact should not pose an issue as the workers will be arriving early in the morning and departing the work site during evening hours.

## 3.2 PUSH SITE LOCATIONS

The push site required to install the pipelines through approximately 3 miles of wetland terrain will operate from mechanically linked stationary barges. Necessary equipment will be delivered by barge and will remain on the barge until the push operation is completed. Approximately 40-50 workers will be present onsite during construction activities. It is anticipated that the Contractor will organize boats to get workers to the worksite, the increased traffic impact should not pose an issue as the workers will be arriving early in the morning and departing the work site during evening hours.

## 3.3 CONVENTIONAL/UPLAND LOCATIONS

Site clearing, trench excavating and site restoration is considered the bulk of the upland construction operation. Equipment will access the pipeline construction ROW from proposed a TAR and temporary work areas. Contractor will most likely utilize traditional open cut trenching methods to install the proposed pipeline in upland areas. Approximately 10-15 workers will be present onsite during upland construction activities, this includes all support personnel.





SCALE
1"=40 MILES

LEGEND

- DOCK
- CONTRACTOR YARD
- EMPLOYEE PARKING
- METER STATION
- TERMINAL BOUNDARY
- PROPOSED 42" TETCO LATERAL
- PROPOSED 42" TGP LATERAL
- PROPOSED EMPLOYEE TRANSPORT ROUTE
- BARGE ACCESS ROUTE
- PERMANENT/TEMPORARY ACCESS ROAD
- PARISH BOUNDARY
- PARISH — PARISH LOCATION

0 3 6
1" = 3 MILES

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| REV. LEVEL | DATE | BY | DESCRIPTION | CK. | APP. |
|---|---|---|---|---|---|
| A | 12/5/16 | RJL | ISSUED FOR REVIEW | TB | |

REVISIONS

# GATOR EXPRESS PIPELINE PROJECT
## TRANSPORTATION PLAN EXHIBIT
## PLAQUEMINES PARISH, LA

COUNTY STATE

| DATE: | SCALE: | DRAWN BY: | LOC. NO: | DRAWING NUMBER: | SHEET NO: | REV: |
|---|---|---|---|---|---|---|
| 02/18/16 | 1"= 3 MILES | RJL | LOC | PLAPL-M-500 | 0 | A |

ATTACHMENT – B

# ACCESS ROAD DATA

**Table B-1 TGP / TETCO Lateral Access Road Table**

| | Approximate Location | Road Name | Access Road Length | Width | Access Road Class | Access Road Area | Area Disturbed | Perm. Fill | Temp. Fill |
|---|---|---|---|---|---|---|---|---|---|
| | Station # / TGP MP | Access # | ft | ft | Permanent / Temp. | Acre | Acre | Cubic ft | Cubic ft |
| PAR 1 | 760+00 / 14.4 | Permanent Access Road 1 | 50 | 20 | Permanent | 0.02 | 0.02 | 511.00 | 0.00 |
| TAR 1 | 767+19 / 14.53 | Temporary Access Road 1 | 8,565 | 24 | Temporary | 4.72 | 0.73 | 0.00 | 26,333.33 |
| | | | | | TOTALS = | 4.74 | 0.75 | 511.00 | 26,333.33 |

**Existing Conditions / Required Improvement**

PAR 1 Currently undisturbed, construct 20' wide permanent access road.

TAR 1 Currently undisturbed. Existing conditions are suitable to support timber access road. Majority of impacts associated with TAR 1 occur within LNG terminal property.

**Table B-2: TGP / TETCO Lateral Road Crossing Data**

| Approximate Location | Crossing Method | Road Name | Road Type | Access From - | Temporary Fill (see Typ. 1.3-15e) | | Perm. Fill |
|---|---|---|---|---|---|---|---|
| Station # / TGP MP | HDD or Open Cut | Road, Street, Access | Paved/Unpaved/Access | Off Main Road | Aggregate Fill (cft) | Board Bridge (cft) | Aggregate (cft) |
| 761+00 / 14.4 | Slick Bore | Lake Hermitage Road | Public - Unpaved | HWY 23 | 0 | 0 | 0 |
| | | | | **Total** | 0.0 | 0.0 | 0.0 |

Note that two slick bore crossing operations will occur at Lake Hermitage Road (TGP & TETCO Laterals)

# APPENDIX F

# AIR PERMIT BACT SUMMARY

## *Appendix F Table 1*

## *BACT Summary from Air Permit Application*
## *July 2017*

| Emissions Source | Pollutant | Proposed Emissions Controls | Proposed Emission Limits for Each Individual Source | | |
|---|---|---|---|---|---|
| Gas-fired Combined Cycle Turbines and Associated Duct Burners (CCCT1, CCCT2, CCCT3, CCCT4, CCCT5, CCCT6, CCCT7, CCCT8, CCCT9, CCCT10) | $NO_X$ | ◦ Dry Low-$NO_X$ Combustor Design will be Used on Each Turbine<br>◦ Low $NO_X$ Burners will be Installed on the Turbine Duct Burners | 2.5 | ppmv at 15% $O_2$ | Limit Based on 30 Day Rolling Average During Normal Operations |
| | | ◦ Selective Catalytic Reduction (SCR) will be Installed on the Turbine System | 10.5 | lb/hr | Limit Based on 30 Day Rolling Average Duct Burner and CC Turbine Operation |
| | | ◦ Good Combustion Practices | 51.5 | lb/hr | Limit Based on 2-Hour Average During Cold Start |
| | | | 48.7 | lb/hr | Limit Based on 1-Hour Average During Warm Start |
| | | | 48.7 | lb/hr | Limit Based on 1-Hour Average During Shutdown |
| | CO | ◦ Catalytic Oxidation<br>◦ Proper Equipment Design | 5 | ppmv at 15% $O_2$ | Limit Based on 30 Day Rolling Average During Normal Operations |
| | | ◦ Proper Operation | 12.8 | lb/hr | Limit Based on 30 Day Rolling Average Duct Burner and CC Turbine Operation |
| | | ◦ Good Combustion Practices | 18.9 | lb/hr | Limit Based on 2-Hour Average During Cold Start |
| | | | 13.6 | lb/hr | Limit Based on 1-Hour Average During Warm Start |
| | | | 13.6 | lb/hr | Limit Based on 1-Hour Average During Shutdown |
| | PM / $PM_{10}$ / $PM_{2.5}$ | ◦ Exclusive Combustion of Gaseous Fuel | 8.0 | lb/hr | Limit Based on 3-Hour Average Duct Burner and CC Turbine Operation |
| | | ◦ Good Combustion Practices Including Proper Burner Design | 6.3 | lb/hr | Limit Based on 2-Hour Average During Cold Start |
| | | | 6.3 | lb/hr | Limit Based on 1-Hour Average During Warm Start |
| | | | 6.3 | lb/hr | Limit Based on 1-Hour Average During Shutdown |
| | $SO_2$ | ◦ Exclusive Combustion of Low Sulfur Fuels | 4 | ppmv $H_2S$ | Based on Annual Average of $H_2S$ Content in Fuel |
| | | ◦ Proper Equipment Design and Operation | 0.7 | lb/hr | Limit Based on Annual Average Duct Burner and CC Turbine Operation |
| | | | 0.3 | lb/hr | Limit Based on Annual Average During Cold Start |
| | | | 0.3 | lb/hr | Limit Based on Annual Average During Warm Start |
| | | | 0.3 | lb/hr | Limit Based on Annual Average During Shutdown |
| | VOC | ◦ Catalytic Oxidation | 1.1 | ppmv @ 15% $O_2$ | Limit Based on 3-Hour Average During Normal Operations |
| | | ◦ Combustion of Gaseous Fuel | 2.2 | lb/hr | Limit Based on 3-Hour Average Duct Burner and CC Turbine Operation |
| | | ◦ Good Combustion Practices | 0.7 | lb/hr | Limit Based on 2-Hour Average During Cold Start |
| | | ◦ Combustor Process Design with Proper Operation | 0.6 | lb/hr | Limit Based on 1-Hour Average During Warm Start |
| | | | 0.6 | lb/hr | Limit Based on 1-Hour Average During Shutdown |
| | $CO_2e$ | ◦ Exclusively Combust Low Carbon Fuel Gas<br>◦ Good Combustion Practices<br>◦ Proper O&M Practices<br>◦ Insulation will be Properly Implemented for Surfaces Above 120 °F | 520,455 | tpy | Based on Annual Total per Turbine |
| Gas-fired Simple Cycle Turbines (SCCT1, SCCT2, SCCT3, SCCT4) | $NO_X$ | ◦ Dry Low-$NO_X$ Combustor Design will be Used on Each Turbine<br>◦ Good Combustion Practices | 9 | ppmv at 15% $O_2$ | Limit Based on 30 Day Rolling Average During Normal Operations |
| | | ◦ Combustion of Natural Gas | 31.21 | lb/hr | Limit Based on 30 Day Rolling Average During Normal Operations |
| | | | 54.6 | lb/hr | Limit Based on 2-Hour Average During Cold Start |
| | | | 54.6 | lb/hr | Limit Based on 1-Hour Average During Warm Start |
| | | | 54.6 | lb/hr | Limit Based on 1-Hour Average During Shutdown |
| | CO | ◦ Combustor Process Design<br>◦ Proper Operation | 25 | ppmv at 15% $O_2$ | Limit Based on 30 Day Rolling Average During Normal Operations |
| | | ◦ Good Combustion Practices | 52.78 | lb/hr | Limit Based on 30 Day Rolling Average During Normal Operations |
| | | | 24.3 | lb/hr | Limit Based on 2-Hour Average During Cold Start |
| | | | 24.3 | lb/hr | Limit Based on 1-Hour Average During Warm Start |
| | | | 24.3 | lb/hr | Limit Based on 1-Hour Average During Shutdown |
| | PM / $PM_{10}$ / $PM_{2.5}$ | ◦ Exclusive Combustion of Natural Gas | 4.9 | lb/hr | Limit Based on 3-Hour Average During Normal Operations |
| | | ◦ Good Combustion Practices Including Proper Burner Design | 3.9 | lb/hr | Limit Based on 2-Hour Average During Cold Start |
| | | | 3.9 | lb/hr | Limit Based on 1-Hour Average During Warm Start |
| | | | 3.9 | lb/hr | Limit Based on 1-Hour Average During Shutdown |
| | $SO_2$ | ◦ Exclusive Combustion of Low Sulfur Interstate Pipeline Quality Natural Gas | 4 | ppmv $H_2S$ | Based on Annual Average of $H_2S$ Content in Fuel |
| | | ◦ Proper Equipment Design and Operation | 0.60 | lb/hr | Limit Based on Annual Average During Normal Operations |
| | | | 0.3 | lb/hr | Limit Based on Annual Average During Cold Start |
| | | | 0.3 | lb/hr | Limit Based on Annual Average During Warm Start |
| | | | 0.3 | lb/hr | Limit Based on Annual Average During Shutdown |
| | VOC | ◦ Combustor Process Design | 1.4 | ppmv @ 15% $O_2$ | Limit Based on 3-Hour Average During Normal Operations |
| | | ◦ Proper Operation | 1.7 | lb/hr | Limit Based on 3-Hour Average During Normal Operations |
| | | ◦ Good Combustion Practices | 0.7 | lb/hr | Limit Based on 2-Hour Average During Cold Start |
| | | ◦ Combustion of Natural Gas | 0.7 | lb/hr | Limit Based on 1-Hour Average During Warm Start |
| | | | 0.7 | lb/hr | Limit Based on 1-Hour Average During Shutdown |
| | $CO_2e$ | ◦ Exclusively Combust Low Carbon Fuel Gas<br>◦ Good Combustion Practices<br>◦ Proper O&M Practices<br>◦ Insulation will be Properly Implemented for Surfaces Above 120 °F | 475,382 | tpy | Based on Annual Total per Turbine |

## *Appendix F Table 1*

## *BACT Summary from Air Permit Application*
## *July 2017*

| Emissions Source | Pollutant | Proposed Emissions Controls | Proposed Emission Limits for Each Individual Source | | |
|---|---|---|---|---|---|
| Smaller Aeroderivative Simple Cycle Combustion Turbines (ASCCT1 and ASCCT2) | $NO_X$ | ◦ Selective Catalytic Reduction (SCR) will be Installed on the Turbine System<br>◦ Good Combustion Practices | 2.5 | ppmv at 15% $O_2$ | Limit Based on 30 Day Rolling Average During Normal Operations |
| | | | 2.5 | lb/hr | Limit Based on 30 Day Rolling Average During Normal Operation |
| | | | 15.4 | lb/hr | Limit Based on 2-Hour Average During Cold Start |
| | | | 13.9 | lb/hr | Limit Based on 1-Hour Average During Warm Start |
| | | | 13.9 | lb/hr | Limit Based on 1-Hour Average During Shutdown |
| | CO | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 36 | ppmv at 15% $O_2$ | Limit Based on 30 Day Rolling Average During Normal Operations |
| | | | 21.6 | lb/hr | Limit Based on 30 Day Rolling Average During Normal Operation |
| | | | 9.0 | lb/hr | Limit Based on 2-Hour Average During Cold Start |
| | | | 9.0 | lb/hr | Limit Based on 1-Hour Average During Warm Start |
| | | | 9.0 | lb/hr | Limit Based on 1-Hour Average During Shutdown |
| | PM / $PM_{10}$ / $PM_{2.5}$ | ◦ Exclusive Combustion of Gaseous Fuel | 4.5 | lb/hr | Limit Based on 3-Hour Average During Normal Operations |
| | | ◦ Good Combustion Practices Including Proper Burner Design | 1.8 | lb/hr | Limit Based on 2-Hour Average During Cold Start |
| | | | 1.8 | lb/hr | Limit Based on 1-Hour Average During Warm Start |
| | | | 1.8 | lb/hr | Limit Based on 1-Hour Average During Shutdown |
| | $SO_2$ | ◦ Exclusive Combustion of Low Sulfur Fuels<br>◦ Proper Equipment Design and Operation | 4 | ppmv $H_2S$ | Based on Annual Average of $H_2S$ Content in Fuel |
| | | | 0.17 | lb/hr | Limit Based on Annual Average During Normal Operation |
| | | | 0.09 | lb/hr | Limit Based on Annual Average During Cold Start |
| | | | 0.09 | lb/hr | Limit Based on Annual Average During Warm Start |
| | | | 0.09 | lb/hr | Limit Based on Annual Average During Shutdown |
| | VOC | ◦ Combustion of Gaseous Fuel | 1.5 | ppmv @ 15% $O_2$ | Limit Based on 3-Hour Average During Normal Operations |
| | | ◦ Good Combustion Practices | 0.51 | lb/hr | Limit Based on 3-Hour Average During Normal Operation |
| | | | 0.22 | lb/hr | Limit Based on 2-Hour Average During Cold Start |
| | | | 0.22 | lb/hr | Limit Based on 1-Hour Average During Warm Start |
| | | | 0.22 | lb/hr | Limit Based on 1-Hour Average During Shutdown |
| | $CO_2e$ | ◦ Exclusively Combust Low Carbon Fuel Gas<br>◦ Good Combustion Practices<br>◦ Proper O&M Practices<br>◦ Insulation will be Properly Implemented for Surfaces Above 120 °F | 134,901 | tpy | Based on Annual Total per Turbine |
| Hot Oil Heaters (HOH1, HOH2, HOH3, HOH4, HOH5, HOH6) | $NO_X$ | ◦ Ultra Low $NO_X$ Burners<br>◦ Good Combustion Practices | 0.038 | lb/MMBtu | Based on 3-Hour Average |
| | CO | ◦ Exclusive Combustion of Fuel Gas<br>◦ Good Combustion Practices | 0.08 | lb/MMBtu | Based on 3-Hour Average |
| | PM / $PM_{10}$ / $PM_{2.5}$ | ◦ Exclusive Combustion of Fuel Gas<br>◦ Good Combustion Practices Including Proper Burner Design | 0.0075 | lb/MMBtu | Based on 3-Hour Average |
| | $SO_2$ | ◦ Exclusive Combustion of Low Sulfur Fuel Gas<br>◦ Proper Engineering Practices | 0.0006 | lb/MMBtu | Based on 3-Hour Average |
| | VOC | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices<br>◦ Exclusive Combustion of Fuel Gas | 0.0054 | lb/MMBtu | Based on 3-Hour Average |
| | $CO_2e$ | ◦ Exclusive Combustion of Low-Carbon Fuel Gas<br>◦ Good Combustion Practices<br>◦ Good O&M Practices<br>◦ Insulation Will be Implemented for Surfaces above 120 °F. | 104,114 | tpy | Based on Annual Total |
| Acid Gas Thermal Oxidizers (AGTO1, AGTO2, AGTO3, AGTO4) | $NO_X$ | ◦ Low NOx Burners<br>◦ Good Combustion Practices | 0.138 | lb/MMBtu | Based on 3-Hour Average |
| | CO | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.082 | lb/MMBtu | Based on 3-Hour Average |
| | PM / $PM_{10}$ / $PM_{2.5}$ | ◦ Exclusive Combustion of Fuel Gas<br>◦ Good Combustion Practices | 0.0075 | lb/MMBtu | Based on 3-Hour Average |
| | $SO_2$ | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Monitoring the Sulfur Content at the Facility Inlet | 27.17 | ppm at 68°F | Based on 3-Hour Average |
| | VOC | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices<br>◦ Exclusive Combustion of Fuel Gas | 0.009 | lb/MMBtu | Based on 3-Hour Average |
| | $CO_2e$ | ◦ Exclusive Combustion of Low-Carbon Fuel Gas<br>◦ Good Combustion Practices<br>◦ Good O&M Practices<br>◦ Insulation Will be Implemented for Surfaces above 120 °F. | 384,350 | tpy | Based on Annual Total |

## *Appendix F Table 1*

## *BACT Summary from Air Permit Application*
## *July 2017*

| Emissions Source | Pollutant | Proposed Emissions Controls | Proposed Emission Limits for Each Individual Source | | |
|---|---|---|---|---|---|
| Large (>560kW) Essential Emergency Generators (EGEN1-EGEN12) | NOx | ◦ Good Combustion and Operating Practices<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 100 Hours per Year<br>◦ An Ignition Timing Retard will be Installed on Each Engine | 5.61 | g/kW-hr | |
| | CO | ◦ Good Combustion and Operating Practices<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 100 Hours per Year | 3.5 | g/kW-hr | |
| | PM / $PM_{10}$ / $PM_{2.5}$ | ◦ Good Combustion and Operating Practices<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 100 Hours per Year | 0.20 | g/kW-hr | |
| | $SO_2$ | ◦ Ultra-low Sulfur Diesel Fuel with Sulfur Content of 15 ppmv not to be Exceeded (40 CFR 60 Subpart IIII)<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 100 Hours per Year | 1.2E-05 | lb/hp-hr | |
| | VOC | ◦ Good Combustion and Operating Practices<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 100 Hours per Year | 0.79 | g/kW-hr | |
| | $CO_2e$ | ◦ Good Combustion Practices<br>◦ Good O&M Practices<br>◦ Insulation Will be Implemented for Surfaces above 120 °F.<br>◦ Limiting Normal Operations to 100 Hours per Year | 2,411 | tpy | Based on Annual Total |
| 500 kW Essential Emergency Generators( EGEN13/MJ001G Admin and EGEN14/MJ002H Jetty) | NOx | ◦ Good Combustion and Operating Practices<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 100 Hours per Year<br>◦ An Ignition Timing Retard will be Installed on Each Engine | 3.50 | g/kW-hr | |
| | CO | ◦ Good Combustion and Operating Practices<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 100 Hours per Year | 3.5 | g/kW-hr | |
| | PM / $PM_{10}$ / $PM_{2.5}$ | ◦ Good Combustion and Operating Practices<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 100 Hours per Year | 0.20 | g/kW-hr | |
| | $SO_2$ | ◦ Ultra-low Sulfur Diesel Fuel with Sulfur Content of 15 ppmv not to be Exceeded (40 CFR 60 Subpart IIII)<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 100 Hours per Year | 1.2E-05 | lb/hp-hr | |
| | VOC | ◦ Good Combustion and Operating Practices<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 100 Hours per Year | 0.50 | g/kW-hr | |
| | $CO_2e$ | ◦ Good Combustion Practices<br>◦ Good O&M Practices<br>◦ Insulation Will be Implemented for Surfaces above 120 °F.<br>◦ Limiting Normal Operations to 100 Hours per Year | 81 | tpy | Based on Annual Total |
| Firewater Pumps (FRPMP1 and FRPMP2) | NOx | ◦ Good Combustion and Operating Practices<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 52 Hours per Year<br>◦ An Ignition Timing Retard will be Installed on Each Pump | 2.62 | g/hp-hr | |
| | CO | ◦ Good Combustion and Operating Practices<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 52 Hours per Year | 3.50 | g/hp-hr | |
| | PM / $PM_{10}$ / $PM_{2.5}$ | ◦ Good Combustion and Operating Practices<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 52 Hours per Year | 0.15 | g/hp-hr | |
| | $SO_2$ | ◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 52 Hours per Year | 0.04 | lb/gal | |
| | VOC | ◦ Good Combustion and Operating Practices<br>◦ Compliance with 40 CFR Part 60 Subpart IIII<br>◦ Limiting Normal Operations to 52 Hours per Year | 0.38 | g/hp-hr | |
| | $CO_2e$ | ◦ Good Combustion Practices<br>◦ Good O&M Practices<br>◦ Insulation Will be Implemented for Surfaces above 120 °F.<br>◦ Limiting Normal Operations to 52 Hours per Year | 28.18 | tpy | Based on Annual Total |

## *Appendix F Table 1*

## *BACT Summary from Air Permit Application*
## *July 2017*

| Emissions Source | Pollutant | Proposed Emissions Controls | Proposed Emission Limits for Each Individual Source | | |
|---|---|---|---|---|---|
| Equipment Leaks (FUG) | VOC | ◦ Proper Piping Design<br>◦ The Provisions of LAC 33:III.2111 will be Followed | 2.3 | tpy | Based on Annual Total |
| | $CO_2e$ | ◦ Proper Piping Design | 6,500 | tpy | Based on Annual Total |
| Cold Flare Pilot (CLDFLR Pilot) | $NO_X$ | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.068 | lb/MMBtu | When Flare is Operating |
| | CO | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.310 | lb/MMBtu | When Flare is Operating |
| | PM / PM10 / PM2.5 | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.0070 | lb/MMBtu | When Flare is Operating |
| | $SO_2$ | ◦ Proper Equipment Design and Operation<br>◦ Combustion of Low Sulfur Gas in Pilot<br>◦ Good Combustion Practices | 4 | ppmv $H_2S$ | When Flare is Operating |
| | VOC | ◦ Good Combustion Practices | 0.218 | lb/hr | When Flare is Operating |
| | $CO_2e$ | ◦ Good Management Practices and Proper Flare Design | 979 | tpy | Based on Annual Total |
| Warm Flare Pilot (WRMFLR Pilot) | $NO_X$ | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.068 | lb/MMBtu | When Flare is Operating |
| | CO | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.310 | lb/MMBtu | When Flare is Operating |
| | PM / PM10 / PM2.5 | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.0070 | lb/MMBtu | When Flare is Operating |
| | $SO_2$ | ◦ Proper Equipment Design and Operation<br>◦ Combustion of Low Sulfur Gas in Pilot<br>◦ Good Combustion Practices | 4 | ppmv $H_2S$ | When Flare is Operating |
| | VOC | ◦ Good Combustion Practices | 0.218 | lb/hr | When Flare is Operating |
| | $CO_2e$ | ◦ Good Management Practices and Proper Flare Design | 979 | tpy | Based on Annual Total |
| LP Vent Pilot (LPFLR Pilot) | $NO_X$ | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.068 | lb/MMBtu | When Flare is Operating |
| | CO | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.310 | lb/MMBtu | When Flare is Operating |
| | PM / PM10 / PM2.5 | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.0070 | lb/MMBtu | When Flare is Operating |
| | $SO_2$ | ◦ Proper Equipment Design and Operation<br>◦ Combustion of Low Sulfur Gas in Pilot<br>◦ Good Combustion Practices | 4 | ppmv $H_2S$ | When Flare is Operating |
| | VOC | ◦ Good Combustion Practices | 0.218 | lb/hr | When Flare is Operating |
| | $CO_2e$ | ◦ Good Management Practices and Proper Flare Design | 979 | tpy | Based on Annual Total |
| Marine Flare Pilot (MFLR Pilot) | $NO_X$ | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.068 | lb/MMBtu | When Flare is Operating |
| | CO | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.310 | lb/MMBtu | When Flare is Operating |
| | PM / PM10 / PM2.5 | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.0070 | lb/MMBtu | When Flare is Operating |
| | $SO_2$ | ◦ Proper Equipment Design and Operation<br>◦ Combustion of Low Sulfur Gas in Pilot<br>◦ Good Combustion Practices | 4 | ppmv $H_2S$ | When Flare is Operating |
| | VOC | ◦ Good Combustion Practices | 0.218 | lb/hr | When Flare is Operating |
| | $CO_2e$ | ◦ Good Management Practices and Proper Flare Design | 979 | tpy | Based on Annual Total |

## *Appendix F Table 1*

## *BACT Summary from Air Permit Application*
## *July 2017*

| Emissions Source | Pollutant | Proposed Emissions Controls | Proposed Emission Limits for Each Individual Source | | |
|---|---|---|---|---|---|
| Cold Flare MSS (includes Purge) (CLDFLR MSS) | $NO_X$ | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 139.6 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | CO | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 636.3 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | PM / PM10 / PM2.5 | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 15.2 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | $SO_2$ | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 1.4 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | VOC | ◦ Good Combustion Practices | 42.2 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | $CO_2e$ | ◦ Good Management Practices and Proper Flare Design | 14,441 | tpy | Based on Annual Total |
| Warm Flare MSS (includes Purge) (WRMFLR MSS) | $NO_X$ | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 232.5 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | CO | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 1,060.0 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | PM / PM10 / PM2.5 | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 25.3 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | $SO_2$ | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 2.3 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | VOC | ◦ Good Combustion Practices | 70.2 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | $CO_2e$ | ◦ Good Management Practices and Proper Flare Design | 14,836 | tpy | Based on Annual Total |
| LP Flare MSS (includes Purge) (LPFLR MSS) | $NO_X$ | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 24.9 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | CO | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 113.6 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | PM / PM10 / PM2.5 | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 2.7 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | $SO_2$ | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices | 0.3 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | VOC | ◦ Good Combustion Practices | 7.7 | lb/hr | Maintenance/Start up/Shutdown Operations |
| | $CO_2e$ | ◦ Good Management Practices and Proper Flare Design | 13,980 | tpy | Based on Annual Total |
| Marine Loading Flare Gassing Up Operations (MFGU) | $NO_X$ | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices<br>◦ Marine Gas Recovery for Loading Return Gas with Methane Content of 80% or Greater | 19.6 | lb/hr | Gassing Up Operations |
| | CO | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices<br>◦ Marine Gas Recovery for Loading Return Gas with Methane Content of 80% or Greater | 89.1 | lb/hr | Gassing Up Operations |
| | PM / PM10 / PM2.5 | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices<br>◦ Marine Gas Recovery for Loading Return Gas with Methane Content of 80% or Greater | 2.2 | lb/hr | Gassing Up Operations |
| | $SO_2$ | ◦ Proper Equipment Design<br>◦ Proper Operation<br>◦ Good Combustion Practices<br>◦ Marine Gas Recovery for Loading Return Gas with Methane Content of 80% or Greater | 0.2 | lb/hr | Gassing Up Operations |
| | VOC | ◦ Good Combustion Practices<br>◦ Marine Gas Recovery for Loading Return Gas with Methane Content of 80% or Greater | 0.4 | lb/hr | Gassing Up Operations |
| | $CO_2e$ | ◦ Good Management Practices and Proper Flare Design<br>◦ Marine Gas Recovery for Loading Return Gas with Methane Content of 80% or Greater | 4,045 | tpy | Based on Annual Total |

## *Appendix F Table 1*

## *BACT Summary from Air Permit Application*
## *July 2017*

| Emissions Source | Pollutant | Proposed Emissions Controls | Proposed Emission Limits for Each Individual Source | | |
|---|---|---|---|---|---|
| Pipeline Pigging | VOC | ◦ Limit number of pipeline pigging activities to six per year<br>◦ Flare | 0.00142 | tpy | Based on Annual Total |
| | $CO_2e$ | ◦ Limit number of pipeline pigging activities to six per year | 0.39 | tpy | Based on Annual Total |
| Concete Bin Vents (CBV1, CBV2, CBV3) | PM / $PM_{10}$ | ◦ Any present storage silos or/and weigh hoppers will use cartridge filters | 0.01 | gr/dscf | Applicable to Point Source (Storage Silos and Weigh Hoppers with Cartridge Filters) |
| Batch Concrete Operations | PM / $PM_{10}$ | ◦ Aggregate supplier to provide on-site delivery of aggregate that is pre-washed | 4 | tpy PM | Based on Annual Total |
| | | ◦ Water sprays on all aggregate and sand storage and handling operations | 3 | tpy $PM_{10}$ | Based on Annual Total |
| Batch Concrete Non-Emergency Engines (CBGEN1, CBGEN2, CBGEN3) | NOx | ◦ Good Combustion and Operating Practices<br>◦ Selective Catalytic Reduction in Compliance with Tier 4 Standards | 0.40 | g/kW-hr | |
| | CO | ◦ Proper Engine Design and Operation with Good Combustion Practices<br>◦ Exclusively Combust Diesel for Improved Combustion Efficiency<br>◦ Oxidation Catalyst in Compliance with Tier 4 Standards | 3.5 | g/kW-hr | |
| | PM / $PM_{10}$ / $PM_{2.5}$ | ◦ Exclusively Combust Diesel for Improved Combustion Efficiency<br>◦ Proper Engine Design and Operation<br>◦ Each Generator will be Equipped with a Diesel Particulate Filter | 0.20 | g/kW-hr | |
| | $SO_2$ | ◦ Ultra-low Sulfur Diesel Fuel with Sulfur Content of 15 ppmv not to be Exceeded<br>◦ Proper Engine Design and Operation with Good Combustion Practices | 3.7E-04 | lb/hp-hr | |
| | VOC | ◦ Oxidation Catalyst in Compliance with Tier 4 Standards<br>◦ Proper Engine Design and Operation with Good Combustion Practices | 0.19 | g/kW-hr | |
| | $CO_2e$ | ◦ Good Combustion Practices<br>◦ Good O&M Practices<br>◦ Insulation Will be Implemented for Surfaces above 120 °F. | 1,226 | tpy | Based on Annual Total |
| Diesel Fuel Storage Tank 1 and 2 (DFST1, DFST2) | VOC | ◦ Follow the best practical house keeping and maintenance practices as specified in LAC 33:III.2113 | 1.83E-01 | tpy per tank | Based on Annual Total |
| Amine (DEA) Solvent Surge Storage Tank 1 and 2 (SSST1, SSST2) | VOC | ◦ Follow the best practical house keeping and maintenance practices as specified in LAC 33:III.2113 | 1.81E-03 | tpy per tank | Based on Annual Total |
| Amine Flash Drums (AFD1, AFD2, AFD3, AFD4, AFD5, AFD6) | VOC | ◦ Route emissions to the Acid Gas Thermal Oxidizer System | See Acid Gas Thermal Oxidizer Limits | | |
| Iso-pentane Tanks (PESD1 (previously 128-V0004), PESD2) | VOC | ◦ Route emissions to the Warm Flare | See Warm Flare Limits | | |

# APPENDIX G

# REFERENCES

## APPENDIX G REFERENCES


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**APPENDIX H**

**RESPONSES TO COMMENTS**
**ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT**

**Venture Global Plaquemines LNG, LLC and Venture Global Gator Express Pipeline, LLC**
**Plaquemines LNG and Gator Express Pipeline Project**

**INDEX**
Document Number - Commentor

**Individuals**



**Public Meeting Transcript**



**Companies and Organizations**



**State and Federal Agencies**

ORIGINAL 11/20/18 (CP17-66-000 CP17-67-000)

There is an existing servitude for another future pipeline that will run within the levee protected area (not in marsh outside of the levee) south of the future plant.

Cannot there be a tie to pipelines to the south to allow for these lines to be constructed such that they will be in ~~the~~ the levee protected areas for the most part?

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Des Allemands, LA 70030
504-615-4862

See attached map showing yellow line of the route for the line to be installed by another company in the future.





0001-1

0001-1 After research the commenter's claim, we conclude that no natural gas pipeline or servitude exists on the alignment presented by the comment. Neither the Port of Plaquemines nor the USACE is aware of any planned pipeline similar to the alignment identified.

During the application prefiling process, Venture Global did consider a lateral route referred to as the Southeast Lateral Pipeline Route that was similar to the route identified by the commenter. This is discussed in Section 3.5.1.2 of the FEIS. Ultimately Venture Global decided not to use the Southeast Lateral Pipeline Route after it was determined that the proposed SW lateral pipelines and interconnection with TGP and TETCO systems would provide the necessary feed gas for the facility and allow colocation along most of their routes avoiding environmental impacts associated with a 3rd lateral pipeline as would be the case for the Southeast Laterals.

Docket Nos. CP17-66-000 and CP17-67-000

Venture Global Plaquemines LNG, LLC and Venture Global Gator Express, LLC Plaquemines LNG and Gator Express Pipeline Project

OEP/DG2E/Gas Branch 1

Comments on EIS:

I own property approximately three miles from the proposed project, and have objections to the DEIS in the above-referenced docket numbers, as follows:

1. My primary objections relate to the manner in which environmental impacts are described as “minor” or “temporary.” The analysis appears to be based on impact to a stable, secure environment. That is not the present reality of the wetlands in the lower Mississippi Delta , which are in a precarious state of decline. Assessing the impact of this project as if the current environment is healthy and stable is an entirely inadequate approach. A proper analogy would be the assessment of depriving drinking water from a person for a day; if the person were thriving and healthy, the impact might well be assessed as “temporary” or “minor.” However, if the person were already in declining health, the effect could be fatal.

   The EIS under consideration follows the latter approach, and is patently unreasonable in light of the actual environment at present.

   For example, regarding the pipeline portion of the project and the related canals, the EIS states that some of the dredging will be left to fill in “naturally” after construction. This, at a time that the entire area is LOSING landfill at an alarming rate, not “filling in.”

   The fact of coastal erosion is well established. It is equally well-established that pipelines, canals, and oil-industry intrusions have accelerated the loss of land mass in this area. A representative sample of studies documenting these facts are linked below, and are incorporated herein by reference.

   My objection is to any EIS that does not adequately address the effects on wetlands that are already DECLINING. This one certainly does not do so.

2. Secondly, the EIS does not address in any way the impact on sport and charter fishing in the area surrounding the proposed project. These activities are a major source of commerce and income in Plaquemines Parish. A search of the DEIS does not reflect any reference to this factor.

0002-1

0002-1
Section 4.0, Environmental Consequences, describes for the reader how this EIS presents its determinations of the potential impacts of this project on environmental resources, including the use of the term "temporary." Presenting the different levels of impact according to the expected duration is consistent with federal agency guidance on the preparation of EISs. The determinations of impact are based on the Project effects on the existing environmental condition. See section 4.13 for a discussion on cumulative impact.

0002-2

0002-2
Commercial and recreational fisheries are discussed in Section 4.6.3 of the FEIS. However, we have prepared an additional analysis of the commercial and recreational fisheries present in the vicinity of the Project and the expected socioeconomic impacts associated with the Project. See the revised text in Section 4.9.3.2 of the FEIS.

0002-2 cont'd

0002-2
Continued

Representative sample of studies documenting the state of coastal erosion in the area:

A. Louisiana Coastal Wetlands: A Resource At Risk, found at https://pubs.usgs.gov/fs/la-wetlands/
B. Relationship between canal and levee density and coastal land loss in Louisiana, found at https://www.osti.gov/biblio/5564013
C. Coast 2050: Toward a Sustainable Coastal Louisiana, found at https://www.doi.gov/sites/doi.gov/files/migrated/deepwaterhorizon/adminrecord/upload/Louisiana-Coastal-Wetlands-Conservation-and-Restoration-Task-Force-and-the-Wetlands-Conservation-and-Restoration-Authority-Coast-2050.pdf

**FEDERAL ENERGY REGULATORY COMMISSION**
**PLAQUEMINES LNG AND GATOR EXPRESS PIPELINE PROJECT**

Comments can be: (1) left with a FERC representative; (2) mailed to the addresses below; or (3) electronically filed.[1]

*If by mail, please send one copy referencing Docket Nos. CP17-66-000 and CP17-67-000 to:*

For Official Filing:
Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington, DC 20426

**COMMENTS: (PLEASE PRINT)** [*continue on back of page if necessary*]

I came here tonight to express my support for this project. I'm a resident of Belle Chasse & a business owner. I believe the parish needs those jobs that will be created from this project & the parish needs the tax revenue which the project will generate. I understand that this LNG project comes with some environmental impact; however, I do believe LNG plants can & do successfully operate safely & with being a good steward of the environment

0003-1

Commenter's Name and Mailing Address (***Please Print***)

Chris Robertson
203 Parkside Ct
Belle Chasse, LA 70037

[1] The **Commission strongly encourages electronic filing of any comments or interventions or protests to this proceeding.** See 18 CFR 385.2001(a)(1)(iii) and the instructions on the Commission's web site at http://www.ferc.gov under the "e-Filing" link and the link to the User's Guide. Before you can file comments you will need to create a free account by clicking on "Login to File" and then "New User Account".

0003-1
Thank you for your comment.

Transcript of the Testimony of
# Draft Environmental Impact Statement

**Date taken: December 11, 2018**

**In the Matter of: Venture Global Plaquemines LNG, LLC and Venture Global Gator Express, LLC**

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UNITED STATES OF AMERICA

FEDERAL ENERGY REGULATORY COMMISSION

IN THE MATTER OF:

| | |
|---|---|
| VENTURE GLOBAL PLAQUEMINES LNG, LLC and VENTURE GLOBAL GATOR EXPRESS, LLC | DOCKET NOS. CP17-66-000 CP17-67-000 |

# DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED PLAQUEMINES LNG AND GATOR EXPRESS PIPELINE PROJECT

PUBLIC COMMENTS

BELLE CHASSE LIBRARY
8442 Highway 23
Belle Chasse, Louisiana 70037
Tuesday, December 11, 2018
4:00 p.m.

ALSO PRESENT:

JAMES WISNIEWSKI

REPORTED BY:

LINDA G. GRIFFIN, RPR
Certified Court Reporter
State of Louisiana

PUBLIC COMMENT
INDEX

* * *

SCOTT EUSTIS

MR. EUSTIS:

Scott Eustis, E-U-S-T-I-S, 1010 Common, New Orleans, Louisiana. I'm here representing the Gulf Restoration Network.

And, yeah, we've had some objections that were on a different Federal record, but we'd like to have them for this one as well.

You know, this proposal is one of tens of similar projects with the same economic objective without a purpose. We don't think the project can proceed without a Regional Programmatic Environmental Impact Statement for all such economically connected actions for all across New Orleans and Galveston Districts.

Well, you all aren't -- that's for the Corps, but, you know, from Corpus Christi all the way over this way, and even Mississippi and Alabama, there are so many of these things





0004-1

0004-1
Because the Commission does not have a program for or direct the development of the natural gas industry's infrastructure, either on a broad regional basis or in the design of specific projects, and does not engage in regional planning exercises that would result in the selection of one project over another, we have determined that it would not be appropriate to prepare a programmatic EIS. This EIS analyzes the project-specific impacts of Plaquemines LNG, and includes a discussion of cumulative impacts associated with other nearby actions affecting the environment in the same geographic scope.

proposed that have a tremendous wetland and water and air impact, power impact, tremendous emergency management implications, but there's no real statement of need.

In fact, you know, we heard that the -- we hear about the future without action is that the gas will still be exported whether or not this terminal is built, so we feel that there's no need to put such an explosive facility with lots of dangers to other Federal projects, as well as us who live here. You know, why put this in a flood zone, you know.

We think there really needs to be a reckoning if the United States is going to move forward with this gas export. They need to pick a good place, and it probably should be in a place that's not so vulnerable to catastrophic flooding.

But we just get -- it's like a pox, and it seems like -- you know, we saw this with the coal export terminals



0004-2

As discussed in more detail in section 4.12.5, DOT PHMSA, USCG, and FERC share responsibility in the safety, security, and reliability oversight of the LNG facilities. DOT PHMSA's issued a LOD on April 3, 2019 evaluated the Project against its safety requirements for siting a facility and maintaining applicable exclusion zones based on impacts of various hazards, including flammable and toxic vapor dispersion, overpressure or blast wave effects due to an explosion of flammable vapor, pool and jet fires, and consideration of some cascading effects. USCG issued a LOR on January 23, 2017 indicating the Lower Mississippi River would be considered suitable for accommodating the type and frequency of LNG marine traffic associated with this Project. The LOR also considers Zones of Concern as discussed in section 4.12.5. In addition, FERC staff evaluated the preliminary engineering as to whether sufficient layers of protection would be in place to reduce the risk of offsite impacts to the public from hazards, including from various releases that can result in flammable and toxic dispersion, explosions from ignited flammable vapor clouds, pool and jet fires, and potential cascading damage. Based on the proposed layers of protection, FERC staff recommendations, USCG LOR, and DOT PHMSA's LOD, we concluded that there would not be a significant risk or there would not be a significant increase in risk to the public.

0004-3

Venture Global has proposed in its application the installation of a floodwall that would protect the site from the impacts of storm surges as well as sea level rise.

in Plaquemines, in particular. There's this race to the bottom. All the proposals go out. It's like the ones that do the crappiest job try to get the market first, and that's who wins. It's not appropriate, because that's -- if you're going to cut costs to try to be first, it's going to ruin the project.

You know, we think the investors should be able to reclaim their money from a project like this, because it's not in the public's interest; it's probably not in the private interest either. But, I guess, to stay on -- hopefully that's relevant, that, like, someone who put their money into a project like this would be able to get it back. We see projects like this fail.

It's not in the public's interest, of course, to locate such a dangerous facility in an area that regularly experiences catastrophic flooding, on top of a socially vulnerable population.

0004-4

0004-4
Venture Global has proposed in its application the installation of a floodwall that would protect the site from the impacts of storm surges as well as sea level rise. Socially vulnerable populations are discussed in Section 4.9.9 of the EIS.

And I think that we understand, you know, they made the land deal with certain people in Louisiana and we know how that goes. Certain people in Louisiana get the money because they own the land, but the Federal government shouldn't follow that kind of corruption. It should look at alternative sites that aren't vulnerable if the United States considers this part of the national interest.

You know, this has a big climate impact, of course. It's like God's own refrigerator, each one of these things, tremendous power needs, tremendous temperature fluctuations, in a time when we're really oscillating down here. We have temperature oscillations, you know, week to week, much less season to season. You know, the existing LNG export failed because it froze, in Louisiana. Who thought? And then, of course, the increasing need for power to keep this stuff cold or it gets really explosive or very dangerous.

0004-5

0004-5
Alternative sites are discussed in section 3.0 of the EIS.

And then, of course, the impacts of climate to the facilities. You know, we know that the SASOL GTL proposal -- you know, after Harvey, I flew over that facility and I saw, you know, what happens when you don't look at -- you don't engineer a facility in the right spot, when you just go with, you know, the corrupt way and you just say, "Hey, this guy's giving us the land; that's where we're going to build it."

You know, SASOL North America didn't have an Environmental Impact Statement at all actually, and lo and behold, they found there was lots of wetlands underneath their site. That increased capital costs from 8 to 14 billion. And then, of course, Harvey dropped 15 inches of rain on top of it and they wrote off the whole project, so it's --

You know, and what do we lose, in Louisiana? We lost our wetlands, you know. They scoured the site. They tore

0004-6

0004-6
As noted in section 4.13.2.14 impacts on climate change from an individual project cannot be determined using current climate modeling tools.

it up. We lost a whole town. We lost our population base, which is our tax base, and then, what, it's just a big scar. There's nothing there.

You know, it's not in the public's interest to exploit ecological and economic vulnerabilities of this area with such a dangerous facility. Climate change is the primary driver. Which, you know, climate change is caused by facilities like this, as a primary driver of wetland loss across the New Orleans area, south Louisiana, and we think there should be a full-cycle quantitative carbon analysis of, like, how much is this facility facilitating. Because we know fracking for gas is one of the big climate bombs. It's one of the big reasons that the earth could warm over the next 20 years.

So this is causing all of that and it's going to cause, you know, driving the population of the United States away from the coast, so there needs to be a good economic purpose for



0004-7

0004-7
As noted in section 4.13.2.14 impacts on climate change from an individual project cannot be determined using current climate modeling tools. Wetlands at the proposed Project site provide a limited carbon sink for atmospheric CO2; wetlands may also produce methane and emit it to the atmosphere. We considered the change in surface conditions from vegetated wetland to that of an industrial facility and its effect on the local carbon balance. With implementation of the Project's compensatory wetland mitigation plan, we conclude the local carbon balance would not change. Socially vulnerable populations are discussed in Section 4.9.9 of the EIS.

this project. Because displacing, you know, millions and millions of people is not in the economic interests of the United States.

And then we also want -- you know, this facilitates fracking. We want the climate impacts of methane from the feedstock as well to be computed. Also, the wetlands. That pipeline is really interesting. Impacting wetlands impacts the carbon.

We want a marine traffic analysis, especially for the increasing high water events on the river. Again, due to climate change, everything is more vulnerable.

And we think, you know, we see 500-year rains annually on the Gulf Coast now, so that's -- you know, the facility should be planned to get that amount of rain onto the facility. You lose power, which starts that chain of potential even explosions from a facility like this.

We do think the project is

0004-8

0004-8
As noted in section 4.13.2.14 there is no standard methodology to determine whether, and to what extent, a project's incremental contribution to GHG emissions would result in physical effects on the environment for the purposes of evaluating the Project's impacts on climate change, either locally or nationally. Further, we cannot find a suitable method to attribute discrete environmental effects to GHG emissions.

0004-8

0004-9
The Applicant's compensatory mitigation plan (section 4.4.4) as required by the Clean Water Act, Section 404 ensures no net loss of wetlands and therefore would not impact carbon levels.

0004-9

0004-10
The levee and floodwall design were evaluated against 500-year still water elevation with a 500-year wave crest and sea level rise. See section 4.12.4.5. Also marine transportation is discussed in section 4.9.8.2. We also note that the

0004-10

equivalent return period for a storm event is specific to the spot or area where the storm hit and should not be compared to the total number of 500-year events that occur across the country or region of the country.

inconsistent with the State Master Plan. There's a sandbar in the river in this place, so, you know, that sand is the future of the State, you know. It's unclear whether this land is going to be here in 20 or 30 years, but if it is, the land's going to be here because we are going to dredge the sand resources of the Mississippi River and place wetlands back into place. But to put a terminal on top of those sand resources kind of precludes that restoration of the land, going forward.

And just -- and it's not just the land itself. It's money and time. Sand resources are limited and they must not be squandered, given the already limited ability of the State and the Corps to reduce flood risks and implement our restoration plans. Not to mention the saltwater sill around here, around Belle Chasse, which is drinking water for New Orleans.

So the impacts of the sandbar, you know, CPRA is looking at Belle

0004-10 cont'd

0004-11

0004-10 Continued

According to the LASARD Deposit Borrow Areas layer on the Coastal Information Management System (CIMS) provided by the Coastal Protection and Restoration Authority (CPRA), Plaquemines LNG's Terminal site and marine facilities are not located over mapped sand resources. The nearest potential borrow area within the Mississippi River is located on the river bottom about 1,000 feet off the west bank. Further, Plaquemines LNG's marine facilities will be in an area that has been previously been modified by placement of riprap and concrete revetment blankets, likely precluding its consideration as a potential borrow area. In short, the Venture Global Project will not affect the potential use of the river as a sand borrow area for future use in wetland restoration projects.

0004-11

Chasse and south for Louisiana's future, so that is actually important, and it's important we don't lock those resources down with pilings. You know, we can put the ports in deepwater locations, but to put them on sand resources is kind of a silly thing to do for a deepwater port, and it's also sabotaging the restoration program, so --

The pipeline. You know, those wetlands were really oiled in BP, so any construction, digging up those -- you know, of course, that's gone down and down every year, you know, it sinks a little more, so you've got, you know, oil that could be remobilized by ripping up those marshes in northern Barataria Bay. So you've got to have a plan for remobilization of the DEEPWATER HORIZON oiling, and that's a place where we get oil spills all the time. We just had one this week from the Hilcorp drilling, right. And the dolphin population that lives there is in critical condition. The remaining stock will take decades to

0004-11 cont'd

0004-11 Continued

0004-12

The Applicant prepared a report identifying shoreline areas within the Barataria Basin (i.e., those land/water interfaces with a hydrological connection to the open waters of the Gulf) that have high re-oiling potential (i.e., areas that have experienced periodic remobilization of weathered oil). The report indicates all of the Project's shoreline crossings have a reoiling potential classification of "no oil observed." If weathered oil is encountered during construction, the Applicant would take the appropriate precautions to prevent resuspension of contaminated media and notify the appropriate authorities. This information has been added to the EIS in Sections 4.6.3.2 and 4.7.1

0004-12

recover already, from 2010, and then the four or more NRDAs that are ongoing in Barataria Bay. So re-oiling these oil sediments while the remaining animals are sick is not acceptable when that's been the main cause for decline in the stock.

And impact to the essential fish habitat is unacceptable. We have a lot of oysters in Barataria Bay, and that's a big part of the Louisiana economy, the restaurant economy in New Orleans. So ripping up the bay, putting oil on the oyster leases in the area, you know, when we've lost a lot of oyster production on the east side; Barataria Bay is now more important for those fisheries, and it's really on the applicant to avoid these wetlands and not remobilize that oil, when it can be easily done, you know -- we want a no-pipeline option. Like why -- I don't completely understand the purpose of having a gas pipeline into the shallow water of Barataria Bay. It doesn't

0004-12 cont'd

0004-12 Continued

0004-13
The resuspension of oiled sediments is discussed in the EIS in Sections 4.6.3.2 and 4.7.1.

0004-14
Although several existing gas pipelines are located in Plaquemines Parish and surrounding waters they do not carry enough available capacity to supply feed gas to the LNG terminal. This is addressed in Section 3.2.2 of the FEIS.

0004-13

0004-14

really make a lot of sense, when you have tremendous numbers of gas pipelines all over the area.

So, you know, we've seen a lot of these things. Some of them are really badly built. Some of them have flooded. Some of them have failed due to the temperature fluctuations that are not going to get any better, and then after 2040, everything goes off the chart.

So the location and residents will be made all the more vulnerable by the climate impacts of the proposal, and then specifically, this is in an Environmental Justice Community, determined by a block group analysis, so we need that kind of reckoning of, like -- you know, we need a block group of parish comparison to see, you know, who is impacted by this, and we want a site that, you know, doesn't disproportionately impact minorities, particularly African-Americans and native Americans that live in this area.

0004-14 cont'd

0004-14 Continued

0004-15

In section 4.9.9, Environmental Justice, we defined the affected area and explain the use of available data to analyze the subject. Overall, there is no trend toward placing facilities near minority populations or populations below the poverty level. We have determined that the Project would not disproportionately affect low-income or minority populations.

0004-15

0004-15 cont'd



Because when we consider the future of Louisiana, those communities have a lot of knowledge, to keep us fed. And the communities within the block's range of the terminal are disproportionately minorities, so we want to have a different site.

So, yeah, this site is one of the worst sites for this kind of thing across Texas to Mississippi, so -- and really, rather than build tens of these dangerous facilities without a proven market and, you know, the proposal, have the proposal succeed on the basis of cost-cutting and what land deals they can make with rich folks, in whatever state they're in, or how fast they can build it, we do think that FERC needs to look at a Programmatic EIS for all of these things, and such a process would, you know, provide a lot of guidance to an industry currently that's being run like a casino. This would ensure the best ideas for LNG export to rise to the top rather than have a race to the

0004-15
Continued

bottom.

So, yeah, to sum up, a Programmatic Environmental Impact Statement would also work to ensure that this LNG export is something that the United States actually needs and it's built to withstand the climate impacts, and we're talking 500-year rains. That is the new 100-year. That's the amount of rain we see every year, from Texas to Mississippi, somewhere.

So, you know, it needs to be built to withstand that kind of water coming, and built in a way it does not target African-American and Native American communities with disproportionate impacts, and built in a way that does not threaten marine mammals with habitat impacts or hazardous waste.

So I think that's all I've got.

* * *

MAYNARD JACKSON "SANDY" SANDERS

MR. SANDERS:



0004-16

Because the Commission does not have a program for or direct the development of the natural gas industry's infrastructure, either on a broad regional basis or in the design of specific projects, and does not engage in regional planning exercises that would result in the selection of one project over another, we have determined that it would not be appropriate to prepare a programmatic EIS. This EIS analyzes the project-specific impacts of Plaquemines LNG, and includes a discussion of cumulative impacts associated with other nearby actions affecting the environment in the same geographic scope. See section 1.2.

0004-16

Furthermore, we recognize that a 500-year flood event has been recommended as the basis of design for critical infrastructure in publications, including ASCE 24, Flood Resistant Design and Construction. Therefore, we believe it is good practice to design critical energy infrastructure to withstand 500-year event from a safety and reliability standpoint for both SWEL and wave crests. See section 4.12.4.5. We also note that the equivalent return period for a storm event is specific to the spot or area where the storm hit and should not be compared to the total number of 500-year events that occur across the country or region of the country.

0004-17

The proposed design would be able to withstand a 500-year flood event.

0004-18

0004-17

We recognize that a 500-year flood event has been recommended as the basis of design for critical infrastructure in publications, including ASCE 24, Flood Resistant Design and Construction. Therefore, we believe it is good practice to design critical energy infrastructure to withstand 500-year event from a safety and reliability standpoint for both SWEL and wave crests. See section 4.12.4.5

0004-19

The proposed design would be able to withstand a 500-year flood event.

0004-18

Executive Order 12898 (59 Federal Register [FR] 7629) established a federal policy under which federal agencies must identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its

programs, policies, and activities on minority or low-income populations.

In section 4.9.9, Environmental Justice, we defined the affected area and explain the use of available data to analyze the subject. Overall, there is no trend toward placing facilities near minority populations or populations below the poverty level. We have determined that the Project would not disproportionately affect low-income or minority populations.

0004-19
Potential impacts on marine mammals are discussed in Sections 4.6.3, 4.6.4, and 4.7.1 of the EIS. Generally, in coordination with USFWS, NMFS, and LDWF regarding impact minimization and mitigation measures described above, we conclude that impacts on aquatic resources would be temporary and minor.

I'm Sandy Sanders. I work for the Port. I'm the Executive Director, Plaquemines Port Harbor and Terminal District.

I'm the Executive Director of Plaquemines Port and I am very responsible for Venture Global locating on our shoulders, and I'm very excited about their arrival. I'm extremely excited about the high paying jobs that they're going to bring.

I have been accused of being an environmentalist, and I don't mind wearing that moniker. I think there's always a happy medium where industry and environment and community can live with each other, and I love the way that -- the thought of LNG is that we can do away with, you know, coal plants by having cleaner energy.

I'm also promoting another LNG here on the east bank. I have been on a tear for the last five years, inviting industry here. We've got two methanol plants that are coming here, and they're

0004-20

0004-20
Thank you for your comment.

clean, and I am a custodian of our environment here at the Port, and if it is bad business, I would not even entertain them coming to our shores.

So, obviously, I'm all for them, 100 percent. Thank you very much.

* * *

GARY SILBERT,

MR. SILBERT:

Good afternoon. My name is Gary Silbert. I'm the Manager of Business Development for GNO, Inc., Greater New Orleans, Inc. It's the 10-parish regional economic development group serving Southeast Louisiana, including Plaquemines Parish. We were involved in helping Venture Global identify and locate in Plaquemines Parish, and it just makes perfect sense for them to be here to take advantage of the natural assets in Plaquemines Parish, particularly, the infrastructure and natural gas.

It truly helps diversify the economy in Plaquemines Parish, which has

0004-20 cont'd
Thank you for your comment.

0004-20
Continued

0004-21
Thank you for your comment.

0004-21

been so dependent on oil, and it will create high paying jobs, it's a clean industry, and this is a good company. I've worked with representatives of the company over the last couple of years and find them to be honest and trustworthy and I feel good about Venture Global.

So, in summary, this will benefit the region, the parish, and will serve to, as I say, create jobs, diversify the economy. It's a clean industry and they'll be in the community to stay.

Well, I thank you for your interest, ensuring that this is done correctly, and if there is anything my organization or I can do personally to help FERC, as they further consider this project, I'm happy to help, and I just urge you folks to approve the project. Thank you so much.

* * *

MICHELLE HERBERT

MS. HERBERT:

0004-21 cont'd
Thank you for your comment.

0004-21
Continued

Okay. As Chairperson of the Plaquemines Association of Business and Industry, my goals are to work toward economic diversity and development for our parish. With those goals in mind, it is especially fitting that I write here to publicly express PABI's full support for a multi-billion-dollar project that stands to not only diversify our local economy, but also provide jobs and long-term stability.

I'm referring to Venture Global LNG's Planned Liquefied Natural Gas Export Project, Plaquemines LNG, that is poised to bring American natural gas to markets around the world, from facilities right here in Plaquemines Parish.

Plaquemines LNG has our support, because it stands to create as many as 1500 jobs during each of its two construction phases, as well as 300 long-term permanent and good paying jobs.

It also has our support,

0004-22

0004-22
Thank you for your comment.

because I know, firsthand, that Plaquemines LNG is dedicated to being a good neighbor. Even now, as the project moves through the early regulatory approval stages, from it's careful consideration to minimize the project's environmental impact, to engaging the community in open dialogue to address questions or concerns, Plaquemines LNG has shown a commitment to community that goes well beyond economic benefits.

I've met with many community leaders in recent months, and a common theme was the necessity of Plaquemines Parish not relying on just one industry. I believe Plaquemines LNG will bring a new dynamic industry to our parish. I look forward to seeing the economic development and all the benefits that will be created.

PABI has supported the Plaquemines Port's expansion plans since first presented to us. It is exciting to see a major project under way with a company like Venture Global. Thank you.

0004-22 cont'd
Thank you for your comment.

0004-22
Continued

* * *

PAUL MATTHEWS

MR. MATTHEWS:

My name is Paul Matthews. I am Deputy Port Director at Plaquemines Port Harbor and Terminal District.

I'm here to speak on behalf of Port staff and to say that I'm supportive of this project. This is a project that will have significant economic impact, not only for the parish, but the region and the state, as an $8.5 billion project, between the amount of jobs, the revenues to the Port for further Port development, and also, the secondary tertiary tax dollars that it will create for the parish will be significant.

This parish has lost a significant amount of revenues over the last few years due to their dependence on oil and gas production. As a result, the tax base has decreased in Plaquemines Parish over the last four years, each of the last four years, and

0004-23
Thank you for your comment.

0004-24
Thank you for your comment.

0004-23

0004-24

so this project is really paramount to the survival of this parish, in an economic manner, whether it's revenues to the parish government, to the taxing bodies, and also for job creation and wages, for those in the parish.

For someone who's from Southeast Louisiana, born and raised in New Orleans, I recognize the significance of this project to the region, as it will also create indirect jobs for the region.

As you may or may not know, for every one direct job that's created in the Port, you have three to four indirect jobs that are created within this jurisdiction and region. So it's not just impactful for the local economy, but for the regional economy and for the state.

* * *

FOSTER A. CREPPEL

MR. CREPPEL:

Foster Creppel. I'm with Woodland Plantation and I'm also the

0004-24 cont'd
Thank you for your comment.

0004-24
Continued

President of Plaquemines Parish Tourism Commission. So I am concerned about this things from two points of view.

I'm the owner of Woodland Plantation, sole ownership, and the President of the Plaquemines Parish Tourism Commission, and my mission is to promote tourism, ecotourism, nature-based tourism, and any kind of tourism to Plaquemines Parish.

MR. WISNIEWSKI:

You're president of what?

MR. CREPPEL:

The Plaquemines Parish Tourism Commission.

MR. WISNIEWSKI:

Oh, the Tourism Commission.

MR. CREPPEL:

The Plaquemines Tourism Commission. It's an independent commission. And I'm also the President and Owner of Woodland Plantation, sole proprietor.

After reading the article that came out in the paper, I felt compelled

to come and visit and talk a little bit about this, because I know you all are conducting an Environmental Impact Study.

I see the effects that will be caused by the LNG plant. It will be a new major emitter of greenhouse gases. It will destroy 800 valuable acres of wetlands. There will be more dredging of pipeline canals, causing more erosion and subsidence. There will be more drilling for natural gas. There will be negative effects on the air and water quality in the area. There is no plan for mitigation at this point, from what I've read.

Venture Global would not respond to repeated requests for information. There will be 22 to 3200 migrant workers passing through Belle Chasse, most days, and we can barely absorb what we have passing through there now.

Five of these export facilities are already approved and



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0004-29

0004-25
The LNG terminal would permanently effect approximately 370 acres of wetland while the pipeline system would permanently effect 2.8 acres as shown in Section 4.4.2.1 and 4.2.2.2. All permanent loss is compensated for in the Applicant's compensatory mitigation plan as required by the Clean Water Act, Section 404 and the USACE permit. A detailed discussion of greenhouse gases can be found in section 4.11. and 4.13.2.14.

0004-26
Adverse impacts are expected in marsh habitats due to pipeline installation. The Applicant would coordinate with the LDWF, USACE, and LDNR to identify bank stabilization specifications and the specific locations to be installed as part of the ongoing review of the Project's applications for a Clean Water Act (CWA) Section 404 Permit and a Coastal Use Permit. See Section 4.2.2.2.

0004-27
As shown in Section 1.2 this EIS focuses on the facilities that are under FERC's jurisdiction, thus scope of this EIS is to look at potential impacts that may be directly associated with the Project. Any potential indirect drilling activities are not in the scope and, therefore, are not addressed by this EIS.

0004-28
Section 4.4.4 discussed the details of Venture Global's compensatory mitigation plan (CMP) which was developed through coordination with the USACE to offset impacts per permitting requirements.

0004-29
The applicant estimates that during peak construction 2,380 personnel would originate from locations north of the LNG terminal, passing through Belle Chasse. LADOTD traffic data at points located in the northern part of Belle Chasse and the southern part of Belle Chasse along SH 23 indicate between 22,520 and 33,146 traffic counts per day, respectively. To estimate the potential increase in traffic as a result of construction activities the LADOTD recorded data were

averaged for each point and used as the average daily traffic for that point. Project-related traffic was then added to those daily counts and a percent increase was calculated. Project-related traffic would result in an increase, of 7.2 percent of daily trips at the southern location and 10.5 percent increase at the northern location in Belle Chasse. These numbers represent the potential peak increase in traffic and would not be representative for the entire duration of construction activities. See section 4.9.8.1 for detailed discussion and mitigation measures.

under construction. Five more are approved, but not under construction yet. They're approved and licensed. 18 are proposed, but not approved or licensed, of which this is one.

Many won't be built, in my opinion, and I predict a few will be brown fields within 25 years. What's the plan for abandonment? There will be ground level ozone, which includes nitrogen oxides, carbon monoxide and volatile organic compounds.

The FERC warns that air emissions from the new industrial facilities in the area may cause problems for this project, and that 7.75 million tons of carbon dioxide will be emitted from the new facility.

Braithwaite Methane Manufacturing and NOLA Oil Terminal also are coming online. Neither Venture Global, nor IGP Methanol included the other development in its modeling.

Also not listed in the recently announced is the recently



0004-30
Venture Global does not have any plans to abandon any aspect of the Project. If the Project facilities are abandoned in the future, Venture Global would need to comply with the appropriate federal, state, and local regulations in effect at that time.

0004-31
The EIS has appropriately included all projects reasonably planned in the cumulative impacts analysis in Section 4.13. Five other projects within the area of the proposed Venture Global facility for the purpose of analyzing the potential cumulative impact on air quality of these projects with the VGL project. These 5 projects are: Gulf Coast Methanol (a/k/a IGP Methanol); NOLA Oil Terminal, Braithwaite Methanol, Pointe Celeste Container Terminal, and Pointe LNG Terminal. FERC acknowledged that the Applicant did include the NOLA Oil Terminal and Braithwaite Methanol in its refined air dispersion modeling analysis and that the results showed that Venture Global's terminal would not cause or contribute to any federal Clean Air Act National Ambient Air Quality Standard (NAAQS). The draft EIS also acknowledged that neither the Pointe Celeste Container or Pointe LNG projects had yet submitted any permit applications to the LDEQ. When they do apply, LDEQ would need to evaluate their cumulative impact with the facilities that already obtained permits.

0004-30

0004-31

The Applicant was not required to include the proposed IGP Methanol facility in its modeling because such modeling was conducted well before IGP Methanol submitted permit applications for the facility. Further, although VGL did not include IGP Methanol emissions in its refined modeling, VGL's modeling indicated that VGL's projected emissions would not significantly contribute to any projected exceedance of the NAAQS because the Applicant's projected emissions did not contribute more than the Significant Impact Level at any modeled receptor over the respective NAAQS. Thus even if area emissions increased by an amount more than predicted by such modeling, due to the IGP Methanol facility operation, Venture Global's contributions to those modeled receptors would not increase, and would still be considered as insignificant under EPA guidance. See section 4.13.11.

announced 20-million-barrel Plaquemines Liquid Export Terminal just north of Myrtle Grove.

The Sierra Club has partnered with the Old-Growth Forest Network to preserve, protect and promote the country's few remaining stands of old-growth forests. Their goal is to have one dedicated old-growth forest in each parish in the state.

Lieutenant Governor Billy Nungesser, whose job it is to promote tourism to our state, owns a beautiful stand of old-growth forest of oaks along Bayou Grande Chenière. It's a virgin forest of oaks and it's beautiful. It's just behind the proposed site of the LNG plant. It's basically contiguous with it. It would, without a doubt, be compromised if this development is allowed.

I'm the President of the Plaquemines Parish Tourism Commission, and our mission is to promote tourism to our beautiful parish, its history,



0004-31 cont'd

0004-31
Continued

0004-32
As described in section 4.5.4 the Coastal Live Oak-Hackberry Forest occurs within the proposed pipeline construction and operational footprint. Complete avoidance of this area is not possible due to the necessity of constructing a pipe bridge over the adjacent levee and for the HDD entry location associated with installing the pipelines under the floodwall. Venture Global plans to sequence installation of the pipe bridge and pipelines at this location to allow the same workspace to be utilized for construction of the pipe bridge and HDD entry locations thus minimizing impacts on the forested area. A temporary access route located within the pipelines' permanent right-of-way would be required to reach the construction workspace.

0004-32
According to Venture Global's construction and restoration plan, most of the area disturbed by construction would be restored to pre-construction contours and allowed to revert to its current vegetative cover. No permanent vegetation maintenance would occur between the entry and exit of the HDDs; vegetation maintenance would be limited to the upland permanent right-of-way located between the levee and HDD entry locations. Of the Coastal Live Oak-Hackberry forest, to be affected by construction and located interior of the levee, about 2.1 acres would be cleared for temporary workspace and 0.7 acre would be permanently maintained in a shrub vegetative state following installation of the pipelines. The area to be permanently maintained in a shrub vegetative state makes up a small proportion, less than 1 percent, of the portion of the forest located interior of the levee.

natural beauty, fishing, ecology, eco and birding tours, food, et cetera. Creating an industrial corridor is not going to help that.

I've built a beautiful successful business, as many others have, selling our natural beauty, hospitality, food and unparalleled fishing. Many other commercial fishermen make a living off the land. I think they will be negatively impacted as well. And I'm not sure how much that will be, but I know they will be.

Woodland is a historic site on the west bank, in Plaquemines Parish. I employ 25 people and contract with 30 fishing guides. The proposed site is two miles north of me. How would you like it if you had spent 22 years building and beautifying an historic site just to have an ugly polluting site built within view?

People, the peninsula we love, Plaquemines Parish, is eroding due to man. Subsiding is part due to man, and

0004-33

0004-33
Construction of the pipeline system would impact EFH for post-larval and juvenile life stages of white shrimp, brown shrimp, and lane snapper, all life stages of red drum, and adult gray snapper. Affected EFH includes benthic substrates and/or water column habitats in estuarine open water (collectively referred to in this assessment as estuarine open water) and estuarine emergent wetlands. Potential adverse impacts on EFH would primarily be temporary, while some permanent impacts may be beneficial. Temporary adverse impacts during construction would be minimized through adherence to Venture Global's Project-specific Procedures, SWPPP, and SPCC Plan. Vessel transits for commercial fishing would be impacted negligibly resulting in negligible effects to catch. Further discussion can be found in the EIS in Sections 4.6.4 and 4.9.3.1. Also, marine transportation is discussed in section 4.9.8.2.

0004-34

0004-34
A visual assessment from locations up to 2 miles from the LNG terminal is provided in section 4.8.6.1. Woodland is located over 3 miles from where the LNG tanks would be located. Impacts described in section 4.8.6.1 would be similar to those experienced at Woodland.

sea levels are rising due to global warming. We're in a fight for our existence. We've designed and engineered its destruction. It's time to redesign and engineer its restoration. I did it at Woodland Plantation. Together we can save our parish. That's basically it. Thank you.

MR. WISNIEWSKI:

Thank you very much.

MR. CREPPEL:

I hope you guys make the right decision about this thing. This is a vanishing little place where we live. I don't know if you all know this parish very well, but I know it very well.

It's the newest land of all America -- I don't know how well you all know Plaquemines Parish, but my ancestors are from the bayou. My great-grandfather was named Jacques Creppel. He grew up down in Lower Jefferson Parish, on the bayou. He was functionally illiterate. He had 10

kids. My grandfather was one of 11. And he moved up from Lower Jefferson to Crown Point, which is uptown to them, but it's along the banks of Bayou Barataria. Bayou Barataria was a tributary of the main river at one time.

We got rid of the tributaries when we built the levee in 1928. That levee is only 90 years old. We need to re-introduce this river to our delta. We need to lower our levees. We need to change the way we're living down here or we won't exist.

I have no idea why they're here, thinking about building it on this narrow strip of dangerous land. It's eroding rapidly, it's subsiding, and sea levels are rising, and I know it because I see it.

One of my dad's good friends is -- who I couldn't talk into coming to this tonight, and I wanted him to -- Ed Perrin, from Lafitte; he lives at the very end of the Lafitte Highway down there, and his son -- his grandson's



0004-35

0004-35
As stated in section 4.12.4.5, a large portion of the facility would be supported by pile foundations, which draw their bearing capacity from a combination of tip bearing and side friction. Fugro recommends in their geotechnical investigation that piles would be installed to depths of 80 to 220 feet below grade to ensure adequate bearing capacities were achieved. While shallow foundations are proposed for some structures, the structures that would use shallow foundations are lightly loaded and would not be sensitive to settlements (both differential or total). In addition, a storm levee and floodwall would be installed that takes into account a 500 year storm as well as sea level rise and we recommend that the levee height be maintained throughout the life of the facility.

been wanting to buy land from him for a long time to build his house. He said, "Grandpa, when are you going to sell me that land?" And Ed says, "I'm not selling you that land." He says, "Why not? Because I want to build my house there." He says, "Because you can't build your house here." He says, "You see that little levee over there, that two-foot high levee?" He says, "I've been looking at this water for 70 years." He says, "Now, if that two-foot high levee wasn't there, that water would be up to our steps."

This delta is eroding and sinking. It doesn't make sense to build things that weigh millions of tons, and they are built out of concrete and iron, that are going to help sink it.

One of my friends says, "Foster, we have a bad economy." Well, that's on the politicians and the powers that be, in my opinion, because we've had a lot of natural resources in Plaquemines Parish. We've had

0004-36

0004-36
A large portion of the facility would be supported by pile foundations, which draw their bearing capacity from a combination of tip bearing and side friction. In addition, Venture Global has proposed in its application the installation of a floodwall that would protect the site from the impacts of storm surges as well as sea level rise. Lastly, the shoreline of the facility would armoring that would help mitigate shoreline erosion.

commercial seafood. We've had the Port. We've had oil and gas. We've had agriculture, timber and tourism, but yet we're broke.

That's not because we haven't developed enough industry or business. It's because we've mismanaged it. And this is another example of mismanagement.

He said, "Well, give me some -- we need a life preserver." I said, "That's more like an anchor. It's not going to float you. It's not going to help you." It's going to provide a few jobs on the early end, but nothing in the end.

I just took a field trip out to Lake Charles, Sunday, to look at these new plants, the ones that are being built, the ones that are built, and to look at Lake Charles. It's an industrial corridor.

After they build these things, it becomes -- I don't know if you all have ever visited Lake Charles. But if

you haven't, you should. You should go look at that eyesore. There's no money there and there won't be money there. It's one of the dirtiest places in the state and it's all industry, and they welcomed it with open arms. I'd rather not see that here.

And that's that. So thank you.

* * *

COLETTE PICHON BATTLE

MS. BATTLE:

I have a couple questions, for the record, please. My name is Colette Pichon Battle. I live in St. Tammany and I work with the Gulf Coast Center For Law & Policy.

So I'm just going to ask my question. My first question is, on the air-cooled electric power generation facilities, are there any renewable energy standards for new construction?

My second question is, how deep does the pipeline run under water or in the wetlands?

0004-37

0004-38

0004-37
Louisiana does not have a renewable portfolio standard policy for electric utility providers. Further, the power produced by Venture Global at the LNG terminal site would be used for operation of the facility; no interconnection with the transmission grid is planned.

0004-38
Pipelines are typically at a minimum depth of 3 feet. Given a 42-inch diameter pipe would be installed a typical trench depth would be a minimum of 10 feet. At road, utility, and other crossings, the pipeline may be buried at greater depths to accommodate the linear feature being crossed. See section 2.5.2.3.

My third question, does this new LNG project address a public need or is this just a company desire? For example, are we low on our gas exports, is our nation low on gas exports and this will help our nation, or is this just a company doing business?

Are there any proactive requirements for cleanup of the area that has been impacted by the BP oil drilling disaster? And it's on their map. It's the same area. My question is, are there any proactive requirements for cleanup of that area before they start digging, moving soil?

And is there an Environmental Justice Review of the black and indigenous communities in that area, or on behalf of the impact of the black and indigenous communities in that area? Those are my questions. Thank you very much.

* * *

REVEREND TYRONNE EDWARDS

REVEREND EDWARDS:



0004-39

Under Section 3 of the NGA, FERC considers as part of its decision to authorize natural gas facilities all circumstances bearing on the public interest. Specifically, regarding whether to authorize natural gas facilities used for importation or exportation, FERC shall authorize the proposal unless it finds that the proposed facilities would not be consistent with the public interest. See section 1.2.

0004-40

The Applicant prepared a report identifying shoreline areas within the Barataria Basin (i.e., those land/water interfaces with a hydrological connection to the open waters of the Gulf) that have high re-oiling potential (i.e., areas that have experienced periodic remobilization of weathered oil). The report indicates all of the Project's shoreline crossings have a reoiling potential classification of "no oil observed." If weathered oil is encountered during construction, the Applicant would take the appropriate precautions to prevent resuspension of contaminated media and notify the appropriate authorities. This information has been added to the EIS in Section 4.6.3.2.

0004-41

Section 4.9.9, Environmental Justice, defines the affected area as the census tract occupied by the Project facilities and the census tracts south of the Project that depend on SH 23 for egress and ingress. The census tract, which generally comprises between 600 and 3,000 residents, was selected based on guidance from the EPA (1998) that each area under investigation should be an "appropriate unit of geographic analysis" that does not "artificially dilute or inflate the affected minority population."

Overall, there is no trend toward placing facilities near minority populations or populations below the poverty level. We have determined that the Project would not disproportionately affect low-income or minority populations.

Reverend Tyronne Edwards. I live in Phoenix, Louisiana, on the east bank of Plaquemines Parish.

Some of the concerns that I had were really around the environmental issues. I haven't been able to read the Environmental Impact Statement yet. They just gave me the website.

But that's one of the bigger concerns we had, because we have had other industry come into Plaquemines, and so they'll say one thing, and then when BP -- I mean, when the hurricane came, we find out they had all other kind of chemicals. I'm concerned about this site, because the natural gas -- I'm concerned about the gas emission, in terms of do they have that under control.

The other part is, is how far are they digging under water in the area that they're in, because there's a history of a lot of old gas pipes that been under water for a long time, and being in contact with them could cause

0004-42

0004-43

0004-42
We have included over 120 conditions (found in section 5 of the EIS) Venture Global would have to adhere to before they could start initial site preparation, construction of the final design, commissioning, introducing hazardous fluids, and commencement of service. The Commission would not allow Venture Global to start these different steps in the construction process until we are satisfied with their answers to the conditions.

0004-43
Table 4.3-7 identifies all foreign pipelines that are to be crossed by the project pipelines. Standard industry construction practice incudes searching for and identifying all existing utilities, notifying the utility owner, and uncovering and exposing the existing utility prior to installation of the project pipeline. According to Venture Global, Project pipelines would generally be buried below all existing lines that would be crossed.

some serious problems.

So that's one of the biggest concerns, the environmental impacts, so I have to look at the Environmental Impact Statement and see what safeguard they're doing to ensure that the emission is under control, that it doesn't contaminate and affect the area that we live in.

I'm going to be sending something in writing after I see the Environmental Impact Statement.

* * *

BENNY ROUSSELLE

MR. ROUSSELLE:

Okay. As you see, my name is Benny Rousselle and I'm an elected public official, serving in the capacity of a Council Member and the Port Harbor and Terminal District Commissioner, and I'm here today to support the VG LNG facility project.

I think it would be a great asset to the parish. I believe that the location is ideal. It's in the middle

0004-43 cont'd

0004-44
Thank you for your comment.

0004-43 Continued

0004-44

of the parish, basically in undeveloped area, and as long as the mitigation of the impacts are dealt with, through the EIS process, I believe it will be a very successful project and very beneficial to Plaquemines, the state and the nation.

* * *

0004-44 cont'd
Thank you for your comment.

0004-44
Continued

REPORTER'S CERTIFICATE

This certification is valid only for a transcript accompanied by my original signature and original required seal on this page.

I, Linda G. Griffin, RPR, Certified Court Reporter in and for the State of Louisiana, as the officer before whom these comments were taken, do hereby certify that this was reported by me in the stenotype reporting method, was prepared and transcribed by me or under my personal direction and supervision, and is a true and correct transcript to the best of my ability and understanding; that the transcript has been prepared in compliance with transcript format guidelines required by statute or by rules of the board, that I have acted in compliance with the prohibition on contractual relationships, as defined by Louisiana Code of Civil Procedure Article 1434 and in rules and advisory opinions of the board; that I am not related to counsel or the parties herein, nor am I otherwise interested in the outcome of this matter.

_____

LINDA G. GRIFFIN, RPR
CERTIFIED COURT REPORTER

PLAQUEMINES PORT

December 11th, 2018

Plaquemines Port Harbor and Terminal District is the lessor of the property for Venture Global's proposed Plaquemines Liquefied Natural Gas facility. As a Plaquemines Port Commission Member, and for the past year, Chairman of the Port Commission, my official actions and votes on issues related to Plaquemines LNG clearly put me on the record in full support of the project.

I wanted to take this opportunity to offer a few reasons for my support. First, the project is a great fit for our community. We offer a workforce familiar with process technology as Louisiana is home to many similar gas and petroleum-based industries, including two refineries located within the Plaquemines Port jurisdiction. Within the region there, are many educational facilities offering training for the operators this facility will require.

Property Plaquemines Port has leased to Venture Global has deep-draft access on the Mississippi River allowing for easy export of their product. It has long been used as pasture for cattle grazing. We welcome the opportunity to place it into higher commerce and best use, to derive revenues for Plaquemines Port and opportunities for the citizens of Plaquemines Parish. 0005-1

We appreciate Venture Global's respect for the environment in planning this facility. In addition to the clean process of liquefying natural gas, we take pride in the fact that the product produced in Plaquemines Parish will be sold around the world to replace fuel sources, which are less friendly to the global environment. 0005-2

For the reasons outlined here, the positive economic impact construction will bring to our community, and many more, I am in full-support of Venture Global's Plaquemines LNG and hope for a positive recommendation from the Federal Energy and Regulatory Commission at the end of your review process.

Charlie Burt

Councilmember, Plaquemines Parish District 6
Chairman, Plaquemines Port

P.O. Box 547 Belle Chasse, Louisiana 70037
(504) 682-7920

0005-1
Thank you for your comment.

0005-2
Thank you for your comment.

144 Gator Road
Deer Range Subdivision

DATE: December 20, 2018
TO: FERC OEP/DG2E/Gas Branch 1
FROM: Stephen Hourcade
SUBJECT: Venture Global Plaquemines LNG, LLC and Venture Global Gator Express, LLC Plaquemines LNG and Gator Express Pipeline Project Docket Nos. CP17-66-000 and CP17-67-000

I received the referenced Environmental Impact Statement regarding the above projects and I have comments reflected in the body of this letter.

I own a house at 144 Gator Road located on Deer Range Canal, which is less than one mile from this new LNG plant and pipeline.

I am currently retired. I worked in the oilfield for 40 years, finishing my career as an engineer with an oil company 3 years ago. I worked hard over the years to get to retirement, to be at my house on Deer Range to live, fish, and enjoy the peace and quiet of the marsh and tranquility of life away from the noise of the city. Now here comes this LNG plant and pipeline which will ruin the peace and quiet and solitude I have worked for 40 years to achieve. On top of this, I will not get compensated one penny for this and will likely lose money.

As far as I'm concerned, this plant will have ruined the purpose of my retirement home and certainly devalued my property if built and operated as in the permit. And the sad part is that there are so few people living in close proximity to this plant that I feel our concerns will be ignored or devalued and not taken because we are so few in number.

I fear from a safety perspective. In section 4.12.4.1, you list LNG Facility Accident History where you described 4 LNG facility accidents domestically and internationally and how you applied those lessons learned to this new LNG facility. I did a simple google search and found an article describing all past LNG facility accidents with description at https://www.laohamutuk.org/Oil/LNG/app4.htm and. https://timrileylaw.com/LNG.htm and http://citizensagainstlng.com/wp/wp-content/uploads/2014/11/Cabrillo-Port-EIR-Appendix-C3_List-of-LNG-Accidents.pdf . These articles describe 15 plant accidents including 2 LNG tanker accidents while moored at the facility. From these articles, I compiled the below list of past LNG accidents. The ones shaded in yellow are the ones you identified in your report and the ones not shaded were the ones I found that you did not show.

1. USA 1944 Cleveland plant fire that killed 128 people, injured 200-400.
2. Algeria 1964 Arzew LNG ship parked at plant – explosion, no injuries
3. USA 1968 Portland Oregon plant explosion that killed 4 people.
4. Italy 1971 La Spezia plant significant release of 200,000 cubic meters of gas through tank vents, no ignition.
5. Canada 1972 Montreal plant explosion, no one killed or injured.
6. U.A.E. 1978 Das Island plant failure and gas release, no explosion or injuries.
7. USA 1979 Cove Point Maryland explosion that killed 1 person.
8. Indonesia 1983 Bontang plant vessel rupture, gas release, 3 injured
9. UK 1989 Thurley plant explosion, 2 injured
10. Maryland 1992 Baltimore LNG plant failure, spill of 25,000 gallons LNG, no injuries

0006-1

0006-1
Some of the incidents, such as the Methane Progress LNG carrier that lightning struck and ignited vapor being routinely vented, which was extinguished by purging with nitrogen, were not considered as significant as those included in the NEPA document. Other incidents, such as the La Spezia rollover incident, we were not directly involved in the investigation as we were for Cove Point, Skikda, and the Plymouth Northwest incident. However, we still apply lessons learned from those incidents as we do for a number of other incidents that have occurred throughout the U.S. and world that are relevant to LNG facilities. For example, FERC staff ensure tank crack contingency plans are developed, typically as part of the emergency response plan, as a result of the tank crack that developed in the LNG peakshaver in Baltimore, MD. FERC staff also evaluate measures to prevent or mitigate rollover, which resulted in the venting at the La Spezia LNG facility. FERC staff also requires pre-startup safety reviews to be conducted, which better ensure flanges and valves are in the correct position prior to starting a facility up, which would have reduced the likelihood of the 1983 Bontang LNG plant incident and 1989 Thurley LNG plant incident. FERC staff applies lessons learned as well as from other related industries too, such as requiring the use of inert nonflammable mediums unless specifically authorized after the Kleen Energy power plant that performed cleanout and dry out activities using natural gas in a congested area that ignited. We also understand that multiple layers of protection are needed to reduce the risk of an incident occurring and impacting the public. Our review of the preliminary engineering design focuses on these layers of protection to reduce the risk of an incident while also ensuring lessons learned are applied from past incidents and abnormalities determined through our reporting requirements.

11. Malaysia 2003 Bintulu plant major fire, no injuries
12. Algeria 2004 plant explosion that killed 27 people, injured 56.
13. Trinidad/Tobago 2004 plant explosion, 1 injury
14. Jordan 2006 Amman tanker caught fire while unloading, 4 injured.
15. USA 2014 Washington plant explosion, no deaths, 1 injured.

There are 15 accidents listed above but you only listed 4 accidents in your report. Why didn't you address all past LNG accidents? Also, on page 4-214 and 4-215 you list past LNG vessel incidents. But the two vessel incidents I found in the list above were not identified and listed in your report.

At this point I do not feel that safety for me was adequately researched and addressed, in such a way that will ensure I will never experience adverse effects. And I don't think that's possible given I live less than a mile away from this proposed facility. Safety accident #15 above in Washington involved evacuating everyone in a 2 mile radius of the plant for days. These plants should not be built unless they are located more than 2 miles away from anyone in the public.

In your analysis of alternative LNG facility locations, on page 3-13, you describe the South Carlyss Site II as being not acceptable location, you state "Residences are located 0.2 miles to the southwest, 0.5 miles to the west, and immediately adjacent to the north of the site; therefore, the buffer is insufficient". On page 4-136, you state that "lots in the Deer Range camp community range from 750 feet(0.14 mile) to 3000 feet (0.6 mile) from the terminal boundary". These "lots" happen to have homes where people live, and if the buffer at South Carlyss is insufficient, how can our subdivision distance be sufficient? Looks like the same distance in both locations to me. You have us described as "lots" instead of "people".

In your document, you describe that the DOT will be providing a facility siting study to you that will determine minimum distance of the exclusion zone from LNG plant equipment to the public where the public will be safe. Please advise DOT that we are not "lots" but are people that will live far less than a mile from this facility's equipment.

In the Environmental Impact Statement, there are lots of references that diminish the significance of the population so close to this facility which includes me. On page ES-13, third paragraph down, it is stated "The proposed site is also well separated from area residences and population centers". Is it now? My home is less than a mile from the proposed plant location and pipeline. On page 4-114, 4th paragraph down, it is stated "Some low density residential areas are located approximately 0.2 miles off Lake Hermitage Road to the west and southwest of the terminal site". That's me. So is 0.2 miles your definition of "well separated from area residences"?

In the first paragraph of page 4-138, you state that most of the houses in the "Deer Range Camp Community" are not likely year round residences, but rather seasonal or recreational homes for recreational and commercial fishermen. I have lived in this community for over 60 years. There are many year round residents that live in the area and are not recreational nor commercial fishermen. These residences are not camps, they are houses. My house neighbor next door just sold his house for $150,000 and the house across the canal is listed for $250,000. By you all describing our community in this manner, it gives the appearance of diminishing the social standing of the people who live there. It also diminishes the value of the opinions of people who live there due to low numbers of people and the type casting of people who live there.

At the bottom of page 4-150 and top of page 4-151, it is stated "The camp communities southwest and south of the LNG terminal access SH23 north of it, but other subdivisions in Census Tract 504 access

0006-1 Continued

0006-1 cont'd

0006-2

0006-2
A primary factor in choosing a location for the Terminal was the availability of sufficient waterfront footage to support multiple LNG carriers. The Applicant determined that the waterway frontage available at the South Carlyss Sites were insufficient to support the three LNG loading docks for the proposed facility. Other concerns noted for the South Carlyss Sites included:
The Sites would require a very long and expensive gas lateral, which would reduce the economic competitiveness of the site for LNG production.
The overall acreage of the Sites are insufficient and the boundary configuration would make the siting of the Terminal facilities impractical.
The safety and maneuverability challenges associated with Sites are significant given its proximity to the intersection of the Intracoastal Waterway and the Calcasieu Ship Channel, and the heavy waterway congestion that occurs in this area.

0006-3

0006-3
References to the Deer Range Camp Community throughout the EIS have been updated to reflect that it is a community that consists of recreational hunting and fishing campsites as well as permanent homes.

0006-4

0006-4
See revised section 4.9.9. The EIS was revised so that specific subdivisions were not type-cast as minority or low-income. Several census tracts were identified as potential environmental justice communities based on their percentages of minority and low-income residents, but the percentage of minorities and low-income residents in any given subdivision is unknown.

SH23 south of LNG terminal. We find this vulnerability on minority and low income communities in the southern west bank indicates the need for targeted outreach to these communities". So this statement has type casted our community as minority and low income people who live in camp shacks. I know all of my neighbors and the vast majority are not minority and the vast majority are not low income. You think low income people can afford $150,000 to $250,000 homes?

In the first paragraph on page 4-137 it is stated "The closest residential development on the westbank that is not a camp community is a subdivision around a canal approximately 2.3 miles northwest on SH23". So now you have made a distinction between a camp community and a subdivision. The subdivision you reference is Myrtle Grove subdivision. So we are not residential development? And we are not in a subdivision? We have homes just as big as theirs with owned property lot sizes that are similar. I thought the name of our community was the Deer Range Subdivision. You referred to us as the Deer Range Subdivision at the top of page 4-123.

Again, statement after statement is showing that we have been labeled wrongly, our opinions diminished, and therefore our safety and well-being will be greatly negatively affected if this project is completed.

On the financial side, we would gain nothing and our property values would drop if this project is completed. Everyone in our subdivision owns their land and no one leases any property. On last paragraph on page 4-136, it is stated "Likewise, proximity is a chief factor influencing whether a facility could impact residential property values". On page 4-137, last 2 paragraphs, it is stated "Perceived health risks could also factor into property values of nearby residences". Also stated "We estimate that the terminal and pipe bridge could have a long term minor effect at the community level on property values, although we cannot predict the effects on any individual property". These statements prove that my property value will drop.

You address the visibility issues (what we can see from our homes) on the 2nd paragraph on page 4-122 "Although the area is considered industrial in nature, there are presently no industrial facilities of this magnitude visible from the nearby residences. Therefore the LNG facility could have an adverse impact on the residences, drivers, and recreational/commercial users of the area". What you are saying is that from ground level, I will experience an adverse impact on me personally as well as my property because of the view from my home.

And my property in particular could drop in value more than others. My house is elevated 12 feet as is the case for most homes in our subdivision. I have an elevated back deck facing the east and northeast, where I spend lots of time enjoying the scenery of the back marsh. But now less than a mile from my house directly to the east and northeast, which will be visible from my elevated deck, there will be a facility terminal and pipe bridge that will ruin my view. In your document you spend a lot of time talking about view of the facility from homes close-by, but the perspective is from ground level. All of the homes in our subdivision are elevated, most with decks, and therefore can view more of these facilities at an elevated level rather than at ground level. And at night the lights from the facility could light up the inside of my house at night and make it difficult for me to sleep. Your document addresses none of this perspective from an elevated point of view.

And what do you think will happen to my property values after evacuation orders are given to us when the first accident or near miss occurs? That's the first thing that potential buyers will want to know besides the view and sound issues.

0006-4 Continued

0006-4 cont'd

0006-5

0006-5

References to the Deer Range Camp Community throughout the EIS have been revised to reflect that it is a community that consists of recreational hunting and fishing campsites as well as permanent homes. Deer Range is not a recorded subdivision with Plaquemines Parish government.

0006-6

0006-6

The LNG Facility would be visible from nearby residential areas, as described in section 4.9.6. We assume individual properties in the Deer Range community could experience a property value change if the terminal is constructed; however, it would be similar to any change accompanying any "port terminal complex" and "major industries" according to the Parish's Master Plan that could be constructed.

0006-7

0006-7

With regard to the nearby view shed, the EIS states "LNG facility could have a minor adverse impact on the residences, drivers, and recreational/commercial users of the area." This conclusion was reached while analyzing ground level views. Views from elevated areas nearby the LNG terminal would also experience a minor adverse impact as any ground level vegetation and the floodwall mitigating ground levels views would be reduced from higher elevations. The EIS has been updated to reflect this determination from elevated areas. See section 4.8.6.1.

Another negative factor is noise pollution. In the first paragraph on page 5-24, it is stated "The cumulative noise effects near certain residences in the Deer Range camp community could be adverse for a few days or weeks if Venture Global's pile driving and/or HDD construction activities overlap with USACE (Corps of Engineers) upgrades of the adjacent levee, but overlap of these activities is unlikely. We recommend that Venture Global coordinate its construction with the USACE". Ok so now we are back to being a camp community instead of a subdivision. If my residence will be negatively affected by the cumulative noise pollution, why didn't you make it a condition of the permit that they cannot conduct pile driving or HDD construction activities if the USACE is upgrading the levee? Venture will be pile driving 10 hours a day for over a year, how can you say that overlap of these activities is unlikely? I think it to be very likely. We will be negatively affected even if Venture uses mitigation steps to lower noise levels on their part.

At the top of page 4-202, table 4.11-17 shows the predicted noise levels of pile driving by Venture in their plant. My home is located in monitoring point NSA2. It shows that without noise mitigation, the predicted noise level would rise from ambient of 46.9 dB to 69.9 dB, for a rise of 23 dB. The table also shows the predicted noise level of 62.9 dB with no mitigation using a "20% usage factor", because pile driving is not a constant noise. Why is this allowed? You should expose your ears to pile driving and tell me if the noise is reduced because it is not a constant noise. That level would be unbearable for us. Think of the worst headache you've ever had with pounding in your head like pile driving, then tell me if you think it is not a constant feeling. The 20% usage factor should not be allowed.

In the middle of page 4-202, you state that Venture Global could construct 5 meter (15 feet) high noise protection walls around piling rigs for noise mitigation that would lower noise levels to 2.2 dB above ambient noise levels. Then you describe alternative mitigation steps that would be allowed. You describe that if noise protection walls are not a feasible option, you list 3 other options that would be allowed but you don't state what the models would predict on noise levels at my house if any of those 3 alternative options are used. You should not allow these other options if you can't model the predicted noise levels for them and you should force Venture Global to use noise protection walls as a result.

Also, in your recommendations, you state that Venture Global should be forced to conduct noise assessments at all NSA's while pile driving is taking place and also pipeline HDD operations and make adjustments to their noise mitigation methods if noise levels are too high. This recommendation is absolutely critical and should be a requirement, and the same should be done after the facility is put into operation if allowed to be constructed. In fact, all of your recommendations stated in section 4.12.5 and section 5.2 should be requirements in the permit assuming no one can convince you to deny the permit. As you stated in the bottom of page ES-5, Venture Global has not yet committed to any specific mitigation measures, so if you don't put it as requirements in the permit, it won't get done.

Flaring inside the facility is also a concern to me, regarding sight, sound, and light. At the top of page 4-122, your report states that views of the flaring would be visible to some viewers, but would be partially obscured by the floodwall. So, the floodwall is 26 feet tall, while the flares are 280 feet tall, and the flame is at the top of the flare. So how many miles away does it take for a 26 foot wall to partially obscure a flare 280 feet high? Sure isn't happening at my house, less than a mile away. So I will get to watch and listen to each and every flare unless I am sleeping at night, for which it wakes me up from the sound and the light generated from the flare. And if it is not flaring, I get to see all 3 flare stacks every day year round.

So you say that flaring doesn't happen that often. At the bottom of page 2-9, flaring is described as being usually associated with system start up, planned maintenance and shutdown scenarios, and LNG carrier gas up/cool down operations. It is also stated that 3 separate flare structures will be installed. At

0006-8

0006-8
The Applicant would coordinate construction of the pipe bridge with the USACE in accordance with the Section 408 Permit issued by the USACE for the pipe bridge over the levee. The timing of the USACE's planned construction activities is currently unknown. See section 4.13.2.12.

0006-9

0006-9
Impact pile driving is an intermittent noise source (i.e., non-constant), so a usage factor was applied to the calculated maximum noise level (Lmax). In accordance with the Federal Highway Administration (FHA) Roadway Construction Noise Model (RCNM) (FHA, 2006), Venture Global applied a usage factor of 20 percent to the predicted Lmax levels from pile driving. Calculating pile-driving noise without a usage factor would not be an appropriate way of estimating noise impacts from an intermittent noise source for comparison to ambient background noise levels.

0006-10

0006-10
Venture Global has committed to not increasing noise more than 10dba as stated in section 4.11.2.4. Pile installation at the pipe bridge would involve an auger type drill rig instead of an impact rig as discussed in LNG terminal construction. An auger drill rig has an Lmax of 85 dBA at a distance of 50 feet. Use of an auger drill for pipe bridge pile installation would be estimated to produce a noise level of 54.3 dBA at NSA 2, located approximately 1,713 feet to the west. This would be a 7.9 dBA increase during daytime ambient noise levels.

0006-11

0006-11
The flares associated with the LNG terminal would likely generate noise when used, however, Venture Global does not consider the flares to be significant contributors to the noise generated by the facility due to their infrequent use. To the extent practical, use of the flares during initial facility start-up would be limited to daytime hours, limiting potential impacts on noise-sensitive areas (NSAs). Given that flaring would be limited to initial facility start-up and then infrequent LNG carrier gas up / cool down operations, we have determined that potential impacts on NSAs or other residents in the vicinity of the LNG terminal would be of short duration, temporary,

intermittent and would less than 10 dBA above ambient Leq level.  See section 4.11.2.4.

the top of page 4-122, it is stated that flaring would occur twice per year for startup and shutdown purposes, and that marine flaring would occur up to 12 times per year. At the bottom of page 4-205, it is stated that flaring may occur up to 40 times per year during LNG carrier gas up/cool down operations. So it's going to happen a lot, and that doesn't include any operational upset flaring.

Concerning storm water and hydrostatic test water, in the middle of page 4-300, it is stated this water will drain into adjacent industrial canals that flow to a pumping station, where it is pumped into the marshes that lead to Lake Hermitage. This document notes in several spots this body of water as Lake Judge Perez, but its' name has been changed back to Lake Hermitage for many years. For example this document notes the fire department as Lake Hermitage fire department which is adjacent to Lake Hermitage.

For this hydrostatic test water, for facility vessels, it is written in 2nd to last paragraph that water from nearby drainage canal will be used to hydrostatically test the LNG storage tanks, and that chemical additives may be required during the testing process to neutralize bacteria and other components that can be corrosive. For the hydrostatic testing of the pipelines, in the middle of page 4-35, it is stated that if necessary, corrosion inhibitor would be added to protect the pipe. In both cases, it is stated that prior to discharge into the adjacent industrial canals that flow to a pumping station that will be pumped into the marshes that lead to Lake Hermitage, the water would flow through 25 to 50 micron filters to remove solids and an active carbon medium to remove chemical contaminants. It is stated that they will be following the guidelines of LPDES general permit LAG670000.

I review this general permit for requirements and found that common additives to test water such as corrosion inhibitors, bactericides, and dyes may not be added to the test water to be discharged without prior approval from LDEQ. Written requests for approval must include toxicity data for each additive proposed for use and levels of each additive to be added to make sure that the added levels do not exceed levels specified in aquatic toxicity data that they must submit. I also researched the ability of activated carbon medium to remove these particular chemicals and could not find any supporting data. I am concerned that Venture Global will ignore the requirements of this permit and a fish or wildlife kill might occur. This needs to be addressed. I would recommend that all hydrostatic test water be gathered in a tank and sent to a water disposal site rather than discharging to sensitive marsh areas.

I am finished addressing facility issues and now I will address pipeline issues.

The first issue is method of installation and its effect on dredging and marsh destruction.

On page 4-26, the table shows that the Barge Lay method will be used in open waters from Barataria Bay through Bay Wilkerson through North Bay Wilkerson (Upper Wilkinson Bay) through Bay Raquette to Bay Laurier. It also shows that the Push/Pull method will be used in marsh areas from Bay Laurier to the Pipe Bridge on land.

On page 2-27, the barge lay process is described where a 300 foot construction right of way would be required. A spud barge 100 feet wide using a barge mounted clam bucket is used to dig a float channel trench deep enough to at least 8 feet to float this dredge barge, then a pipe trench is dug in the float trench deep enough to bury the pipelines. On page 2-28, the push lay process is described where a 130 foot right of way would be required and an excavator digging a 30 foot wide push ditch.

At the top of page ES-3, it is stated that the barge lay method will be used in open water areas and the push/pull method in marsh or inundated wetlands. However, there is a solid area of marsh between North Bay Wilkerson(Upper Wilkinson Bay) and Bay Raquette. At the bottom of page 2-27, it is stated

0006-11 Continued

0006-11 cont'd

0006-12

0006-12

Approximately 26,200,000 gallons of water would be required during hydrostatic testing of the LNG storage tanks and approximately 50,000 gallons of water for testing piping and non-LNG tanks. It would not be feasible to transport this volume of water for disposal due to the limited capacity of tanker trucks. Chemical additives may be required during the testing process to neutralize bacteria and other components that can be corrosive. Before returning hydrostatic water to its surface water source, Venture Global would pass the water through 25-50 micron filters and an active carbon medium to remove suspended solids and neutralize or biodegrade the chemical additives. Following completion of the hydrostatic testing and prior to discharge, the test water would be analyzed for total suspended solids, oil and grease, and pH in accordance with LDEQ Louisiana Pollution Discharge Elimination System (LPDES) general permit LAG670000. In accordance with general permit LAG670000, Venture Global would seek authorization from the LDEQ to use additives and would provide the specific additives and the intended concentrations as part of the permitting process. The withdrawal, testing, and discharge of hydrostatic test water would be conducted in accordance with LPDES permit requirements. See section 4.3.2.2.

0006-13

0006-13

The installation of the pipeline Between North Bay Wilkerson (Upper Wilkinson Bay) and Bay Raquette by use of the push/pull method is not practical given the saturation of the marsh and surrounding area making push/pull equipment ineffective. Approximately 1,100 feet of the 2,500 feet between the two waterbodies generally follow an existing conduit. Therefore, about 1,400 feet of the pipeline route impacts the saturated marsh located between open water. To facilitate restoration of this segment of construction right-of-way, Venture Global would temporarily store material excavated from the barge flotation channel to facilitate restoration of the marsh to pre-construction contours to ensure no new permanent channel is created. See section 2.5.2.4.

that the barge lay method will be used for this "relatively short" section of marsh that I've described. These statements are in direct conflict. Why would you allow destruction of a 300 foot wide construction right of way on this section of marsh when it can be done by the push/pull method with only a 130 foot wide right of way and a 30 foot wide push ditch? I've been fishing this marsh for over a half century and that section of marsh is healthy and solid regardless of its length. And by the way, this supposed "relatively short" section of marsh is nearly ½ mile long.

Regardless of which method is used, if the trench is not refilled and marsh restored to its original condition as best as can be done, this new channel will serve as a direct conduit for storm surge and cause higher flooding at my home.

So what about marsh restoration for this project? Will Venture Global fill in all channels and trenches dug to access and bury the pipeline? Will Venture Global place the dug spoil in open water back into the access channels and trenches they dug both along the pipeline and in access channels across Bay Laurier and Barataria Bay to restore the original contour of the water bottoms? Appears that the answer is no. At the bottom of page 4-85, it is stated that Venture Global will backfill the pipeline trenches with dredged material. And material dredged from the barge access channels would be "sidecast". What is sidecast? They could just knock off the tops of the underwater spoil banks back into the access channels and that would be good enough for sidecast?

It is also stated that upon project completion, the dredged and excavated portions of the channels would be allowed to backfill naturally over time to original contour bottoms. This tells me that Venture Global will allow underwater spoil mounds on each side of the access channels to remain in place and will be hazards to navigation and also to shrimp trawlers like myself. This to me is unacceptable. The original contours of the water bottoms should be restored, or better yet take the spoil that will not be used to backfill channels, and build up the small open pond areas of the marsh by depositing the dredged material there. That could pay for some of the wetlands they will destroy at the facility site.

So how will Venture Global pay to restore the marsh and water bottoms they are destroying? On page 4-48, second paragraph, it states that Venture Global proposes to use mitigation banks, an in-lieu fee program, or a combination of the two to offset, or mitigate impacts of the project. So what will happen is some farmer to the north of Louisiana to dam off some of his farmland to create new wetlands that he can sell into the mitigation bank from which Venture Global will buy. Also, this farmer's new wetlands up north will capture most of the ducks flying south and make our duck season terrible as it has been this year, and Venture Global can buy from the mitigation bank and destroy our marsh with no restoration. Sounds like we are getting screwed from both directions.

The last issue I have revolves around the timing of pipeline installation. On page 4-36, you state that in your section V.B.1 of your procedures require that instream work like installing this pipeline must occur from June 1 to November 1. On page 4-80, Global Venture states that it would not adopt this time restriction for the pipeline project because of the length of the construction period. In the document, it is stated that the push/pull section will require 27 days and the barge lay section will require 31 days. For myself, the worst time of the year to install this pipeline is during shrimp and crab season in the summer and early fall. I typically get my year's supply of shrimp by pulling a bottom trawl in Bay Laurier in the channels in May and June. Also, the best crabbing from June through October is in the channels of Bay Laurier. The La. Wildlife and Fisheries has established crabbing restrictions from September to October, where the possession of female crabs will be prohibited in order for the immature female crabs to mate for life. The inland bays are typically full of marine life at their most during the May to October time period. For those who crab and shrimp, the late fall, winter, and spring are the best times to

0006-13
Continued

0006-13 cont'd

0006-14

0006-14
Spoil resulting from the excavation of the flotation channel and pipe trenches would be temporarily placed on either side of the right-of-way centerline, keeping the spoil below the water surface, where feasible, to minimize wave generated turbidity. After the pipe is lowered into the trench, the pipeline trench and flotation channel would be backfilled with previously excavated material. The trench and construction workspace would be returned to its previous contours to match the adjacent undisturbed portions of the wetland upon completion of restoration. The applicant would also install bank line stabilization at the water/marsh interface to facilitate restoration.

Restoration of the temporarily impacted areas would be monitored and the successful achievement of pre-construction conditions would be determined after one full growing season post construction. For locations where pre-construction conditions are not achieved after one full growing season, Venture Global would work with the USACE and LDNR to determine the appropriate follow-up measures to restore the construction right-of-way. See section 4.6.4.2.

0006-15

0006-15
The Applicant is developing a compensatory mitigation plan per USACE permit requirements and the Clean Water Act, Section 404. See Section 4.4.4 of the EIS.

0006-16

0006-16
The Applicant is currently consulting with the LDWF receive permission to install the pipeline during the summer months. If granted by LDWF, impacts on commercial and recreational fisheries associated with construction activities is expected to be temporary and short-term and localized to the immediate vicinity of construction activities. Although the construction of each pipeline and deepening of discrete segments of barge access channels would take place over an extended duration, the construction activity at any single location along the pipeline route or barge access channels is likely to be limited to several days or weeks minimizing potential impacts on commercial and recreational fishing. Access to the construction right-of-way and barge access channels would not

be prohibited for fishing/crabbing/shrimping, except in the immediate vicinity of construction activities where necessary for safety reasons. See section 4.6.3.2.

0006-16
Continued 0006-16 cont'd

construct a pipeline like this. It would also disturb the least marine life to build the pipeline between November and April.

In summary, I have outlined a large number of issues with this project. If it were just a pipeline, and would follow the requested changes I have made, I would have no problem. But, the LNG facility is a deal breaker and I respectfully request this permit be denied. I live less than a mile away from this facility if it is built. In order for a permit like this to be approved, there should be a several mile buffer zone around every facility like this where no one has residence of any kind, and if that can't be accomplished, the facility permit should be denied.

Thank you for your consideration.

_____
Steve Hourcade

Document Content(s)

ORIGINAL

158 Gator Road
Deer Range Subdivision

DATE: December 20, 2018
TO: FERC OEP/DG2E/Gas Branch 1
FROM: Leslie Gaudet
SUBJECT: Venture Global Plaquemines LNG, LLC and Venture Global Gator Express, LLC Plaquemines LNG and Gator Express Pipeline Project Docket Nos. CP17-66-000 and CP17-67-000

I received the referenced Environmental Impact Statement regarding the above projects and I have comments reflected in the body of this letter.

I own a house at 144 Gator Road located on Deer Range Canal, which is less than one mile from this new LNG plant and pipeline.

I am currently retired. I worked in the oilfield for 40 years, finishing my career as an engineer with an oil company 3 years ago. I worked hard over the years to get to retirement, to be at my house on Deer Range to live, fish, and enjoy the peace and quiet of the marsh and tranquility of life away from the noise of the city. Now here comes this LNG plant and pipeline which will ruin the peace and quiet and solitude I have worked for 40 years to achieve. On top of this, I will not get compensated one penny for this and will likely lose money.

As far as I'm concerned, this plant will have ruined the purpose of my retirement home and certainly devalued my property if built and operated as in the permit. And the sad part is that there are so few people living in close proximity to this plant that I feel our concerns will be ignored or devalued and not taken because we are so few in number.

I fear from a safety perspective. In section 4.12.4.1, you list LNG Facility Accident History where you described 4 LNG facility accidents domestically and internationally and how you applied those lessons learned to this new LNG facility. I did a simple google search and found an article describing all past LNG facility accidents with description at https://www.laohamutuk.org/Oil/LNG/app4.htm and. https://timrileylaw.com/LNG.htm and http://citizensagainstlng.com/wp/wp-content/uploads/2014/11/Cabrillo-Port-EIR-Appendix-C3_List-of-LNG-Accidents.pdf . These articles describe 15 plant accidents including 2 LNG tanker accidents while moored at the facility. From these articles, I compiled the below list of past LNG accidents. The ones shaded in yellow are the ones you identified in your report and the ones not shaded were the ones I found that you did not show.

1. USA 1944 Cleveland plant fire that killed 128 people, injured 200-400.
2. Algeria 1964 Arzew LNG ship parked at plant – explosion, no injuries
3. USA 1968 Portland Oregon plant explosion that killed 4 people.
4. Italy 1971 La Spezia plant significant release of 200,000 cubic meters of gas through tank vents, no ignition.
5. Canada 1972 Montreal plant explosion, no one killed or injured.
6. U.A.E. 1978 Das Island plant failure and gas release, no explosion or injuries.
7. USA 1979 Cove Point Maryland explosion that killed 1 person.
8. Indonesia 1983 Bontang plant vessel rupture, gas release, 3 injured
9. UK 1989 Thurley plant explosion, 2 injured
10. Maryland 1992 Baltimore LNG plant failure, spill of 25,000 gallons LNG, no injuries



0008-1

0008-1
Some of the incidents, such as the Methane Progress LNG carrier that lightning struck and ignited vapor being routinely vented, which was extinguished by purging with nitrogen, were not considered as significant as those included in the NEPA document. Other incidents, such as the La Spezia rollover incident, we were not directly involved in the investigation as we were for Cove Point, Skikda, and the Plymouth Northwest incident. However, we still apply lessons learned from those incidents as we do for a number of other incidents that have occurred throughout the U.S. and world that are relevant to LNG facilities. For example, FERC staff ensure tank crack contingency plans are developed, typically as part of the emergency response plan, as a result of the tank crack that developed in the LNG peakshaver in Baltimore, MD. FERC staff also evaluate measures to prevent or mitigate rollover, which resulted in the venting at the La Spezia LNG facility. FERC staff also requires pre-startup safety reviews to be conducted, which better ensure flanges and valves are in the correct position prior to starting a facility up, which would have reduced the likelihood of the 1983 Bontang LNG plant incident and 1989 Thurley LNG plant incident. FERC staff applies lessons learned as well as from other related industries too, such as requiring the use of inert nonflammable mediums unless specifically authorized after the Kleen Energy power plant that performed cleanout and dry out activities using natural gas in a congested area that ignited. We also understand that multiple layers of protection are needed to reduce the risk of an incident occurring and impacting the public. Our review of the preliminary engineering design focuses on these layers of protection to reduce the risk of an incident while also ensuring lessons learned are applied from past incidents and abnormalities determined through our reporting requirements.

11. Malaysia 2003 Bintulu plant major fire, no injuries
12. Algeria 2004 plant explosion that killed 27 people, injured 56.
13. Trinidad/Tobago 2004 plant explosion, 1 injury
14. Jordan 2006 Amman tanker caught fire while unloading, 4 injured.
15. USA 2014 Washington plant explosion, no deaths, 1 injured.

There are 15 accidents listed above but you only listed 4 accidents in your report. Why didn't you address all past LNG accidents? Also, on page 4-214 and 4-215 you list past LNG vessel incidents. But the two vessel incidents I found in the list above were not identified and listed in your report.

At this point I do not feel that safety for me was adequately researched and addressed, in such a way that will ensure I will never experience adverse effects. And I don't think that's possible given I live less than a mile away from this proposed facility. Safety accident #15 above in Washington involved evacuating everyone in a 2 mile radius of the plant for days. These plants should not be built unless they are located more than 2 miles away from anyone in the public.

In your analysis of alternative LNG facility locations, on page 3-13, you describe the South Carlyss Site II as being not acceptable location, you state "Residences are located 0.2 miles to the southwest, 0.5 miles to the west, and immediately adjacent to the north of the site; therefore, the buffer is insufficient". On page 4-136, you state that "lots in the Deer Range camp community range from 750 feet(0.14 mile) to 3000 feet (0.6 mile) from the terminal boundary". These "lots" happen to have homes where people live, and if the buffer at South Carlyss is insufficient, how can our subdivision distance be sufficient? Looks like the same distance in both locations to me. You have us described as "lots" instead of "people".

In your document, you describe that the DOT will be providing a facility siting study to you that will determine minimum distance of the exclusion zone from LNG plant equipment to the public where the public will be safe. Please advise DOT that we are not "lots" but are people that will live far less than a mile from this facility's equipment.

In the Environmental Impact Statement, there are lots of references that diminish the significance of the population so close to this facility which includes me. On page ES-13, third paragraph down, it is stated "The proposed site is also well separated from area residences and population centers". Is it now? My home is less than a mile from the proposed plant location and pipeline. On page 4-114, 4th paragraph down, it is stated "Some low density residential areas are located approximately 0.2 miles off Lake Hermitage Road to the west and southwest of the terminal site". That's me. So is 0.2 miles your definition of "well separated from area residences"?

In the first paragraph of page 4-138, you state that most of the houses in the "Deer Range Camp Community" are not likely year round residences, but rather seasonal or recreational homes for recreational and commercial fishermen. I have lived in this community for over 60 years. There are many year round residents that live in the area and are not recreational nor commercial fishermen. These residences are not camps, they are houses. My house neighbor next door just sold his house for $150,000 and the house across the canal is listed for $250,000. By you all describing our community in this manner, it gives the appearance of diminishing the social standing of the people who live there. It also diminishes the value of the opinions of people who live there due to low numbers of people and the type casting of people who live there.

At the bottom of page 4-150 and top of page 4-151, it is stated "The camp communities southwest and south of the LNG terminal access SH23 north of it, but other subdivisions in Census Tract 504 access

0008-1 Continued

0008-1 cont'd

0008-2

A primary factor in choosing a location for the Terminal was the availability of sufficient waterfront footage to support multiple LNG carriers. The Applicant determined that the waterway frontage available at the South Carlyss Sites were insufficient to support the three LNG loading docks for the proposed facility. Other concerns noted for the South Carlyss Sites included:

The Sites would require a very long and expensive gas lateral, which would reduce the economic competitiveness of the site for LNG production.

0008-2

The overall acreage of the Sites are insufficient and the boundary configuration would make the siting of the Terminal facilities impractical.

The safety and maneuverability challenges associated with Sites are significant given its proximity to the intersection of the Intracoastal Waterway and the Calcasieu Ship Channel, and the heavy waterway congestion that occurs in this area.

0008-3

References to the Deer Range Camp Community throughout the EIS have been updated to reflect that it is a community that consists of recreational hunting and fishing campsites as well as permanent homes.

0008-4

See revised section 4.9.9. The EIS was revised so that specific subdivisions were not type-cast as minority or low-income. Several census tracts were identified as potential environmental justice communities based on their percentages of minority and low-income residents, but the percentage of minorities and low-income residents in any given subdivision is unknown.

0008-3

0008-4

SH23 south of LNG terminal. We find this vulnerability on minority and low income communities in the southern west bank indicates the need for targeted outreach to these communities". So this statement has type casted our community as minority and low income people who live in camp shacks. I know all of my neighbors and the vast majority are not minority and the vast majority are not low income. You think low income people can afford $150,000 to $250,000 homes?

In the first paragraph on page 4-137 it is stated "The closest residential development on the westbank that is not a camp community is a subdivision around a canal approximately 2.3 miles northwest on SH23". So now you have made a distinction between a camp community and a subdivision. The subdivision you reference is Myrtle Grove subdivision. So we are not residential development? And we are not in a subdivision? We have homes just as big as theirs with owned property lot sizes that are similar. I thought the name of our community was the Deer Range Subdivision. You referred to us as the Deer Range Subdivision at the top of page 4-123.

Again, statement after statement is showing that we have been labeled wrongly, our opinions diminished, and therefore our safety and well-being will be greatly negatively affected if this project is completed.

On the financial side, we would gain nothing and our property values would drop if this project is completed. Everyone in our subdivision owns their land and no one leases any property. On last paragraph on page 4-136, it is stated "Likewise, proximity is a chief factor influencing whether a facility could impact residential property values". On page 4-137, last 2 paragraphs, it is stated "Perceived health risks could also factor into property values of nearby residences". Also stated "We estimate that the terminal and pipe bridge could have a long term minor effect at the community level on property values, although we cannot predict the effects on any individual property". These statements prove that my property value will drop.

You address the visibility issues (what we can see from our homes) on the 2nd paragraph on page 4-122 "Although the area is considered industrial in nature, there are presently no industrial facilities of this magnitude visible from the nearby residences. Therefore the LNG facility could have an adverse impact on the residences, drivers, and recreational/commercial users of the area". What you are saying is that from ground level, I will experience an adverse impact on me personally as well as my property because of the view from my home.

And my property in particular could drop in value more than others. My house is elevated 12 feet as is the case for most homes in our subdivision. I have an elevated back deck facing the east and northeast, where I spend lots of time enjoying the scenery of the back marsh. But now less than a mile from my house directly to the east and northeast, which will be visible from my elevated deck, there will be a facility terminal and pipe bridge that will ruin my view. In your document you spend a lot of time talking about view of the facility from homes close-by, but the perspective is from ground level. All of the homes in our subdivision are elevated, most with decks, and therefore can view more of these facilities at an elevated level rather than at ground level. And at night the lights from the facility could light up the inside of my house at night and make it difficult for me to sleep. Your document addresses none of this perspective from an elevated point of view.

And what do you think will happen to my property values after evacuation orders are given to us when the first accident or near miss occurs? That's the first thing that potential buyers will want to know besides the view and sound issues.

0008-4 Continued

0008-4 cont'd

0008-5

0008-5

References to the Deer Range Camp Community throughout the EIS have been revised to reflect that it is a community that consists of recreational hunting and fishing campsites as well as permanent homes. Deer Range is not a recorded subdivision with Plaquemines Parish government.

0008-6

0008-6

The LNG Facility would be visible from nearby residential areas, as described in section 4.9.6. We assume individual properties in the Deer Range community could experience a property value change if the terminal is constructed; however, it would be similar to any change accompanying any "port terminal complex" and "major industries" according to the Parish's Master Plan that could be constructed.

0008-7

0008-7

With regard to the nearby view shed, the EIS states "LNG facility could have a minor adverse impact on the residences, drivers, and recreational/commercial users of the area." This conclusion was reached while analyzing ground level views. Views from elevated areas nearby the LNG terminal would also experience a minor adverse impact as any ground level vegetation and the floodwall mitigating ground levels views would be reduced from higher elevations. The EIS has been updated to reflect this determination from elevated areas. See section 4.8.6.1

Another negative factor is noise pollution. In the first paragraph on page 5-24, it is stated "The cumulative noise effects near certain residences in the Deer Range camp community could be adverse for a few days or weeks if Venture Global's pile driving and/or HDD construction activities overlap with USACE (Corps of Engineers) upgrades of the adjacent levee, but overlap of these activities is unlikely. We recommend that Venture Global coordinate its construction with the USACE". Ok so now we are back to being a camp community instead of a subdivision. If my residence will be negatively affected by the cumulative noise pollution, why didn't you make it a condition of the permit that they cannot conduct pile driving or HDD construction activities if the USACE is upgrading the levee? Venture will be pile driving 10 hours a day for over a year, how can you say that overlap of these activities is unlikely? I think it to be very likely. We will be negatively affected even if Venture uses mitigation steps to lower noise levels on their part.

At the top of page 4-202, table 4.11-17 shows the predicted noise levels of pile driving by Venture in their plant. My home is located in monitoring point NSA2. It shows that without noise mitigation, the predicted noise level would rise from ambient of 46.9 dB to 69.9 dB, for a rise of 23 dB. The table also shows the predicted noise level of 62.9 dB with no mitigation using a "20% usage factor", because pile driving is not a constant noise. Why is this allowed? You should expose your ears to pile driving and tell me if the noise is reduced because it is not a constant noise. That level would be unbearable for us. Think of the worst headache you've ever had with pounding in your head like pile driving, then tell me if you think it is not a constant feeling. The 20% usage factor should not be allowed.

In the middle of page 4-202, you state that Venture Global could construct 5 meter (15 feet) high noise protection walls around piling rigs for noise mitigation that would lower noise levels to 2.2 dB above ambient noise levels. Then you describe alternative mitigation steps that would be allowed. You describe that if noise protection walls are not a feasible option, you list 3 other options that would be allowed but you don't state what the models would predict on noise levels at my house if any of those 3 alternative options are used. You should not allow these other options if you can't model the predicted noise levels for them and you should force Venture Global to use noise protection walls as a result.

Also, in your recommendations, you state that Venture Global should be forced to conduct noise assessments at all NSA's while pile driving is taking place and also pipeline HDD operations and make adjustments to their noise mitigation methods if noise levels are too high. This recommendation is absolutely critical and should be a requirement, and the same should be done after the facility is put into operation if allowed to be constructed. In fact, all of your recommendations stated in section 4.12.5 and section 5.2 should be requirements in the permit assuming no one can convince you to deny the permit. As you stated in the bottom of page ES-5, Venture Global has not yet committed to any specific mitigation measures, so if you don't put it as requirements in the permit, it won't get done.

Flaring inside the facility is also a concern to me, regarding sight, sound, and light. At the top of page 4-122, your report states that views of the flaring would be visible to some viewers, but would be partially obscured by the floodwall. So, the floodwall is 26 feet tall, while the flares are 280 feet tall, and the flame is at the top of the flare. So how many miles away does it take for a 26 foot wall to partially obscure a flare 280 feet high? Sure isn't happening at my house, less than a mile away. So I will get to watch and listen to each and every flare unless I am sleeping at night, for which it wakes me up from the sound and the light generated from the flare. And if it is not flaring, I get to see all 3 flare stacks every day year round.

So you say that flaring doesn't happen that often. At the bottom of page 2-9, flaring is described as being usually associated with system start up, planned maintenance and shutdown scenarios, and LNG carrier gas up/cool down operations. It is also stated that 3 separate flare structures will be installed. At

0008-8

0008-8
The Applicant would coordinate construction of the pipe bridge with the USACE in accordance with the Section 408 Permit issued by the USACE for the pipe bridge over the levee. The timing of the USACE's planned construction activities is currently unknown. See section 4.13.2.12.

0008-9

0008-9
Impact pile driving is an intermittent noise source (i.e., non-constant), so a usage factor was applied to the calculated maximum noise level (Lmax). In accordance with the Federal Highway Administration (FHA) Roadway Construction Noise Model (RCNM) (FHA, 2006), Venture Global applied a usage factor of 20 percent to the predicted Lmax levels from pile driving. Calculating pile-driving noise without a usage factor would not be an appropriate way of estimating noise impacts from an intermittent noise source for comparison to ambient background noise levels.

0008-10

0008-10
Venture Global has committed to not increasing noise more than 10dba as stated in section 4.11.2.4. Pile installation at the pipe bridge would involve an auger type drill rig instead of an impact rig as discussed in LNG terminal construction. An auger drill rig has an Lmax of 85 dBA at a distance of 50 feet. Use of an auger drill for pipe bridge pile installation would be estimated to produce a noise level of 54.3 dBA at NSA 2, located approximately 1,713 feet to the west. This would be a 7.9 dBA increase during daytime ambient noise levels.

0008-11

0008-11
The flares associated with the LNG terminal would likely generate noise when used, however, Venture Global does not consider the flares to be significant contributors to the noise generated by the facility due to their infrequent use. To the extent practical, use of the flares during initial facility start-up would be limited to daytime hours, limiting potential impacts on noise-sensitive areas (NSAs). Given that flaring would be limited to initial facility start-up and then infrequent LNG carrier gas up / cool down operations, we have determined that potential impacts on NSAs or other residents in the vicinity of the LNG terminal would be of short duration, temporary,

intermittent and would less than 10 dBA above ambient Leq level.  See section 4.11.2.4.

the top of page 4-122, it is stated that flaring would occur twice per year for startup and shutdown purposes, and that marine flaring would occur up to 12 times per year. At the bottom of page 4-205, it is stated that flaring may occur up to 40 times per year during LNG carrier gas up/cool down operations. So it's going to happen a lot, and that doesn't include any operational upset flaring.

Concerning storm water and hydrostatic test water, in the middle of page 4-300, it is stated this water will drain into adjacent industrial canals that flow to a pumping station, where it is pumped into the marshes that lead to Lake Hermitage. This document notes in several spots this body of water as Lake Judge Perez, but its' name has been changed back to Lake Hermitage for many years. For example this document notes the fire department as Lake Hermitage fire department which is adjacent to Lake Hermitage.

For this hydrostatic test water, for facility vessels, it is written in 2nd to last paragraph that water from nearby drainage canal will be used to hydrostatically test the LNG storage tanks, and that chemical additives may be required during the testing process to neutralize bacteria and other components that can be corrosive. For the hydrostatic testing of the pipelines, in the middle of page 4-35, it is stated that if necessary, corrosion inhibitor would be added to protect the pipe. In both cases, it is stated that prior to discharge into the adjacent industrial canals that flow to a pumping station that will be pumped into the marshes that lead to Lake Hermitage, the water would flow through 25 to 50 micron filters to remove solids and an active carbon medium to remove chemical contaminants. It is stated that they will be following the guidelines of LPDES general permit LAG670000.

I review this general permit for requirements and found that common additives to test water such as corrosion inhibitors, bactericides, and dyes may not be added to the test water to be discharged without prior approval from LDEQ. Written requests for approval must include toxicity data for each additive proposed for use and levels of each additive to be added to make sure that the added levels do not exceed levels specified in aquatic toxicity data that they must submit. I also researched the ability of activated carbon medium to remove these particular chemicals and could not find any supporting data. I am concerned that Venture Global will ignore the requirements of this permit and a fish or wildlife kill might occur. This needs to be addressed. I would recommend that all hydrostatic test water be gathered in a tank and sent to a water disposal site rather than discharging to sensitive marsh areas.

I am finished addressing facility issues and now I will address pipeline issues.

The first issue is method of installation and its effect on dredging and marsh destruction.

On page 4-26, the table shows that the Barge Lay method will be used in open waters from Barataria Bay through Bay Wilkerson through North Bay Wilkerson (Upper Wilkinson Bay) through Bay Raquette to Bay Laurier. It also shows that the Push/Pull method will be used in marsh areas from Bay Laurier to the Pipe Bridge on land.

On page 2-27, the barge lay process is described where a 300 foot construction right of way would be required. A spud barge 100 feet wide using a barge mounted clam bucket is used to dig a float channel trench deep enough to at least 8 feet to float this dredge barge, then a pipe trench is dug in the float trench deep enough to bury the pipelines. On page 2-28, the push lay process is described where a 130 foot right of way would be required and an excavator digging a 30 foot wide push ditch.

At the top of page ES-3, it is stated that the barge lay method will be used in open water areas and the push/pull method in marsh or inundated wetlands. However, there is a solid area of marsh between North Bay Wilkerson(Upper Wilkinson Bay) and Bay Raquette. At the bottom of page 2-27, it is stated

0008-11
Continued

0008-11 cont'd

0008-12

0008-12

Approximately 26,200,000 gallons of water would be required during hydrostatic testing of the LNG storage tanks and approximately 50,000 gallons of water for testing piping and non-LNG tanks. It would not be feasible to transport this volume of water for disposal due to the limited capacity of tanker trucks. Chemical additives may be required during the testing process to neutralize bacteria and other components that can be corrosive. Before returning hydrostatic water to its surface water source, Venture Global would pass the water through 25-50 micron filters and an active carbon medium to remove suspended solids and neutralize or biodegrade the chemical additives. Following completion of the hydrostatic testing and prior to discharge, the test water would be analyzed for total suspended solids, oil and grease, and pH in accordance with LDEQ Louisiana Pollution Discharge Elimination System (LPDES) general permit LAG670000. In accordance with general permit LAG670000, Venture Global would seek authorization from the LDEQ to use additives and would provide the specific additives and the intended concentrations as part of the permitting process. The withdrawal, testing, and discharge of hydrostatic test water would be conducted in accordance with LPDES permit requirements. See section 4.3.2.2.

0008-13

The installation of the pipeline Between North Bay Wilkerson (Upper Wilkinson Bay) and Bay Raquette by use of the push/pull method is not practical given the saturation of the marsh and surrounding area making push/pull equipment ineffective. Approximately 1,100 feet of the 2,500 feet between the two waterbodies generally follow an existing conduit. Therefore, about 1,400 feet of the pipeline route impacts the saturated marsh located between open water. To facilitate restoration of this segment of construction right-of-way, Venture Global would temporarily store material excavated from the barge flotation channel to facilitate restoration of the marsh to pre-construction contours to ensure no new permanent channel is created. See section 2.5.2.4.

0008-13

that the barge lay method will be used for this "relatively short" section of marsh that I've described. These statements are in direct conflict. Why would you allow destruction of a 300 foot wide construction right of way on this section of marsh when it can be done by the push/pull method with only a 130 foot wide right of way and a 30 foot wide push ditch? I've been fishing this marsh for over a half century and that section of marsh is healthy and solid regardless of its length. And by the way, this supposed "relatively short" section of marsh is nearly ½ mile long.

Regardless of which method is used, if the trench is not refilled and marsh restored to its original condition as best as can be done, this new channel will serve as a direct conduit for storm surge and cause higher flooding at my home.

So what about marsh restoration for this project? Will Venture Global fill in all channels and trenches dug to access and bury the pipeline? Will Venture Global place the dug spoil in open water back into the access channels and trenches they dug both along the pipeline and in access channels across Bay Laurier and Barataria Bay to restore the original contour of the water bottoms? Appears that the answer is no. At the bottom of page 4-85, it is stated that Venture Global will backfill the pipeline trenches with dredged material. And material dredged from the barge access channels would be "sidecast". What is sidecast? They could just knock off the tops of the underwater spoil banks back into the access channels and that would be good enough for sidecast?

It is also stated that upon project completion, the dredged and excavated portions of the channels would be allowed to backfill naturally over time to original contour bottoms. This tells me that Venture Global will allow underwater spoil mounds on each side of the access channels to remain in place and will be hazards to navigation and also to shrimp trawlers like myself. This to me is unacceptable. The original contours of the water bottoms should be restored, or better yet take the spoil that will not be used to backfill channels, and build up the small open pond areas of the marsh by depositing the dredged material there. That could pay for some of the wetlands they will destroy at the facility site.

So how will Venture Global pay to restore the marsh and water bottoms they are destroying? On page 4-48, second paragraph, it states that Venture Global proposes to use mitigation banks, an in-lieu fee program, or a combination of the two to offset, or mitigate impacts of the project. So what will happen is some farmer to the north of Louisiana to dam off some of his farmland to create new wetlands that he can sell into the mitigation bank from which Venture Global will buy. Also, this farmer's new wetlands up north will capture most of the ducks flying south and make our duck season terrible as it has been this year, and Venture Global can buy from the mitigation bank and destroy our marsh with no restoration. Sounds like we are getting screwed from both directions.

The last issue I have revolves around the timing of pipeline installation. On page 4-36, you state that in your section V.B.1 of your procedures require that instream work like installing this pipeline must occur from June 1 to November 1. On page 4-80, Global Venture states that it would not adopt this time restriction for the pipeline project because of the length of the construction period. In the document, it is stated that the push/pull section will require 27 days and the barge lay section will require 31 days. For myself, the worst time of the year to install this pipeline is during shrimp and crab season in the summer and early fall. I typically get my year's supply of shrimp by pulling a bottom trawl in Bay Laurier in the channels in May and June. Also, the best crabbing from June through October is in the channels of Bay Laurier. The La. Wildlife and Fisheries has established crabbing restrictions from September to October, where the possession of female crabs will be prohibited in order for the immature female crabs to mate for life. The inland bays are typically full of marine life at their most during the May to October time period. For those who crab and shrimp, the late fall, winter, and spring are the best times to

0008-13
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0008-13 cont'd

0008-14

0008-14
Spoil resulting from the excavation of the flotation channel and pipe trenches would be temporarily placed on either side of the right-of-way centerline, keeping the spoil below the water surface, where feasible, to minimize wave generated turbidity. After the pipe is lowered into the trench, the pipeline trench and flotation channel would be backfilled with previously excavated material. The trench and construction workspace would be returned to its previous contours to match the adjacent undisturbed portions of the wetland upon completion of restoration. The applicant would also install bank line stabilization at the water/marsh interface to facilitate restoration.

Restoration of the temporarily impacted areas would be monitored and the successful achievement of pre-construction conditions would be determined after one full growing season post construction. For locations where pre-construction conditions are not achieved after one full growing season, Venture Global would work with the USACE and LDNR to determine the appropriate follow-up measures to restore the construction right-of-way. See section 4.6.4.2.

0008-15

0008-15
The Applicant is developing a compensatory mitigation plan per USACE permit requirements and the Clean Water Act, Section 404. See Section 4.4.4 of the EIS.

0008-16

0008-16
On January 24, 2019, Venture Global receieved approval from the LDWF to conduct instream work within the warmwater fisheries associated with the Project year-round. Impacts on commercial and recreational fisheries associated with construction activities is expected to be temporary and short-term and localized to the immediate vicinity of construction activities. Although the construction of each pipeline and deepening of discrete segments of barge access channels would take place over an extended duration, the construction activity at any single location along the pipeline route or barge access channels is likely to be limited to several days or weeks minimizing potential impacts on commercial and recreational fishing. Access to the construction right-of-way

and barge access channels would not be prohibited for fishing/crabbing/shrimping, except in the immediate vicinity of construction activities where necessary for safety reasons. See section 4.6.3.2.

construct a pipeline like this. It would also disturb the least marine life to build the pipeline between November and April.

In summary, I have outlined a large number of issues with this project. If it were just a pipeline, and would follow the requested changes I have made, I would have no problem. But, the LNG facility is a deal breaker and I respectfully request this permit be denied. I live less than a mile away from this facility if it is built. In order for a permit like this to be approved, there should be a several mile buffer zone around every facility like this where no one has residence of any kind, and if that can't be accomplished, the facility permit should be denied.

Thank you for your consideration.

Leslie Gaudet

0008-16
Continued 0008-16 cont'd

JOHN BEL EDWARDS
GOVERNOR

JACK MONTOUCET
SECRETARY

PO BOX 98000 | BATON ROUGE LA | 70898

**January 10, 2019**

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First St., N.E., Room 1A
Washington, DC 20426

RE: *Docket Number: CP17-66-000 and CP17-67-000*
*Applicant: Venture Global Plaquemines LNG, LLC/ Gator Express Pipeline*
*Notice Date: November 13, 2018*

Dear Ms. Bose:

The professional staff of the Louisiana Department of Wildlife and Fisheries has reviewed the above referenced Draft EIS for the proposed construction of the Plaquemines LNG Terminal and associated Gator Express Pipeline in Plaquemines Parish, Louisiana. Based upon this review, the following has been determined:

Pipeline Specific Comments:

In an effort to reduce impacts, LDWF recommends that temporary pipeline right-of-ways (ROW) not exceed 75-feet in width and that permanent pipeline ROWs not exceed 30-feet in width within wetlands. Justification shall be provided for pipeline ROWs that exceed these dimensions within wetlands. 0009-1

In an effort to reduce wetland impacts and avoid habitat fragmentation, LDWF recommends that all pipelines proposed under this project be located in open water or along existing ROWs to the greatest extent practicable. Additionally, LDWF recommends that the applicant utilize the horizontal directional drill method of installation to the greatest extent practicable when installing pipelines through wetland habitats. No clearing of woody vegetation, should any be encountered, shall be permitted between HDD entry and exit sites. 0009-2

In an effort to prevent the erosion of interior marsh, the applicant shall place bankline stabilization material at the interface of marsh and open water for all pipelines installed via the open trench method. 0009-3

Should the dredging of water bottom material be necessary when installing the proposed pipelines, LDWF recommends that that dredged material be used beneficially to create/restore emergent marsh in the vicinity of the project. The spoil material could be placed unconfined or confined in shallow open water at an elevation conducive to marsh establishment. Also, the spoil material could be placed on top of existing emergent marsh in order to nourish this degrading resource. Marsh nourishment would entail the placement of thin layers of spoil (i.e., less than 12 inches in elevation) on top of existing marsh. LDWF is willing to work with the applicant to identify appropriate spoil placement areas. 0009-4



0009-1
As discussed in Section 2.2.2 of the EIS, a wider construction right-of-way is necessary given the large diameter pipeline (42-inch-diameter pipeline with a 6-inch-thick concrete coating), the soils along the pipeline route, and the need for sufficient space to store spoil during trench excavations. In areas where the push method is used to install the pipeline, including in wetlands, a 130-foot-wide construction right-of-way would be used due to the need for a relatively wide and deep trench to ensure the required depth of cover in the wet, poorly cohesive, and easily sloughed substrate, and the consequent need for increased space to sidecast the high volume of spoil. In areas where the barge lay method is used to install the pipeline in open waters, a 300-foot-wide construction right-of-way would be required for each pipeline to accommodate an about 100-foot-wide floatation channel for lay barge and supply barge access, and up to about 100 feet on either side of the floatation channel for construction workspace to deposit sidecast trench material. The permanent operational easement width of 80 feet (where the two pipelines are collocated) reflects a legal agreement between Gator Express Pipeline and individual landowners that grants access rights for inspection and maintenance during pipeline operation. Following workspace restoration in wetlands, only 60 feet of this 80-foot width would be subject to any further disturbance through potential periodic vegetation maintenance (i.e., a 30-foot-wide corridor centered over each pipeline). Of this, only a 10-foot-wide corridor centered on each pipeline would be subject to the level of clearing necessary to ensure a continued herbaceous state required by PHMSA to facilitate aerial surveys of the pipeline corridor for safety purposes. If any vegetation maintenance is needed, it is expected to be infrequent and localized, given the existing herbaceous conditions that characterize the majority of the onshore pipeline route. Temporary and permanent impacts to wetlands or waters of the U.S. would be mitigated as provided for in the Clean Water Act Section 404 Permit and the Coastal Use Permit via the compensatory mitigation plan.

0009-2
The pipeline route was chosen to maximize the use of open water areas to the extent practical minimizing impacts on wetlands. About 75 percent (11.4 of 15.1 miles) of the SW Lateral TGP pipeline and 68 percent (8.0 of 11.7 miles) of the SW Lateral TETCO pipeline will be installed in open water areas, which is the greatest extent practicable for each

pipeline. Additionally, the Applicant notes that the SW Lateral TETCO pipeline will be installed adjacent to the SW Lateral TGP pipeline along its entire length, which will minimize impacts to wetlands. As discussed in Section 2.5.2.6-1, both pipelines will be installed using the HDD method over a portion of thier route which will avoid impacts on two wetlands and one waterbody.

0009-3
The Applicant will coordinate with the LDWF, USACE, and LDNR to identify bank stabilization specifications and the specific locations to be installed as part of the ongoing review of the Applicant's applications for a Clean Water Act (CWA) Section 404 Permit and a Coastal Use Permit.

0009-4
The Applicant would require water access for barges and other vessels involved in dredging, pipe laying, equipment and materials deliveries, and spoil storage. Access to and within portions of the pipeline construction workspace would require dredging and excavation to increase the minimum water depth to allow free passage of construction-related barges and other vessels. The majority of these channels would be constructed using a clam shell dredge, allowing the dredged material to be sidecast adjacent to the channel. Where this method is employed, the material would be used to backfill the channel following installation of the pipelines, as such, most of the material would only be temporarily displaced. The permanent displacement of dredged materials associated with the barge access channels where the prop-washing method would be employed would involve less than 25,000 cubic yards of dredged material. This permanently displaced material would be spread out along the barge access channel system. Venture Global does not believe this material can be effectively used to create/restore marsh due to the small volume and logistical challenges of collecting and transporting the material. See section 4.4.2.2.

General Comments:
The permittee shall properly install adequate erosion/siltation control measures around construction areas that require land based earthwork (i.e. excavation and/or deposition of fill materials, land contouring, machinery rutting, fill maneuvering and redistribution, etc.), to aid in preventing project related sediments, debris and other pollutants from entering adjacent wetlands or waters. Acceptable measures include but are not limited to the proper use and positioning of temporary silt fences, straw bales, fiber/core logs, wooden barriers, seeding or sodding of exposed soils, or other approved EPA construction site storm-water runoff control and best management practices. Control techniques shall be installed prior to the commencement of earthwork activities and maintained until the project is complete and/or the subject areas are stabilized.

One 24-inch culvert shall be installed approximately every 500 feet should access roads be constructed through wetlands. Priority for the placement of those culverts should be given to natural low areas and drainages. Those culverts shall be maintained to ensure that the existing flow of surface water is uncompromised.

Mitigation:
The applicant shall develop a mitigation plan designed to off-set impacts to fish and wildlife resources. That mitigation plan shall be approved by the resource and regulatory agencies. The approved mitigation plan shall be incorporated as part of the conditions of the permit.

Habitat of Concern:
The Wildlife Diversity Program database indicates that a Live Oak-hackberry Forest is located within the proposed project area. This community is considered critically imperiled in Louisiana with an S1 state rank. This community provides habitat for many unique species of plants, and acts as a migratory staging/stopover site for Neo-tropical migratory birds. We advise you to take the necessary measures to avoid any impacts to this ecological community. If you have any questions or need additional information, please contact Chris Doffitt at 318-487-5885.

Oyster Leases:
Based on the information available, LDWF does not have assurances that these activities would not adversely affect multiple oyster leases. Therefore, LDWF recommends that the applicant conduct an oyster lease assessment. Contact LDWF biologist Zachary Chain at 225-763-3587 for further coordination.

The Louisiana Department of Wildlife and Fisheries appreciates the opportunity to review and provide recommendations to you regarding this proposed activity. Please do not hesitate to contact Habitat Section biologist Zachary Chain at 225-763-3587 should you need further assistance.

Sincerely,

Randell S. Myers
Assistant Secretary

zc/cm/bh

c: EPA Marine & Wetlands Section
USFWS Ecological Services

0009-5

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0009-5
As stated throughout the EIS. Venture Global would implement the erosion and sediment control measures described in the project-specific Upland Erosion Control, Revegetation, and Maintenance Plan (Plan), the project-specific Procedures, and construction-specific Stormwater Pollution Prevention Plans (SWPPPs) for the Terminal and Pipeline System.

0009-6
As shown in Section 4.4.2.2 the Applicant would install one permanent access road within wetlands to reach the mainline valve site located adjacent to Hermitage Road and would install a culvert at this location per the LDWF's request. The remainder of the permanent access roads associated with the project are located in upland areas; however, the Applicant would install culverts where necessary to maintain existing drainage. A temporary access road around the LNG terminal floodwall to facilitate pipeline construction is planned. This road would be constructed of timber mats with sufficient spacing to maintain cross flow of storm water, eliminating the need for temporary culverts, except at crossings of existing canals and drainage ways.

0009-7
The Applicant is required to develop a compensatory mitigation plan per USACE permit requirements and the Clean Water Act, Section 404. As part of the section 10/404 process, Venture Global would be required to develop a Compensatory Mitigation Plan to mitigate unavoidable wetland impacts. Venture Global proposes to use mitigation banks, an in-lieu fee program, and/or permittee-responsible to mitigate for the wetland impacts of the Project. The plan would be subject to the review and approval by the USACE, New Orleans District, as part of the section 10/404 process. We would require that all federal authorizations, including these permits, be received prior to construction of the Project.

0009-8
As shown in Section 4.5.4 the Coastal Live Oak-Hackberry Forest occurs within the proposed pipeline construction and operational footprint. Complete avoidance of this area is not possible due to the necessity of constructing a pipe bridge over the adjacent levee and for the HDD entry location associated

with installing the pipelines under the floodwall. Venture Global plans to sequence installation of the pipe bridge and pipelines at this location to allow the same workspace to be utilized for construction of the pipe bridge and HDD entry locations thus minimizing impacts on the forested area. A temporary access route located within the pipelines' permanent right-of-way would be required to reach the construction workspace.

According to the project specific Plan and Procedures, most of the area disturbed by construction would be restored to pre-construction contours and allowed to revert to its current vegetative cover. No permanent vegetation maintenance would occur between the entry and exit of the HDDs; vegetation maintenance would be limited to the upland permanent right-of-way located between the levee and HDD entry locations. Of the Coastal Live Oak-Hackberry forest, to be affected by construction and located interior of the levee, about 2.1 acres would be cleared for temporary workspace and 0.7 acre would be permanently maintained in a shrub/vegetative state following installation of the pipelines. The area to be permanently maintained in a shrub/vegetative state makes up a small proportion, less than 1 percent, of the portion of the forest located interior of the levee.

0009-9
Venture Global has stated it is completing an assessment of oyster leases crossed by the pipeline route and barge access channels and would submit its report to the LDWF early in 2019. This statement was submitted to docket No. CP17-66-000 on February 4, 2019. See section 4.6.3.2.

# APPENDIX I

# LIST OF PREPARERS

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*Ecology and Environment, Inc. is a third-party contractor assisting the Commission staff in reviewing the environmental aspects of the project application and preparing the environmental documents required by NEPA. Third-party contractors are selected by Commission staff and funded by project applicants. Per the procedures in 40 CFR 1506.5(c), third-party contractors execute a disclosure statement specifying that they have no financial or other conflicting interest in the outcome of the project. Third-party contractors are required to self-report any changes in financial situation and to refresh their disclosure statements annually. The Commission staff solely directs the scope, content, quality, and schedule of the contractor's work. The Commission staff independently evaluates the results of the third-party contractor's work and the Commission, through its staff, bears ultimate responsibility for full compliance with the requirements of NEPA.*

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