Essential Fish Habitat Assessment

C3 Petrochemicals PDH Project

Alvin, Brazoria County, Texas

March 2013

Prepared For
C3 Petrochemicals, LLC

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Acronyms

Act	Magnuson-Stevens Fishery Conservation and Management Act
AOF	Active Operational Facility
BA	Biological Assessment
BOD	Biological Oxygen Demand
CAA	Clean Air Act
EFH	Essential Fish Habitat
USEPA	United States Environmental Protection Agency
FM	Farm to Market Road
GHG	Greenhouse Gas
LLC	Limited Liability Corporation
LRRT	Outer Coastal Plain Land Resource Region
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
PDH	Propane Dehydrogenation Manufacturing Unit
PM	Particulate Matter
PSA	Pressure Swing Absorption
PSD	Prevention of Significant Deterioration
SIL	Significant Impact Level
TCEQ	Texas Commission on Environmental Quality
TPDES	Texas Pollution Discharge Elimination System
TRC	TRC Environmental Corporation
USDA	United States Department of Agriculture
USGS	United States Geological Survey

Section 1
Introduction

Pursuant to the federal Clean Air Act (CAA), C3 Petrochemicals, LLC is seeking a permit under the United States Environmental Protection Agency's (USEPA) Greenhouse Gas (GHG) Prevention of Significant Deterioration (PSD) Program to authorize construction of a Propane Dehydrogenation Plant at the existing Chocolate Bayou chemical manufacturing complex in Brazoria County, Texas the (Project).

The Magnuson-Stevens Fishery Conservation and Management Act (the Act) of 1976 was passed by Congress to regulate the harvest and management of coastal fisheries by consolidating control over territorial waters. This Act is administered by the National Marine Fisheries Service (part of the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce). The Act established eight regional fisheries management councils who determine which commercially important marine species needed federal protection. In 1996 an amendment to the Act added the concept of Essential Fish Habitat (EFH), which has been defined as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (National Marine Fisheries Service NMFS, 2005).

The Act requires federal agencies to consult with NMFS only when a project is to be permitted, funded, or undertaken by a federal agency and is determined to have an adverse effect on designated EFH. An adverse effect is defined in the Act as "any impact which reduces quality and/or quantity of EFH" including "direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat wide impacts, including individual, cumulative, or synergistic consequences of actions" (NOAA, 2012).

The purpose of this EFH assessment is to determine whether any areas of EFH will be adversely affected by USEPA's issuance of the permit, and if so, to what extent. This EFH assessment is based on the best science available, including, the results of an on-site inspection of the area affected by the action, the views of recognized experts, a review of literature and other information.

A Biological Assessment (BA) was written under separate cover to address potential impacts to threatened and endangered species.

C3 Petrochemicals is planning to build a new propane dehydrogenation manufacturing (PDH) unit. The C3 Petrochemicals PDH unit will be located on land owned by Ascend Performance Materials (Ascend) at its existing Chocolate Bayou Facility. The Ascend Facility is located

adjacent to the eastern bank of Chocolate Bayou, a tidally influenced tributary to Lost Bay, Chocolate Bay, and West Galveston Bay. The Ascend Facility is located on Farm to Market (FM) 2917, approximately eight miles south of the intersection of Highway 35 and FM 2917 (Alvin, Brazoria County, Texas). The C3 Petrochemicals PDH unit will be constructed on a previously disturbed and developed parcel located in the northeastern portion of the Facility. The parcel will be leased from Ascend and the Project facilities will be constructed and owned by C3 Petrochemicals. Figure 1 (Appendix A) is an area map that depicts the boundary of the Ascend Facility, the C3 Petrochemicals Project location, and the surrounding environs.

This new PDH unit will use propane as its raw material, which will be dehydrogenated to produce polymer-grade and chemical grade propylene. This propylene product will be sold and used in existing processes at the adjacent Ascend Facility and distributed to additional customers via pipeline. The Project operations will primarily consist of pre-treatment, the PDH reaction, catalyst regeneration, pressure swing adsorption (PSA), and support operations.

The project will be constructed within the previously disturbed and developed Active Operational Facility (AOF) portion of the Ascend Facility property most recently leased and operated by Equistar Chemical Company. The size of the Project will consist of a 300-foot by 750-foot area (approximate area of direct construction impact) illustrated on Figure 2 (Appendix A). Construction activities will include site preparation, steel erection, equipment installation, tying-in to existing facility utilities, and commissioning/start-up. Construction laydown areas will be constructed on present grazing land, historically used for agriculture, on the Ascend Chocolate Bayou Facility property.

The purpose of this report is to determine whether any EFH is likely to be affected by USEPA's issuance of the federal Green House Gas (GHG) permit. This research looked at impacts from the Project within two kilometers (2 km) of the AOF. The Action Area, AOF, and Ascend Facility property line, are illustrated in Figure 2 (Appendix A).

1.1 Defining the Action Area

Air emissions modeling demonstrates that all concentrations of air pollutants, with the exception of Particulate Matter ($PM_{2.5}$ are below the USEPA Significant Impact Levels (SIL) at the Ascend Facility property line. The SIL is the concentration of a pollutant, below which USEPA has determined the impact to be de minimis or insignificant. The SIL for $PM_{2.5}$ was modeled to be a 1.6 kilometer radius around the centroid of construction; however, for purposes of this assessment, C3 Petrochemicals is defining the Action Area as within a two (2.0) kilometer radius of the entire AOF to be conservative and inclusive of Chocolate Bayou and any EFH associated therewith. This report evaluates the likelihood of adverse effects to EFH resulting

from USEPA's issuance of the federal GHG permit a within a two (2.0) kilometer radius around the Ascend Chocolate Bayou Facility AOF. (Appendix A, Figure 3). Detailed information regarding air pollutants are found in the Biological Assessment under separate cover.

Section 2
Project Description

2.1 Project Purpose and Location

C3 Petrochemicals is planning to build a new propane dehydrogenation manufacturing (PDH) unit for the manufacturing of propylene. The introduction provides detailed location information in reference to the closest populous area of Alvin, Texas. The Project is located within the United States Geological Survey (USGS) 7.5' Quadrangle Maps of Hoskins Mound and Mustang Bayou. The Centroid of Construction is at a latitude of 29.257192 N and a longitude of -95.215707 W. The proposed PDH unit is located approximately three miles north of the F.M. 2004 bridge that crosses Lost Bay upstream of Chocolate Bay and West Galveston Bay.

2.2 Construction Information

Construction of the proposed expansion, associated infrastructure, and auxiliary equipment will take place within the AOF in an area which was formerly the site of an Olefins Facility most recently owned and operated by Equistar Chemical Company (equipment dismantled to ground, foundations left in place). The construction area is approximately 300 feet by 750 feet on which the existing foundation will be demolished and new foundations will be constructed (figure 2 Appendix A). The existing foundations will be demolished and the area backfilled with approved select material and graded to allow installation of new concrete mat and pier foundations for the expansion. The proposed construction activities include the installation within the 300 foot by 750 foot construction area of approximately 150 reinforced concrete mat, pier, and spread footing foundations comprised of approximately 16,000 cubic yards of concrete. Additionally, an approximately 400 foot by 800 foot area outside of the construction area will be disturbed and used as a temporary equipment laydown and contractor parking facility. The laydown and parking area will require clearing a portion of the Ascend Facility property currently used for cattle grazing and historically used for agriculture. The temporary laydown and parking area will be grubbed to remove vegetation, back filled with stabilized select material, graded, and covered with gravel.

Section 3
Background Information

3.1 History of the C3 Petrochemicals Chocolate Bayou Plant

The C3 Petrochemicals site will be leased from Ascend and most recently was occupied by Equistar Chemical Company. The real property was acquired by Ascend from Solutia Inc. in 2009. Solutia Inc. was an affiliate of Monsanto Chemicals Division created in 1997. Monsanto constructed the original chemical plant at the present location in the 1950's; additions to the manufacturing complex have been continuously erected and dismantled, as needed, since its inception.

3.2 Regional Environmental Background

The facility is located within the Texas Gulf Coastal Plain, which is situated within the Outer Coastal Plain Land Resource Region (LRRT). This area is composed of grasslands and riparian bayous with topography gently sloping to the coast. Historic elevations within the Action Area range from five to approximately 20 feet above sea level. Development has increased the elevation of portions of the Action Area to as much as 33 feet. The Action Area, through which Chocolate Bayou flows from northwest to southeast, is historically agricultural. Presently the land use varies from areas of continued agricultural and grazing use, to residential and industrial use. The chemical complex comprising the AOF has been in operation for over 50 years.

The watershed of Brazoria County is composed of the Brazos River and the San Bernard River along with numerous smaller creeks and bayous, such as Chocolate Bayou, that either drain into the aforementioned rivers or go directly into coastal bays. Brazoria County encompasses a portion of West Galveston Bay and all of Christmas and Drum Bays. All of these are part of the larger Galveston Bay complex.

Brazoria County is located on the Upper Texas Coast. It is bounded to the north by Harris (County Seat Houston), Fort Bend (County Seat Richmond) and Wharton (County Seat Wharton) Counties. To the east and west the county is bounded by Galveston (County Seat Galveston) and Matagorda (County Seat Bay City) Counties, respectively. The southern boundary of the county is the Gulf of Mexico.

3.2.1 Land Use

Brazoria County was traditionally a rural agricultural county, with large portions of land being used for rice, cattle, and hay production. In recent years urban sprawl from the Houston metroplex has seen Brazoria County cities such as Pearland and Alvin grow significantly in size. Large areas of former agricultural lands have been developed for residential or commercial purposes. Brazoria County experienced a 29.53% increase in population between the 2000 and 2010 census counts and this is one of the fastest growing counties in the state (Texas State Historical Association, 2012).

The land proposed to be used for the Project is currently used for industrial purposes and has been for the past 50 years. The land surrounding the Project is a mix of other industrial/chemical facilities, agriculture, open water, and coastal marsh. Peterson Landing is an unincorporated community within the Action Area and that is situated across Chocolate Bayou, and west, from the Ascend Facility, approximately one mile from the proposed PDH unit.

3.2.2 Climate

Brazoria County averages 57 inches of precipitation per year (USDA, 1981). This is composed almost exclusively of rain as snow fall is rare. Summers are long and hot with average highs being 91 degrees Fahrenheit (°F); however highs above 100°F are not uncommon. Winters are mild with an average high temperature of 43°F. Colder temperatures, as low as, 20°F or even in the teens do occur, however their duration is typically short. Southerly winds dominate with southeast being the predominate direction. North winds are almost exclusively correlated with frontal passage.

As of January, 2013, Brazoria County is under a D1- moderate drought (USDA, 2012). This is a substantial improvement over 2011 when the Action Area was under a D4-exceptional drought (the most severe level) (USDA, 2012). Texas has been in a drought five of the last seven years. Droughts coupled with salt water intrusion from the 2008 land fall of Hurricane Ike have severely damaged many coastal marshes and estuary ecosystems along the Upper Texas coast.

3.2.3 Topography

Topography in Brazoria County ranges from sea level on the coast to 146 feet above sea level at the Damon Mound in the west central part of the county. Historic elevations within the Action Area range from ten feet to approximately twenty feet above sea level. Development has increased the elevation of portions of the Action Area to as much as 33 feet. The Action Area has

been altered due to past agricultural use, including rice cultivation, and the construction of the industrial facilities including the Ascend Facility. The Federal Emergency Management Administration floodplain maps show that the entire facility is within the 100-year floodplain of Chocolate Bayou.

3.2.4 Geology

The specific geologic formation found in this area according to the USGS is the Beaumont Formation, from the Quaternary Period within the Cenozoic Era. The Beaumont Formation is predominantly sand; yellowish to brownish-gray, fine quartz sand intermixed and interbedded with minor fine gravel and silt. The Beaumont Formation forms poorly defined meander-belt ridges and pimple mounds and is interfingered with the Lissie Formation (USDA, 1981).

3.2.5 Soils

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), soils in the county are mostly alluvial loams and clays. They are highly productive. Approximately 70 percent of the county was considered prime farm land (Kleiner, 2012). There are 15 soil types mapped within the Action Area (figure found within the BA).

3.2.6 Water Resources

The southern boundary of the county is the Gulf of Mexico. The Brazos River splits the county into east and west halves. The San Bernard River flows through the western part of the county. These two rivers make up the majority of the watershed in the county. Other minor drainages such as Halls Bayou, Oyster Bayou, Persimmon Bayou, Chocolate Bayou, and Jones Creek flow directly into the bay.

The Project is located within the existing developed portion of the Ascend property, which is situated on the left descending bank of Chocolate Bayou. Chocolate Bayou empties into Lost Bay, which empties into Chocolate Bay, and is part of the Galveston Bay system. The Brazos River is approximately 21 miles to the west of the Project. The San Barnard is even farther away at 30 miles west of the Project. In Brazoria County there are numerous stock tanks, irrigation canals, farm ponds, and emergent wetlands.

Section 4
Air Quality Analysis Results

A full description of air quality results are discussed in the BA under separate cover.

Section 5
Effects of the Proposed Action on EFH

This section provides a summation of findings and recommended determination of effect on EFH by the Project.

5.1 Essential Fish Habitat

Air emissions modeling demonstrates that all concentrations of air pollutants, with the exception of $PM_{2.5}$ are below the USEPA SILs at the Ascend Facility property line. The SIL is the concentration of a pollutant, below which USEPA has determined the impact to be de minimis or insignificant. The SIL for $PM_{2.5}$ was modeled to be a 1.6 kilometer radius around the centroid of construction; however, for purposes of this assessment, C3 Petrochemicals is defining the Action Area as within a two kilometer radius of the entire AOF to be conservative. The modeled 1.6 kilometer radius from the centroid does not encompass Chocolate Bayou. The conservative expansion of the Action Area to 2 kilometers intersects a 1.8 mile stretch of Chocolate Bayou.

The portion of Chocolate Bayou that is encompassed by the conservatively expanded Action Area is mapped as EFH for all life stages of red drum (*Sciaenops ocellatus*), white shrimp (*Litopenaeus setiferus*), and brown shrimp (*Farfantepenaeus aztecus*), and 43 Species of Reef Fish (NMFS, 2013).

5.2 Habitat Areas of Particular Concern

In addition to EFH the Act also designates Habitat Areas of Particular Concern. These are defined as subsets of EFH that are "rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area" (NOAA, 2012). There are no EFH Habitat Areas of Particular Concern found within or adjacent to the Action Area (NMFS, 2013).

5.3 Potential Land Based Effects on EFH

Designated EFH is not found within the 1.6 kilometer Action Area; however it is found within the two (2.0) kilometer conservatively expanded Action Area. EFH will not be directly impacted by construction, as construction activities will occur on land 1.7 kilometers from Chocolate Bayou. Wastewater from the PDH Unit will be discharged to the existing, permitted on-site wastewater treatment facility which has the capacity to accept and treat this wastewater

stream. Based on the capacity of the existing wastewater treatment system, it is concluded that the proposed Project will have no significant adverse effects on the volume or quality of treated wastewater discharged from the facility and will have no significant adverse effects to surface waters or EFH. Storm water runoff from the AOF is also directed through the existing on-site water treatment facility.

5.3.1 Fugitive Dust

Dust could be emitted during earth disturbing activities associated with construction. This is expected to only last a short time and dust suppression techniques, such as watering exposed soil, can be implemented to reduce the amount of dust. During operation dust emissions are expected to be negligible. Additionally the Project Area pad is located 1.7 kilometers from Chocolate Bayou. As a result, fugitive dust emissions will have no effect on EFH.

5.3.2 Noise Levels

The Chocolate Bayou facility is located in a mostly undeveloped portion of Brazoria County. The proposed Project is being constructed within the developed portion of an active chemical manufacturing facility. The increase in noise level is expected to be minimal. Additionally the Project Area pad is located 1.7 kilometer from Chocolate Bayou. Therefore, the increases in noise levels associated with construction and operation of the Project will have no effect on EFH.

5.4 Water Quality Effects

5.4.1 Water Use

Process water is supplied to the facility from the canal located on the northern boundary of the property which flows into Monsanto Reservoir. This water is supplied by the Gulf Coast Water Authority from existing sources of supply located further upstream within the Brazos River Watershed. Ascend and C3 Petrochemicals estimate an approximate 5 million gallons a day increase in water use above current levels associated with the AOF unit. The vast majority of this water will be consumed by the manufacturing process and not discharged as wastewater effluent.

5.4.2 Water Impacts

Wastewater from the Project, if managed onsite, will either be discharged to the existing, permitted on-site wastewater treatment facility or to the existing, on-site permitted deepwell injection facility. The increase in wastewater influent resulting from the Project is expected to be approximately 30,000 gallons per day (increase of 2.4%), which the existing wastewater treatment facility has the capacity to accept and treat. Table 1 shows facility water quality parameters with corresponding permit limits. Ascend's Texas Pollution Discharge Elimination System (TPDES) Permit Number is WQ0000001000, and USEPA ID Number is TX0003875.

Table 1

2012 Texas Commission on Environmental Quality (TCEQ) Monitored Water Pollutant Concentrations (with Permit Limits in Parenthesis) for the Ascend Chocolate Bayou Facility*

Date	Max Temperature (◦F)	BOD	BOD	pH	pH
	(100◦F)	Actual Mean mg/L	Actual Max mg/L	Min (6.0)	Max (9.0)
1/12	78	3.83	4.25	6.9	8.6
2/12	77	3.46	3.84	6.8	8.9
3/12	85	3.01	4.01	7.2	9.0
4/12	89	6.22	7.87	7.2	8.9
5/12	92	8.65	10.52	7.3	8.7
6/12	97	6.32	6.59	7.1	8.8
7/12	100	6.19	8.45	7.0	8.9
8/12	96	8.20	10.52	7.3	8.7
9/12	93	7.39	8.77	7.1	8.6
10/12	87	3.77	6.70	7.3	8.9
11/12	82	4.00	4.49	7.2	8.5
12/12	79	4.82	6.04	7.4	8.5

*COD and TSS limits and reporting are not required by TCEQ for Outfall 001, the ultimate outfall from the Ascend facility to Chocolate Bayou.

Table 2 shows permit limits and results for TPDES priority pollutants in 2012.

Table 2
Permit Discharge Parameters for TPDES Priority Pollutants

Effluent Characteristic/ Parameters	2012 Result mg/l	Discharge Limit mg/l
Benzene	BDL	0.204
Ethylbenzene	BDL	0.162
Phenol	BDL	0.039
Toluene	BDL	0.120

BDL = Below Detection Limits

Treated process wastewater effluent to Chocolate Bayou will not materially change as a result of the Project. The Project will not materially affect water quality in Chocolate Bayou for parameters required to be monitored by the Ascend Facility because of the relatively small increase in volume, which the existing wastewater treatment facility has the capacity to treat. The PDH unit wastewater flows would, to some extent, replace influent streams from the recent operations of Equistar Chemical Company on and about the same parcels of land. Current impacts to Chocolate Bayou based on all monitored parameters, including flow, temperature, biological oxygen demand (BOD), pH, and all priority pollutant concentrations are not expected to materially change from the operation of the Project.

With discharge parameters projected to remain below current TPDES-permitted effluent limits, there will be no impacts to EFH from the Project's water discharges. USDA-NRCS. 1981. Soil Survey of Brazoria County Texas.

5.5 Potential Water Quality Effects on EFH through Deposition of Air Pollutants within EFH

The Project will be built on land within an existing chemical manufacturing facility 1.7 kilometers from Chocolate Bayou. No areas of EFH are found within the modeled 1.6 kilometer Action Area. There are 1.8 miles of Chocolate Bayou within the conservatively expanded 2 kilometer Action Area. Based on air dispersion modeling, targeted air emissions from the Project will fall be below the SILs before they reach Chocolate Bayou. $PM_{2.5}$ is the pollutant for which the modeled 1.6 kilometer Action Area was established. Even if $PM_{2.5}$ particles were to reach Chocolate Bayou, there is no literature reviewed that would suggest $PM_{2.5}$ will have an impact on EFH.

Atmospheric deposition of airborne constituents is expected to be neglible and have no effect on water quality or aquatic habitats in any areas where ground level concentrations of regulated constituents do not exceed the SILs. Based on air dispersion modeling, the areas in which modeled concentrations of $PM_{2.5}$ exceed the SIL do not include Chocolate Bayou or any EFH.

Section 6
Conclusions

The Project will be built on land within an existing chemical manufacturing facility. No EFH is found within the 1.6 kilometer Action Area established through air dispersion modeling. To be conservative, a 2.0 kilometer Action Area was established so as to include Chocolate Bayou and any EFH associated therewith. There are 1.8 miles of Chocolate Bayou found within the conservatively expanded 2 kilometer Action Area. There is no literature reviewed that would suggest that pollutants below the SIL will have an impact on EFH. Atmospheric deposition of airborne constituents is expected to be negligible and have no effect on water quality or aquatic habitats in any areas where ground level concentrations of regulated constituents do not exceed the SILs. If hypothetically $PM_{2.5}$ particulates were to reach the conservatively expanded 2 kilometer Action Area, part of Chocolate Bayou would be within the Action Area, but there is no literature reviewed that shows that $PM_{2.5}$ would have an impact on EFH. There will be no impact from air emissions on EFH from the Project. Chocolate Bayou contains open water EFH for all life stages of red drum, white shrimp, brown shrimp and 43 Species of Reef Fish. Changes in water quality (temperature, pH, eutrophication, turbidity, pollutant concentration) are not anticipated from the Project and therefore there will be no adverse impact on EFH from water discharges. No impacts to EFH are anticipated from the construction or operation of the Project. Because no adverse impacts to EFH are anticipated, no mitigation strategies or further agency consultations are recommended at this time.

Section 7
References

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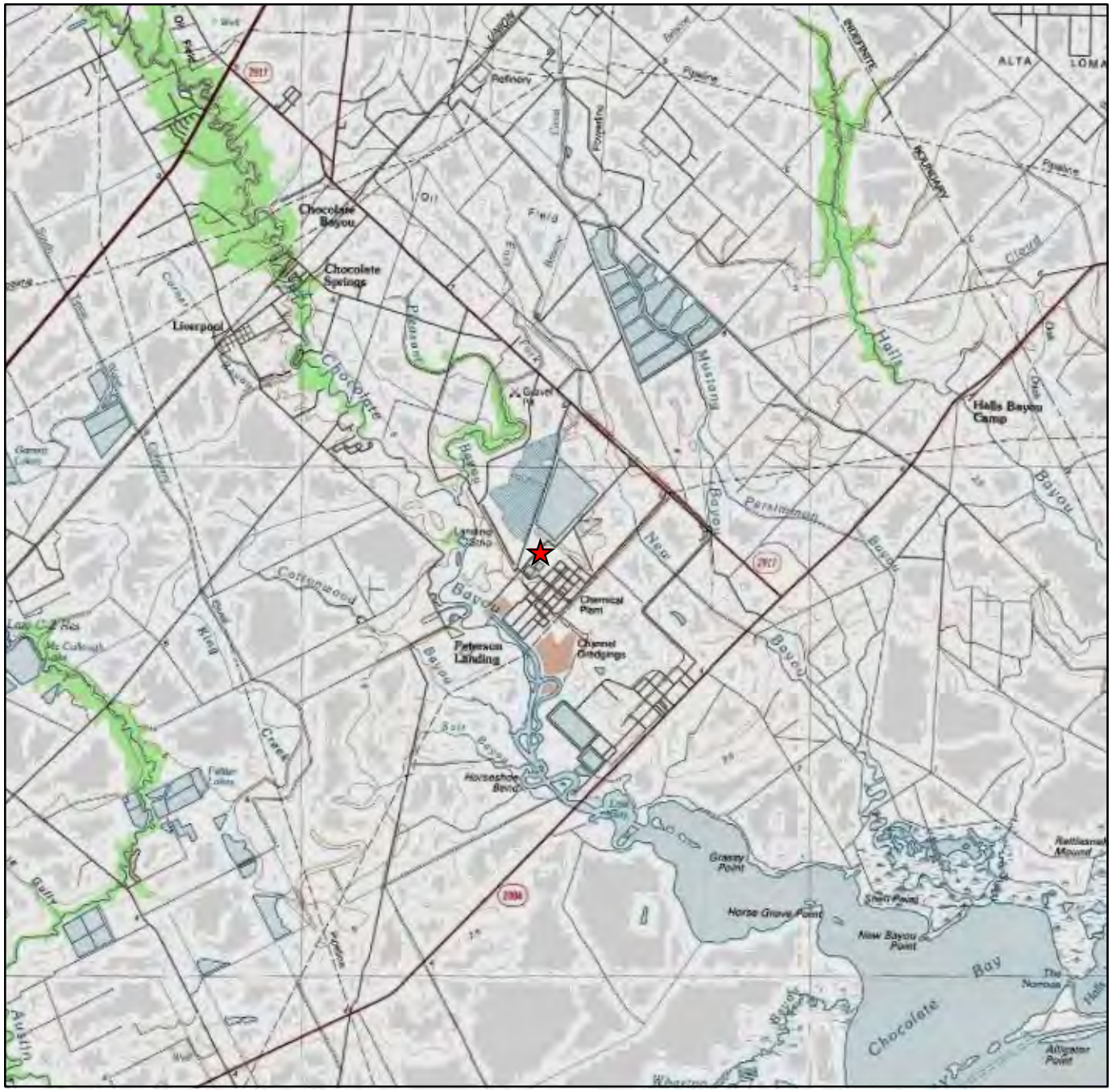
USGS. 2012. Flow data for Chocolate Bayou. Viewed on May 18, 2012. http://waterdata.usgs.gov/tx/nwis/uv?site_no=08078000

Section 8
List of Preparers

- Mike Robbins, Project Manager
- Elizabeth Saxton, Scientist

Appendix A
Figures

TRC - GIS



BASE MAP: USGS 100k TOPOGRAPHIC QUADRANGLE SERIES: ANGLETON, TX. (1984)

★ C3 PETROCHEMICALS PDH PROJECT LOCATION

N

0 3 6 Kilometers

TRC
10011 Meadowglen Lane
Houston, TX 77042
Phone: 713.244.1000

C3 Petrochemicals, LLC
PDH Project

PROJECT LOCATION
ESSENTIAL FISH HABITAT
ALVIN, BRAZORIA COUNTY, TEXAS

DRAWN BY:	RNCARR
APPROVED BY:	NSYLVESTER
PROJECT NO:	199212.0000.0000
FILE NO.	199212_1EFH.mxd
DATE:	MARCH 2013

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FIGURE 1

TRC - GIS

BASE MAP: NATIONAL AGRICULTURE IMAGERY PROGRAM (2012)

C3 PETROCHEMICALS PDH PROJECT CONSTRUCTION AREA: 300' X 750'

ASCEND CHOCOLATE BAYOU FACILITY PROPERTY LINE

N

0 300 600

Feet

TRC
10011 Meadowglen Lane
Houston, TX 77042
Phone: 713.244.1000

C3 Petrochemicals, LLC
PDH Project

CONSTRUCTION AREA - 2012 AERIAL PHOTOGRAPH
ESSENTIAL FISH HABITAT
ALVIN, BRAZORIA COUNTY, TEXAS

DRAWN BY:	RNCARR
APPROVED BY:	NSYLVESTER
PROJECT NO:	199212.0000.0000
FILE NO.	199212_2EFH.mxd
DATE:	MARCH 2013

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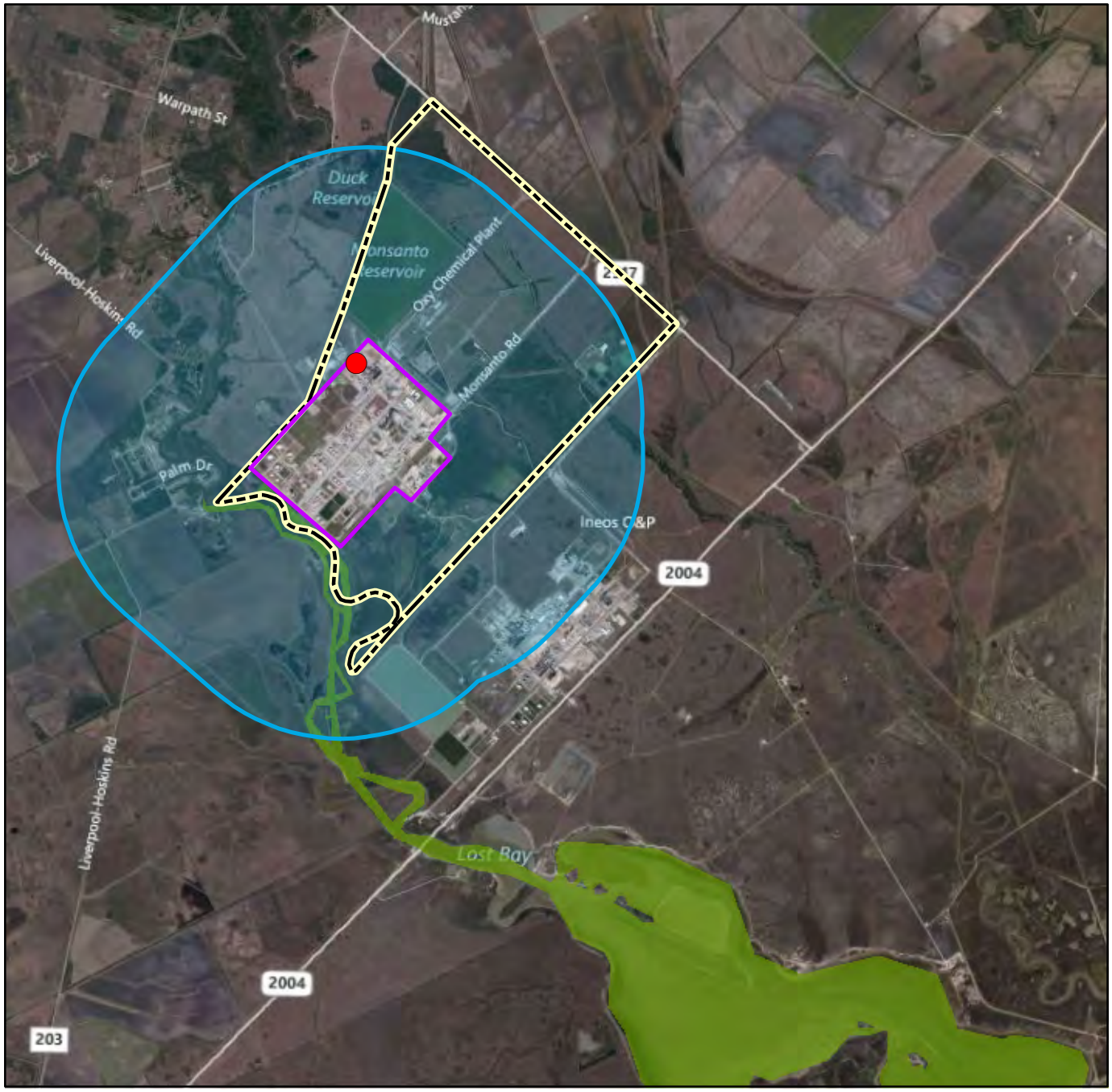
FIGURE 2

TRC - GIS



BASE MAP: ESRI ONLINE DATA BING HYBRID (2011)
http://www.habitat.noaa.gov/protection/efh/newInv/index.html

- C3 PETROCHEMICALS PDH PROJECT CENTROID OF CONSTRUCTION AREA 300'X750' (N.T.S.)
- ASCEND CHOCOLATE BAYOU FACILITY PROPERTY LINE
- ACTIVE OPERATIONAL FACILITY
- ACTION AREA
- ESSENTIAL FISH HABITAT FOR COASTAL MIGRATORY PELAGICS, REEF FISH, RED DRUM, BROWN SHRIMP, AND WHITE SHRIMP

N

0 2 4 Kilometers

TRC
10011 Meadowglen Lane
Houston, TX 77042
Phone: 713.244.1000

C3 Petrochemicals, LLC
PDH Project

ACTION AREA - 2011 AERIAL PHOTOGRAPH
ESSENTIAL FISH HABITAT
ALVIN, BRAZORIA COUNTY, TEXAS

DRAWN BY:	RNCARR
APPROVED BY:	NSYLVESTER
PROJECT NO:	199212.0000.0000
FILE NO.	199212_3EFH.mxd
DATE:	MARCH 2013

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FIGURE 3