LYDIA ANN CHANNEL MOORINGS, LLC

REMOVAL AND RESTORATION PLAN & STATEMENT OF ALTERNATIVES

October 12, 2016

Table of Contents

EXHIBITS

I.
INTRODUCTION AND BACKGROUND

The Galveston District of the Corps of Engineers (Corps) has requested Lydia Ann Channel Moorings, LLC (LAC) submit an assessment of the alternatives for, and the impacts resulting from, the removal of the construction authorized by the Corps of Engineers on January 15, 2015, by permit No. SWG-2014-00460 (LOP). The LOP was processed by the Corps using the Corps Letter of Permission procedure. LAC promptly began construction in reliance on the LOP. Fleeting operations began on March 16, 2015. On September 12, 2016, the Corps signed a Statement of Findings revoking the LOP for the construction, which had been completed more than a year before.

An analysis of the alternatives and their impacts necessitates an understanding of the nature of maritime operations involving barges within Corpus Christi Bay and the portions of the Gulf Intracoastal Waterway (GIWW) adjacent thereto.

As the Corps is well aware, the federal government in cooperation with local sponsors is involved with a network of navigation channels that are part of the broader inland waterway system of the United States. The Corps has continually conveyed the advantages to Texas and the entire United States that depend on the continued efficient use of the GIWW, recognizing its essential role in providing safe commercial navigation. Press Release, US Army Corps of Engineers, USACE Galveston District awards two contracts for dredging of GIWW (October 1, 2015); Press Release, US Army Corps of Engineers, What is the district's role in maintaining the GIWW (March 6, 2013), attached here as Exhibit 1. Barge traffic within the Port of Corpus Christi (POCC) has been stable to trending upwards over the past several years and the traffic volume of barges within the waterways is expected to increase. Port of Corpus Christi, Monthly Reports, *available at http://www.portofcc.com/index.php/general-info-319/monthly-reports/ship-and-barge-activity* attached here as Exhibit 2.

Traffic carried on the GIWW reduces congestion on the highway and rail systems in Texas and decreases maintenance costs and extends the life of these systems. Texas Department of Transportation, Master Plan for the Gulf Intracoastal Waterway in Texas (June 2014), *available at* https://ftp.dot.state.tx.us/pub/txdot-info/tpp/giww/master-plan-0814.pdf, attached here as Exhibit 3 (hereinafter, the "TxDOT Plan"). Water transportation is the most fuel-efficient mode of transportation. Exhibit 3 at 4. The capacity of one liquid cargo barge is the same as that of 46 rail cars or 144 trucks. Exhibit 3 at 4. Moreover, movement of goods by barge is a safe mode of transportation. Exhibit 3 at 4. For the period from 2001-2009, the spill rate for barges was 2.59 gallons per million ton-miles; for trucks, the rate is 10.41 gallons per million ton-miles. Exhibit 3 at 4.

One operational fact of maritime transport that is often overlooked by those not involved in the industry is that the vessels involved in the transportation of cargos by water inevitably face

down times, or demurrage, during which the vessels are neither actively loading, unloading, nor moving cargo. This may result from congestion on the waterways, bad weather, unfavorable tides, or simply scheduling gaps. During these times, the barges must wait outside of the navigation channels, until their journey can continue. Of course, barge operators seek to minimize this time during which productive use of the vessels is not occurring. An assessment of the impacts any alternative for removal of the current LAC facility must include an assessment of where, and how, barges currently being fleeted at the LAC facility will spend this unavoidable down time.

The State of Texas, through the Texas Department of Transportation, recognizes in the TxDOT Plan, that as local sponsor along the Texas portion of the GIWW, one of the "Most Pressing Maintenance Issues" is that "More Fleeting Areas [are] Needed." Exhibit 3 at 15. As the TxDOT Plan explains: "Fleeting areas are holding areas for barges between shipments; barges are cleaned, repaired, or simply stored in these areas. The lack of fleeting capacity affects the safety and efficiency of barge operations on the GIWW-T. When fleeting areas are not available, operators simply park their barges wherever they can, which makes the waterway reach less safe and more difficult for other operators to transit. This problem appears to be particularly acute in the Corpus Christi area." Exhibit 3 at 15. "One additional fleeting area in each of the four major port complexes in Texas (Beaumont,/Port Arthur, Houston, Freeport, and Corpus Christi) would lead to a significant improvement in operations along the GIWW-T." Exhibit 3 at 15-16.

The TxDOT Plan also includes among "Most Pressing Maintenance Issues" the need for "Expanded Mooring Areas." Exhibit 3 at 18. "Barge operators use mooring areas for shelters during inclement weather or other situations when it's unsafe to navigate the waterway. Mooring areas are distinguished from fleeting areas by the fact that they are only supposed to be used for a short time in response to unforeseen conditions, such as severe thunderstorms or high winds, for example – they are not intended for use that lasts days." Exhibit 3 at 18. A recent count using Google Earth by LAC shows 16 areas along the Texas GIWW where federal interests have installed mooring areas. While the physical structure in the waterway may be very similar; a dolphin or mooring buoy of a design to withstand rough weather, fleeting and mooring are distinct.

The LAC project operates as, and from the first application has been consistently depicted as, a fleeting operation. The GLO lease for the project is for a fleeting operation. The facility holds the Coast Guard permits necessary to operate a fleeting facility.

Barge fleeting area in the Corpus Christi area has grown increasingly scarce in recent years. Until recently there were at least three areas within the POCC, two of which are no longer available for use. The first of these was referred to as the North Bank fleeting area. It was located on property owned by the POCC and had capacity for approximately 30 to 40 barges. A new dock is currently under construction on this property and it is no longer available for barge

fleeting. The new dock is intended to replace the former Martin Midstream facility that is required for the construction of the new Corpus Christi Bridge. The second fleeting area that has been lost was referred to as the West Fleet, and it also had capacity for approximately 30 to 40 barges. This area is also owned by the POCC. The former West Fleet property has been leased to Buckeye and is being utilized for an expansion of the ocean-going ship dock at that facility. The third area is referred to as the East Fleet, and it is also on land owned by the POCC. This property is currently leased to Kirby on a short term basis for fleeting, which is being performed using spud-barges. This facility is a replacement for a previous Kirby fleeting area that was located at Dock 7 West, within the POCC. That fleeting area was lost when it was leased to Citgo for the construction of a loading facility.

The POCC did open a small fleeting area in January 2016, as noted in the TxDOT Plan. Exhibit 3 at 15. That facility, which is known as the Tule Lake Turning Basin Fleeting Area, has capacity for only about 30 barges. *See* Exhibit 4 – New POCC Fleeting Area 2014. It is located on a narrow portion of the inner harbor of the POCC. Its construction required dredging to establish needed depth. It is badly needed where it is located, but this fleeting area does not meet existing needs for barge fleeting in the Corpus Christi area.

In theory, there are at least three options available for fleeting barges. First, barges can pass this period of temporary storage moored to permanent structures known as dolphins in a fleeting area that is operated in accordance with a US Coast Guard approved Facility Security Plan. Second, if secure, permanent moorings are not available, "spud barges" are sometimes used as temporary moorings. This technique is currently in use for temporary barge mooring in the Corpus Christi Bay area. Third, the barges are pushed out of the channel into calm, shallow water, often near or against a shoreline. Because there is no mooring structure involved in this type of temporary storage, a tug or push boat is required to continuously operate its engines to maintain pressure on the barges to prevent drift. The barges are technically still underway. The barges are not moored, and human error is always possible. Other theoretical options, maintaining position within the navigation channel or remaining at the dock, are not practicable because they would obstruct navigation and prevent the use of these facilities during the downtime.

It is commonly recognized by inland barge operators that an organized fleeting facility, operated in accordance with U.S. Coast Guard regulations is preferred for reasons of safety, security, protection of aquatic and other environmental resources, and operational efficiency. Indeed, the recognized advantages of a regulated fleeting facility are likely behind the Corps' original decision to process the permit application using the Letter of Permission procedures. *See e.g.,* E-mail from Kimberly McLaughlin, USACE, to Christopher Frabotta, USACE (December 15, 2014)(acknowledging the LAC project as proposed "is a less environmentally damaging option than what is currently going on at the site"), attached here as Exhibit 5 at USACE0070. Moreover, the operation of a 24/7 fleeting facility in this location has other advantages for maritime commerce. Over its first year of operation, the LAC facility has

responded to multiple requests for emergency assistance from barge tows that have experienced loss of power or other events that presented the potential for out of control barge tows. In one of these instances, the LAC boats were able to prevent a loose tow from impacting the Corpus Christi Channel bridge. Personal comm. Todd Maise Sr.

As to the technique that might be utilized to remove the mooring dolphins; again there are at least three options. The first option is to pull the exiting dolphins from the bay bottom, utilizing a large crane mounted on a work barge, which would be temporarily anchored adjacent to each of the currently installed dolphins. Second, the structures could be cut off at the bottom elevations of the waterway; however, this would leave a submerged structure that might pose a future hazard. Third, the dolphins could be removed utilizing explosive demolition. LAC believes that in the unlikely event that the Corps determines that removal of the mooring dolphins is in the public interest, the first option is preferred.

Removal of the existing mooring dolphins would result in the lack of regulated barge fleeting facility capacity in Corpus Christi Bay or the Lydia Ann Channel. In the short term, a return to temporary barge storage conditions as they were in the months before the construction of the mooring dolphins seems most likely. Thus, the operators would push the barges against the shore of San Jose Island, maintaining the position by continuously operating the engine of the tug or push boat, as shown on Exhibit 6 taken on June 15, 2014, November 22, 2014, and December 29, 2014. In the somewhat longer term, either LAC or another entity will likely apply for a new barge fleeting facility in the Corpus Christi area. Should an application not be successful, cargo transportation could shift to increased numbers of trucks and railcars on Texas' transportation systems. Thus, an inquiry into the potential alternative locations for barge fleeting in the Corpus Christi area is relevant to the analysis of the public interest in removing the existing mooring dolphins.

II.
PROPOSED CORPS ACTION

The Corps is evaluating the proposed action whether to require the removal of the existing LAC mooring dolphins. There are at least three potential methods to remove the dolphins. First, they could be pulled from the bay bottom. Second, they could be cut off at ground level; however, this would leave some structure in place that could be a hazard to future navigation. Third, the structures could be removed using explosive force. This option would be even more disruptive to the environment as well as causing complications with the removal of the resulting debris. If the Corps determines that the removal of the dolphins is the decision in the public interest, LAC believes the option of pulling the mooring from the bottom of the bay to be the preferred methodology.

The removal of the mooring dolphins by pulling would utilize a large crane mounted on a heavy duty construction barge. These barges have stabilizers that can be lowered for heavy lifts.

Each mooring would need to be individually removed. In addition to the crane barge, additional barges for debris removal would be required and supporting work boats would also be involved. The construction time is estimated to be roughly the same as that required for the construction of the existing facility, or approximately four to five months. There would be substantial disruption to the bottom of the waterway during this time period.

If the moorings are removed, the fleeting business will cease to operate. Thirty full time jobs will be lost. The investors in the business will lose their investment.

The existing and future need for secure, regulated barge fleeting in the Corpus Christi Bay will not be met if the moorings are removed. During the period January 1, 2016 through September 30, 2016, LAC provided fleeting services to 19 separate barge companies. The most likely near term scenario will be a return to the conditions that existed before the installation of the moorings. This means that barge tows facing conditions making it dangerous to cross the bay or needing time before docking, or in need of repairs, will push into the shallow water adjacent to San Jose Island on an as-needed basis. Ongoing damages to the shallow water habitat are unavoidable. Although each vessel maintains its own spill response plan, there will be no Coast Guard approved security plan, as there will be no facility, only individual vessels. There will be no source of nearby assistance for barge tows encountering difficulties such as loss of power or difficulties with control over tows.

III.
NO ACTION ALTERNATIVE

The Mooring Dolphins Remain as Constructed and are Operated as a Fleeting Facility

Lydia Ann Channel Fleeting Facility Purpose and Need

The basic purpose of the project as currently constructed and operating is to meet a portion of the existing and reasonably anticipated need to accommodate the temporary mooring of, and preparations for transit of, barges (otherwise known as barge "fleeting") in the area of the POCC and the portions of the GIWW adjacent thereto, in a safe and environmentally responsible manner. The broader overall project purposes are described below. These same siting criteria would also apply to any alternative commercial barge fleeting location proposed in the Corpus Christi area.

As part of the complex web of maritime activities that form the flow of commerce along the federal navigation projects in the POCC and the GIWW, barges, both empty and containing cargos that include, but are not limited to, CDC barges, hot oil barges, red flag barges, and hopper barges, both call at facilities within the POCC and transport cargos to other ports along the Texas and Louisiana coasts. The practicalities of maritime commerce necessitates that short periods of down time, or demurrage, frequently occur between transits or port calls. During these intervals, the barges must wait outside of the navigation channels, until their journey can

continue. Of course, the barge operators seek to minimize this time during which productive use of the vessels is not occurring. Based on the operational history of the LAC facility to date the average storage time for a barge in the Corpus Christi area is approximately three days. Approximately 60% of the barges spend this downtime empty, the remainder are carrying cargo. Activities commonly carried out during demurrage or fleeting include fueling, crew transportation, provisioning, and service and repair activities. Some of these actions may be carried out by LAC, but many will be conducted by other entities.

When no fleeting area is available it is the industry practice to push the barges out of the channels into an area of calm, shallow water, often against a shoreline. Prior to the construction and operation of the existing LAC facility, the area along the shoreline of San Jose Island was routinely utilized for this purpose, as were other areas along the GIWW in various areas along the Texas coast. *See* Exhibit 5. Indeed, it is likely that this activity in the Lydia Ann Channel has increased in recent years as the availability of fleeting areas located within the POCC has declined. This practice of uncontrolled temporary storage is suboptimal for a variety of commercial, security, and environmental reasons. For example, the barges need to be held in place with a tug or push boat, which must maintain pressure on the barges to prevent drift. This means that engines must run continuously during the storage, increasing fuel costs and air emissions.

The applicant has identified ten (10) criteria that a location must satisfy to enable a project to meet the needs for barge storage described above in a manner that is commercially reasonable. These criteria are as follows:

1. The location must have the size and configuration to physically accept the mooring dolphins. Extremely small mooring areas are not suitable for a commercial operation because an absolute minimum of 20 barges is required for breakeven operation of a facility providing 24/7 operations and security.

2. The location must accommodate the need to stack barges at least four wide, without impeding navigation in the surrounding navigation channels. This criterion is based on the need to maintain the fleeted barges in a secure formation and to facilitate the monitoring of the fleet by the on-site 24-hour push boat and captain of the fleet. This is a safety criteria; less stacking extends the length of the area over which control must be maintained. The LAC facility operates 24 hours a day under a Coast Guard approved facility security plan. Each vessel, including the LAC vessel, has a Coast Guard approved vessel spill response plan.

3. The location must allow for safe mooring in foul weather, which includes avoiding areas that are exposed to long fetches on Corpus Christi Bay or the Gulf of Mexico. The barges that travel the GIWW are inland barges, they are not designed for conditions routinely experienced on open areas of the bays or in the Gulf of Mexico.

The barges travel in tows that are linked together with wires and cables. While the barges transit the GIWW linked together, they will also move individually. The rougher the water, or the swifter the winds or currents, the more movement the barges experience. The result is that the barges bang together, with the potential for damage to the barges or their cargos. When 3,000 to 4,000 tons of product are contained within a barge weighing 800 to 1,000 tons, the masses involved are substantial and maintaining security and control over fleeted barges becomes more difficult in bad weather. In a situation where the barges are fleeted or moored, or simply pushed into shallow water, rough weather conditions cause the barges to strain against their moorings and each other, which can compromise the ability of the operator to maintain security of the cargos. This is the primary reason why a fleeting location in the middle of Corpus Christi Bay cannot be a viable location. While the area might make sense on many criteria and would work on a pretty day without wind or tidal action, such conditions seldom prevail. Moreover, given that fleeting is particularly needed when conditions are such that barge tows cannot move across the bay, including during fog, high winds or others, a mid-bay location is not practicable.

4. The location must be within a practicable distance from the POCC, simply as a matter of logistics. The outer limit of the POCC is the GIWW entrance at Cove Harbor, Rockport, Texas, near the entrance to Aransas Bay. This is Mile 512 on the GIWW. The existing LAC facility is located at Mile 531 and is approximately 20 nautical miles and a travel time of approximately three hours from most facilities at which barges call within the POCC. This travel time is based on the average speed of a push boat with load, which is six miles per hour. Barges called to load or unload in the POCC often are given only four to five hours to reach the appropriate dock. Considering the time required to prepare the barges for transit, the LAC facility is nearing the practical outer limit of distance from the POCC. The western limit for the POCC barge fleeting is the JFK Causeway Bridge, which is approximately Mile 537 on the GIWW; areas west of this point are too far away to provide practicable fleeting areas. Additionally, the alternative to the Lydia Ann Channel for barges within this area, the Rockport Channel, which has its eastern entry point at approximately mile 521-522, is too narrow for fleeting purposes and is lined with recreational and residential properties.

5. The location should avoid known environmentally sensitive areas, including wetlands, seagrasses, and oyster beds to the maximum extent practicable.

6. The location must have a minimum water depth of 12 feet. The basis for this requirement is at least two-fold. It helps to ensure that shorelines, seagrasses and wetlands are not be impacted by operations. It also provides sufficient depth for the

operation of the barges and push boats. The depth required for most barge loads is 9 feet; the extreme depth required for a loaded barge is ten feet.

7. The location should provide for the fleeting area to be on average at least 250 feet from the adjacent shoreline. This requirement also helps to ensure that shorelines, wetlands and seagrasses are not impacted by fleeting operations.

8. The location must be located to avoid damage to adjacent shorelines under both current and future operational conditions. While the area between the shoreline of San Jose Island and the existing LAC moorings was entered by facility boats during the earliest months of operations, those incursions have been stopped as proper operational procedures were established. Any such incursion since is a violation of the established Operating Procedures of the LAC facility. *See* Exhibit 7.

9. A location with a history of use by maritime commerce, including barge and ship fleeting, mooring, or dockage is preferred. This continues historical land use patterns and avoids the disturbance of previously undisturbed areas. Barges were fleeting in the area of the current LAC facility prior to its construction. *See* Exhibit 6. This likely had become a more frequent activity with the loss of fleeting areas within the POCC.

10. The location must be economically viable from a standpoint of construction and maintenance costs. The main factor within this criterion is that sites that might be utilized only with substantial dredging costs are not viable. Dredging was not required as part of the construction of the existing facility.

These factors were utilized by the applicant to select the proposed location. The existing location meets all ten criteria and is considered the preferred alternative for barge fleeting in the Corpus Christi area. These factors also form the basis for the alternatives analysis that is included with this application. The alternatives analysis is also relevant to the Corps' September 12, 2016 letter. In addition to the existing facility, this analysis examines nine alternate locations for a barge fleeting facility in the Corpus Christi area. The locations of the properties are shown on the aerials and drawings, attached here as Exhibit 8 through Exhibit 16.

Off-Site Alternatives for Barge Fleeting

Alternative A - Across from Martin Midstream. This is the alternative nearest to the existing facility, as shown on Exhibit 8 dated January 3, 2016. While it meets most criteria, it is closer to the Corpus Christi Ship Channel (CCSC) and is much more exposed to the Gulf of Mexico. These factors translate into much rougher water than at the existing facility. During periods when the winds come from the southwest, which includes most of the summer, this location is exposed to groundswells of varying sizes. When this groundswell is linked to an

incoming tide, these groundswells become problematic. At the existing Martin fuel dock, which would be directly adjacent to any fleeting in this area, ground swells of three to four feet are common, and at times force the disruption of fueling activities. As discussed previously, under this type of ground swell conditions, the barges move against each other and against their moorings. When 3,000 to 4,000 tons of product are contained within a barge weighing 800 to 1,000 tons, the masses involved are substantial and maintaining security and control over fleeted barges becomes more difficult. In addition this area is within 250 feet of the shoreline so that avoiding impacts to shore based facilities becomes more difficult than at the current site.

Alternative B - Wood Group Property. This location contains shallow water and is directly adjacent to the CCSC, as shown on Exhibit 9 dated November 22, 2014. The available property is quite narrow and could not accommodate the demand for barge fleeting, having capacity for only approximately twenty barges. Thus, this site is not commercially feasible. The narrow shape would also prevent the stacking of fleeted barges four deep because of the close proximity of the CCSC. Moreover, operational needs while working on the fleet create a potential for risks with ongoing navigation. For all sites too near the CCSC, the nearby passage of ocean-going ships and the resulting displacement of large volumes of water results in a swell followed by a strong ebbing pull. This problem will increase with the construction of the new harbor bridge, which will increase the size of ships entering the POCC. When the deepening and widening project occurs, the problems will further increase. Ships passing can and have pulled barges off their mooring at locations along the Texas coast. Moreover, the water in this area is extremely shallow; therefore, the required dredging makes this location too expensive to be commercially viable.

Alternative C - POCC Property to the West of the Wood Group. The issues here, as shown on Exhibit 10 dated November 22, 2014, are very similar to Alternative B. This shallow water site fails on numerous criteria. The site is too small for cost effective operations, the water is rough due to the proximity to the CCSC and the site is exposed to wind and tidal action. The water is very shallow, creating the double disadvantage of the need for extensive dredging and resulting permanent damage to seagrasses.

Alternative D - Berry Construction Property. Once again this property, as shown on Exhibit 11 dated November 22, 2014, is too small to accommodate commercial fleeting operations. The water at this location is shallow, and contains extensive seagrasses. These would be destroyed by the dredging that would be required to create adequate water depth for a fleeting area. The cost of the dredging renders this site impractical. Moreover, while the site is technically available, the current asking price of $150 Million makes it cost prohibitive for fleeting operations. There is no history of ship mooring or docking at this location.

Alternative E - POCC Property on the Rincon Channel. This property, as shown on Exhibit 12 dated November 22, 2014, is extremely small and would not meet the demand for fleeting. Perhaps most importantly, the only access to the site is by passage under the low,

Highway 35 bridge. The access under this bridge is very narrow, perhaps as limited as 50 feet, which cannot accommodate a 55-foot barge. Damage to the bridge would cause major disruptions. Replacing the bridge, even if it could be accomplished by a private entity, is too costly. Moreover, the Rincon channel would bring fleeting operations far too close to the shoreline and existing residential properties.

Alternative F - Conn Brown Harbor (Aransas Pass). This former industrial site, as shown on Exhibit 13 dated November 22, 2014, has some deep water available that could be used for fleeting; however, that area is too small for commercial fleeting operations. It also is experiencing substantial growth in recreational use, which raises navigational safety issues. Perhaps most importantly, however, the area is not realistically available as the City of Aransas Pass has undertaken the process of developing the area as a condominium and recreational area, pursuant to a City Ordinance wherein any boats would have to be screened from public view; an unrealistic restriction on a fleeting operation . The City has signed, or is in the process of signing, a Master Development Agreement with a private developer to that end.

Alternative G - GIWW Location West of Rockport. This area, as shown on Exhibit 14 dated January 3, 2016, is too shallow and would require dredging, which renders the project commercially infeasible. Construction and operation of a facility in this location would result in damage to seagrasses. It is too close to shore for safe operation of a commercial facility. Perhaps most importantly, it could accommodate only six barges and is not commercially viable.

Alternative H - GLO Water Location #1. This site, as shown on Exhibit 15 dated January 3, 2016, is extremely shallow and would require dredging, not only for the fleeting operations area, but also for an access channel to the site. This renders the site impractical. Moreover, this location does not have a history of maritime use and contains extensive seagrass beds, which would be permanently impacted by the construction of a fleeting facility in this location.

Alternative I - GLO Water Location #2. This site, as shown on Exhibit 16 dated January 3, 2016, suffers from the same deficiencies as Alternative H. It is not practical for commercial fleeting operations.

The alternatives and the existing facility are compared based on the siting criteria in Figure 1, below.

Figure 1

Sites	Requirements / Description	#1 Space for 82 Moorings	#2 Ability to Stack w/Out Impeding Nav	#3 Safe Mooring In Foul Weather	#4 Access to Port of CC	#5 Avoid Impact Wetlands, etc.	#6 Min Depth 12' of Water	#7 At Least 250' From Shore	#8 Avoid ALL COST Damage Shore	#9 History of Barge & Ship Mooring/Docking	#10 Cost Prohibitive Due to Needed Dredge
	EXISTING LAC SITE	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**NO**
A	Across From Martin	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**NO**	**YES (SHORE IS SPOIL)**	**YES**	**NO**
B	Wood Group Prop	**NO**	**NO**	**YES**	**YES**	**YES**	**NO**	**NO**	**NO**	**YES**	**YES**
C	POCC Property	**NO**	**NO**	**YES**	**YES**	**YES**	**NO**	**NO**	**YES (SHORE IS SPOIL)**	**NO**	**YES**
D	Berry Constr Prop	**NO**	**YES**	**YES**	**YES**	**YES**	**NO**	**NO**	**NO**	**NO**	**YES**
E	Rincon Channel POCC	**NO**	**NO**	**YES**	**YES**	**YES**	**YES**	**NO**	**NO**	**YES**	**NO**
F	Con Brown Harbor	**NO**	**NO**	**YES**	**YES**	**YES**	**YES**	**NO**	**NO**	**YES**	**NO**
G	GIWW	**NO**	**NO**	**YES**	**YES**	**YES**	**NO**	**NO**	**NO**	**NO**	**YES**
H	GLO Water	**YES**	**YES**	**YES**	**YES**	**YES**	**NO**	**NO**	**NO**	**NO**	**YES**
I	GLO Water	**YES**	**YES**	**YES**	**YES**	**YES**	**NO**	**NO**	**NO**	**NO**	**YES**

IV.
CONCLUSIONS

It is broadly recognized that the Texas portion of the GIWW is both of vital economic importance and faces serious, ongoing issues regarding unmet maintenance needs. These unmet needs directly affect navigational efficiency and navigational safety. Barge fleeting is a critical navigational function for the GIWW. Establishing barge fleeting areas along the GIWW and the POCC cannot be deferred to the future. Encroachment on the navigational capacity by real estate development has already raised concerns for the efficiency of navigational operations. *E.g.*, Exhibit 3 at 16. Although the LOP process may have resulted in a less than complete Administrative Record, rendering the Corps' decision subject to challenge, the mere fact of the challenge does not make the Corps' decision to authorize a fleeting area at this location in the Lydia Ann Channel wrong.

The Corps' proposed action does not meet the well-recognized navigation need for barge fleeting in the Corpus Christi area and is not in the public interest. Allowing the moorings to remain and the LAC fleet to continue operations is in the public interest.

EXHIBIT 1

Press Release, US Army Corps of Engineers (Oct. 1, 2015);
Press Release, US Army Corps of Engineers (March 6, 2013)

News Releases by Month

October 2016 (1)
September 2016 (6)
August 2016 (6)
July 2016 (4)
June 2016 (9)
May 2016 (3)
April 2016 (10)
March 2016 (4)
February 2016 (6)
January 2016 (1)
December 2015 (2)
November 2015 (2)
October 2015 (11)
September 2015 (7)
August 2015 (8)
July 2015 (6)
June 2015 (5)
May 2015 (11)
April 2015 (8)
March 2015 (1)
February 2015 (10)
January 2015 (2)
December 2014 (4)
November 2014 (7)
October 2014 (2)
September 2014 (7)
August 2014 (12)
July 2014 (6)
June 2014 (5)
May 2014 (5)
April 2014 (11)
March 2014 (4)
February 2014 (4)

What is the district's role in maintaining the GIWW?

SHARE Email Print

Posted 3/6/2013

Release no. 13-016

"The USACE Galveston District is tasked with maintaining the Texas portion of the Gulf Intracoastal Waterway to ensure this important component of the Texas and U.S. maritime system remains open for commerce. Working with our partners, the Texas Department of Transportation, Texas ports and organizations such as the Gulf Intracoastal Canal Association, the district keeps the GIWW deep and wide enough to meet current shipping demands, which is key to the economic competitiveness of Texas ports."

Q. What is the GIWW?
A. The Gulf Intracoastal Waterway is a 1,300-mile-long, manmade canal that runs along the Gulf of Mexico coastline from Texas' southernmost tip at Brownsville to St. Marks, Fla., linking all of the Gulf Coast ports and enabling the state to handle more than 50 percent of the waterway's traffic. The Texas portion extends for approximately 423 miles from Sabine River to Port Isabel, Texas, and serves as a critical link between the deep draft and shallow draft ports while providing an interstate link for commodities transported in and out of the state.

One of the primary functions of the GIWW was to provide protected inland transportation of goods and troops during World War II. Since then, the waterway has expanded to accommodate commercial and recreational vessels and handles approximately 73 million tons of freight annually along the Texas portion alone.

Q. How was the GIWW constructed?
A. The GIWW was financed and constructed by the federal government through the United States Army Corps of Engineers. In 1873, the federal government passed the Rivers and Harbors Act of 1873, which allocated funds to conduct a survey to connect the inland waters along the margin of the Gulf of Mexico from Donaldson, La., to the Rio Grande River in Texas by cuts and canals to develop the intracoastal waterway.

A series of congressional acts passed between 1925 and 1942 allowed for continued expansion of the waterway. By 1941, the GIWW in Texas extended from the Sabine River to Corpus Christi with a bottom width of 100 feet and a depth of 9 feet. Legislation passed in 1942 extended the canal to Brownsville and changed its dimensions to 125-feet wide by 12-feet deep. Construction was completed in 1949 and by 1975, the Texas legislature enacted the Texas Coastal Waterway Act granting the state sponsorship of the main channel of the Texas portion of the waterway.

Q. What is the Galveston District's role in keeping the GIWW open for navigation?
A. The USACE Galveston District is tasked with monitoring the channel conditions and maintaining sufficient depths within the Texas portion of the GIWW. Staff is also tasked with operating the Brazos River Floodgates and Colorado River Locks. Monitoring is accomplished by performing hydrographic surveys while maintaining depths is accomplished through maintenance dredging performed periodically throughout the 423 miles. Approximately five million cubic yards of dredged material is either placed in authorized placement areas and/or used for beneficial use such as beach renourishment projects annually. The USACE Galveston District staff oversees approximately $25 million annually in GIWW operations and maintenance contracts.

Q. What is the district doing to ensure the GIWW coexists with residential and commercial development?
A. The district is currently updating its setback policy along the GIWW for two main purposes: To protect the

January 2014 (3)
December 2013 (4)
November 2013 (5)
October 2013 (6)
September 2013 (14)
August 2013 (7)
July 2013 (8)
June 2013 (10)
May 2013 (11)
April 2013 (7)
March 2013 (3)
February 2013 (11)
January 2013 (3)
December 2012 (5)
November 2012 (7)
October 2012 (8)
September 2012 (5)
August 2012 (6)
July 2012 (5)
June 2012 (5)
May 2012 (9)
April 2012 (6)
March 2012 (4)
February 2012 (5)
January 2012 (4)

Corps Connections

Army News
Defense Video & Imagery Distribution System
Department of Defense News
Pentagon Channel
Soldiers Magazine
USACE Heaquarters News
White House News

channel to ensure safe navigation by continuing to regulate the distance that marine structures can be constructed in vicinity of the authorized channel and to analyze known hazardous locations for navigation along the GIWW and assess whether changes to the setback distances are needed in order to maintain navigation safety. Staff will add visibility of the setback by creating a downloadable overlay on the district's website that will show where the setbacks are located with respect to the authorized channel along the GIWW.

Q. What is the significance of the GIWW to local communities, the state and nation?
A. The GIWW was established to provide commercial navigation, support for and encouragement of interstate commerce, safe harbor for shipping from inclement weather and protection for shipping from wartime enemy attack and remains an essential component of the state's and nation's transportation network.

In 2010, more than 72.7 million tons of cargo transited along the Texas portion of the GIWW with an estimated value of $40.7 billion. If measured against all the nation's ports, the Texas portion of the GIWW would rank seventh in the nation with respect to total tonnage. The GIWW provides an intra- and inter-state link between the Gulf deep-draft ports, refineries and chemical processing facilities and will continue to play an important role after the expansion of the Panama Canal.

Q. Where can I learn more about the GIWW?
A. Visit the TXDOT site at **http://www.texasgulfcoastonline.com/portals/0/pdfs/tx_gulfcoastwaterway.pdf** to learn more about the GIWW or the Gulf Intracoastal Canal Association at **http://www.gicaonline.com**. Visit the USACE Galveston District's Navigation website at **http://www.swg.usace.army.mil/Missions/Navigation.aspx**. Find us on Facebook, **www.facebook.com/GalvestonDistrict** or follow us on Twitter, **www.twitter.com/USACEgalveston**.

ABOUT US: The USACE Galveston District, established in 1880 and fondly known as the "Custodians of the Coast," plays a key role in America's well-being by keeping waterways open for navigation and commerce and serves the nation as part of the world's largest public engineering, design and construction management agency. Encompassing the Texas coast from Louisiana to Mexico; an area that spans across 50,000 square miles, contains more than 1,000 miles of channels (750 shallow draft and 250 deep draft), serves 28 ports and 700 miles of coastline, the district successfully executes its mission of providing vital public engineering services in peace and war to strengthen our nation's security, energize the economy and reduce risks from disasters. With its 310 dedicated professionals, the Galveston District will continue to provide valuable navigation, flood risk mitigation, ecosystem restoration, shoreline protection, regulatory services, military construction and emergency management services to our nation and remains fully committed to continuing our mission of "BUILDING STRONG."

GIWW Texas ports USACE Galveston District

News Releases by Month

October 2016 (1)
September 2016 (6)
August 2016 (6)
July 2016 (4)
June 2016 (9)
May 2016 (3)
April 2016 (10)
March 2016 (4)
February 2016 (6)
January 2016 (1)
December 2015 (2)
November 2015 (2)
October 2015 (11)
September 2015 (7)
August 2015 (8)
July 2015 (6)
June 2015 (5)
May 2015 (11)
April 2015 (8)
March 2015 (1)
February 2015 (10)
January 2015 (2)
December 2014 (4)
November 2014 (7)
October 2014 (2)
September 2014 (7)
August 2014 (12)
July 2014 (6)
June 2014 (5)
May 2014 (5)
April 2014 (11)
March 2014 (4)
February 2014 (4)

USACE Galveston District awards two contracts for dredging of GIWW

Posted 10/1/2015

Release no. 15-060

GALVESTON, Texas (Oct. 1, 2015) – The U.S. Army Corps of Engineers, Galveston District, awarded two contracts for maintenance dredging of the Gulf Intracoastal Waterway (GIWW) in Texas.

- A contract was awarded in the amount of $8,885,450 to Goodloe Marine Inc., for dredging between Freeport Harbor and Matagorda Bay, Texas.
- A second contract was awarded in the amount of $4,483,500 to Mike Hooks Inc., for dredging between High Island to Rollover and Bolivar Flare in Galveston and Chambers counties, Texas.

“The GIWW is an essential component of the nation's navigation network extending for 1,109 miles from Appalachee Bay Florida to Port Isabel Texas,” said Seth Jones, an operations manager with USACE Galveston District’s Navigation Branch. “The GIWW is the third ranked inland waterway in the nation handling 126 million short tons of cargo. The 379-mile Texas portion of the GIWW handles more than 73 million short tons of cargo annually valued at $42 billion.”

According to Jones, approximately 75 percent of this cargo is classified as petroleum and petrochemical-related products (2013).

“Maintenance dredging of the GIWW between Freeport Harbor and Matagorda Bay, Texas, will remove approximately 2.75 million cubic yards of material, which will be placed at various placement areas along the waterway,” said Jones. “We’ll also use approximately 100,000 cubic yards of sand beneficially to nourish the Gulf shoreline in the vicinity of Sargent Beach, Texas.”

According to Jones, work is scheduled to begin in October 2015 with an anticipated completion date of April 2016.

“Maintenance dredging of the GIWW between High Island and Rollover Pass, Texas, will remove approximately 1.1 million cubic yards of material, of which approximately 194,000 cubic yards of sand will be used beneficially to nourish the Gulf shoreline in the vicinity of Rollover Pass on Bolivar Peninsula, Texas,” said Jones. “Work is scheduled to begin in October 2015, with anticipated completion of February 2016.”

The USACE Galveston District was established in 1880 as the first engineer district in Texas to oversee river and harbor improvements. The district is directly responsible for maintaining more than 1,000 miles of channel, including 270 miles of deep draft and 750 miles of shallow draft as well as the Colorado River Locks and Brazos River Floodgates.

Learn more about the Texas coast at http://www.swg.usace.army.mil/Missions/TexasCoastValuetotheNation.aspx. For news and information, visit www.swg.usace.army.mil. Find us on Facebook, www.facebook.com/GalvestonDistrict or follow us on Twitter, www.twitter.com/USACEgalveston.

Corps of Engineers dredging Galveston District GIWW Gulf Intracoastal Waterway navigation placement areas sand Texas coast USACE

January 2014 (3)
December 2013 (4)
November 2013 (5)
October 2013 (6)
September 2013 (14)
August 2013 (7)
July 2013 (8)
June 2013 (10)
May 2013 (11)
April 2013 (7)
March 2013 (3)
February 2013 (11)
January 2013 (3)
December 2012 (5)
November 2012 (7)
October 2012 (8)
September 2012 (5)
August 2012 (6)
July 2012 (5)
June 2012 (5)
May 2012 (9)
April 2012 (6)
March 2012 (4)
February 2012 (5)
January 2012 (4)

Corps Connections

Army News
Defense Video & Imagery Distribution System
Department of Defense News
Pentagon Channel
Soldiers Magazine
USACE Heaquarters News
White House News

EXHIBIT 2

Port of Corpus Christi, Monthly Reports

PORT OF CORPUS CHRISTI

BARGE COUNTS	2016	2015	2014	2013	2012	2011
JANUARY	427	555	548	435	326	349
FEBRUARY	424	478	395	363	300	299
MARCH	393	528	575	431	384	341
APRIL	403	465	535	393	331	273
MAY	385	479	586	460	434	323
JUNE	278	478	573	425	430	342
JULY	370	515	666	446	418	335
AUGUST	375	518	627	495	430	408
SEPTEMBER		458	620	433	420	309
OCTOBER		441	641	484	439	362
NOVEMBER		452	596	498	401	348
DECEMBER		421	569	539	439	325

SOURCE: portofcc.com/general info/financial/monthly reports/ship and barge activity

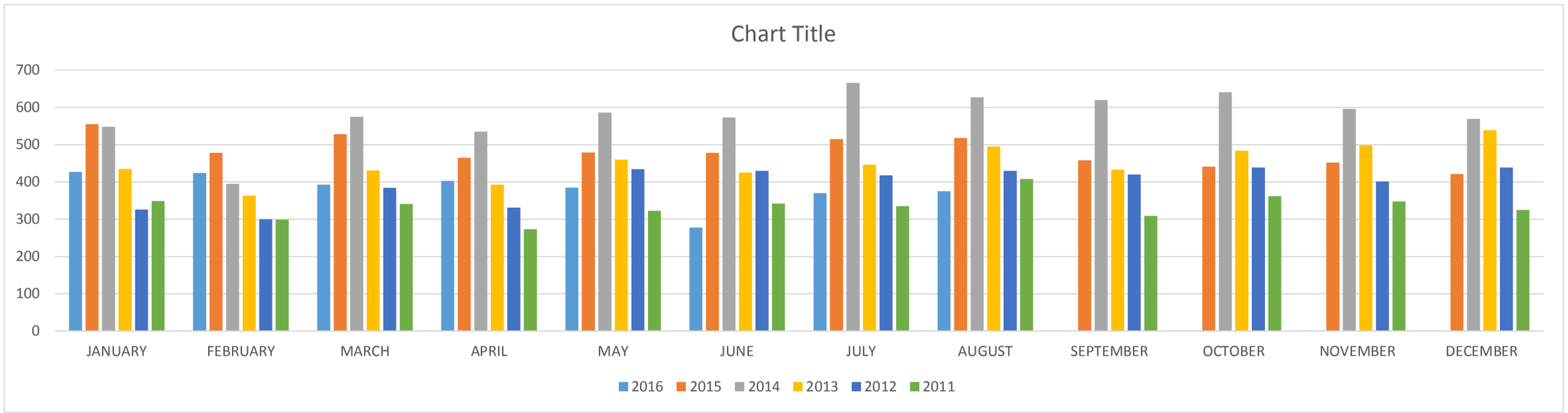


EXHIBIT 3

Texas Department of Transportation, Gulf Intracoastal Waterway, Master Plan for the Gulf Intracoastal Waterway in Texas (June 2014)

TEXAS TRANSPORTATION COMMISSION

VARIOUS Counties

VARIOUS Districts

MINUTE ORDER

Transportation Code, Chapter 51 (Texas Coastal Waterway Act), designates the state to act as the non-federal sponsor of the main channel of the Gulf Intracoastal Waterway (GIWW) from the Sabine River to the Brownsville Ship Channel.

Transportation Code, Section 51.007 requires the Texas Transportation Commission (commission) to continually evaluate the impact of the GIWW on the state and prepare a report for each regular session of the Texas Legislature. The evaluation shall include:

1) an assessment of the importance of the GIWW that includes identification of its direct and indirect beneficiaries;

2) identification of principal problems and possible solutions to those problems that includes estimated costs, economic benefits, and environmental effects;

3) an evaluation of the need for significant modifications to the GIWW; and

4) specific recommendations for legislative action that the commission believes are in the best interest of the state in carrying out the state's duties under this chapter.

The report of the evaluation shall be published and presented to each regular session of the Texas Legislature.

The Texas Department of Transportation has completed the evaluation and developed the report for the period of Fiscal Years 2013-2014.

IT IS THEREFORE ORDERED that the Gulf Intracoastal Waterway Report, as shown in Exhibit A, is approved by the commission and should be published and presented to the members of the 84th Texas Legislature, the governor, the lieutenant governor, and the speaker of the house of representatives.

Submitted and reviewed by:

Director, Maritime Division

Recommended by:

Executive Director

114121 NOV 2014

Minute Number | Date Passed

Master Plan for the Gulf Intracoastal Waterway in Texas

Project: **0-6807**

Project Title: **Texas Gulf Intracoastal Waterway Master Plan**

Accompanies Technical Report 0-6807-1

Submitted: **June 2014**

This report is intended to comply with Section 51.007, Transportation Code

Texas Department of Transportation

Contents

A Master Plan for the Gulf Intracoastal Waterway in Texas

Issues, Opportunities, and Challenges

This document presents the issues surrounding the ongoing, unmet maintenance needs of the Texas portion of the Gulf Intracoastal Waterway (or GIWW-T). It also presents recommendations for next steps to address those needs. In short, increased coastal development—particularly in the energy sector resulting from development of the Eagle Ford Shale play in South/Central Texas—have made the GIWW-T more important than it has ever been to the economy of Texas. Though the U.S. Army Corps of Engineers (aka the Corps) is primarily responsible for maintaining the GIWW-T, reductions in federal funding have limited its ability to meet that responsibility. Over the long term, the net result of improperly maintaining the GIWW-T will be lost economic opportunity for Texas. Furthermore—beyond merely catching up in terms of maintaining the waterway—all indications are that the GIWW-T will need to accommodate an ever-increasing volume of goods (especially petroleum and petrochemicals) to keep up with the shipping demands of the private sector. Texas Department of Transportation (TxDOT) Project 0-6807, Texas Gulf Intracoastal Waterway Master Plan, has produced recommendations that will help the GIWW-T provide the capacity needed by the Texas economy in the coming decades. This document summarizes those recommendations.

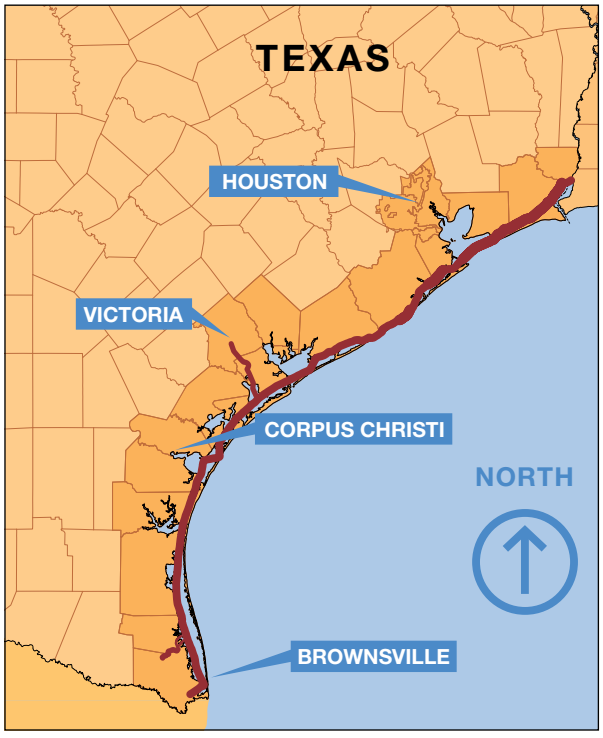


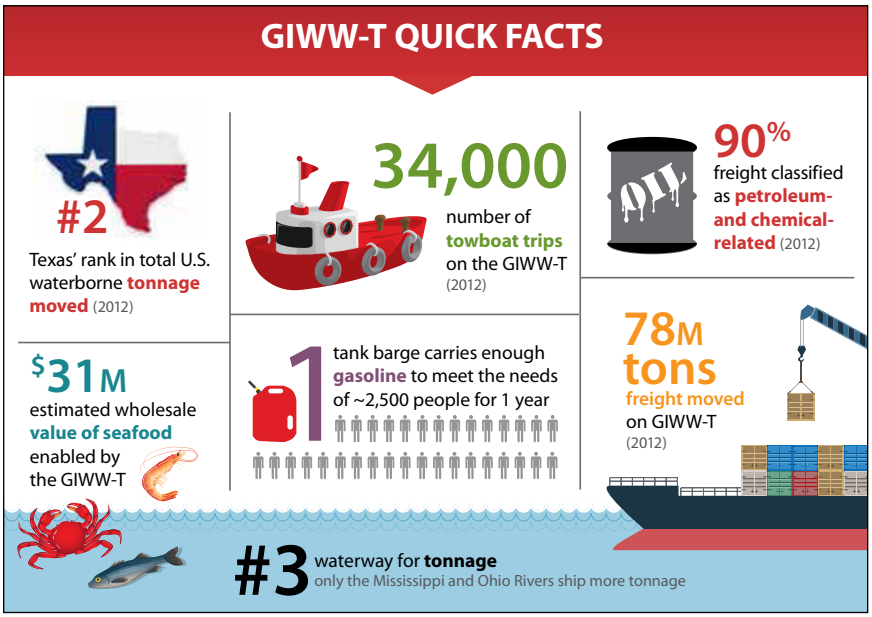
Figure 1. GIWW-T. Source: Texas A&M Transportation Institute

The Gulf Intracoastal Waterway in Texas

The Gulf Intracoastal Waterway (GIWW) is a 1,100-mile-long, shallow draft, man-made, protected waterway that connects ports along the Gulf of Mexico from St. Marks, Florida, to Brownsville, Texas. As the nation's third busiest inland waterway, the GIWW is an essential component of the nation's transportation network. In addition to the economic benefits derived from the cargo carried on the GIWW, traffic on the waterway reduces highway and rail congestion and also decreases maintenance costs and extends the life of these systems. In addition, water transportation is the most fuel-efficient mode of transportation and produces the least emissions per ton of cargo carried.

Over the long term, the net result of improperly maintaining the GIWW-T will be lost economic opportunity for Texas.

The GIWW-T main channel covers 379 miles of Texas' coastline and handles 67 percent of the entire GIWW's traffic. Figure 1 above shows a map of the GIWW-T and the coastal counties that directly or indirectly benefit from the waterway. The GIWW-T links together 11 deep-draft ports (25 feet or deeper) and 13 shallow-draft channels. Though designed to be 125 feet wide and 12 feet deep, the waterway is not being maintained properly due to insufficient federal funding. The results are costly shipping inefficiencies for Texas businesses—with those expenses passed along to end consumers—and lost revenue for the state.



Source: Waterborne Commerce of the United States: 2012, Institute for Water Resources. U.S. Army Corps of Engineers; A Modal Comparison of Domestic Freight Transportation Effects on the General Public: 2001-2009, Texas A&M Transportation Institute

The maintenance of the GIWW is the responsibility of the Corps. In 1975, TxDOT was named the official non-federal sponsor for the GIWW-T through the Texas Coastal Waterway Act. TxDOT's primary responsibility under the act is to provide right-of-way and disposal areas for by-products of dredging operations and maintenance. The problem is that the gap between maintenance needs on the GIWW-T (e.g., dredging, lock maintenance, and other needs) and services provided by the Corps has widened as federal maintenance dollars have shrunk. The solution, to put it simply, is that either increased federal funding within the current appropriations process for the Corps will occur—which is unlikely—or a different solution is needed to improve the GIWW-T's capacity in order to meet the current and future shipping needs of Texas businesses.

Why Waterborne Freight Matters

Originally constructed to facilitate dry bulk commodity trade between Texas ports (and to facilitate defense during World War II), the GIWW-T

has become an integral component of the extensive supply chains of Texas petrochemical and manufacturing industries. The GIWW-T's importance to the Texas economy is reflected in its high levels of vessel traffic. In 2012, the Lone Star State ranked second in the nation in total waterborne tonnage transported, with 486 million tons (or 21 percent) of the total U.S. maritime freight volume on both deep- and shallow-draft waterways.

Numerous economic studies underline the significant role that the GIWW-T plays in facilitating commerce throughout the Texas Gulf Coast region by moving manufactured goods, farm products, machinery, petroleum and petroleum products, and chemicals. The GIWW-T is integral to some of the state's most important industries. In 2012, for example, nearly 78 million short tons were moved on the GIWW-T, 90 percent of which were petroleum and chemical products.

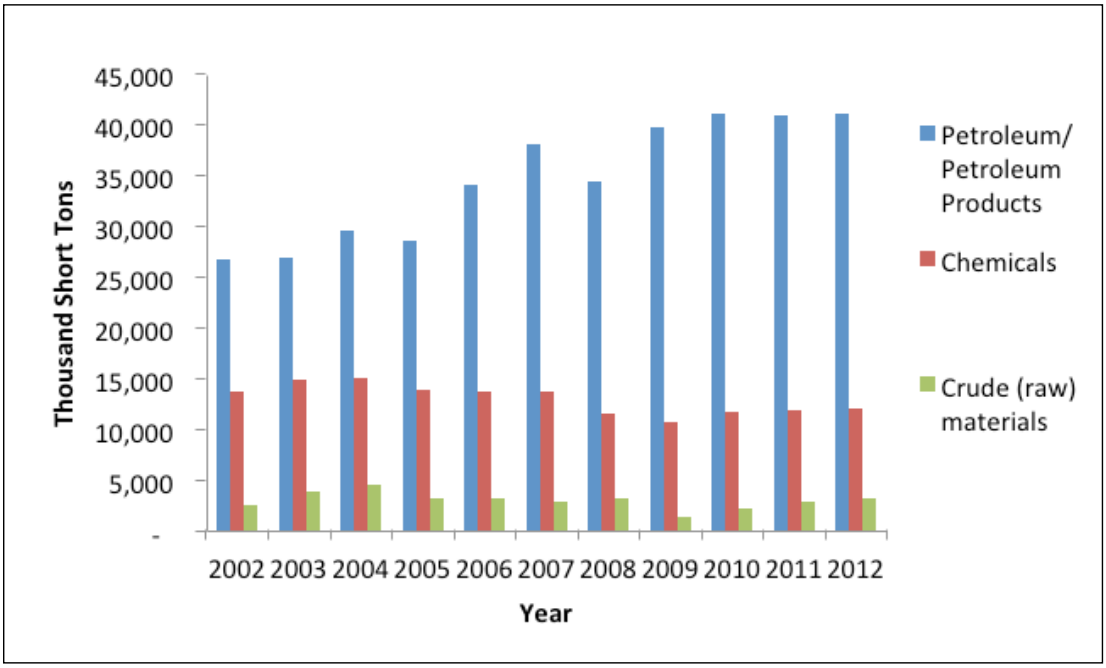


Figure 2. GIWW-T Top Three Commodities Transported 2002–2012. Source: Waterborne Commerce of the United States: 2012, Institute for Water Resources. U.S. Army Corps of Engineers

The ports of Texas are significant to the local, national, and international economies on a large scale largely because of the amount of petroleum processed through refineries located along the coast. In 2012, petroleum and petroleum products represented 67 percent of all commodity tonnage moved through the GIWW-T. Petrochemicals account for an additional 23 percent of tonnage moved.

From 2002 to 2012, the Corps Institute for Water Resources reported a 5 percent average annual increase in short tons of petroleum and petroleum products transported through the GIWW-T. Figure 2 illustrates commodity growth for the top three commodities shipped on the waterway between 2002 and 2012.

Other commodities transported in 2012 on the GIWW-T comprised 3.4 million tons collectively and represent only 4 percent of the 2012 totals. They include:

- Coal.
- Primary manufactured goods.
- Food and farm products.
- Manufactured equipment and machinery.
- Waste and scrap products.

Lastly, waterway transport has significant advantages over other modes of moving freight (i.e., rail and roadway). It does not add to traffic congestion and pavement damage on our streets and highways. And, as Figure 3 shows, waterborne transportation is safer, more fuel-efficient, and a better friend of the environment.

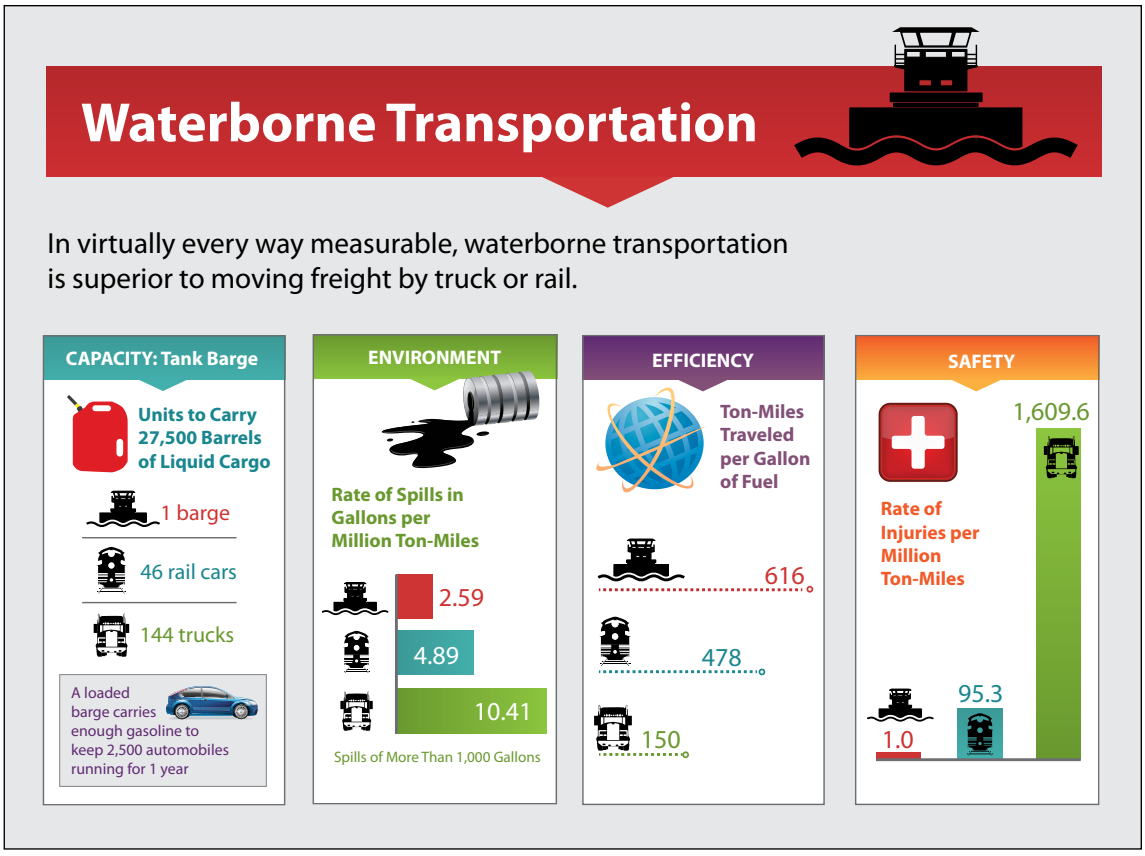


Figure 3. Waterborne Transportation Compared to Truck and Rail. Source: "A Modal Comparison of Domestic Freight Transportation Effects on the General Public: 2001–2009, Texas A&M Transportation Institute"

Future Coastal Development Means Economic Opportunity for Texas

A vital GIWW-T working efficiently at full capacity has a positive impact all along the Texas coast. It generates real benefits for Texas, directly and indirectly, by facilitating efficient and effective freight movement and industrial production at all stages of the supply chain, from raw materials to finished products. As public demand for goods increases, production processes accelerate in order to meet it, and

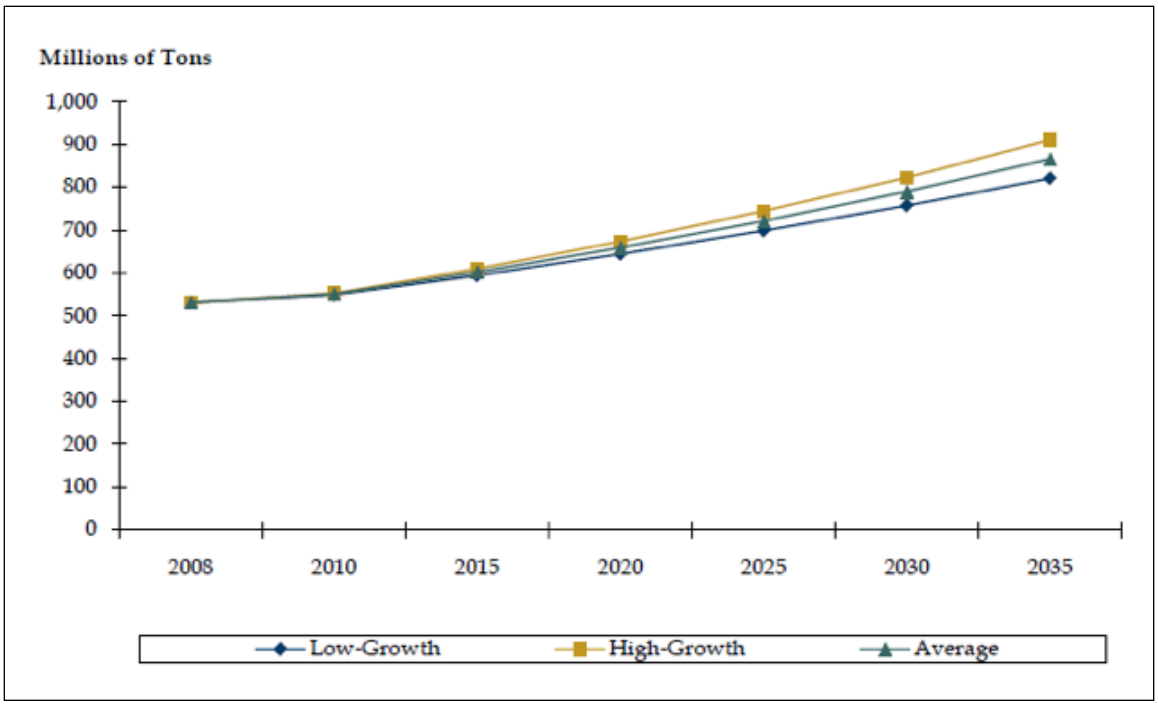


Figure 4. Statewide Waterborne Tonnage Forecasts to 2035. Source: Texas Waterborne Freight Corridor Study.

so do the demands on the GIWW-T. Shippers invest capital through expanding or developing new production, storage, and manufacturing facilities. They hire workers to operate those facilities, thus providing employment, further spending, and tax dollars to local communities.

Future Opportunity Will Create Increased Demands for the GIWW-T

Most forecasts predict that waterborne freight tonnage in Texas will increase dramatically. Figure 4 shows that, by 2035, the average overall tonnage for Texas seaports is expected to grow by at least 50 percent to more than 800 million tons.

With regard to the GIWW-T, current forecasts also suggest that tonnage will increase. For example, a study completed in 2010 by Cambridge Systematics shows that total freight volumes could increase by 45 percent. It is expected that, of the coastal developments currently under way, the Eagle Ford Shale play in South/Central Texas will have the most significant impact on GIWW-T traffic.

In 2014, oil and gas production in the United States is projected to match its peak production year of 1970, when it reached 9.6 million barrels per day.

Eagle Ford Shale

The U.S. energy sector has seen a recent boom brought about in part by recent advancements in oil and natural gas extraction technology. For example, in 2014, oil and gas production in the United States is projected to match its peak production year in 1970, when it reached 9.6 million barrels per day. By comparison, in 2008, U.S. oil production stood at 5 million barrels per day. By summer 2013, it had risen to 7.5 million.

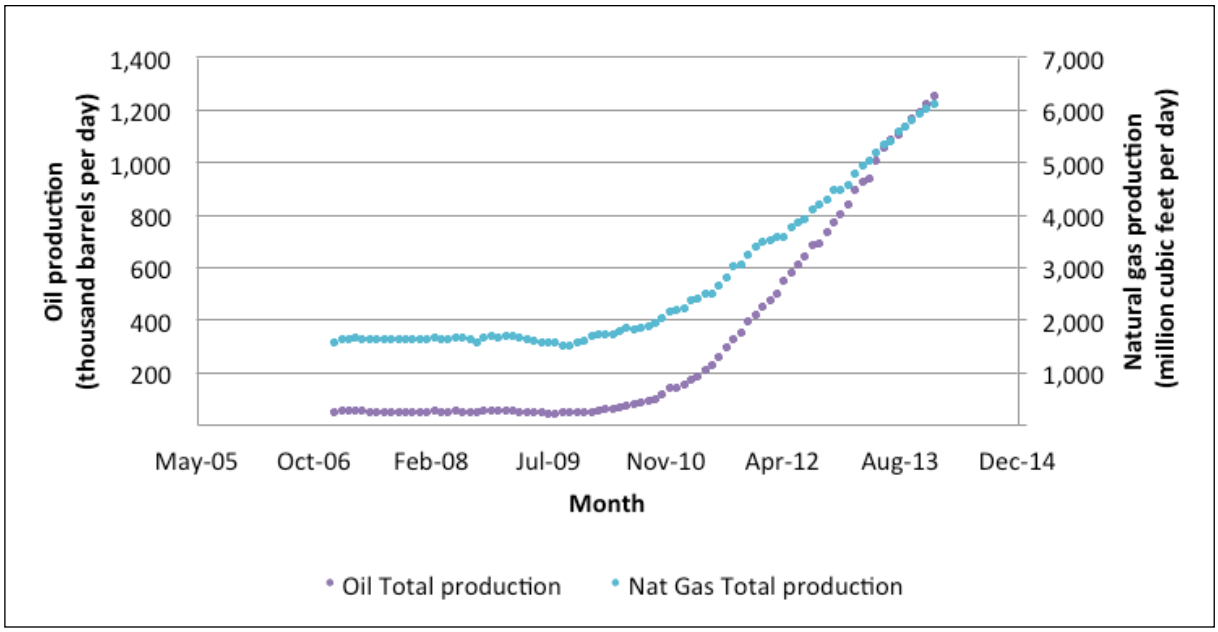


Figure 5. Daily Oil Production for the Texas Eagle Ford Shale Play. Source: Energy Information Administration.

The increase in crude oil transported by barge from the Eagle Ford Shale play could result in the need to transport an additional 1.2 million tons or 445 barges annually on the GIWW-T by 2022.

The Eagle Ford Shale play is already an important catalyst for growth in the state's energy economy. As of January 2014, the reserve produced 1.2 million barrels of crude oil per day, representing an increase of 41 percent from just a year earlier. During this same period, natural gas production has seen similar growth, increasing by 34 percent (from 4.6 million to 6.1 million cubic feet per day). Figure 5 shows the production statistics for Eagle Ford Shale oil and natural gas.

While government forecasting data are currently unavailable, several firms with energy-sector expertise have offered independent projections for Eagle Ford Shale production. Jefferies & Company, an investment banking firm specializing in oil and gas data analytics, announced in October 2013 that it expects Eagle Ford oil production to peak in 2022 at 1.8 million barrels per day. Data obtained from the Energy Information Administration indicate that, in 2012, approximately 4 percent of U.S. refinery receipts of crude oil were transported by barge. Assuming this percentage remains unchanged, the increase in crude oil transported by barge from the Eagle Ford Shale play could result in the need to transport an additional 1.2 million tons or 445 barges annually on the GIWW-T by 2022.

Capital Investment Initiatives Resulting from Eagle Ford Shale

As a result of this increased activity, companies are also increasingly investing in the Texas Gulf Coast. According to the American Chemistry Council, U.S. petrochemical companies recently proposed 100 new major projects worth a total of $71 billion. Many of those developments are planned along the Texas Gulf Coast. Table 1 provides a brief review of recently announced plans for investment along the Texas Gulf Coast.

Table 1. Recently Announced Plans for Texas Gulf Coast Investments.

Investor	Investment $	Projects/Locations
Chevron Philips	$5 billion	Project in Baytown, Texas, and received an air quality permit in January for a cracker plant in Cedar Bayou, Texas.
Cheniere Energy	$10 billion	Corpus Christi Liquefaction, LLC, will develop a liquefied natural gas (LNG) export terminal at one of its existing sites.
M&G Group	$900 million	One of the largest producers of thermoplastic resins used for packages and soft drink bottles has announced that it will invest in two facilities located in Corpus Christi.
Tianjin Pipe Corporation	$1 billion	Started construction on a Corpus Christi facility that will manufacture seamless pipes for the oil and gas industry.
Voestalpine	$700 million	Plans to invest in Corpus Christi to produce two million tons of iron and plans to use natural gas from the Eagle Ford Shale play to power the plant.
Kinder Morgan Energy Partners LP	$430 million at the company's Bostco site; $245 million at the company's Galena Park site	Crude oil expansion project currently under way at its Bostco site along the Houston Ship Channel. Kinder Morgan is investing $75 million to build five new tanks for refined products and $170 million to purchase 42 acres for new storage facilities in Galena Park.
Targa Resources Partners	$480 million	In the process of investing in increasing capabilities at its Galena Park site along the Houston Ship Channel.

What Is TxDOT's Role in the GIWW-T?

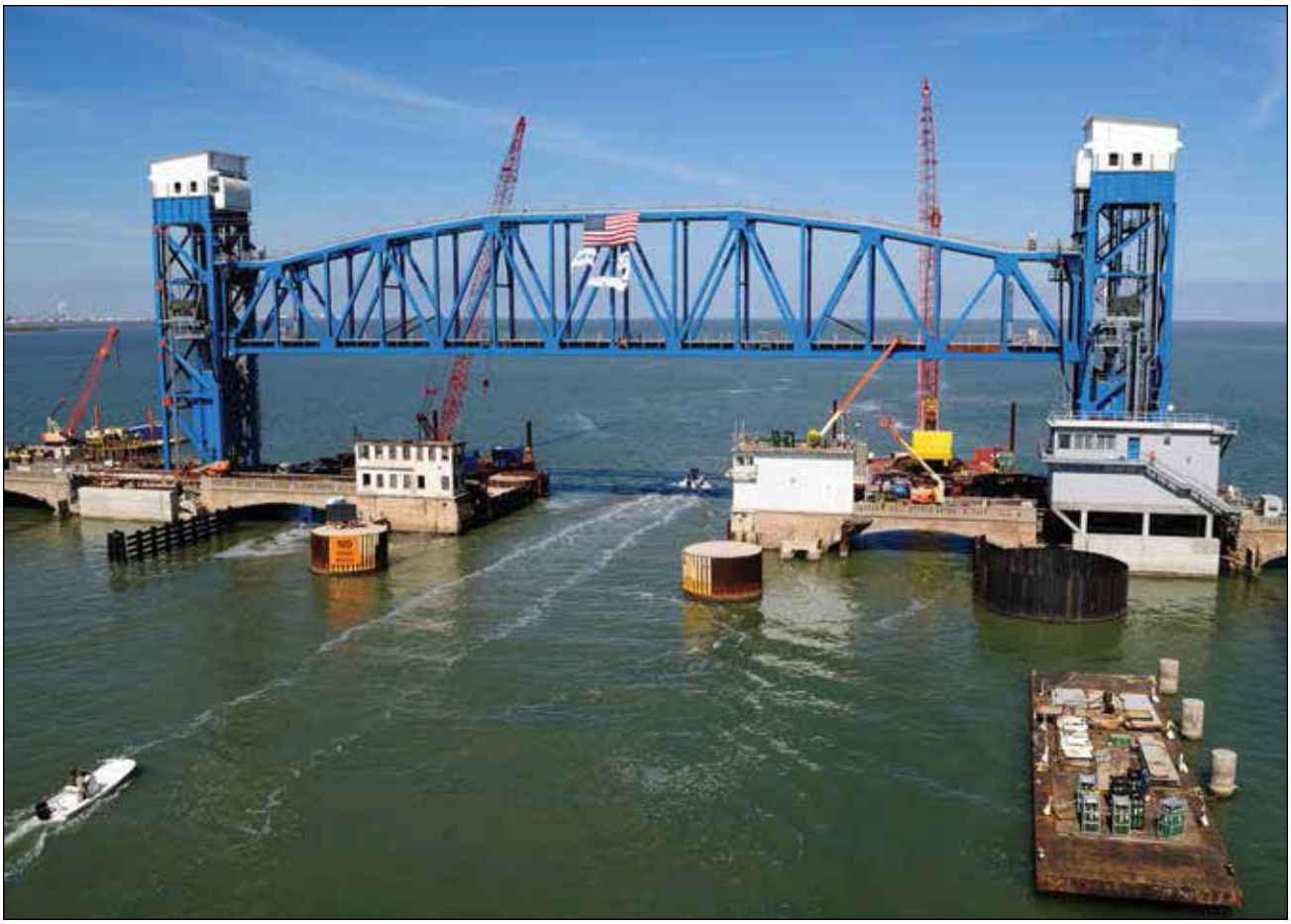
In 1975 TxDOT was named the official non-federal sponsor for the GIWW-T (running from the Sabine River to the Brownsville Ship Channel) in the Texas Coastal Waterway Act, which charges the department with administering legislation as specified in the Act. The department's duties are regulated by Chapter 51 of the Transportation Code. The primary responsibility of TxDOT under the Act is to provide right-of-way and disposal areas for byproducts of operations and maintenance. Table 2 summarizes the GIWW-T's major public agency stakeholders and their roles in managing and operating the waterway, including TxDOT.

Table 2. GIWW-T Major Stakeholders.

Stakeholder	Involvement in Texas GIWW
U.S. Army Corps of Engineers (Corps)	Conducts dredging of the GIWW-T and maintenance of the Brazos River Floodgates and the Colorado River Locks.
Texas Department of Transportation (TxDOT)	Acquires land for disposal of dredging material.
U.S. Coast Guard (USCG)	Polices traffic on the GIWW and ensures safe, secure operations.
Texas Railroad Commission (RRC)	Regulates the oil and gas companies that use the GIWW for transport of equipment and product.
Texas General Land Office (GLO)	Manages submerged lands and grants leases for residential and commercial shoreline developments.
Texas Commission on Environmental Quality (TCEQ)	Monitors water quality.
Texas Department of State Health Services (TDSHS)	Through its Seafood and Aquatic Life Group, ensures that activities in the states waters will not adversely affect the health of consumers or recreational fishermen.
Texas Water Development Board (TWDB)	Ensures the continued availability of water supplies and the maintenance of the ecological health and productivity of Texas rivers, streams, reservoirs, bays, and estuaries.
Texas Department of Agriculture	Regulates the import/export of agricultural goods.
Texas Department of Parks and Wildlife (TPWS)	Enforces policy for coastal fisheries.

Two TxDOT divisions have a role in TxDOT responsibilities for the GIWW: Maritime Division (MRD) and Right of Way (ROW). TxDOT's Maritime Division has the following responsibilities:

- Local sponsorship requirements for evaluation, planning, maintenance, preservation, enhancement, and future improvements of the GIWW-T.
- Evaluation and selection of sites for the disposal of dredged material.
- Coordination with the Corps and state and federal agencies for environmental impact studies.
- Conduct of public meetings and Texas Transportation Commission hearings.



The department's ROW Division is charged with the following duties:

- Negotiation of site purchases for the disposal of dredged material in conjunction with the Maritime Division.
- Coordinate with owners of prospective dredged material placement sites. Specifically, these activities include the identification of landowners, preparing right of entry request, and informing landowners of methods used in acquiring land for dredged material placement.

Could TxDOT Share Maintenance Duties with the Corps?

One of the options to help meet the needs of the GIWW-T in light of reduced federal maintenance dollars is for TxDOT to assume some of the underfunded duties of the Corps. Theoretically, TxDOT could take over maintenance/dredging activities under one of several operational scenarios. Current federal legislation would allow TxDOT to take on these responsibilities, though the Texas Legislature would need to amend state law to accommodate this opportunity in other ways (e.g., provide funding). These new duties would, of course, be in addition to TxDOT's current responsibilities as prescribed by the Texas Coastal Waterway Act. There are several approaches that could be taken to do this, each with its own set of legislative challenges. They are presented with the most radical change first and the least radical last.

One of the options to help meet the needs of the GIWW-T in light of reduced federal maintenance dollars is for TxDOT to assume some of those duties currently unfulfilled by the Corps.

Option #1: TxDOT Takes Over Maintenance of the GIWW-T
Because federal law stipulates that (1) the GIWW-T is totally under federal control and (2) the Corps is responsible for maintaining and improving the waterway, expanding TxDOT's role would require significant negotiations with the Corps as well as Congressional approval. The Corps' rulemaking structure would require several administrative and regulatory changes, and the Corps itself would require, at the very least, a nonstandard agreement to be in place. TxDOT's pursuing such an agreement would first need approval of the state legislature, and its implementation would require extensive coordination with several of the state and local agency stakeholders shown in Table 2.

The "symbiotic partnership" option presents the fewest legislative obstacles to implementation, though it comes with its own challenges.

Option #2: TxDOT Becomes a Subcontractor to the Corps
The Corps could subcontract GIWW-T maintenance to TxDOT. Legislative barriers to the subcontractor approach are not as formidable as those involving a full takeover, but challenges do exist. First, while subcontractors are currently legally permitted, contracting out all GIWW maintenance activities would be inefficient, according to the Corps. Most of the planning and preliminary engineering work required has already been undertaken by the Corps, which has reduced much of the work to a fairly routine level. TxDOT will need to evaluate whether the transfer of this knowledge and the Corp's work products can be accomplished effectively and efficiently. Also, TxDOT's authority for engaging as a subcontractor would require legislative approval and increased institutional capacity for conducting such work.

Option #3: The"Symbiotic Partnership" Approach
This option presents the fewest legislative obstacles. The Corps would retain primary responsibility for GIWW-T dredging and maintenance activities, but non-federal sponsors would provide a greater share of funding. This symbiotic approach is the focus of several key provisions in the recently passed Water Resources Reform and Development Act. It will be important for TxDOT to monitor how those provisions are implemented.

Applying This Approach in Texas
While the federal legislative framework for this type of agreement exists, Texas would still have to make legislative changes to implement this solution. For example, the Texas Coastal Waterway Act would need to be amended to broaden authority for TxDOT's partnering with the Corps in GIWW maintenance. Legislative action would also be required to provide state funding for maintaining the GIWW-T under a cost-sharing scheme.

For example, current state transportation funding mechanisms do not authorize spending for non-highway infrastructure. Article VIII, Section 7-a of the Texas Constitution requires that 75 percent of all net revenue generated by the motor fuel tax be used only for acquiring

rights-of-way; constructing, maintaining, and policing public roadways; or for paying the principal and interest on certain road district bonds or warrants. The remaining 25 percent is dedicated to public education. Recently, the 83rd Texas Legislature passed HB 1, which will, pending voter approval, transfer a portion of revenues deposited in the Economic Stabilization Fund to the State Highway Fund. An additional constitutional amendment would be required for such a transfer to apply to navigable waterways.

Coordinating Partnerships with Port Authorities Is Key

Since the GIWW spans the entire Texas coast, creating a partnership scheme presents challenges regarding coordinating all the parties at the local, state, and national levels. Little precedent exists for such an approach in existing Texas statutes. An equitable funding agreement between all affected Texas ports and TxDOT would need to address how ports currently levy ad valorem taxes on nearby properties, and charge fees or create lease agreements for port facility use. Current state law requires these revenues to fund each port authority's local infrastructure. Also, enabling legislation would be needed to create a "GIWW-T management district" or other such cross-cutting oversight/governing body. Regardless of the approach, new or modified state and local legal statutes are required for such a program to function.

In 2013, the need to light load barges increased the cost of doing business by roughly $58.7M—or nearly 15 percent. These costs must, at some point, be passed on to end consumers.

The GIWW-T's Most Pressing Maintenance Issues

Were TxDOT to take on more of the maintenance duties for the GIWW-T, the department would have a list of priority projects from day one. The most significant issues—from the need to bring the waterway's capacity back up to specification to the need to improve the safety and efficiency of the GIWW-T—are explained in this section. The reality is that, as time passes and traffic volumes increase, these issues are only going to intensify.

Figure 6. Aerial View of the Brazos River Floodgates.

From 2002 to 2011, an average of 36 accidents per year occurred at the Brazos River Floodgates, resulting in an average annual damage cost of roughly $800,000 (more than $22,000 per accident). Research shows that the rate of accidents is increasing.

"Light Loading": A Current, Costly Reality of Doing Business on the GIWW-T

Although the authorized dimensions of the GIWW-T are 12 feet deep and 125 feet wide, many portions of the channel are not being maintained to those specifications. A lack of funding has necessitated that the Corps prioritize—thus, limit—its maintenance practices.

As a result, carriers have to load barges at less than their rated capacities—or "light load" them—to ensure a deeper draft doesn't cause the barge to scrape bottom at any point during transit. This practice raises the cost of shipping goods on the GIWW-T on a per-unit basis because additional trips are required to move freight that could not be carried in one trip due to the shallow channel. Ultimately, the end consumer pays the final price hike resulting from this shipping inefficiency. In 2013, the need to light load barges increased the cost of doing business by roughly $58.7M for carriers—or nearly 15 percent. These costs must, at some point, be passed on to end consumers.

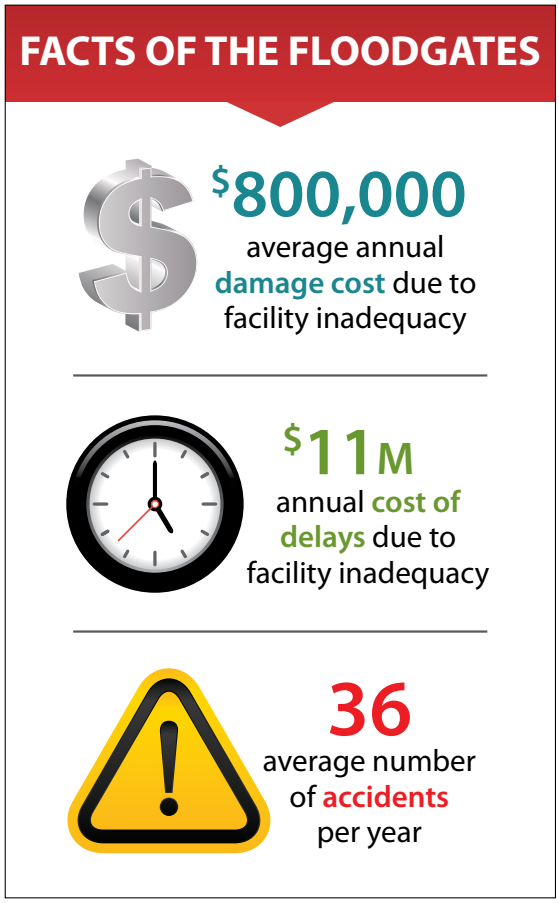
The Brazos River Floodgates: The GIWW-T's #1 Problem

The Brazos River Floodgates (see Figure 6) present by far the greatest problem in terms of safety and efficiency along the entire GIWW. These floodgates:

- Improve navigational safety by controlling traffic flow and currents at the intersection of the GIWW-T and the Brazos River.
- Control flood flows from the river into the GIWW-T.
- Regulate sand and silt deposition into the GIWW-T by the river.

In 2000, the Corps performed a reconnaissance-level study to assess the state of the floodgates. (Reconnaissance studies are typically high-level investigations that define any issues that need addressing and determine whether it makes sense to pursue a detailed feasibility study, the next step in assessment.) While the Corps determined that a feasibility study was worthwhile, the federal government did not fund the study. Thus, no further action has been taken.

Navigational difficulties for tow operators—due to the narrow width of the lock and gate structures and the proximity of the structures to the river—account for most of the problems at the floodgates. The narrow structures force tows to stop, break down their barges (meaning operators must move barges one at a time), and make multiple trips across the river to get the entire tow—up to four barges—through. This results in significant time delays to get an entire tow through the floodgates. The angle of approach at the Brazos River Floodgates also makes navigation very difficult and results in a significant number of strikes by towboats and barges.



Delayed Action Means Prolonged, Higher Shipping Costs and Safety Concerns

Recent statistics show that, between 2002 and 2011, an average of 36 accidents per year occurred at the floodgates. Indexing these damages to 2013 prices, the average annual cost of damage to the floodgates is approximately $800,000 (an average of more than $22,000 per accident). The accident rate has increased significantly since 2008. And since most of the commodities moving through the floodgates are petrochemicals, toxic spills could occur as a result of accidents. Further research is needed to determine why accidents have risen so dramatically since 2008.

Built in 1943, the floodgates were designed for barges pulled astern on a towline. Current practice involves a towboat pushing a string of barges, which makes navigation through the crossings unwieldy. Tows transiting the GIWW-T today usually consist of one to four barges, but the average tow size through the floodgates is 1.5 barges (loaded or empty). For tows with only loaded barges, the average is 2.4 barges per tow. Thus, the facility's antiquated design is forcing tow

operators to move freight below normal capacity, resulting in shipping inefficiencies. Moreover, the 75-foot gated thruway is too narrow to accommodate two tank barges side by side. Finally, the angle of approach makes it difficult for operators to line up their towboat and barge(s) with the floodgates and make a safe transit.

Researchers found that the additional annual operating costs (resulting from time delays) created when tow operators break up their tows to accommodate the facility is $11.4 million. If the cost of damages to the floodgates is added, the total annual cost due to the inefficient design of the floodgates almost $12.2 million.

Recovering the costs to replace the Brazos River Floodgates is estimated to take five years or less, based on costs of similar projects in Louisiana.

There are additional costs, most notably due to the lost time and inefficiency caused by tying up towboats longer than they should be. If towboats can move through the floodgates faster, they can deliver their cargo and pick up the next load sooner. Over a year's time and across a fleet of towboats, this could easily allow an operator to use fewer towboats to deliver the same amount of cargo, or use the same number of towboats to deliver more cargo in the same time.

The Cost of Replacing the Floodgates

Researchers obtained a cost estimate of $60 million to replace a comparable lock facility from an ongoing feasibility study at the New Orleans District. If that estimate is accurate, it would take less than 5 years to recover replacement costs at current traffic levels. If traffic increases as expected due to Eagle Ford Shale activity and general economic trends, recouping investment dollars will take considerably less time.

Towboat and barge repairs are confidential and are, therefore, not subject to estimation; but if those costs are avoided and added into the calculation, the payback period will be further reduced. Also, by reducing inefficiencies caused by tying up towboats longer than necessary in order to navigate today's inadequate facilities, operators could make more efficient use of their fleet, which will hold down the shipper costs.

Traffic patterns, equipment, and the economy vary considerably over time. Thus, it would most likely be necessary for the Corps to restart the study process from scratch, assuming they could receive authorization to do so. Given the lack of political will and federal funding to proceed beyond that first step in the past (the reconnaissance-level study), it may be necessary for TxDOT and GIWW-T users to be actively involved in the study process and acquire funding for subsequent steps. If the Corps then receives authorization and funding to proceed to the next step (the feasibility study), that step would be a 36-month process. Even if both studies were conducted expeditiously, with the time it takes Congress to appropriate the funds, the total assessment process would, at best,

take an estimated 6 to 8 years to complete. Then detailed design, environmental studies, and construction could begin.

More Fleeting Areas Needed

Fleeting areas are holding areas for barges in between shipments; barges are cleaned, repaired, or simply stored in these areas. The lack of fleeting area capacity affects the safety and efficiency of barge operations on the GIWW-T. When fleeting areas are not available, operators simply park their barges wherever they can, which makes the waterway reach less safe and more difficult for other operators to transit. This problem appears to be especially acute in the Corpus Christi area. Fleeting areas are typically private operations, though port authorities can help construct or operate these facilities. For example, the Port of Corpus Christi Authority plans to have a barge fleeting area—estimated at $6 million—in operation by the end of 2014, which should help alleviate the port's current capacity problems.

Because each fleeting area is in a unique environment—both in terms of the ecology and the level of development around the site—characterizing an average fleeting area is difficult. There is at least one fleeting area in each major port complex. (In the cases of Houston and Corpus Christi, there are a number of such facilities.) One additional fleeting area in each of the four major port complexes in Texas (Beaumont/Port Arthur, Houston, Freeport, and Corpus Christi) would

lead to a significant improvement in operations along the GIWW-T. However, expanding fleeting capacity would require a capital investment of approximately $16 million, assuming that each site would cost approximately $4 million (at a modest length of 2,000 feet of bank space for each).

By expanding fleeting capacity, barges not in use at any time can be safely and efficiently "parked" and prepared for their next tow without affecting the ongoing navigation in the main channel.

Expedited Replacement of the Caney Creek Bridge

TxDOT is actively addressing one of the major safety concerns expressed by users—the replacement of the FM457 swing bridge in Sargent, which TxDOT refers to as the Sargent Swing Bridge and industry calls the Caney Creek Bridge. According to the U.S. Coast Guard's Division 8 Bridge Program Office, the bridge is struck approximately once a month because of the inadequate space between the bridge columns in the river and the high level of development in the area (which prevents barges from being able to "pull over" and wait during inclement weather or difficult situations.).

TxDOT has an active project to replace the swing bridge with a concrete bridge to provide access for residents on the south side of the waterway. The project, which is designed to accommodate navigation, is currently in the conceptual design/environmental study stage of development and currently scheduled to be advertised for bid in spring 2016. Construction is expected to take 2 years. It will be important to ensure that the project remains on schedule so TxDOT can expeditiously remove a navigational danger often cited by operators as the most serious obstacle after the Brazos River Floodgates.

Encroachment Is Further Limiting Operations on the GIWW-T

In August 2010, TxDOT published a report titled *Analysis and Recommendations on Protecting Waterways from Encroachment* (Texas Department of Transportation Report FHWA/TX-10/0-6225-1, August 2010, prepared by Texas A&M Galveston and Texas A&M Transportation Institute). In recent years, real estate developers have continued to infringe upon areas near the waterway, causing concerns for the efficiency of navigational operations. Researchers identified issues and developed recommendations in these areas:

- Zoning restrictions.
- Permitting requirements and enforcement.
- Better understanding the impacts of proximate real estate developments on the economy.
- Including the water transportation industry in the permitting process.
- Providing a developer guidebook to interested parties along the GIWW-T.
- Better coordinating developments with GIWW-T initiatives.

Many of the concerns and recommendations were addressed in a new permitting procedure instituted by the Corps in October 2013. By better managing encroachment, state and local officials can reduce the risk of serious injury or loss of life resulting from a barge or towboat striking an encroachment. This will also allow operators to navigate more efficiently since special procedures will not be needed to avoid encroaching objects.

Acquisition of Placement Areas: Sooner Rather Than Later

When dredging occurs on the GIWW-T, the dredged material must be stored in locations called placement areas (PAs). From 1998 to 2012, an average of 6.2 million cubic yards were dredged each year from the GIWW-T's main channel. Most of the dredged material was placed in open-water bay disposal sites and confined disposal facilities. As environmental regulations have become more stringent and special interest groups more vocal, obtaining new open-water disposal sites has become more difficult. In some cases, open-water disposal sites are situated in much deeper waters located further offshore, and moving the dredged material the additional distance further increases costs. TxDOT is required to provide the real estate for placement areas that will accommodate the ongoing needs of the Corps' dredging program. Of the 218 current main channel PAs currently available for the Corps' use, two—PA35 and PA86—have a remaining life of less than 25 years (24 and 12 years, respectively). All but five of the remaining active areas have an estimated remaining life of 40 years or more. Because of the lengthy process required for establishing new properties as

PAs, TxDOT should begin the acquisition process for PA86 as soon as possible, before its remaining capacity is exhausted. This will require coordination with the Corps' Galveston District personnel to determine the desired characteristics of the new site—especially its location—which must meet all legal and environmental requirements.

One way to ensure a safe and efficient GIWW-T is to secure a sustainable revenue stream while also taking advantage of possible one-time funding sources.

If the acquisition process for PA86 is not begun soon, the Corps could actually be precluded from dredging that reach of the GIWW-T. In a best-case scenario, the Corps would have to implement dredging practices that are far more expensive than today. This will reduce even further what the Corps can accomplish with its limited funding.

There does not appear to be a documented process for determining the need for TxDOT to initiate a real estate acquisition process. It would be advisable for the Corps and TxDOT to jointly prepare a procedure for identifying the need for a new placement area and the steps required to actually accomplish that acquisition.

Expanded Mooring Areas

Barge operators use mooring areas for shelter during inclement weather or other situations when it's unsafe to navigate the waterway. Mooring areas are distinguished from fleeting areas by the fact that they are only supposed to be used for a short time in response to unforeseen conditions, such as severe thunderstorms or high winds, for example—they are not intended for use that lasts days. Mooring areas of the GIWW-T are shown in Figure 7.

The Corps is finalizing a study to determine the condition and adequacy of mooring areas along the GIWW-T. The Corps has found that current mooring areas must be rehabilitated and expanded to accommodate today's traffic, as well as expected future increases in traffic. The Corps' preliminary findings indicate that improving these areas will yield a high benefit-cost ratio, which allows for the alternatives with the maximum possible number of buoys to be recommended at each location. (The more buoys per location, the greater the number of tugs/barges that can safely park there rather than pulling over into less safe and secure locations.)

The following rehabilitation and expansion projects are likely to be funded by the federal government at a total estimated cost of $7,044,000:

- **Port Arthur Mooring Basin**—Estimated cost of $947,000.
- **Port Bolivar Mooring Basin**—Estimated cost of $947,000.
- **Pelican Island Mooring Basin**—Estimated cost of $1,824,000.
- **East Brazos Mooring Basin**—Estimated cost of $1,707,000.
- **West Brazos Mooring Basin**—Estimated cost of $1,619,000.

Figure 7. GIWW-T Mooring Areas.

These improvements will include the placement of 61 new buoys—used for delineating safe areas for operators—and the creation of an additional 8,115 linear feet of mooring space. By implementing these needed improvements, the Corps will be increasing the safety and efficiency of navigation operations on the GIWW-T.

Funding Strategies to Address the GIWW-T's Most Pressing Issues

As noted earlier, the primary reason the Corps has not been able to maintain the GIWW-T as needed is limited federal funding. This constraint forces the Corps to direct reduced resources toward critically urgent projects, thus leaving little money for a number of important but less urgent capital projects, notably those projects described elsewhere in this document.

One way to ensure a safe and efficient GIWW-T is to secure a sustainable revenue stream while also taking advantage of possible one-time funding sources. TTI evaluated alternative long-term funding sources using three criteria:

- **Feasibility.** What is the likelihood that this alternative could be reasonably implemented?
- **Sustainability.** Does this alternative provide long-term, sustainable funding?
- **Equity.** How is the funding burden shared by all parties?

Several of the sources evaluated cannot provide funding directly for GIWW-T maintenance. However, incorporating features that meet grant criteria and provide benefits for the GIWW-T may enable a project that enables the GIWW-T to qualify for funding. Researchers selected 12 funding strategies for evaluation. Three of these were clearly not feasible for TxDOT at this time. Each of the remaining 9 strategies is further explained and explored next.

Strategy 1: Elevate the Priority of Economically Important GIWW-T Projects to the Corps and Congress

Texas could develop a tenable economic and environmental case justifying why increased federal funding should be directed toward strategic GIWW-T projects. The state could assist the Corps' Galveston District in developing its cost-benefit analyses for projects, ranking projects based on priority, and recommending high-priority projects for funding. This would involve:

- Working with federal stakeholders to initiate or reinitiate the reconnaissance and feasibility study processes for key projects.
- Conducting (and funding) a feasibility study as a non-federal sponsor under Corps supervision.

The primary reason to pursue this alternative is to make funding available quicker than the regular appropriations process would and, commensurately, accelerate realization of the benefits expected from a project.

Another alternative for Texas is to monitor and participate in the activities of the Inland Waterways User Board (IWUB), the board charged with monitoring the Inland Waterways Trust Fund, and make recommendations on investment priorities to the Corps and Congress. By establishing a more proactive role with this board, Texas can help set funding priorities for waterway projects (e.g., elevating the priority of the Brazos River Floodgates replacement).

Evaluation

This alternative would be relatively easy to implement but would require close coordination and cooperation with federal and state elected leaders and the Corps. Elevating the priority of strategic Texas waterway projects could help ensure that capital projects, such as lock and dam replacement or rehabilitation projects, receive adequate funding in the years that follow. From an equity perspective, this alternative is an example of the exchange equity and fairness dimension of tax policy, where over the long-run, government agencies provide adequate public goods and services to meet the needs of taxpayers and their families.

Strategy 2: Apply for Marine Highway (M-69 Corridor) Designation

This is a U.S. Department of Transportation Maritime Administration (MARAD)-led program to expand the use of navigable waterways to relieve landside congestion, reduce air emissions, and generate other public benefits by increasing the efficiency of the surface transportation system. Projects proposed under this program receive priority when they offer the promise of public benefit and long-term sustainability without requiring long-term federal operational financial support.

On May 27, 2014, MARAD initiated a new call for project applications. The window for submitting applications (Marine Highway Project Open Season) will close on September 30, 2016. There will be five project review sessions during the Marine Highway Project Open Season, and MARAD will continue to accept route designation recommendations at any time. Qualified projects will be announced shortly after the completion of each project review session. The application submittal deadlines for the review sessions are June 30, 2014; December 31, 2014; June 30, 2015; December 31, 2015, and June 30, 2016.

Though this program focuses on containers and trailers (rather than the liquid products that make up much of the GIWW traffic), if proponents can show that a Texas M-69 corridor would enable traffic currently moved by truck to move by water, it might be a selling point to the review committee.

Evaluation

From a feasibility perspective, state leaders would be required to pursue the formal M-69 Corridor application process and apply for funding during the "call for projects" phase. For this option to result in funding for the GIWW-T, Congress will need to appropriate funds for a new round of grants. In any case, it should not be considered sustainable, since the project would have to be resubmitted for consideration each time a new call for projects is issued. From an equity perspective, this alternative is an example of the exchange equity and fairness dimension of tax policy: over the long run, governmental agencies provide adequate public goods and services to meet the needs of taxpayers and their families.

Strategy 3: Apply to Federal Discretionary Grant Programs

Some federal discretionary grants are available (e.g., the Transportation Investment Generating Economic Recovery [TIGER] grant program). TIGER awards sponsor, on a competitive basis, capital investment funds for surface transportation projects. In 2013, Texas submitted an unsuccessful application for a TIGER V discretionary grant to provide "crucial major restoration and modernization of the Texas GIWW infrastructure." TxDOT may be able to acquire funding for other GIWW-T-related projects in future grant cycles. Note that TIGER grants are limited to capital spending only (i.e., there is no funding for ongoing maintenance and operations).

Evaluation

Monitoring the grant application cycle and preparing grants (while learning from previous, unsuccessful grant application attempts) are the principal actions required. TIGER grants can provide significant one-shot funding but cannot be relied upon as sustainable. From an equity perspective, this alternative is an example of the exchange equity and fairness dimension of tax policy: over the long run, governmental agencies provide adequate public goods and services to meet the needs of taxpayers and their families.

Strategy 4: Explore Florida's Inland Navigation District (FIND) Model for Texas

Texas could adopt a state-based model similar to the Florida Inland Navigation District (FIND) model. Authorized by the Florida Legislature in 1927, FIND has taxing authority in specific regions along the Florida coastline to perform the functions of the local sponsor of the Atlantic Intracoastal Waterway in Florida, a federal navigation project. The district provides all lands required for the navigation project, including rights of way and lands for the management of dredged materials. The Florida Legislature has granted additional authority to FIND over the years resulting in FIND now contributing part of its tax revenues to the Corps to be used for maintenance of the waterway. If Texas were to consider a similar approach, Table 4 below illustrates the possible revenue this alternative might have raised had it been imposed in 2012, the last year property tax data were available for all 12 Texas coastal counties.

Evaluation

This alternative might prove more difficult to implement because it requires creating a new mechanism to collect a fee levied from coastal counties. A funding agreement among all 12 Texas coastal counties would have to be established. From a sustainability perspective, however, this would provide a long-term, reliable source of revenue. Once the agreement is established, dollars coming in from county governments would help cover ongoing operations and maintenance activities for GIWW-T dredging. From an equity perspective, this alternative represents the exchange equity and fairness dimension of tax policy, since individuals and corporations

Table 4. Estimated Annual Revenue Under FIND Scheme in Texas Based on 2012 Property Values.

Texas Coastal County	Total Taxable Value for County Property Tax Purposes - 2012	Estimated Annual Revenue			
		0.01 mil*	0.05 mil	0.10 mil	1.00 mil
Jefferson	$25,252,988,514	$252,530	$1,262,649	$2,525,299	$25,252,989
Chambers	$6,854,774,065	$68,548	$342,739	$685,477	$6,854,774
Galveston	$21,052,203,761	$210,522	$1,052,610	$2,105,220	$21,052,204
Brazoria	$20,299,210,483	$202,992	$1,014,961	$2,029,921	$20,299,210
Matagorda	$4,561,847,750	$45,618	$228,092	$456,185	$4,561,848
Calhoun	$3,533,922,813	$35,339	$176,696	$353,392	$3,533,923
Aransas	$2,822,930,762	$28,229	$141,147	$282,293	$2,822,931
Nueces	$19,502,178,530	$195,022	$975,109	$1,950,218	$19,502,179
Kleberg	$1,383,215,815	$13,832	$69,161	$138,322	$1,383,216
Kenedy	$972,577,583	$9,726	$48,629	$97,258	$972,578
Willacy	$676,366,343	$6,764	$33,818	$67,637	$676,366
Cameron	$16,288,286,535	$162,883	$814,414	$1,628,829	$16,288,287
	Total	**$1,232,005**	**$6,160,025**	**$12,320,050**	**$123,200,503**

*Note: 1 mil is $1.00 for every $1000 of assessed value.

in coastal counties would be expected to pay because they would receive the greatest benefit from a properly maintained GIWW-T.

Strategy 5: Consider Using CEPRA Funds

In 1999, the 75th Texas Legislature passed the Coastal Erosion Planning and Response Act (CEPRA), enabling the first-ever coastal-erosion program in Texas. The program seeks to implement coastal erosion-response projects and related studies to reduce the effects, and understand the processes, of coastal erosion. Under CEPRA, the Texas General Land Office implements erosion-response projects through collaboration, and matching funds partnerships, with federal, state, and local governments, non-profits, and other potential project sponsors. Though the program does not directly relate to navigation, some GIWW-T related projects could be eligible for funding. The deadline for the most recent biennial funding cycle has passed, but the GLO has discretion to accept applications addressing an emergency situation.

Evaluation

Seeking dollars from CEPRA would require state leaders to formally apply for funding during the next cycle. As with other grant programs, this is likely a one-shot source of revenue, though funding could be applied for every 2-year cycle. This alternative is in line with the exchange equity and fairness dimension of tax policy, where over the long-run, governmental agencies provide adequate public goods and services to meet the needs of taxpayers and their families.

Strategy 6: Explore Ending State Diesel Tax Exemptions for Certain GIWW-T Users

Currently, Texas Tax Code Section 153.222 allows a refund for taxes paid on excepted uses of diesel fuel. For example, a taxpayer may claim a refund for taxes paid for "any purpose other than propelling a motor vehicle on the public highways in the state...." Also, since September 1, 2000, the Motor Fuels Tax Legislative Update allows that diesel fuel "retailers/deliverers may continue to sell dyed and undyed (clear) diesel fuel tax-free when they deliver the diesel fuel directly into the fuel supply tank or reefer units or other off-highway equipment, such as wielding units, auxiliary generators, boats, and off-highway equipment being transported on trailers." Restricting or ending altogether these exemptions could provide more tax revenue for maintenance needs of the GIWW-T, assuming the revenues generated were directed toward those needs.

Evaluation

Assuming the political will exists to end these tax exemptions, this alternative is administratively feasible and would provide a relatively sustainable, long-term source of revenue (if state diesel tax revenue collected from GIWW-T users was used for GIWW-T waterway purposes). The strategy is equitable from a user pays, user benefits perspective.

Strategy 7: Explore P3 Opportunities and Monitor Possibilities for Future Inland Waterway P3 Pilot Projects

To supplement the growing gap between transportation funding and infrastructure investment needs, public agencies are turning more to private-public partnerships (P3s), regardless of transportation mode. The agreements usually involve a government agency contracting with a private company to renovate, construct, operate, maintain, and/or manage a facility or system. In the context of waterway infrastructure, a P3 would likely take the form of a contractual agreement between a federal or state public-sector waterway-stakeholder agency (e.g., the Corps, the state of Texas) and a private-sector entity to deliver a public service. For the private sector to be willing to participate in a P3 approach, it must have a reasonable expectation that it will earn an acceptable return on the investment. In other words, a revenue stream is required for any P3 approach. The recently passed Water Resources Reform and Development calls for the implementation of a number of pilot P3 projects. TxDOT should closely monitor the implementation of these provisions to see if the GIWW-T might qualify for inclusion in the program.

Evaluation

This option is fairly simple to implement, although it might require regulatory changes and close coordination with federal, state, local, and industry stakeholders. Considering sustainability, the private sector usually requires a sustainable revenue stream, such as a lockage fee, dockage fee, annual license fee, etc. Finally, equity would depend primarily on the revenue stream used to pay back the private sector. For example, a lockage fee is an example of the exchange equity and fairness dimension of tax policy, where those who pay for the improvements also benefit most from that infrastructure.

Strategy 8: Explore Utilizing Texas Rainy Day Fund for Waterway Projects

SJR 1 is a constitutional amendment enacted during the 83rd Legislative Session that—if approved by Texas voters in November 2014—would divert 50 percent of oil and gas severance taxes above a 1987 baseline level from the Economic Stabilization Fund (ESF, commonly known as the Texas Rainy Day Fund) to the State Highway Fund. A fiscal impact analysis performed by the Legislative Budget Board estimates that $878 million could be transferred from the ESF to the State Highway Fund in 2015. However, for Texas to pursue this funding for the GIWW-T, TxDOT would have to work with lawmakers to enact legislation approving such a transfer. Most likely, another state constitutional amendment would be required to authorize this funding for GIWW-T projects.

Evaluation

This option is challenging since several legislative and administrative changes are required to pursue it. From a sustainability perspective, however, using these funds could provide a stable, long-term source of revenue for GIWW-T purposes. In terms of equity, this alternative would be an example of the exchange equity and fairness dimension of tax policy, where over the long-run, governmental agencies provide adequate public goods and services to meet the needs of taxpayers and their families. Since the GIWW-T is heavily used by the Texas oil and gas industry, which pays in to the ESF, a case can be made that the waterway should receive a public benefit. The public benefit in this case could be having a properly maintained GIWW-T.

Strategy 9: Consider the "Panama Canal" Approach for Texas
Following the handover of the Panama Canal in 1999, Panamanian lawmakers established an authority, called the Panama Canal Authority (PCA), to oversee activities associated with the maintenance and dredging of the canal. The PCA embarked on an expansion project to increase shipping capacity that would, in turn, increase toll revenues. A toll policy that focuses on capturing the value the canal adds to each segment of its market is proposed to be put in place, and tolls are expected to be set in a manner that will double them within the next 20 years. The loans taken out to finance the construction of this proposal are expected "to be paid [back] rapidly—with investment costs expected to be paid back in less than 10 years."

Texas already has experience creating authorities to help meet infrastructure mobility needs for surface transportation projects, such as state-authorized regional mobility authorities. By law, these authorities can finance, design, construct, operate, maintain, and expand a wide range of transportation facilities and services. In practice, they are mostly used to deliver critically needed toll road projects to the state. A similar authority could help finance, design, construct, operate, and maintain the GIWW-T. The imposition of tolls on its users, the other approach the Panama Canal employs, is an approach that Texas could adopt as well.

Evaluation
This is a complex option requiring extensive federal and state legislative changes to enable such an authority. Changes authorizing waterway fees would also be required. From a sustainability perspective, however, the Panamanian model would provide a stable, long-term revenue stream. Similar to how the PCA mostly self-funds improvements needed for maintaining and operating the Panama Canal, this option represents one of the few opportunities for a stable and elastic source of funding. From an equity perspective, this approach best represents the exchange equity and fairness of tax policy, where those who pay for the services are also the ones who benefit most from that infrastructure.

The Choices Are Many, But Inaction Is the Most Expensive Option
Alternatives for funding improvements and maintenance for the GIWW-T present both opportunities and challenges for Texas policymakers (see Table 5 for a comparative summary of these options). Some alternatives—favored by the GIWW-T stakeholder working group—would be easy to implement because they involve simply monitoring and applying for discretionary grant program opportunities for which GIWW-T needs qualify.

The cost of not finding a solution will be felt by every Texas business—particularly the petrochemical industry—that relies on the GIWW-T to move its goods, as well as every Texan who buys them.

Table 5. A Summary of Strategic Funding Options for the GIWW-T.

#	Strategy	Feasible?	Sustainable?	Equity type?
1	Elevate GIWW-T Priority	Yes. Requires close coordination with federal, state, Corps leaders.	Potentially. Greater awareness can help establish ongoing funding.	Exchange Equity and Fairness
2	Secure Marine Highway Designation	Yes, though state leaders would need to formally pursue M-69 status.	No. Reapplication process required.	Exchange Equity and Fairness
3	Pursue Federal Discretionary Grant Program Funds	Yes. Monitor program, apply for funds in cycle.	No. One time only.	Exchange Equity and Fairness
4	Consider the Florida model	Potentially. Requires a new tax-levying mechanism.	Yes.	Exchange Equity and Fairness
5	Pursue CEPRA Funds	Yes. Monitor program, apply for funds in cycle.	No. One time only.	Exchange Equity and Fairness
6	End Diesel Tax Exemption	Yes, though political will must be mustered to end exemptions.	Yes.	User Pays, User Benefits
7	Establish Public-Private Partnerships	Yes, though it would require regulatory changes and close coordination with stakeholders.	Yes, though profit incentives for the private sector must be present.	Exchange Equity and Fairness
8	Use the Texas Rainy Day Fund	Potentially. Requires legislative, administrative changes.	Yes.	Exchange Equity and Fairness
9	Consider the Panama Canal Model	Potentially. Requires extensive federal, state legislative changes to enable the authority.	Yes.	Exchange Equity and Fairness

Several of these options tend to be both unreliable and unsustainable, since they are grant related. Grants are typically funded through appropriations from the general fund, which is a highly unreliable process. Grants are not “free money,” either—in effect, U.S. taxpayers would share the burden of funding improvements to the GIWW-T under an approach that requires dedicating appropriations toward rehabilitating, operating, and maintaining the GIWW-T.

User-based funding options (e.g., tax- or fee-based options)—while less popular with the GIWW-T stakeholder working group—tend to provide a more sustainable, long-term revenue stream. While these options would require GIWW-T users to carry a major share of the financial burden of maintaining the GIWW-T, these users would also be the primary beneficiaries in terms of time and productivity gains from a properly maintained waterway. These efficiency benefits would most likely be passed on to other critically important Texas industries (such as petrochemical and manufacturing) and, ultimately, to end consumers in the form of lower shelf prices.

Selecting the most appropriate alternative (or combination of alternatives) to pursue is a matter for policymakers. This analysis can help frame the discussion by providing a set of evaluation criteria and a review of each alternative's potential benefits and limitations. One thing is clear, however given that increased federal funding for the Corps to address the GIWW-T's needs is extremely unlikely, Texas leaders must decide how those needs can best be met by the state. The cost of not finding a solution will be felt by every Texas business—particularly the petrochemical industry—that relies on the GIWW-T to move its goods, as well as every Texan who buys them.

Recommendations

This research established that no funding mechanisms are readily accessible to TxDOT that will provide a predictable and reliable long-term funding source for GIWW-T construction and maintenance. Any such funding streams will most likely require significant legislative changes and may be politically difficult to implement.

The recommendations provided here focus on expediting and enhancing existing programs and taking advantage of "one-off" funding sources and other measures to improve the GIWW-T without requiring a long-term funding commitment on TxDOT's part. There are also non-financial strategies TxDOT can pursue to enhance the value of the GIWW-T. The researchers recommend the action items shown in Table 6. Some of these recommendations are more easily implemented and can be accomplished more quickly than others. TxDOT may determine that some are not feasible, but they are all worthy of further consideration as TxDOT more clearly defines its role in the maintenance and improvement of the GIWW-T.

Table 6. Recommended Actions for Improving the GIWW-T.

Action Item	What's Needed	Potential Benefit(s)
Request expedited feasibility study for the Brazos River Floodgates	Make a formal request to the Corps and lobby Congress to fund the study. With the recently passed Water Resources Reform and Development Act, TxDOT could even consider funding the study itself. Once the study is under way, TxDOT should investigate the feasibility of funding all or part of the floodgates replacement structure. This will most likely involve a concerted effort to prioritize the floodgates replacement project for funding from the Inland Waterways Trust Fund.	• Reduce accidents and associated costs to barge operators resulting from outdated facility design. • Reduce repair costs to the floodgates. associated with current accidents (currently $800K annually). • Save at least $11M in delays annually.
Make funding arrangements for the Brazos River Floodgates replacement	Once the studies have been completed and approved by Congress, TxDOT may want to look at using some of the funding options described in this document to contribute to the cost of replacing the floodgates. This would enable the federal government to move more quickly toward a full replacement.	• Accelerate the full replacement of the floodgates.
Combine efforts with environmental and conservation groups to place revetments along placement areas	Shore up placement areas, possibly extending their useful life. Reduce maintenance dredging necessitated by the sloughing of placement area retaining dikes. The Corps can provide insight as to where such projects would yield the greatest benefit.	• Reduce the amount of material sloughing into the channel, thereby reducing the need/frequency for dredging. • Increase the capacity/stability of placement areas with adjacent erosion abatement structures.
Provide funding assistance to create new fleeting areas open to all barge traffic	TxDOT may want to invest directly in fleeting areas or provide some type of grant assistance. This would require legislative action to authorize this activity.	•Prepare barges not currently in use safely and efficiently for their next tow. • Facilitate GIWW-T traffic by keeping unused barges safely out of the way.
Stay actively involved in reviewing permit applications for development along the GIWW	Avoid further encroachment on the GIWW. Include GIWW stakeholders in the permitting process when real-estate developers build near waterway infrastructure.	• Avoid degradation of waterway safety and/or efficiency. • Help protect needed existing and future placement areas. • Improve navigational efficiency by removing encroachments.
Keep replacement of the Caney Creek Bridge on the fast track	Remove safety hazards caused by the bridge's narrow span and nearby development, both of which prevent barges from "pulling over" until it's safe to proceed.	• Reduce/eliminate collisions with the bridge and the resulting repair costs/injuries. • Facilitate traffic passing under the bridge.
Explore real-estate options for PA 86 (12-year remaining life) in Brazoria County	Initiate the extensive real-estate acquisition process (e.g., environmental assessment), and extensive coordination with other agencies, with enough lead time to be ready when the Corps needs the site.	• Provide storage capacity for dredged material from the GIWW-T's main channel. • Expedite economic returns from more efficient navigation on GIWW-T by expediting dredging.
Set up a web presence to periodically update and publish selected performance metrics	Keep stakeholders, including the public, apprised of GIWW-T conditions and safety metrics. A group such as the Port Authority Advisory Committee could advise TxDOT on which metrics to track and how frequently to update them.	• Provide transparency/accountability for both TxDOT's maintenance activities and the GIWW-T's benefits to the Texas economy. • Encourage ongoing maintenance by providing a public record of performance measures.
Continue pursuing funding through the USDOT's TIGER grant program	As it has already done, TxDOT should apply for TIGER grant funding for GIWW-related projects. The application submitted in 2013 serves as a starting point.	• Acquire funding for GIWW-T maintenance that does not come from state coffers.
Apply for Marine Highway project designation	Apply to the U.S. Maritime Administration for this designation for the GIWW-T.	• Place the GIWW-T in line for future Marine Highway grants. • Elevate the profile of the GIWW-T on a national level.


Texas
Department
of Transportation

EXHIBIT 4

New POCC Fleeting Fleeting Area 2014

Classification: UNCLASSIFIED
Caveats: NONE

Seth,

Per your request we have obtained the coordinates for each of the proposed pilings.
Regulatory is prepared to issued a letter of permission unless Ops/Nav determines it is 408 issue.
Please let us know as soon as possible so we can communicate the concerns with Mr. Mike Skipper Edwards (applicant).

Thanks

Nick

Nicholas A. Laskowski P.G., PWS
Supervisor/ Technical Expert
US Army Corps of Engineers
Galveston District
Corpus Christi Regulatory Field Office
5151 Flynn Parkway, Suite 306
Corpus Christi, Texas 78411-4318
Phone: (361)-814-5847 ext. 1007
Fax: (361)-814-5912

Please tell me how I am doing by completing the survey found at:
http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

-----Original Message-----
From: Seth@naismithmarine.com [mailto:Seth@naismithmarine.com]
Sent: Monday, December 08, 2014 10:08 AM
To: Jones, Robert N SWG
Cc: Jim Naismith; Laskowski, Nicholas A SWG; MIKESKIPPER54@aol.com; drbgulley@aol.com
Subject: RE: [EXTERNAL] CAD files for Lydia Ann Channel Project, Dr. Brian Gulley (UNCLASSIFIED)

Mr. Jones:
Per your and Nick's request, I'm sending coordinates for the proposed pilings at the Lydia Ann mooring project. Please see the attached drawing and do not hesitate to let me know if you need anything else.

Thanks,

Seth Gambill
Naismith Marine Services, Inc.
www.naismithmarine.com
361-319-4948

Jones, Robert N SWG

From: McLaughlin, Kimberly SWG
Sent: Monday, December 15, 2014 12:33 PM
To: Frabotta, Christopher SWG
Cc: Laskowski, Nicholas A SWG; Jones, Robert N SWG; Jones, Seth W SWG; Prymula, Michael F SWG
Subject: RE: [EXTERNAL] CAD files for Lydia Ann Channel Project, Dr. Brian Gulley (UNCLASSIFIED)
Signed By: kimberly.s.mclaughlin@us.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

I understand and will hold off on finalizing the action at least until after the holidays. In light of the fact that this applicant is expecting a decision, I would ask that you remain engaged and keep the effort moving forward so that we can keep the applicant informed.

Thank you,

Kim

-----Original Message-----
From: Frabotta, Christopher SWG
Sent: Monday, December 15, 2014 12:27 PM
To: McLaughlin, Kimberly SWG
Cc: Laskowski, Nicholas A SWG; Jones, Robert N SWG; Jones, Seth W SWG; Prymula, Michael F SWG
Subject: RE: [EXTERNAL] CAD files for Lydia Ann Channel Project, Dr. Brian Gulley (UNCLASSIFIED)

Kim,

I really need to obtain and review survey data before we can make a decision on this fleeting area. Seth is also coordinating with GICA to ensure construction of this facility will not adversely impact navigation.

If you could please give us a few weeks, that would be greatly appreciated.

Thanks,

Chris

Christopher C. Frabotta
Deputy Chief of Operations Division
Chief of Navigation Branch
Galveston District
U.S. Army Corps of Engineers
409-766-3071 Office
910-228-4509 Cell

-----Original Message-----
From: McLaughlin, Kimberly SWG
Sent: Monday, December 15, 2014 10:41 AM
To: Frabotta, Christopher SWG

Jones, Robert N SWG

From: Frabotta, Christopher SWG
Sent: Monday, December 15, 2014 12:41 PM
To: McLaughlin, Kimberly SWG
Cc: Laskowski, Nicholas A SWG; Jones, Robert N SWG; Jones, Seth W SWG; Prymula, Michael F SWG
Subject: RE: [EXTERNAL] CAD files for Lydia Ann Channel Project, Dr. Brian Gulley (UNCLASSIFIED)
Signed By: chris.c.frabotta.civ@mail.mil

Will do,

Seth Jones, Mike Prymula and I are actively working our end. We've produced a map with latest aerial imagery, channel limits, channel set back, and applicant fleeting area. We have requested, and are awaiting, the latest hydrographic data.

Once the data is received, we will overlay and provide our decision.

Thanks for your patience.

Chris

Christopher C. Frabotta
Deputy Chief of Operations Division
Chief of Navigation Branch
Galveston District
U.S. Army Corps of Engineers
409-766-3071 Office
910-228-4509 Cell

-----Original Message-----
From: McLaughlin, Kimberly SWG
Sent: Monday, December 15, 2014 12:33 PM
To: Frabotta, Christopher SWG
Cc: Laskowski, Nicholas A SWG; Jones, Robert N SWG; Jones, Seth W SWG; Prymula, Michael F SWG
Subject: RE: [EXTERNAL] CAD files for Lydia Ann Channel Project, Dr. Brian Gulley (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

I understand and will hold off on finalizing the action at least until after the holidays. In light of the fact that this applicant is expecting a decision, I would ask that you remain engaged and keep the effort moving forward so that we can keep the applicant informed.

Thank you,

Kim

-----Original Message-----
From: Frabotta, Christopher SWG
Sent: Monday, December 15, 2014 12:27 PM

Jones, Robert N SWG

From: Frabotta, Christopher SWG
Sent: Monday, December 15, 2014 12:27 PM
To: McLaughlin, Kimberly SWG
Cc: Laskowski, Nicholas A SWG; Jones, Robert N SWG; Jones, Seth W SWG; Prymula, Michael F SWG
Subject: RE: [EXTERNAL] CAD files for Lydia Ann Channel Project, Dr. Brian Gulley (UNCLASSIFIED)
Signed By: chris.c.frabotta.civ@mail.mil

Kim,

I really need to obtain and review survey data before we can make a decision on this fleeting area. Seth is also coordinating with GICA to ensure construction of this facility will not adversely impact navigation.

If you could please give us a few weeks, that would be greatly appreciated.

Thanks,

Chris

Christopher C. Frabotta
Deputy Chief of Operations Division
Chief of Navigation Branch
Galveston District
U.S. Army Corps of Engineers
409-766-3071 Office
910-228-4509 Cell

-----Original Message-----
From: McLaughlin, Kimberly SWG
Sent: Monday, December 15, 2014 10:41 AM
To: Frabotta, Christopher SWG
Cc: Laskowski, Nicholas A SWG; Jones, Robert N SWG
Subject: FW: [EXTERNAL] CAD files for Lydia Ann Channel Project, Dr. Brian Gulley (UNCLASSIFIED)
Importance: High

Classification: UNCLASSIFIED
Caveats: NONE

Chris,

We need to discuss. Is this a 408 issue? My concern here is that we did coordinate this project via Internal Review back in June. We did not receive any comments from Ops at that time. We are now in a position to make a favorable permit decision and I am hesitant to hold up the project at such a late point in the process. I am told that the project, as proposed, will keep the barges well within the setback of the channel (more so than what is currently occurring in this portion of the channel). What's more, the project proposal is a less environmentally damaging option than what is currently going on at the site.

If this is truly a hazard to navigation, above and beyond the current

conditions, then I will reconsider. But, if this proposal is acceptable (and it has been fully vetted throughout the community), than I am comfortable with finalizing the action.

Please advise.

Thank you,

Kim

-----Original Message-----
From: Laskowski, Nicholas A SWG
Sent: Monday, December 15, 2014 8:23 AM
To: McLaughlin, Kimberly SWG
Cc: Jones, Robert N SWG
Subject: FW: [EXTERNAL] CAD files for Lydia Ann Channel Project, Dr. Brian Gulley (UNCLASSIFIED)
Importance: High

Classification: UNCLASSIFIED
Caveats: NONE

Kim,

Can we issue the letter of permission?

This concerns a proposed project for the Lydia Ann Channel, near Port Aransas, Texas.
The Corps received a permit application on 10 Jun 2014 for a proposed barge mooring facility.
We (CCRFO) have completed our evaluation for the activity (LOP) and are ready to issued the letter.

Operation's Concerns:
Last week we received Seth's email (see below) which states they (Operations) have additional tasks that need to be completed prior to rendering a decision.
It appears that Operations has concerns regarding this action, although they were not voiced during the IR process.
Operations has not stated that the project is a 408 but have voice concerns.

Resource Agencies in Favor:
During a JEM held in June, all resource agencies were in favor of the proposed project as it would serve the purpose as a mooring facility where currently the barges are being pushed up against the wetland shore of San Jose Island.
TX State Rep Todd Hunter was present at this meeting and voiced his support.

BLUF: Based upon Seth's email the listed process will take some time and we owe the public a timely decision and the 11th hour concerns will not be received well.

We have communicated with the Applicant what we know but we have no idea as to timeframe.

Thoughts,

Nick

-----Original Message-----
From: Jones, Seth W SWG
Sent: Thursday, December 11, 2014 12:07 PM
To: Laskowski, Nicholas A SWG
Cc: Jones, Robert N SWG; Frabotta, Christopher SWG
Subject: RE: [EXTERNAL] CAD files for Lydia Ann Channel Project, Dr. Brian Gulley (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Nick / Robert
Operations is concerned with the present location of the proposed fleeting facility. Specifically it is located at a bend in a high-traffic section of the channel that is influenced by sea conditions due to its proximity to the CCSC. Currently there is no set-back policy developed / applied for the Lydia Ann channel. We am working with folks here to apply the set-back requirement to the Lydia Ann as it is the route used by the vast majority of channel traffic. The other issue is that we are also proposing to re-align the land-locked section of the Lydia Ann channel to follow the naturally deep water portion of the channel.

We recognize the critical need for fleeting facilities and we are certainly willing to work with the applicant to develop a solution agreeable to all parties.

At this stage, our tasks are:
1. apply the set-back policy to the current Lydia Ann channel
2. coordinate a bank-to-bank survey of land-locked portion of Lydia Ann. Add colored contours based on the survey results.
3. We'll meet as an internal team to look at potential realignment option for Lydia Ann (e.g. following natural deep areas).
4. Apply set-back policy to any proposed channel alignments
5. Coordinate results with USCG, Industry, etc.

We should discuss these steps and determine where and what coordination with the applicant needs to take place.

Attached is a draft channel alignment with current imagery and a draft set-back policy line with applicant's proposed fleeting facility

Seth

-----Original Message-----
From: Laskowski, Nicholas A SWG
Sent: Monday, December 08, 2014 1:09 PM
To: Jones, Seth W SWG
Cc: Jones, Robert N SWG
Subject: FW: [EXTERNAL] CAD files for Lydia Ann Channel Project, Dr. Brian Gulley (UNCLASSIFIED)
Importance: High

Classification: UNCLASSIFIED

Caveats: NONE

Seth,

Per your request we have obtained the coordinates for each of the proposed pilings.
Regulatory is prepared to issued a letter of permission unless Ops/Nav determines it is 408 issue.
Please let us know as soon as possible so we can communicate the concerns with Mr. Mike Skipper Edwards (applicant).

Thanks

Nick

Nicholas A. Laskowski P.G., PWS
Supervisor/ Technical Expert
US Army Corps of Engineers
Galveston District
Corpus Christi Regulatory Field Office
5151 Flynn Parkway, Suite 306
Corpus Christi, Texas 78411-4318
Phone: (361)-814-5847 ext. 1007
Fax: (361)-814-5912

Please tell me how I am doing by completing the survey found at:
http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

-----Original Message-----
From: Seth@naismithmarine.com [mailto:Seth@naismithmarine.com]
Sent: Monday, December 08, 2014 10:08 AM
To: Jones, Robert N SWG
Cc: Jim Naismith; Laskowski, Nicholas A SWG; MIKESKIPPER54@aol.com; drbgulley@aol.com
Subject: RE: [EXTERNAL] CAD files for Lydia Ann Channel Project, Dr. Brian Gulley (UNCLASSIFIED)

Mr. Jones:
Per your and Nick's request, I'm sending coordinates for the proposed pilings at the Lydia Ann mooring project. Please see the attached drawing and do not hesitate to let me know if you need anything else.

Thanks,

Seth Gambill
Naismith Marine Services, Inc.
www.naismithmarine.com
361-319-4948

-------- Original Message --------

Subject: RE: [EXTERNAL] CAD files for Lydia Ann Channel Project, Dr. Brian Gulley (UNCLASSIFIED)
From: "Jones, Robert N SWG" <Robert.N.Jones2@usace.army.mil>
Date: Wed, June 11, 2014 12:40 pm
To: "Seth@naismithmarine.com" <Seth@naismithmarine.com>

Classification: UNCLASSIFIED
Caveats: NONE

Thank you sir. I appreciate it.

Robert Jones
Regulatory Specialist
Corpus Christi Regulatory Field Office
Desk: 361-814-5847 ext 1010

To assist us in improving our service to you, please complete the survey found at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

-----Original Message-----
From: Seth@naismithmarine.com [mailto:Seth@naismithmarine.com]
Sent: Wednesday, June 11, 2014 2:37 PM
To: Jones, Robert N SWG
Cc: drbgulley@aol.com; Jim Naismith
Subject: [EXTERNAL] CAD files for Lydia Ann Channel Project, Dr. Brian Gulley

Robert:
Per Dr. Gulley's request, I'm sending CAD files for his proposed barge mooring project in the Lydia Ann Channel. These CAD files are in the State Plane, NAD-83, Texas South zone coordinate system. Units are US feet. Please do not hesitate to let me know if you need anything else or need these files in a separate coordinate system.

Thanks,

Seth Gambill
Naismith Marine Services, Inc.
www.naismithmarine.com
361-319-4948

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Jones, Robert N SWG

From: Jones, Seth W SWG
Sent: Friday, December 19, 2014 12:36 PM
To: Jones, Robert N SWG
Cc: Laskowski, Nicholas A SWG; Frabotta, Christopher SWG
Subject: RE: Internal Review Request - Application No. SWG-2014-00460 - Lydia Ann Channel, Aransas Co. (UNCLASSIFIED)
Signed By: seth.w.jones@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

We should have everything coordinated and be ready to meet with the applicant if necessary second week of January.

-----Original Message-----
From: Jones, Robert N SWG
Sent: Friday, December 19, 2014 12:32 PM
To: Jones, Seth W SWG
Cc: Laskowski, Nicholas A SWG
Subject: RE: Internal Review Request - Application No. SWG-2014-00460 - Lydia Ann Channel, Aransas Co. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

What is the approximate time table for the completion? Please keep us posted. Thanks Seth.

Robert Jones
Regulatory Specialist
Corpus Christi Regulatory Field Office
Desk: 361-814-5847 ext 1010

To assist us in improving our service to you, please complete the survey found at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

-----Original Message-----
From: Jones, Seth W SWG
Sent: Friday, December 19, 2014 12:30 PM
To: Garcia, Frank T SWG; Jones, Robert N SWG
Cc: Cox, Paul A SWG; Robison, Michael R SWF; Frabotta, Christopher SWG
Subject: RE: Internal Review Request - Application No. SWG-2014-00460 - Lydia Ann Channel, Aransas Co. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Robert,
Regarding your question on the set-back line. We are in the process of establishing the set back line for the Lydia Ann. It was omitted when the set-back was developed for the GIWW main channel.

-----Original Message-----
From: Garcia, Frank T SWG
Sent: Friday, December 19, 2014 7:29 AM
To: Jones, Robert N SWG
Cc: Jones, Seth W SWG; Cox, Paul A SWG; Robison, Michael R SWF; Frabotta, Christopher SWG
Subject: RE: Internal Review Request - Application No. SWG-2014-00460 - Lydia Ann Channel, Aransas Co. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Robert,

If their plans are accurate as shown then they are, but I would defer to Seth Jones as he is the Operation Manager for the GIWW. He might be gone for the holidays, and if so, we can ask Mr. Paul Cox as see if he has that alignment.

Frank

-----Original Message-----
From: Jones, Robert N SWG
Sent: Friday, December 19, 2014 7:20 AM
To: Garcia, Frank T SWG
Subject: RE: Internal Review Request - Application No. SWG-2014-00460 - Lydia Ann Channel, Aransas Co. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

What set back line? Do the plans submitted show they are far enough away?

Robert Jones
Regulatory Specialist
Corpus Christi Regulatory Field Office
Desk: 361-814-5847 ext 1010

To assist us in improving our service to you, please complete the survey found at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

-----Original Message-----
From: Garcia, Frank T SWG
Sent: Thursday, December 18, 2014 7:21 PM
To: Jones, Robert N SWG
Cc: Laskowski, Nicholas A SWG; Trant, Angela SWG; Robison, Michael R SWF; Jones, Seth W SWG
Subject: FW: Internal Review Request - Application No. SWG-2014-00460 - Lydia Ann Channel, Aransas Co. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Robert,

This will not require a 408 as long as they stay behind the set back line.

Frank

-----Original Message-----
From: Jones, Robert N SWG
Sent: Tuesday, December 02, 2014 2:10 PM
To: Garcia, Frank T SWG
Cc: Laskowski, Nicholas A SWG; Trant, Angela SWG
Subject: FW: Internal Review Request - Application No. SWG-2014-00460 - Lydia Ann Channel, Aransas Co. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Frank:

Will this project have any 408 concerns or issues?

Robert Jones
Regulatory Specialist
Corpus Christi Regulatory Field Office
Desk: 361-814-5847 ext 1010

To assist us in improving our service to you, please complete the survey found at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

-----Original Message-----
From: Hidalgo, Carlos SWG [mailto:Carlos.Hidalgo@usace.army.mil]
Sent: Friday, June 13, 2014 8:03 AM
To: Nguyen, Vinh X SWG; Jones, Robert N SWG; Trant, Angela SWG
Cc: Rowe, Jody SWG; Murphy, Brian SWG; Mairs, David E SWG; Benavides, Jerry SWG; Pablo, Kenneth SWG; JONES, KEOKUK H SWG
Subject: RE: Internal Review Request - Application No. SWG-2014-00460 - Lydia Ann Channel, Aransas Co. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

There are no USACE RE tracts nor placement areas within this IR request.

****
Carlos Hidalgo
Districts Cartographer/GIS Analyst
U.S. Department of Defense
U.S. Army Corps of Engineers
2000 Fort Point Road; CESWG-RE-PC
Galveston, TX 77550
Phone: (409) 766-3169
carlos.hidalgo@usace.army.mil

-----Original Message-----
From: Nguyen, Vinh X SWG
Sent: Thursday, June 12, 2014 3:38 PM
To: Hidalgo, Carlos SWG

Subject: FW: Internal Review Request - Application No. SWG-2014-00460 - Lydia Ann Channel, Aransas Co. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: Trant, Angela SWG
Sent: Tuesday, June 10, 2014 12:54 PM
To: Barrios, Ramon SWG; Benavides, Jerry SWG; Botello, Janet SWG; Carelock, Donald W SWG; Croft, Bradley D SWG; Davidson, John SWG; Dominey, Clifford S SWG; Heinly, Robert W SWG; Hidalgo, Carlos SWG; Leimer, Matthew S SWG; Mairs, David E SWG; McLaughlin, Kimberly SWG; Meyer, Alton H SWG; Moore, Randy E SWG; Murphy, Brian SWG; Pablo, Kenneth SWG; Rowe, Jody SWG; Smith, Andrew N SWG; Steiner, Ralph E SWG; Vera, Laura L SWG; Worley, Kenneth SWG; Androy, Jerry L SWG; Jaynes, Kenneth E (Kenny) SWG; Patchimrat, Thomas S (Tom) SWG; Craft, Franchelle E SWG; McMillan, Kristi N SWG; Dabney, George V SWG; Smolinsky, Brandon SWG; Hernandez, Pablo SWG; Nguyen, Vinh X SWG
Cc: Jones, Robert N SWG
Subject: Internal Review Request - Application No. SWG-2014-00460 - Lydia Ann Channel, Aransas Co. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Please address any comments or requests for additional information to the Project Manager, Robert Jones, in Corpus Christi at 361-814-5847 ext. 1010 or by email.

Thank you.

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

EXHIBIT 5

E-mail from Kimberly McLaughlin, USACE, to Christopher Frabotta, USACE


Imagery Date November 22, 2014
Imagery Date: 11/22/2014 27°52'17.87" N


Imagery Date June 15, 2014
JACKIE CENAC
CONSOULIN 120


Before LAC's Facility Opened
Imagery Date December 29, 2014


After LAC's Facility Opened
Imagery Date April 1, 2015

EXHIBIT 6

Aerials and Photographs of Pre-Project Conditions


LAC EXISTING FLEET WITH GLO LEASE
SITE A
Port Aransas City Boundary
Harbor Island Rd
Hwy 361
© 2016 Google
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2016 TerraMetrics
Imagery Date: 1/3/2016

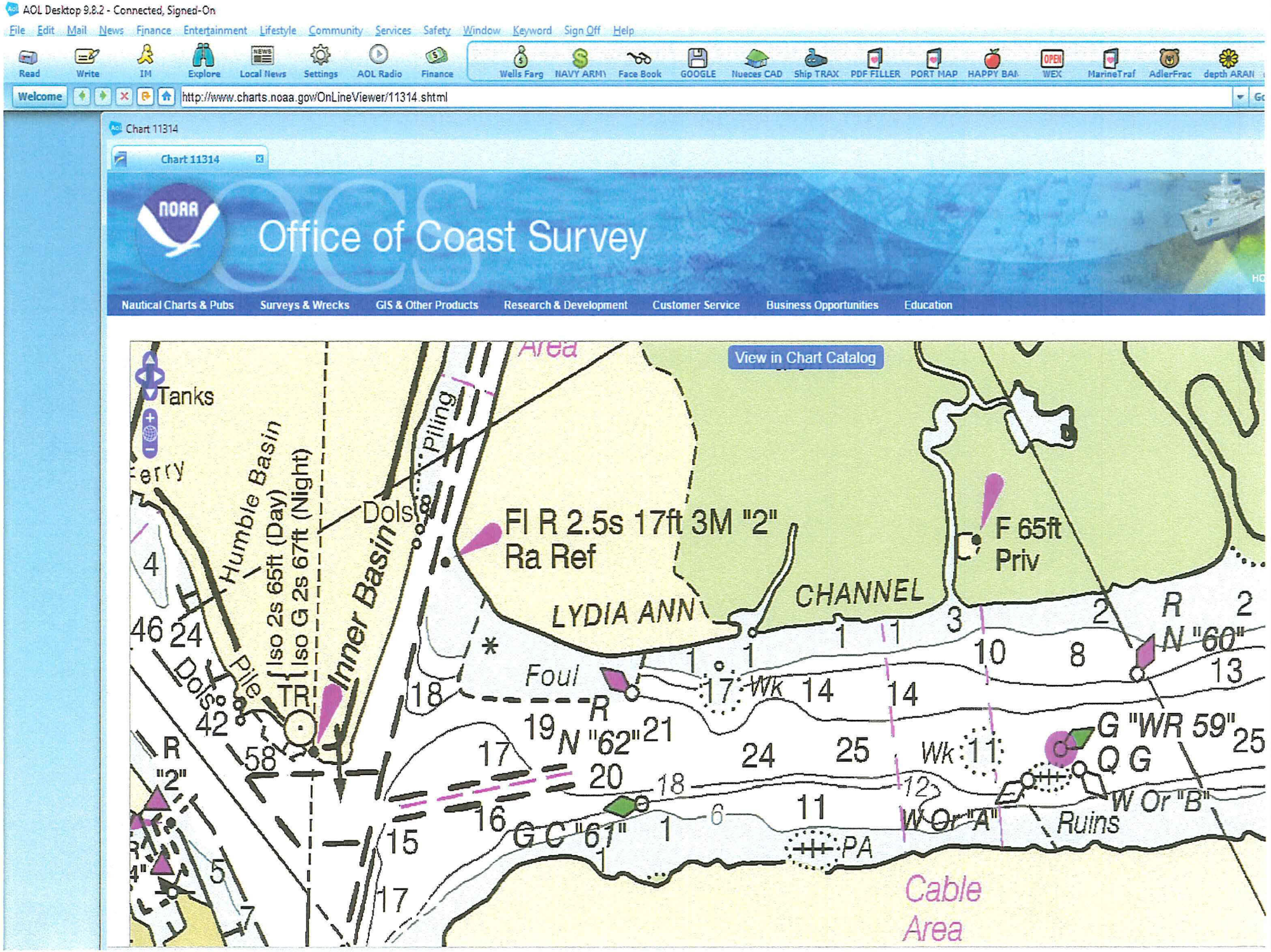

AOL Desktop 9.8.2 - Connected, Signed-On
File Edit Mail News Finance Entertainment Lifestyle Community Services Safety Window Keyword Sign Off Help
Read Write IM Explore Local News Settings AOL Radio Finance
Welcome
http://www.charts.noaa.gov/OnLineViewer/11314.shtml
Chart 11314
Chart 11314
NOAA
Office of Coast Survey
Nautical Charts & Pubs
Surveys & Wrecks
GIS & Other Products
Research & Development
Customer Service
Business Opportunities
Education
View in Chart Catalog
Tanks
Ferry
Humble Basin
Iso 2s 65ft (Day)
Iso G 2s 67ft (Night)
Inner Basin
Piling
Dolsta
Fl R 2.5s 17ft 3M "2"
Ra Ref
F 65ft
Priv
LYDIA ANN
CHANNEL
Foul
TR
R
N "62"
N "60"
G "WR 59"
Q G
W Or "B"
W Or "A"
Ruins
GC "61"
PA
Wk
Cable
Area

EXHIBIT 7

Lydia Ann Channel Fleet Surveillance/Shoreline Protection Procedures


SITE B
Hwy 351
Spoonbill Cir
© 2016 Google
Imagery Date: 11/22/2014

EXHIBIT 8

Aerials and Drawings of Alternative Site A


SITE C
© 2016 Google
Google earth
1956
Imagery Date: 11/22/2014 27°50'36.75" N 97°05'06.04" W elev 6 ft eye alt 8465 ft

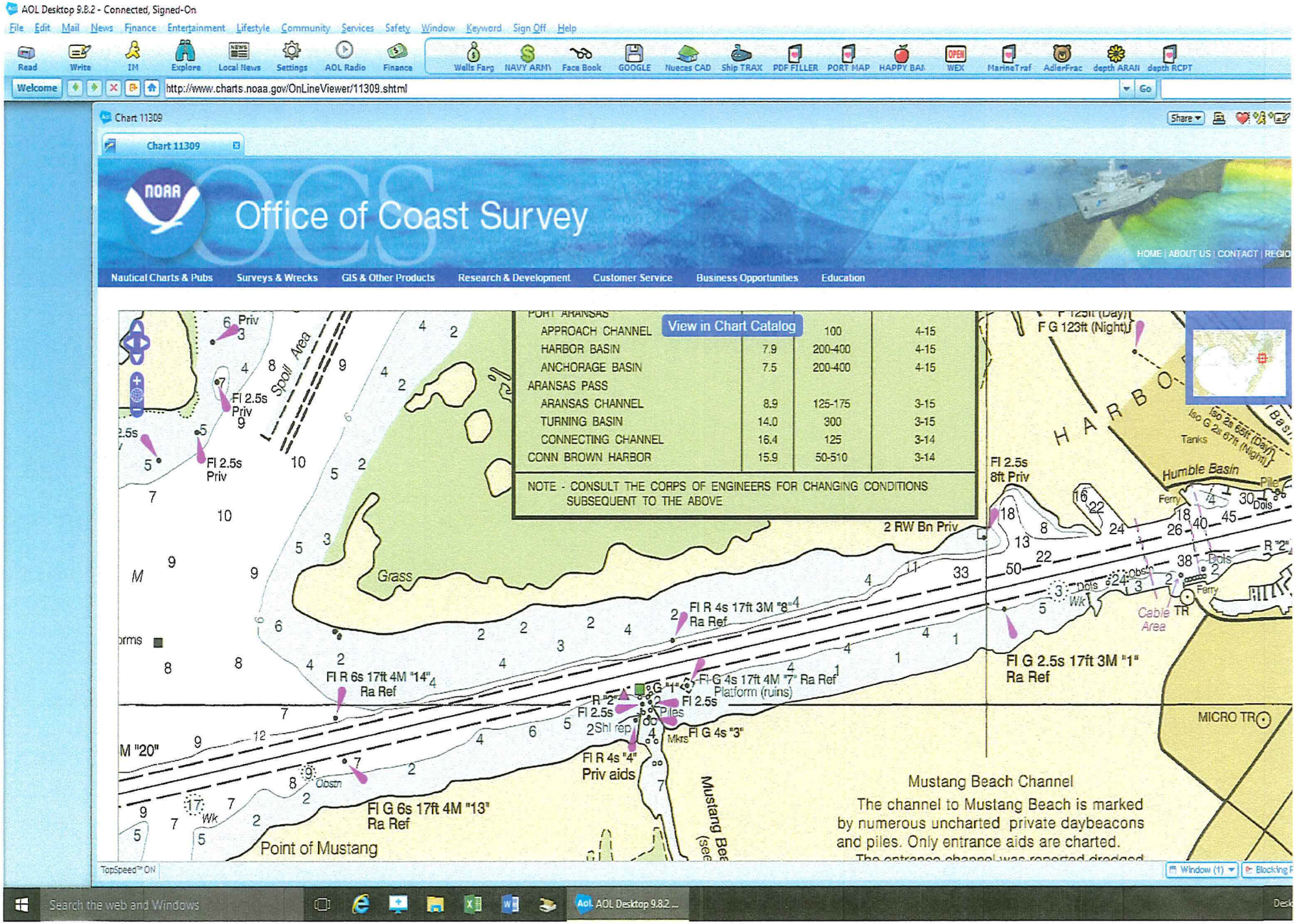

AOL Desktop 9.8.2 - Connected, Signed-On
http://www.charts.noaa.gov/OnLineViewer/11309.shtml
Chart 11309
Office of Coast Survey
Nautical Charts & Pubs
Surveys & Wrecks
GIS & Other Products
Research & Development
Customer Service
Business Opportunities
Education
View in Chart Catalog
PORT ARANSAS
APPROACH CHANNEL 100 4-15
HARBOR BASIN 7.9 200-400 4-15
ANCHORAGE BASIN 7.5 200-400 4-15
ARANSAS PASS
ARANSAS CHANNEL 8.9 125-175 3-15
TURNING BASIN 14.0 300 3-15
CONNECTING CHANNEL 16.4 125 3-14
CONN BROWN HARBOR 15.9 50-510 3-14
NOTE - CONSULT THE CORPS OF ENGINEERS FOR CHANGING CONDITIONS SUBSEQUENT TO THE ABOVE
Spoil Area
Grass
Fl 2.5s Priv
Fl 2.5s 8ft Priv
2 RW Bn Priv
Fl R 4s 17ft 3M "8" Ra Ref
Fl R 6s 17ft 4M "14" Ra Ref
Fl G 4s 17ft 4M "7" Ra Ref
Platform (ruins)
Fl G 2.5s 17ft 3M "1" Ra Ref
Fl R 4s "4" Priv aids
Fl G 4s "3"
Fl G 6s 17ft 4M "13" Ra Ref
Point of Mustang
Mustang Beach Channel
The channel to Mustang Beach is marked by numerous uncharted private daybeacons and piles. Only entrance aids are charted.
HARBOR
Humble Basin
Cable Area
MICRO TR
Fl G 123ft (Night)
Tanks
Ferry
Dols
Obstn
Wk
Mkrs
Piles
Shl rep
M "20"

EXHIBIT 9

Aerials and Drawings of Alternative Site B


PERTY FOR SALE, $150 MILLION, SHALLOW WATER, MAJOR DREDGE
1600' x 300'
1800' x 300'
2600' x 600'
SITE D
1200' x 600'
60' x 2000'
2000' x 600'
1200' x 600'
Windy Hill St
Upton Ln
127
Ocean
1069
Ocean View Pl
Parkview
Relama Dr
Post Oak Dr
Woodhaven Dr
Ebony St
170A
Live Oak St
Oak Ridge Dr
S Sandpiper St
Driftwood Ln
Bayshore Dr
© 2016 Google
Imagery Date: 11/22/2014

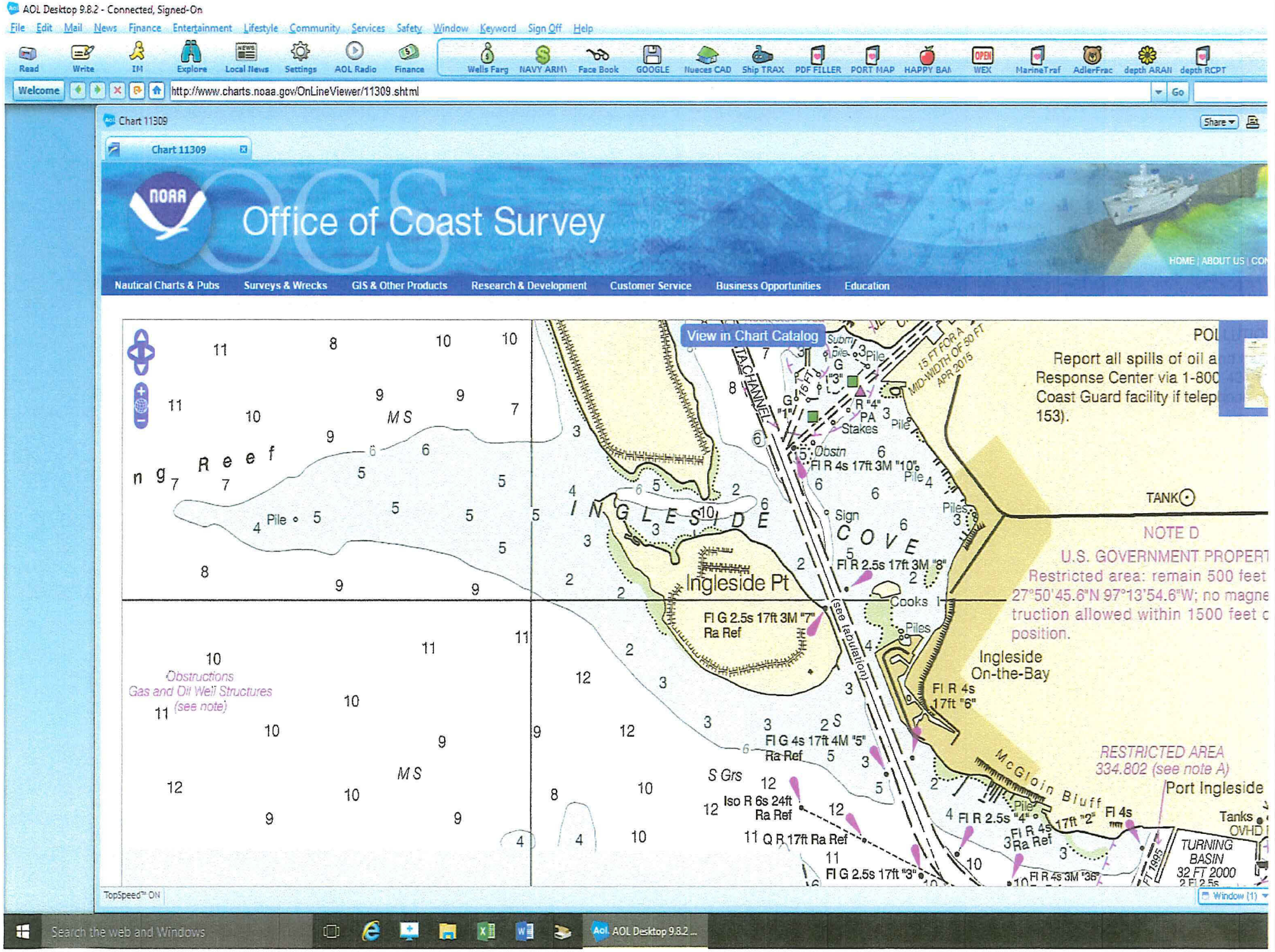

AOL Desktop 9.8.2 - Connected, Signed-On
File Edit Mail News Finance Entertainment Lifestyle Community Services Safety Window Keyword Sign Off Help
Read Write IM Explore Local News Settings AOL Radio Finance
Welcome
http://www.charts.noaa.gov/OnLineViewer/11309.shtml
Chart 11309
Share
Chart 11309
NOAA
Office of Coast Survey
HOME | ABOUT US | CON
Nautical Charts & Pubs
Surveys & Wrecks
GIS & Other Products
Research & Development
Customer Service
Business Opportunities
Education
View in Chart Catalog
Ingleside Pt
INGLESIDE COVE
Fl G 2.5s 17ft 3M "7"
Ra Ref
Fl R 2.5s 17ft 3M "8"
Fl G 4s 17ft 4M "5"
Ra Ref
Iso R 6s 24ft
Ra Ref
Q R 17ft Ra Ref
Fl G 2.5s 17ft "3"
Obstn
Fl R 4s 17ft 3M "10"
Stakes
Sign
Piles
Cooks
see tabulation
Obstructions
Gas and Oil Well Structures
(see note)
Ingleside
On-the-Bay
Fl R 4s
17ft "6"
RESTRICTED AREA
334.802 (see note A)
Port Ingleside
McGloin Bluff
Fl R 2.5s "4"
Fl R 4s
Ra Ref
Fl 4s
17ft "2"
TURNING
BASIN
32 FT 2000
TANK
NOTE D
U.S. GOVERNMENT PROPERT
Restricted area: remain 500 feet
27°50'45.6"N 97°13'54.6"W; no magne
truction allowed within 1500 feet c
position.
Report all spills of oil a
Response Center via 1-800
Coast Guard facility if telep
153).
15 FT FOR A
MID-WIDTH OF 50 FT
APR 2015
TopSpeed™ ON
Search the web and Windows
AOL Desktop 9.8.2...

EXHIBIT 10

Aerials and Drawings of Alternative Site C


SITE E
35
© 2018 Google
Google earth
1950
Imagery Date: 11/22/2014 27°50'22.98" N 97°22'55.58" W elev -5 ft eye alt 2805 ft

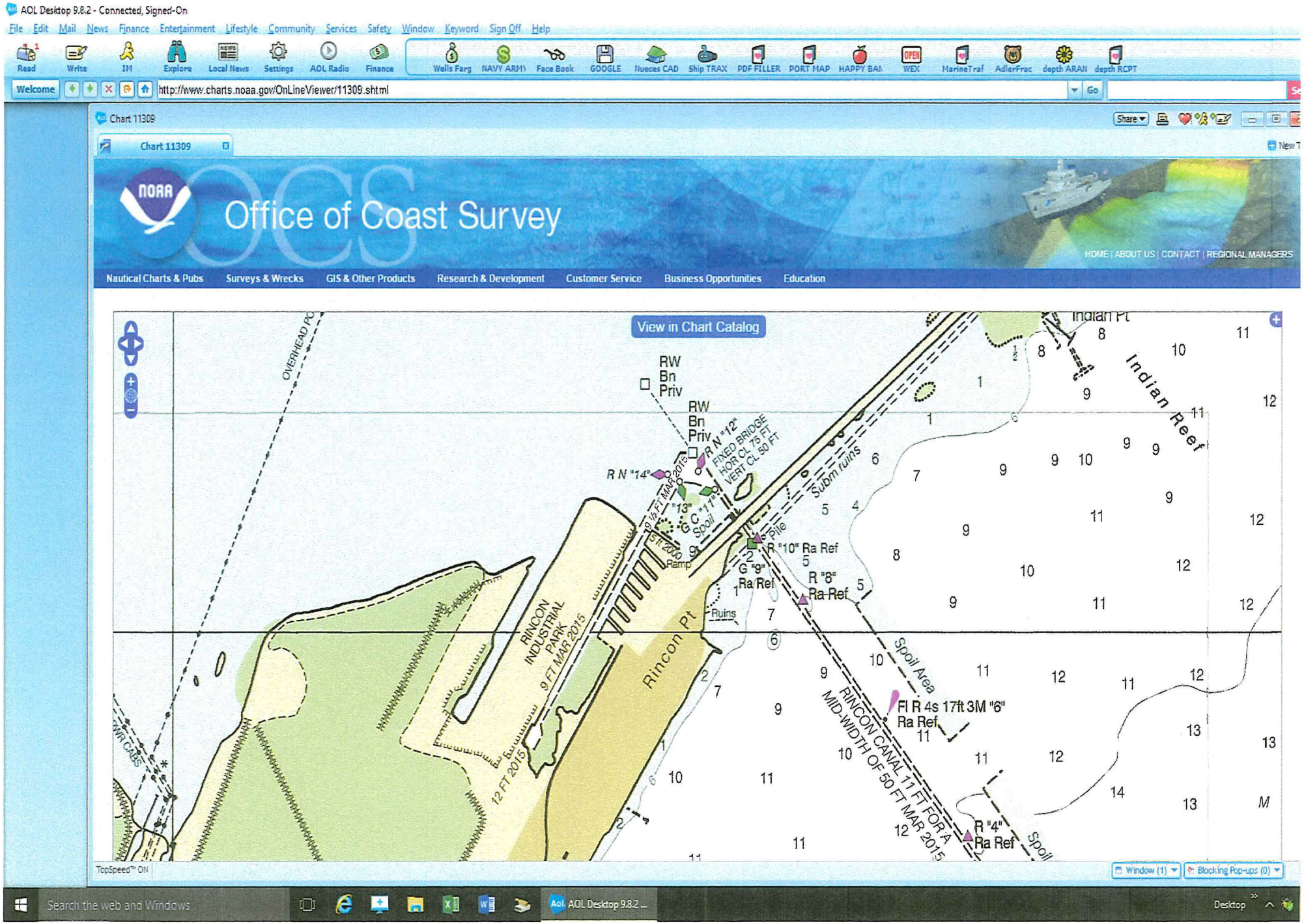
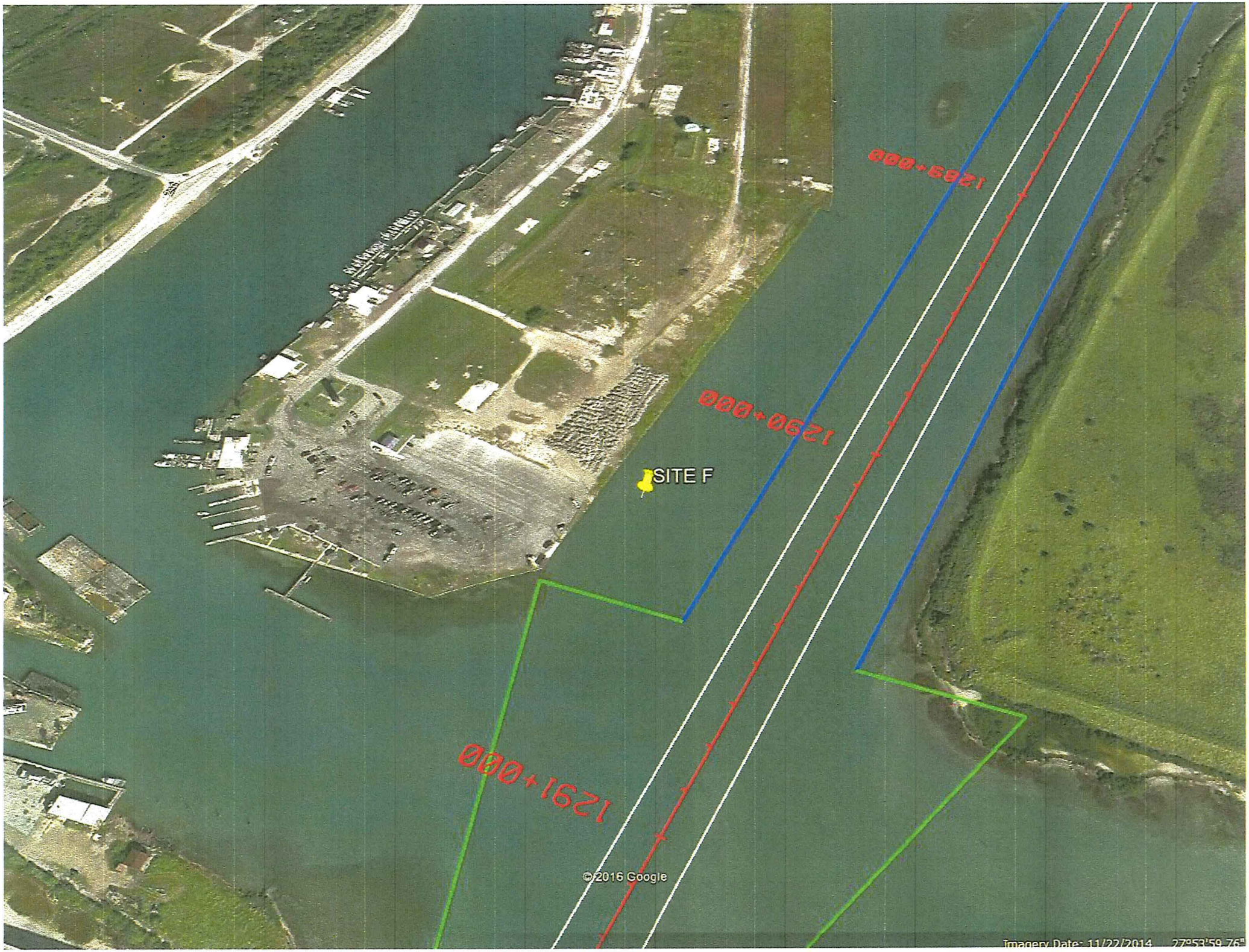

AOL Desktop 9.8.2 - Connected, Signed-On
File Edit Mail News Finance Entertainment Lifestyle Community Services Safety Window Keyword Sign Off Help
Read Write IM Explore Local News Settings AOL Radio Finance
Wells Farg NAVY ARMY Face Book GOOGLE Nueces CAD Ship TRAX PDF FILLER PORT MAP HAPPY BAI WEX MarineTraf AdlerFrac depth ARAII depth RCPT
Welcome
http://www.charts.noaa.gov/OnLineViewer/11309.shtml
Go
Chart 11309
Chart 11309
NOAA
Office of Coast Survey
HOME | ABOUT US | CONTACT | REGIONAL MANAGERS
Nautical Charts & Pubs
Surveys & Wrecks
GIS & Other Products
Research & Development
Customer Service
Business Opportunities
Education
View in Chart Catalog
OVERHEAD PC
RW Bn Priv
RW Bn Priv
R N "12"
FIXED BRIDGE HOR CL 75 FT VERT CL 50 FT
R N "14"
9 FT MAR 2015
"13"
G C "11"
Spoil
5 ft 2000
Ramp
Pile
R "10" Ra Ref
G "9" Ra Ref
R "8" Ra Ref
Ruins
Rincon Pt
RINCON INDUSTRIAL PARK 9 FT MAR 2015
12 FT 2015
Subm ruins
Indian Pt
Indian Reef
Spoil Area
RINCON CANAL 11 FT FOR A MID-WIDTH OF 50 FT MAR 2015
Fl R 4s 17ft 3M "6" Ra Ref
R "4" Ra Ref
Spoil
TopSpeed™ ON
Window (1)
Blocking Pop-ups (0)
Search the web and Windows
AOL Desktop 9.8.2 ...
Desktop

EXHIBIT 11

Aerials and Drawings of Alternative Site D


1293+000
1290+000
SITE F
1291+000
©2016 Google
Imagery Date: 11/22/2014

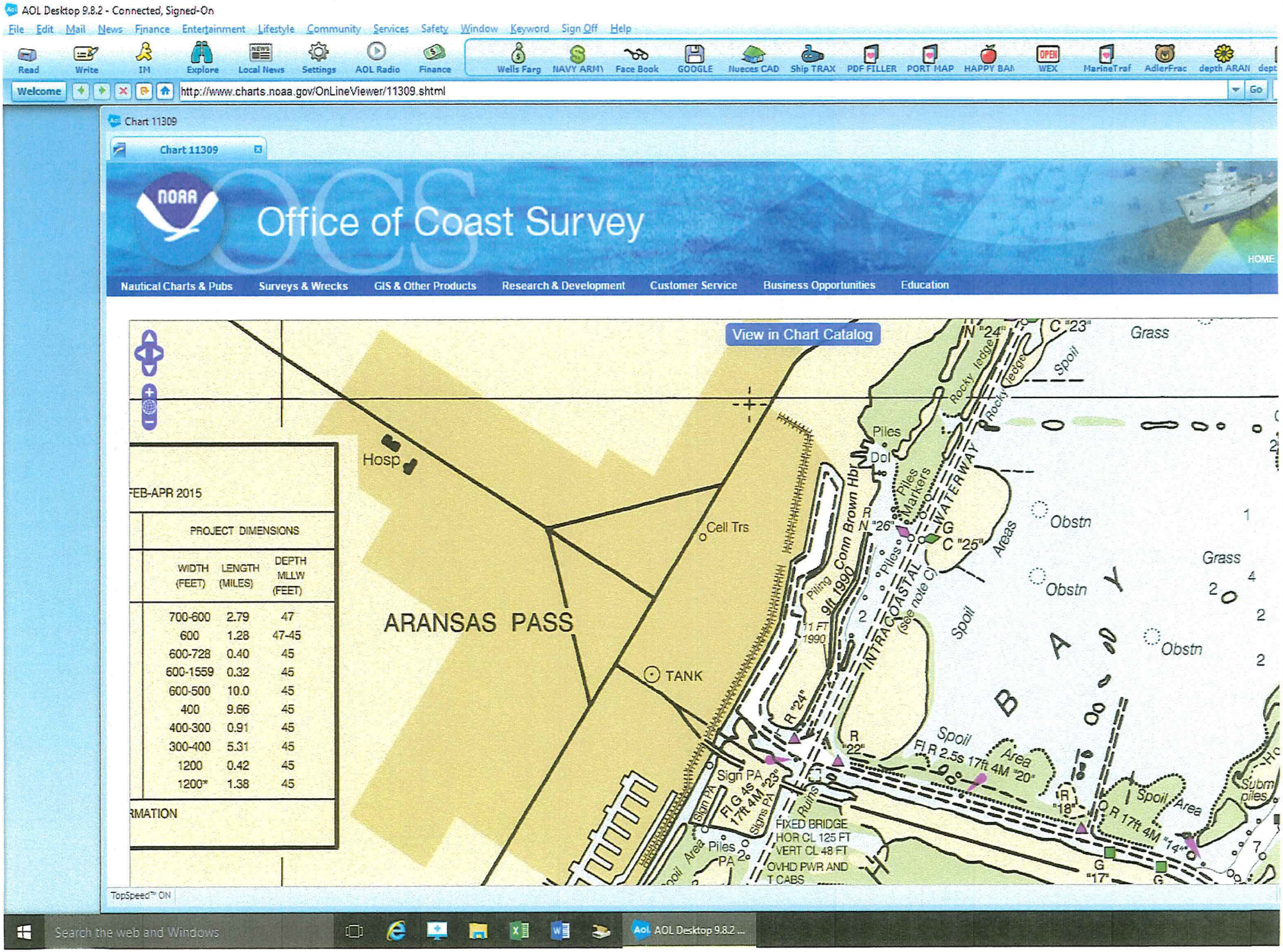
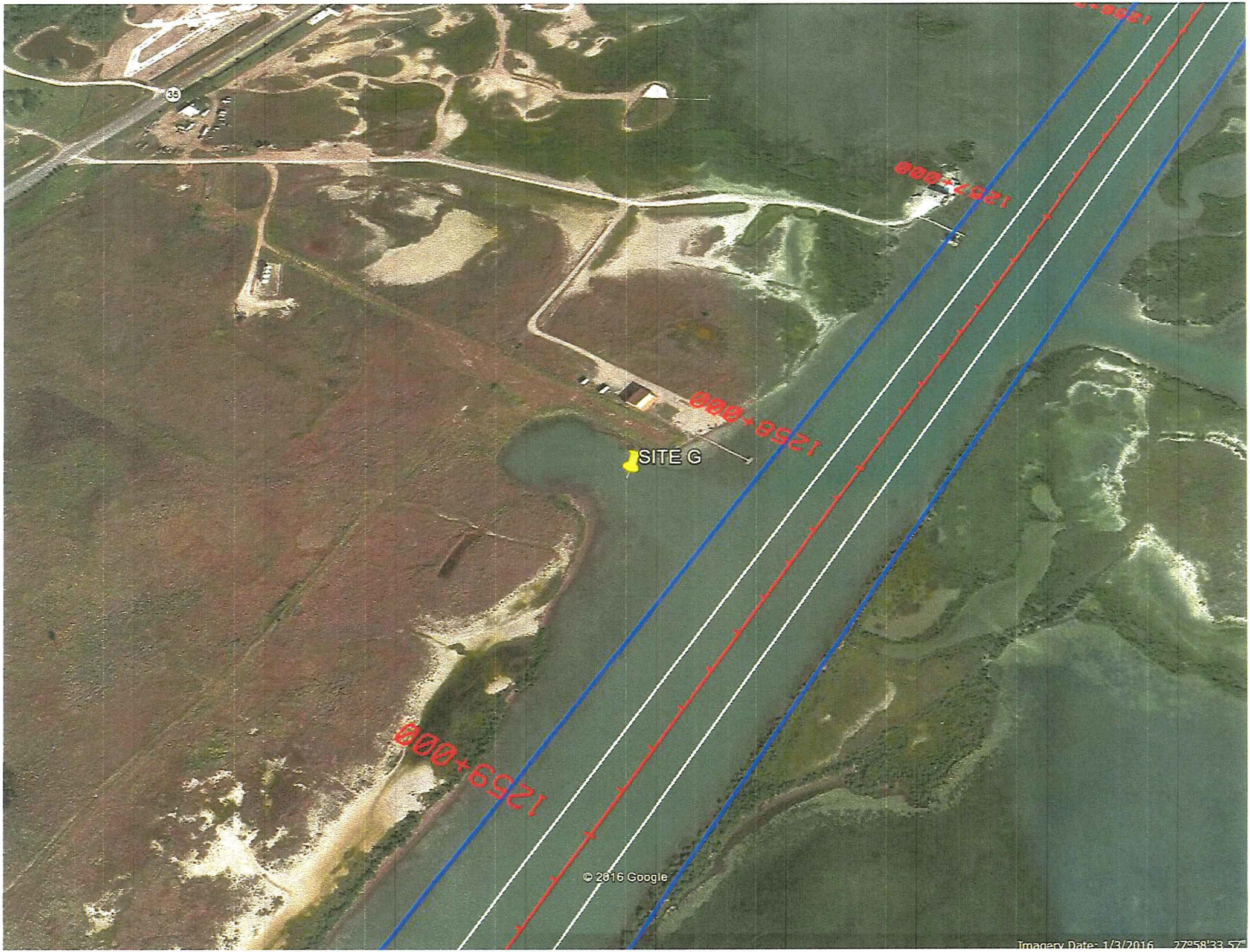

AOL Desktop 9.8.2 - Connected, Signed-On
File Edit Mail News Finance Entertainment Lifestyle Community Services Safety Window Keyword Sign Off Help
Read Write IM Explore Local News Settings AOL Radio Finance
Wells Farg NAVY ARMY Face Book GOOGLE Nueces CAD Ship TRAX PDF FILLER PORT MAP HAPPY BAI WEX MarineTraf AdlerFrac depth ARAN
Welcome
http://www.charts.noaa.gov/OnLineViewer/11309.shtml
Go
Chart 11309
Chart 11309
NOAA
Office of Coast Survey
HOME
Nautical Charts & Pubs
Surveys & Wrecks
GIS & Other Products
Research & Development
Customer Service
Business Opportunities
Education
View in Chart Catalog
FEB-APR 2015
PROJECT DIMENSIONS
WIDTH (FEET)
LENGTH (MILES)
DEPTH MLLW (FEET)
700-600 2.79 47
600 1.28 47-45
600-728 0.40 45
600-1559 0.32 45
600-500 10.0 45
400 9.66 45
400-300 0.91 45
300-400 5.31 45
1200 0.42 45
1200* 1.38 45
RMATION
ARANSAS PASS
Hosp
Cell Trs
TANK
Piles
Dol
Rocky ledge
Spoil
Grass
Obstn
Areas
Piling
9ft 1990
Conn Brown Hbr
WATERWAY
INTRACOASTAL
(see note C)
11 FT 1990
Fl R 2.5s 17ft 4M "20"
Fl G 4s 17ft 4M "23"
Sign PA
Ruins
FIXED BRIDGE
HOR CL 125 FT
VERT CL 48 FT
OVHD PWR AND
T CABS
Subm piles
TopSpeed™ ON
Search the web and Windows
AOL Desktop 9.8.2 ...

EXHIBIT 12

Aerials and Drawings of Alternative Site E


35
1257+000
1258+000
SITE G
1259+000
© 2016 Google
Imagery Date: 1/3/2016

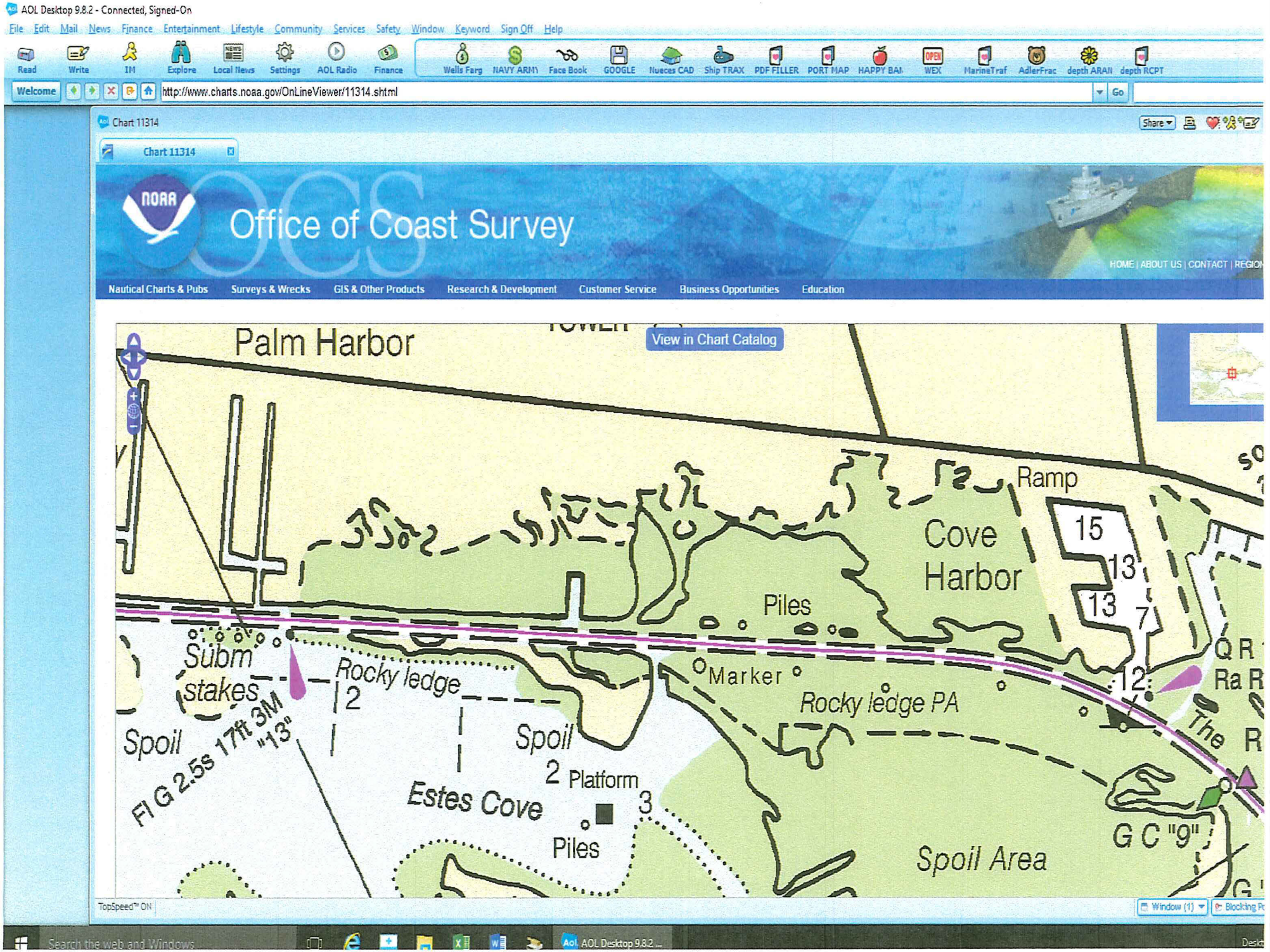

AOL Desktop 9.8.2 - Connected, Signed-On
File Edit Mail News Finance Entertainment Lifestyle Community Services Safety Window Keyword Sign Off Help
Read Write IM Explore Local News Settings AOL Radio Finance
Wells Farg NAVY ARMY Face Book GOOGLE Nueces CAD Ship TRAX PDF FILLER PORT MAP HAPPY BAI WEX MarineTraf AdlerFrac depth ARAN depth RCPT
Welcome
http://www.charts.noaa.gov/OnLineViewer/11314.shtml
Go
Chart 11314
Share
Chart 11314
NOAA
Office of Coast Survey
HOME | ABOUT US | CONTACT | REGION
Nautical Charts & Pubs
Surveys & Wrecks
GIS & Other Products
Research & Development
Customer Service
Business Opportunities
Education
View in Chart Catalog
Palm Harbor
Ramp
Cove Harbor
15
13
13
7
Piles
Subm
stakes
Rocky ledge
2
Marker
Rocky ledge PA
12
Spoil
Fl G 2.5s 17ft 3M "13"
Spoil
2
Platform
Estes Cove
3
Piles
G C "9"
Spoil Area
TopSpeed™ ON
Window (1)
Search the web and Windows
AOL Desktop 9.8.2

EXHIBIT 13

Aerials and Drawings of Alternative Site F


BILGE REMOVAL
THER OFFICE
URITY RV
SITE H
© 2016 Google
Imagery Date: 1/3/2016

AOL Desktop 9.8.2 - Connected, Signed-On

File Edit Mail News Finance Entertainment Lifestyle Community Services Safety Window Keyword Sign Off Help

Read Write IM Explore Local News Settings AOL Radio Finance Wells Farg NAVY ARMY Face Book GOOGLE Nueces CAD Ship TRAX PDF FILLER PORT MAP HAPPY BAI WEX MarineTraf AdlerFrac

Welcome http://www.charts.noaa.gov/OnLineViewer/11314.shtml

Chart 11314

Chart 11314

NOAA Office of Coast Survey

Nautical Charts & Pubs | Surveys & Wrecks | GIS & Other Products | Research & Development | Customer Service | Business Opportunities | Education

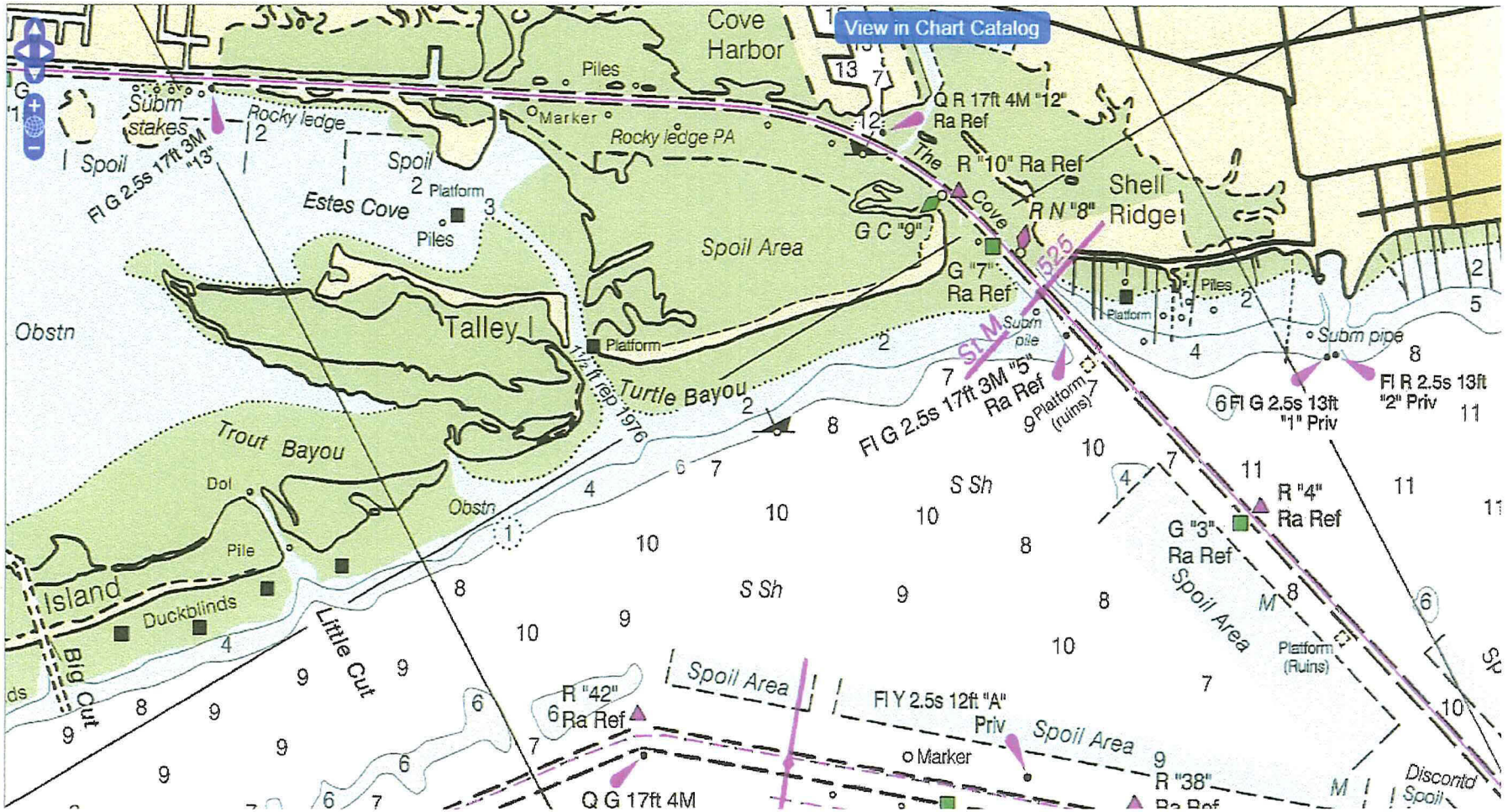
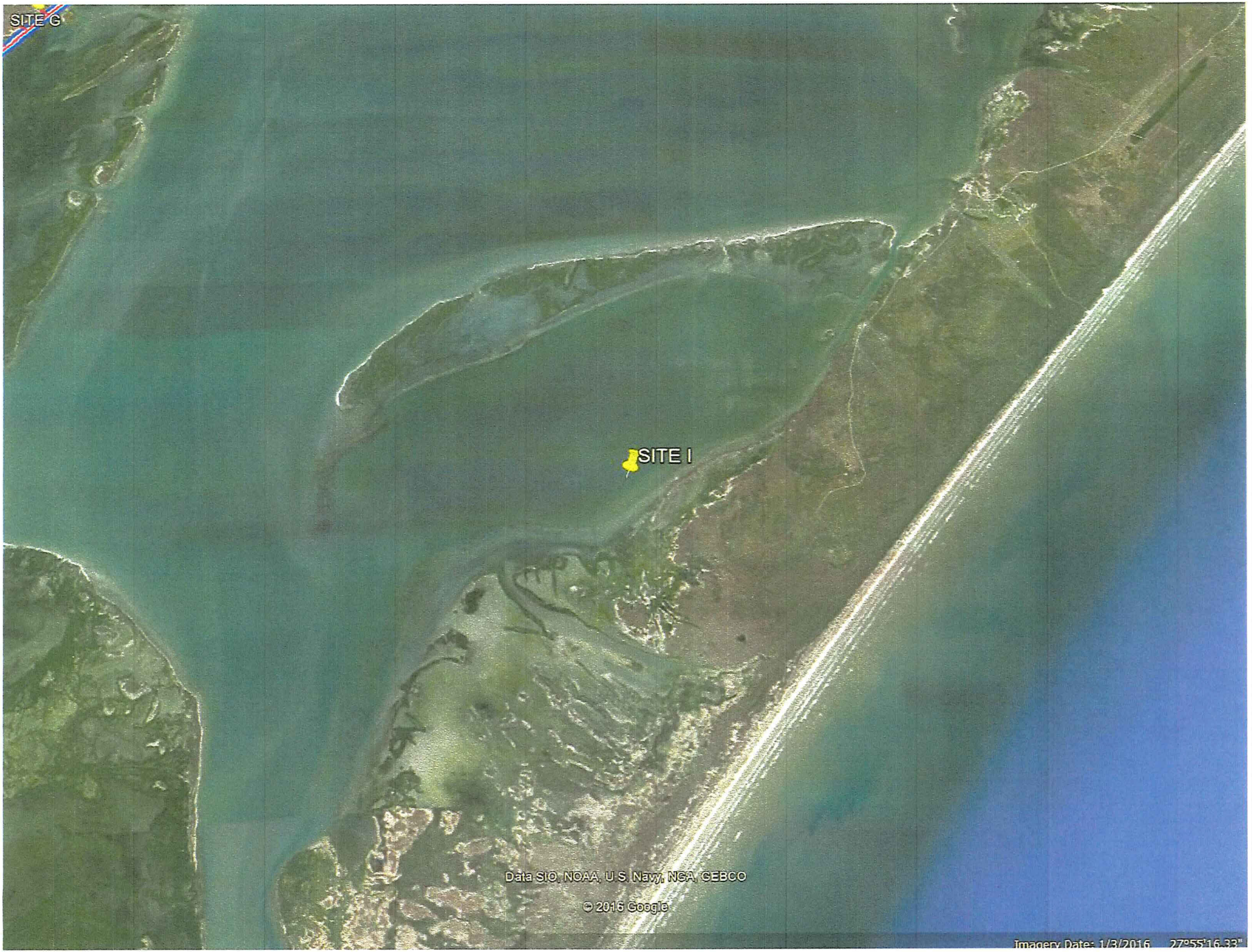


EXHIBIT 14

Aerials and Drawings of Alternative Site G


SITE G
SITE I
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2016 Google
Imagery Date: 1/3/2016 27°55'16.33"

AOL Desktop 9.8.2 - Connected, Signed-On

File Edit Mail News Finance Entertainment Lifestyle Community Services Safety Window Keyword Sign Off Help

Read Write IM Explore Local News Settings AOL Radio Finance Wells Farg NAVY ARMY Face Book GOOGLE Nueces CAD Ship TRAX PDF FILLER PORT MAP HAPPY BAN WEX MarineTraf AdlerFrac depth ARAN depth RCPT

Welcome http://www.charts.noaa.gov/OnLineViewer/11314.shtml Go

Chart 11314

Chart 11314

NOAA Office of Coast Survey

HOME | ABOUT US | CONTACT | REGIONAL MAN

Nautical Charts & Pubs | Surveys & Wrecks | GIS & Other Products | Research & Development | Customer Service | Business Opportunities | Education

View in Chart Catalog

Corpus Christi Bayou
Quintana Shore
Mud Island Pt
Mud Island
Murray Shoal
Lydia Ann Island
Allyns Bight
Blind Pass
SAN JOSE ISLAND
ARANSAS

TopSpeed™ ON | http://www.nauticalcharts.noaa.gov/staff/business_opport.html

EXHIBIT 15

Aerials and Drawings of Alternative Site H


BILGE REMOVAL
THER OFFICE
URITY RV
SITE H
© 2016 Google
Imagery Date: 1/3/2016

AOL Desktop 9.8.2 - Connected, Signed-On

File Edit Mail News Finance Entertainment Lifestyle Community Services Safety Window Keyword Sign Off Help

Read Write IM Explore Local News Settings AOL Radio Finance Wells Farg NAVY ARMY Face Book GOOGLE Nueces CAD Ship TRAX PDF FILLER PORT MAP HAPPY BAI WEX MarineTraf AdlerFrac

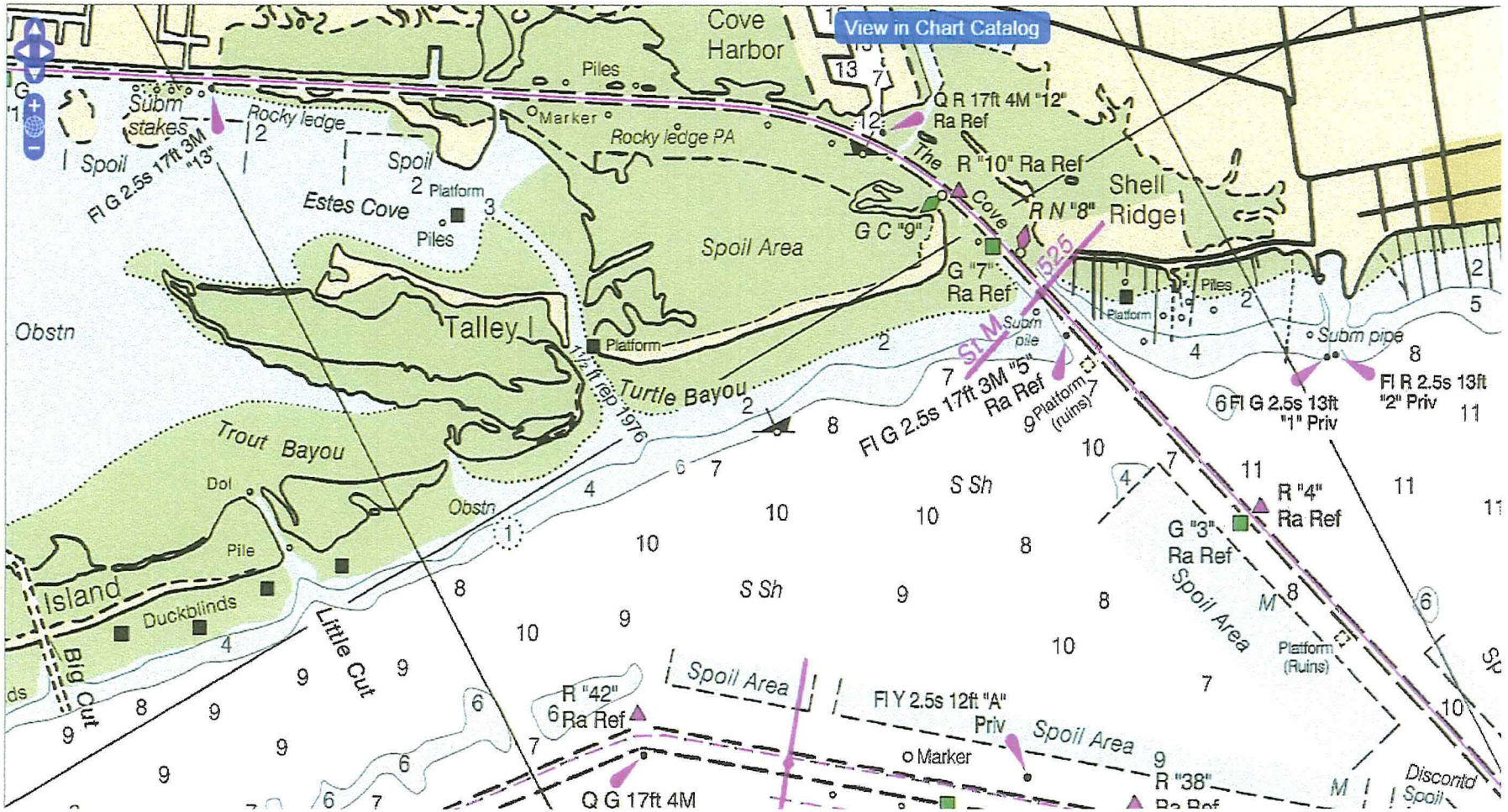
Welcome http://www.charts.noaa.gov/OnLineViewer/11314.shtml

Chart 11314

Chart 11314

NOAA Office of Coast Survey

Nautical Charts & Pubs | Surveys & Wrecks | GIS & Other Products | Research & Development | Customer Service | Business Opportunities | Education




BILGE REMOVAL
THER OFFICE
URITY RV
SITE H
© 2016 Google
Imagery Date: 1/3/2016

AOL Desktop 9.8.2 - Connected, Signed-On

File Edit Mail News Finance Entertainment Lifestyle Community Services Safety Window Keyword Sign Off Help

Read Write IM Explore Local News Settings AOL Radio Finance Wells Farg NAVY ARMY Face Book GOOGLE Nueces CAD Ship TRAX PDF FILLER PORT MAP HAPPY BAI WEX MarineTraf AdlerFrac

Welcome http://www.charts.noaa.gov/OnLineViewer/11314.shtml

Chart 11314

Chart 11314

NOAA Office of Coast Survey

Nautical Charts & Pubs | Surveys & Wrecks | GIS & Other Products | Research & Development | Customer Service | Business Opportunities | Education

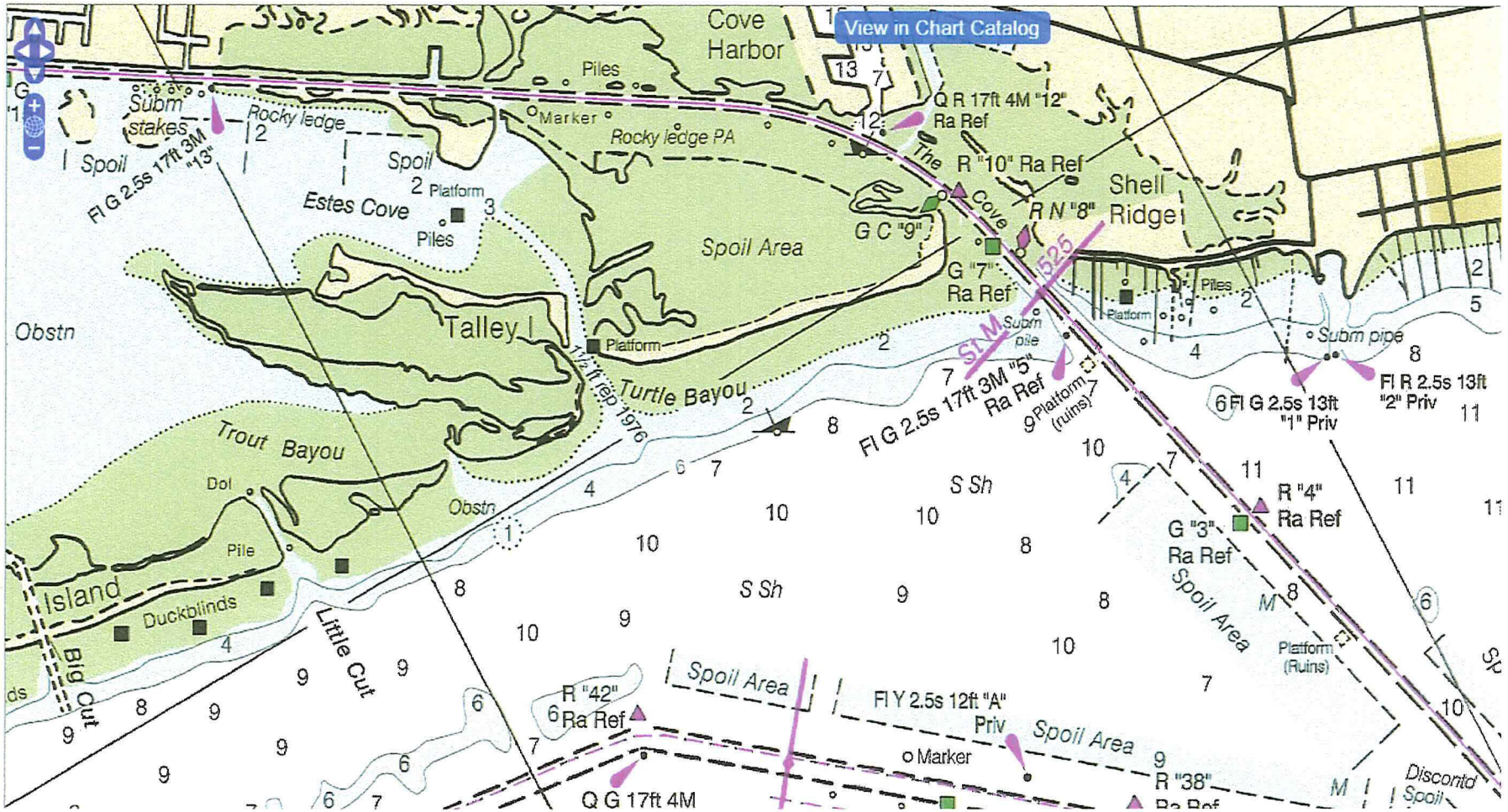
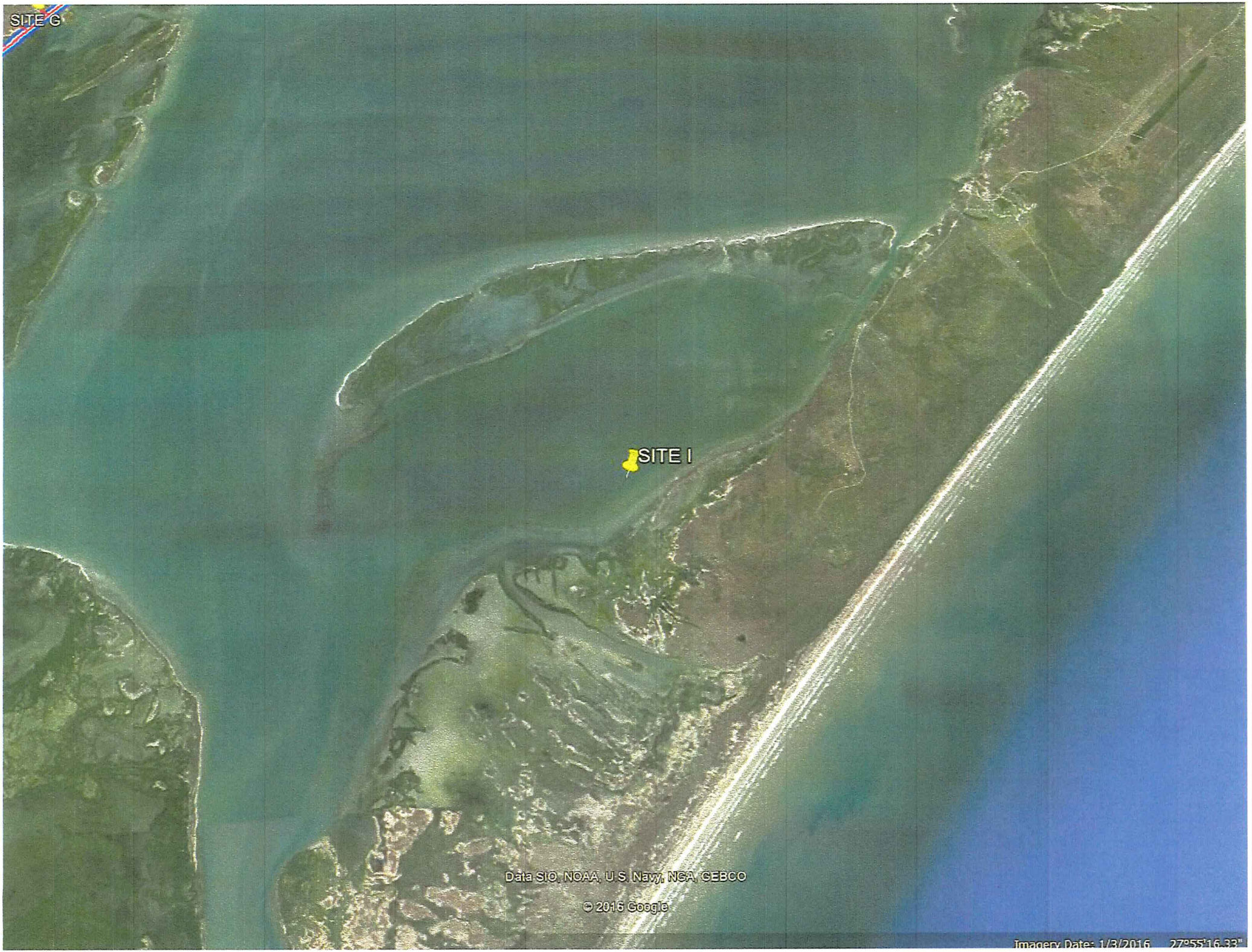


EXHIBIT 16

Aerials and Drawings of Alternative Site I


SITE G
SITE I
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2016 Google
Imagery Date: 1/3/2016 27°55'16.33"

AOL Desktop 9.8.2 - Connected, Signed-On

File Edit Mail News Finance Entertainment Lifestyle Community Services Safety Window Keyword Sign Off Help

Read Write IM Explore Local News Settings AOL Radio Finance Wells Farg NAVY ARMY Face Book GOOGLE Nueces CAD Ship TRAX PDF FILLER PORT MAP HAPPY BAN WEX MarineTraf AdlerFrac depth ARAN depth RCPT

Welcome http://www.charts.noaa.gov/OnLineViewer/11314.shtml Go

Chart 11314

Chart 11314

NOAA Office of Coast Survey

HOME | ABOUT US | CONTACT | REGIONAL MAN

Nautical Charts & Pubs | Surveys & Wrecks | GIS & Other Products | Research & Development | Customer Service | Business Opportunities | Education

View in Chart Catalog

Corpus Christi Bayou
Quintana Shore
Mud Island Pt
Mud Island
Murray Shoal
Lydia Ann Island
Allyns Bight
Blind Pass
SAN JOSE ISLAND
ARANSAS

TopSpeed™ ON | http://www.nauticalcharts.noaa.gov/staff/business_opport.html