Bayport Terminal Mitigation Features
FINAL PROPOSED

The Bayport Terminal plan has undergone considerable modification since the concept for the terminal was approved by the Port Commission nearly four years ago. The vast majority of these modifications have been the result of input from citizens and agencies that was provided with a goal of reducing or mitigating the impact of the project on the human environment. The POHA is updating the materials that comprise the permit application to ensure that the reviewing agencies and public have the most accurate information possible about the proposed terminal. This discussion describes those elements of the POHA application that have been included to reduce or mitigate impacts.

1. Buffer Zone and 2. 20-Foot Berm

As shown on the enclosed facility drawings, the terminal will have a buffer zone separating the terminal from surrounding land uses. The width of the buffer zone ranges from approximately 130 to 600 feet. Along the southern boundary the buffer zone ranges from 130 to 205 feet. Along Todville Road, the buffer zone is 600 feet wide, narrowing to 300 feet as it approaches Port Road. 128 acres of the project site, or approximately 12% of the total acreage involved in the project will be buffer.

Within the buffer zone, a 20-foot tall and 130-foot wide earthen berm will be constructed as shown. The portion of the berm, formerly located between the container and cruise terminals, has been relocated. This section will now be constructed between the cruise terminal and El Jardin **(Figure 2)**. This will provide an enhanced level of mitigation for the potential noise, light, and aesthetic impacts to the El Jardin community.

In addition, POHA will plant the berm with a mixture of deciduous trees and shrubs, which will minimize noise, light and visual impacts to the surrounding community. The planting will be composed of native deciduous and evergreen species that are typically found within the Galveston Bay area **(Figures 15 & 16)**. Approximately twenty different species will be used to create a natural appearance and view from nearby residential areas. . Additionally, the planting plan has been designed so that the area will develop into a self-sustaining natural environment within a few short years. Because the berm is being constructed from dredged material, the applicant will over-excavate the planting pits and introduce a fertile planting backfill mix. This added backfill mix along with a slow release fertilizer would provide the plant material with needed nutrients and help ensure the successful vegetation of the berm. As part of the initial construction, a one-year watering and maintenance period will be included.

3. Seventy-Five Foot Set Aside

The PHA is committing the 75-foot wide strip located between the vegetated berm and Pine Gully (9.3 acres) to be set aside for habitat purposes and no future development **(Figure 13)**. This area will remain in its present natural condition, thus maintaining water quality functions.

4. Channel Setback

Areas shoreward of the existing channel boundary will be excavated to a width of 225 feet, as shown on the facility drawings included with this document. This effectively widens the channel and enhances navigation safety. In addition, this increases the distance of the berths from the residential areas north of the channel, which results in a reduction of light and noise impacts.

5. North Shore Slope Protection

Construction is complete on a slope protection and planting program for the north shoreline of the Bayport channel. While the rip-rap portion of the project addresses past, current, and future erosion, the permitted project was expanded to include tree and shrub planting designed to minimize the impacts of the terminal project on nearby residential areas.

6. Beneficial Use of Dredged Material

Dredged material excess to that needed for site development will be placed offsite. The material will be put to beneficial use, resulting in the creation of intertidal marsh, high marsh, and some upland where the marsh ties into the existing land mass (Figure 24). Approximately 200 acres will ultimately be constructed.

This use of dredged material will prevent the material from being disposed of as a waste and conserve valuable space in confined disposal areas. It will also provide improvements in water quality in Galveston Bay and replace wetland habitat lost to subsidence or erosion.

7. Cruise

The original Bayport Master plan (1998) and permit application contained a five berth Cruise Terminal. The attached three-cruise berth plan reduces the submerged areas dredged by 23 acres, submerged areas filled by 21.3 acres (90% reduction) and the offsite dredged material disposal by over a million cubic yards

8. Pre-Entry Gate Relocation

The optimal operational location of the pre-entry gate is very near the El Jardin subdivision. In response to the concerns of residents, the pre-entry gate has been relocated approximately 5,000 feet west of its original location, as shown on the enclosed drawings (Figure 2).

9. Wetland Property Acquisition and Mitigation

The verified wetland delineation of the project site by the Corps (5-2-2002) provides that there are 18.296 acres of jurisdictional wetlands on the site. To mitigate these and other biotic impacts, the POHA has acquired a 173.5-acre tract of land located just north of Highway 146 on Red Bluff, immediately adjacent to Armand Bayou Nature Center and Taylor Lake.

Within this property, the POHA proposes to create 66.8 acres of emergent freshwater wetlands (3.6:1 compensation for impacted, jurisdictional wetlands) and the enhancement of more than 12 acres of existing wetland. The project will also preserve 23.7 acres of forested and shrub uplands

and 71 acres of restored coastal prairie. In addition, a conservation easement will be imposed on the entire 173-acre tract. This will preserve a sizeable block of diverse habitat that is upstream of Armand Bayou Nature Center, and within its watershed. The applicant believes that this permanent protection of 173 acres offsets the impacts to aquatic resources located at the Bayport Terminal site. A more detailed discussion of the plan is contained elsewhere.

Storm Water Management and Treatment

The project will include a variety of mitigative features to improve water quality. These include first flush capture a south terminal retention pond, inlet treatment units, and high impact area treatment. These are described below.

10. First Flush - POHA is currently regulated for storm water discharges under the Multi-Sector Stormwater General Permit (MSGP) for Industrial Discharges and the Municipal Separate Storm Sewer System (MS4). The primary areas of concern under the MSGP for SIC 4491 (Water Transportation) are four metals (aluminum, zinc, lead and uranium). Experience at the existing Barbors Cut Container Terminal has revealed that these metals are primarily attached to Total Suspended Solids (TSS).

To facilitate the capture of TSS, the applicant will capture the first inch of rainfall into a holding pond, as shown in the master plan drawing. This will allow the TSS to be retained in the pond, decreasing the discharge of sediments into the Bayport Ship Channel and Pine Gulley.

11. South Terminal Retention Pond - The loss of infiltration resulting from the concrete surfacing of the site would result in an increased rate of stormwater discharge to Pine Gulley. To maintain the undeveloped discharge rate after project construction, the applicant will install a retention pond in addition to the first flush pond. The function of this structure is to capture and hold stormwater in excess of the first inch and release it slowly. The delayed release of stormwater will prevent increased flooding or disruption of the Pine Gulley ecosystem.

To further enhance water quality functions, the POHA plans to create a meandering channel in the bottom of the South Terminal Retention Pond with fringe planting of low bio-mass wetland plant species, such as spikerush, which will grow to cover the entire 12-15 acre pond bottom. To discourage excess biomass build-up, the pond bottom will be mowed once annually, while the sides will be mowed 3-4 times per year to prevent loss of capacity.

12. Inlet Treatment Units and High Area Impact Treatment - The areas with the highest likelihood of contributing contaminants to stormwater are the Maintenance Facility, RTG Maintenance Areas, and the Equipment Parking Areas. These areas will have isolated drainage basins, which have inlet treatment units that remove TSS and oil and grease, with the discharged water then proceeding to the first flush basin.

13. Alternate Fuel for Vehicles and Equipment

The applicant has been extensively involved in the development and application of alternative fuels at its existing facilities and will continue this commitment. This will include propane powered POHA-owned on-road vehicles and small forklifts, when commercially available. It may also include diesel-emulsion fuel for RTG's and yard tractors owned by the applicant. Diesel-emulsion fuel will to reduce NO_x emissions by 25% and particulate emissions by 30%.

14. On-site Fire/Hazmat

The applicant will have an on-site Fire Department, with a Hazmat team

15. Police

Bayport will have an on-site Police Department.

16. Lighting

The Design elements have been developed to minimize glare, light spill, light trespass, and light pollution to surrounding areas, especially residential areas. These elements are:

All lighting fixtures will be of the "dark sky" type developed by major manufacturers.

All high mast lighting will incorporate the use of either light shields or compact bulbs solutions to avoid changes to lighting conditions to LaPorte and Shoreacres on the northern and opposite side of the Bayport channel.

During the lighting design, an effort would be made to control light rays to avoid unacceptable light trespass or pollution while adhering to these general lighting criteria.

17. Cruise Road

The original Master Plan routed cruise terminal traffic along an improved Todville Road. To address the concerns about increased traffic on Todville Road, the plan has been modified to include a new road—Cruise Road—which is a new public roadway located interior to the berm within the terminal boundaries (Figure 2).

18. Todville/Port Road Intersection

To address neighborhood concerns about container truck traffic on Todville Road, the applicant has redesigned the intersection. This plan will eliminate the existing intersection and replace it with new intersections between (1) Port Road and Cruise Road, and (2) Cruise Road and Todville Road. This change is reflected on the facility drawings.

19. Environmental Management System

The applicant will develop and implement an Environmental Management System that meets the requirements for ISO 14001 certification.

20. Stormwater Pollution Prevention Plan/Construction BMP's

The POHA will implement a stormwater pollution prevention plan that will identify best management practices and monitor their effectiveness by sampling stormwater at outfalls at least once per quarter. Project specific plans will also include BMP's to control erosion and minimize particulates in stormwater runoff during all phases of construction.

21. Waste Minimization

The POHA will implement a waste minimization program at Bayport to reduce the amount of wastes generated and disposed of by the POHA as well as increase the recycling opportunities. The types of wastes include used oil, absorbents, oily rags, etc.

22. Leaking Container Station

At our present facilities, the POHA occasional handles containers leaking potentially hazardous materials. Therefore, it was decided that an area within the Bayport Container Terminal would be dedicated to manage such incidents. The designated area will provide a means of safely capturing leaking materials from containers that are assumed to be hazardous material, until appropriate corrective actions can be undertaken.

The location of the designated Leaking Container Stations (LCS) area is in the chassis parking area, as shown on the facility drawing. The designated 80-ft x 20-ft containment area is sloped from the four sides towards a sump located in the center. The sump will be sized to capture three 55 gallon drums of hazardous materials with a remote shut off valve between the sump and the access to storm drain.

The containment area is intended to capture and hold the leaking material until the materials can be pumped out and properly disposed of. The shut off valve will prevent the hazardous materials from entering the stormwater system. When the sump has been thoroughly cleaned and all the hazardous contaminants removed, the valve will be opened and the area will function as a typical catch basin for rainwater. The designated area will be marked by stripping and appropriate bollards linked by chain to limit the parking to containers only with leaking materials.

23. Drilled Shaft vs. Piles

The great weights that must be supported by the wharf at the container terminal require a substantial foundation. The usual construction technique involves pile-driven supports. In order to eliminate this long-term noise source, the applicant will use drilled shafts for the container facility as an alternative.

24. Tangent Pier vs. Sheetpile Construction

The standard construction technique at water's edge involves sheetpiles that are driven into the earth. The applicant will use the Tangent Pier construction technique for the 7,000 foot container wharf. This will reduce both water quality and noise impacts.

25. North Shore Noise Wall

A twenty-foot pre-cast concrete wall has been designed to mitigate the potential noise impacts to the North Shore Communities (Figures 28 & 29). Additionally, there will be enhancement planting to ensure at least three trees every 20 linear feet on the North side of the wall. Loblolly Pines will be planted where needed (Figure 29).

26. Spreader Bars

To further reduce the potential noise impacts to the North Shore communities, the PHA will installing impact noise reductions system on all wharf crane spreader bars utilized at Bayport.

Air Initiatives

27. General Conformity - The applicant will reduce general conformity related emissions below the 25-ton per year de minimus threshold to decrease air emissions during construction. Contractors will bid on varying construction scenarios based on emission calculations and the 25-ton threshold. Bidders will be required to use a "NOx calculator" developed by the applicant that will consider TCEQ approved technologies such as Tier II engines and the use of PuriNOx fuel in emissions calculations.

28. Texas Emission Reduction Program (TRRP) - Contractors are requested in construction contracts to make an attempt to secure grants and other incentives associated with TRRP under Senate Bill 5.

29. On-road Diesel Grade Fuel – Port operations will include the use of on-road diesel grade fuel in all off-road equipment instead of higher sulfur content off-road diesel. This ensures that equipment emissions are kept to a minimum.

30. Equipment Maintenance – Regular maintenance checks on all equipment ensures that emissions remain at levels recommended by equipment manufacturers. Procedures will include an automatic printout for equipment in need of regular maintenance. Recommended tire pressures will be maintained in all equipment ensuring maximum fuel economy and thus reduced emissions. An aggressive engine overhaul program will minimize effects of engine degradation and prevent increased emissions.

31. Equipment Operation – Whenever possible, equipment will be refueled during evening hours when temperatures are cooler to minimize evaporation and fugitive emissions. The applicant will encourage the use of off-road equipment later in the day to decrease ozne impacts where feasible and practical.

32. Stage II Vapor Recovery – All gasoline storage tanks will be fitted with Stage II vapor recovery equipment to minimize emissions during fueling and dispensing of product.

33. Terminal Design - Operating the intermodal yard within the terminal minimizes the travel distance between the terminal and rail yard, which reduces traffic congestion, vehicle mileage, and related emissions.

34. Equipment Purchases – The use of low emissions vehicles when feasible in the on-road fleet reduces emissions associated with gasoline engines. Purchasing the cleanest diesel engines available for off-road equipment when feasible will also reduce impacts to air quality.

35. Dust Control – Dust control projects such as watering, road maintenance, and silt fencing will minimize the natural entrainment of particulate matter during construction activities and operations during windy conditions.