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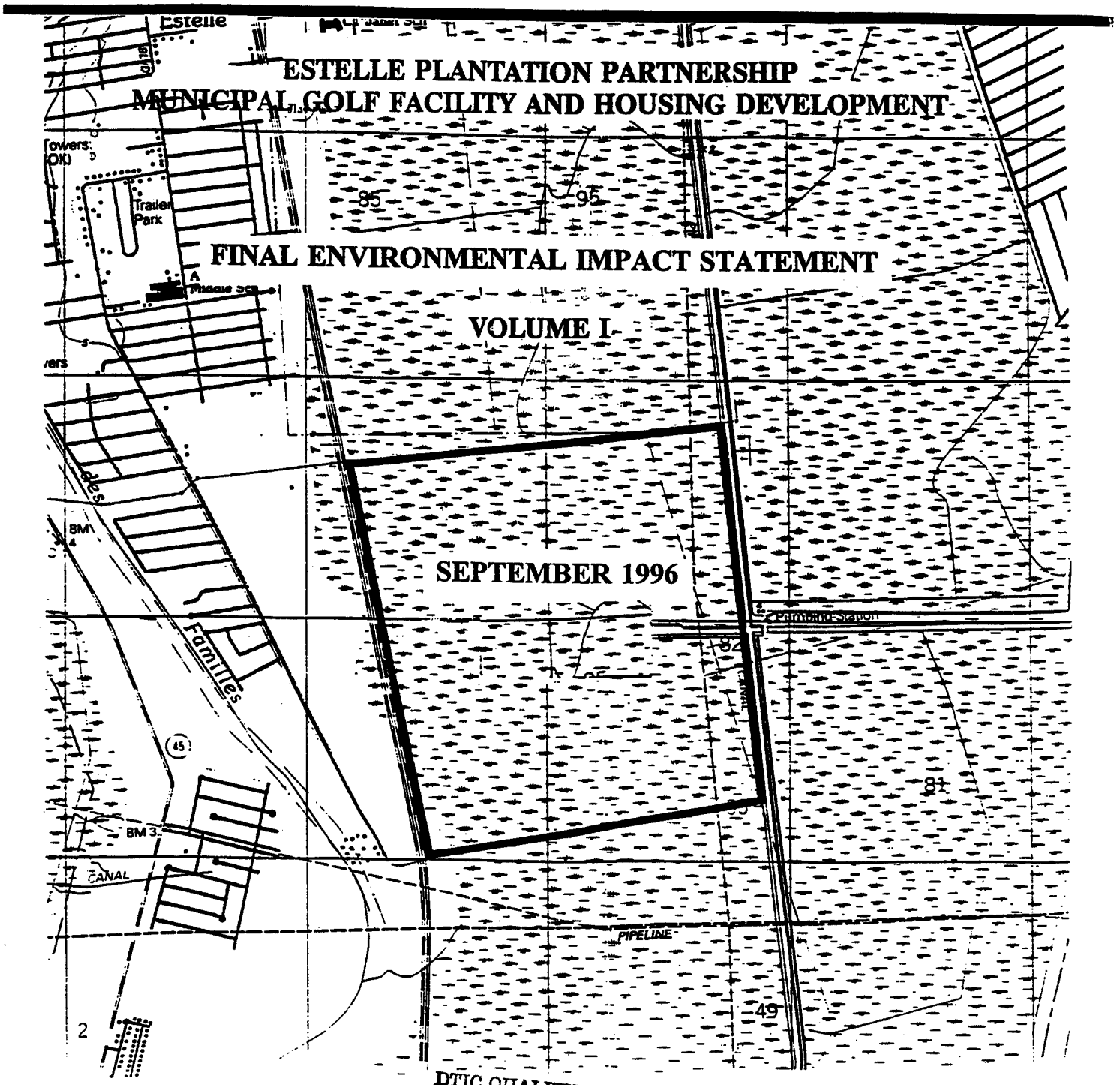

ESTELLE PLANTATION PARTNERSHIP
MUNICIPAL GOLF FACILITY AND HOUSING DEVELOPMENT

FINAL ENVIRONMENTAL IMPACT STATEMENT

VOLUME I

SEPTEMBER 1996

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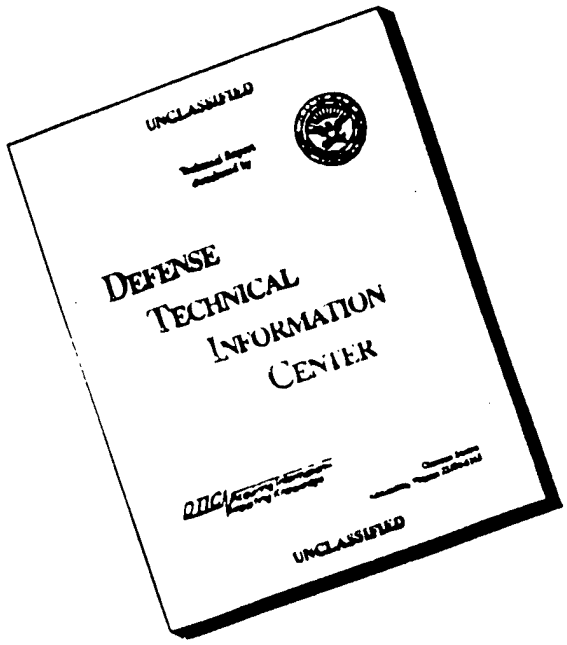

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FINAL ENVIRONMENTAL IMPACT STATEMENT

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FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE AND HOUSING DEVELOPMENT
JEFFERSON PARISH, LOUISIANA

a. **Responsible Agency:** Department of the Army, New Orleans District Corps of Engineers

b. **Cooperating Agencies:** United States Fish and Wildlife Service, Louisiana Department of Natural Resources, Louisiana Department of Wildlife and Fisheries

c. **Proposed Action:** Development of Professional Golf Association (PGA) caliber golf course and middle to high income housing development, Jefferson Parish, Louisiana

d. **Written comments and inquiries on this document should be directed to:**

Mr. Robert Martinson
Department of the Army
New Orleans District Corps of Engineers
New Orleans, LA 70160-0267

e: **Designation:** Final Environmental Impact Statement (FEIS)

f: **Abstract:**

This FEIS has been prepared in accordance with the National Environmental Policy Act to analyze the potential environmental consequences of the proposed development of a wetlands area into a PGA caliber public golf course and a middle to high income housing community. The document includes analyses of potential impacts of the development on the local community, including land use and aesthetics, transportation, utilities, hazardous wastes, geology and soils, water resources, air quality, noise, biological resources, and cultural and paleontological resources. Alternatives were identified and evaluated with a stress on non-wetland alternatives. Six alternatives including the proposed action were identified. Impacts of these alternatives and the No-Action Alternative are considered.

g. **Comments Due Date:** NOV 18 1996

SUMMARY

Estelle Plantation Partnership (EPP) and Jefferson Parish have applied for a U.S. Army Corps of Engineers (Corps) Section 404 permit. If issued, it would authorize the construction of a housing development and public Professional Golf Association (PGA) caliber golf course in a 654 acre wetland parcel on the east side of Highway 3134 two miles south of Marrero, Jefferson Parish, Louisiana on the West Bank.

PURPOSE AND NEED

The proposed project was considered as two separate actions, a public PGA caliber golf course, and a housing development. The purpose and need for these actions were developed separately. Also, the purpose and need for combining the two separate actions were evaluated. The demand for golf course communities was reported to be currently and historical greater than non-golf course communities according to Real Property Associates & Company (Appendices Q and R).

According to the applicants, one purpose of the project is to develop a PGA caliber public golf course to provide recreational opportunities and increase economic development in Jefferson Parish. The second purpose is to provide a housing development with a high standard of living for the middle to high income community of Jefferson Parish. This would allow the Parish to maintain and possibly expand its tax base and accelerate the economic viability of the West Bank of the Mississippi River. Combining the actions will create the following: 1) a community with a high standard of living to achieve a greater attraction and retention of middle and high income residents; 2) the golf course will help EPP obtain the full economic potential for the housing development on their property; 3) the housing development will also provide a basis of support for the golf course, and 4) the project will fulfill a specific demand for quality housing/golf course communities.

The need for the golf facility was indicated in studies by Golf Research Associates, experts in golf market analysis, and Ritz Hospitality Associates, Inc (Appendix A). These studies estimated a current unmet demand of 120,000 rounds per year within the golf course market area. This demand consists of public golfers, private crossover golfers, and visiting golfers and would require additional public golf courses to the study area (Figure 2.1). There are currently no public golf courses in Jefferson Parish to serve a population of nearly one half million. However, there at least three private courses that allow public play. The proposed golf course will also meet Jefferson Parish's economic and recreational needs.

Dr. Wade Ragas of the University of New Orleans indicated that as of April 1996 there was estimated less than six month's supply of new housing currently on the market. He also indicated, that due to lack of land, a building surge is not expected in New Orleans in response to improved supply/demand conditions. The West Bank of Jefferson Parish is expected to lead the New Orleans Metropolitan Statistical Area (MSA) in development, because of greater availability of developable land and its expanding economy. Robert Charles Lessor & Company predicts a demand for 350 housing units annually in the $140,000 to $310,000 price range for

the West Bank Competitive Market Area (CMA). This demand consists of 164 units attributable to new households, 154 units to households "moving up", and 31 due to renter purchases. A separate study utilizing a different methodology by Real Property Associates & Company (Appendix R) indicated the actual demand for the project may be greater.

CORPS REVIEW OF NEEDS DATA

Based upon the information contained in the applicants' analysis, it appears that a public need exists for additional vacant residential lots in the area under consideration, although not necessarily to the degree demonstrated by the applicant in his report dated May 16, 1996 (Appendix R) and in subsequent correspondence. The applicants intend to market 748 lots in six phases over 9.5 years (19 lots per quarter on average). However, the rate at which the applicant expects the public to purchase its vacant residential lots is higher than the 16 lots per quarter combined rate that the applicant has shown for four similarly-priced non-golf course developments in the market area since 1993 (Barkley Estates, Debattista Place, Magnolia Trace, and Ridgecrest). Based on recent trends, the applicants' report does not alone demonstrate a public need for all the lots that the applicants intend to make available.

The applicants did not include recent sales data for Stonebridge subdivision, which is the most comparable development in the market area since it is a golf course community. The effect of adding sales of lots at Stonebridge to the applicants' analysis would be to raise the average number of lot sales per quarter to 22.5. Under these circumstances, the number of anticipated lot sales at Estelle (19 per quarter) is within the bounds of recent market performance. The applicants have asserted that since Debattista Place, Ridgecrest, and Stonebridge are already sold out, or nearly so, future market undersupply is indicated. The availability of lots at Estelle that are offered within a unique golf course environment, which is comparable in this area only to Stonebridge, supports this reasoning.

The inclusion of Jefferson Parish as a co-applicant and the parish's stated additional need of enhancing its tax base virtually requires that the project be built on the West Bank of Jefferson Parish to fulfill this additional need. Heavy reliance on the crossover and tourist golfers also indicates that, although it appears that the course would succeed, there is clearly a higher speculative element to the need for the course than would normally warrant a construction recommendation, as was alluded to in the golf consultant's report.

ALTERNATIVES SCREENING PROCESS

A subpopulation survey (Appendix C) conducted with residents of the West Bank of Jefferson Parish provided data to support the hypothesis that residents currently residing on the West Bank of Jefferson Parish have a strong preference to stay on the West Bank. Thus, the search for alternatives sites, in terms of site location, focused on the south shore of Lake Pontchartrain. The boundary of the alternative sites search area was further defined using the assumption that people will drive a reasonable distance to their place of employment, approximately 30 to 45 miles, to live in an attractive environment. Also, people would be willing to drive a maximum of 40

minutes to play a round of golf on a PGA caliber golf course (GRA, 1992). Alternatives considered included the separation of the golf and housing development product into a golf only or a housing only alternative. The alternative search boundary is shown in Figure 2.1.

The northern boundary of the alternative study area is Lake Pontchartrain. The western boundary of the study area begins at the western guide levee of the Bonne Carre Spillway in St. Charles Parish and follows the Mississippi River to Hahnville. From Hahnville, the boundary follows along Highway 3160 to Highway 3127. The southern boundary begins where Highway 3127 intersects Highway 90. The boundary parallels Highway 90 approximately one mile to the south and follows Highway 90 to the Cataouatche levee at Avondale. From the community of Avondale, the southern boundary follows the federal flood protection levee system. The southern boundary crosses into Plaquemines Parish at Hero Canal. The eastern boundary follows the West Bank of the Mississippi River north and west into Orleans Parish, where it follows Interstate 510 and terminates at Lake Pontchartrain.

The alternatives screening process involved locating a suitable tract of property within the study area that would support the housing and golf development, a housing development, or a golf facility. To support a golf facility only, the smallest component of the development, a suitable tract of land would have to be currently vacant and at least 200 acres in size. Properties that were not considered jurisdictional wetlands were preferred. All alternative sites selected for initial analysis were located in Jefferson, Plaquemines, and St. Charles Parishes (Figure 2.2).

Lists of general criteria were developed by which to establish properties with the ability to serve as reasonable alternative sites. The criteria were termed initial, secondary and additional depending on the degree of importance of the criteria (Tables 2.2, 2.3, and 2.4, respectively). These criteria were utilized to evaluate the twenty-three alternative site locations identified. All but five of these alternative sites were eliminated from further consideration by the aforementioned criteria. The alternatives considered in depth are described below.

No Action Alternative

The No Action alternative must be considered along with alternative site locations. If no action is pursued, the following situations would result. No public golf course or large scale housing development would be expected to be built in Jefferson Parish or on the West Bank. The alternative locations would provide some wetlands functions, which would be expected to decrease with continued pumping of the Estelle V-levee area.

Alternative 1 - Applicants' Proposed Action

The applicants' proposed action is to construct a PGA caliber public golf facility and housing development on property owned by the EPP. EPP is located on the West Bank of Jefferson Parish in the Estelle V-levee and covers approximately 643 acres of jurisdictional wetlands. Access to the site is via Highway 3134. Approximately 1.1 million cubic yards of fill material will be placed at the site, raising the elevation to a

final grade about one foot above sea level prior to any construction activities. The golf facility will be constructed first, with the housing community to follow in phases. The housing development will consist of 748 units in the anticipated price range of $140,000 to $310,000. All fill material to be utilized for site preparation will be pumped directly from a permitted dredge location from the Mississippi River just south and east of Hero Canal. EPP intends to donate 175 to 200 acres of the property to Jefferson Parish for construction of the public golf course. Jefferson Parish will construct and operate the course. The site has been leveed and under pump for greater than thirty years. Jefferson Parish land use plans provide for continued pumping of this area and for an increase in pumping capacity to be provided. The Estelle V-levee is being incorporated into the West Bank Hurricane Protection System by the Corps. The V-levee currently provides flood protection for a 100 year storm event. Upon completion of the upgrade, anticipated in the year 2000, the levee system will provide protection for a 300 to 500 year storm event.

Alternative 2 - East Group Property

This alternative provides the same type of development, but on the East Group property (EG) (Figure 2.7). This alternative would result in moving the proposed project virtually unchanged to this location. The EG property is also located within the Estelle V-levee, immediately south of EPP. East Group's property is approximately 641 acres and is primarily jurisdictional wetlands. The portion of the property that is not considered wetlands is located on the top of the Bayou des Familles ridge and would not be utilized if the proposed action were moved to this location. Thus, it is not included in the 641 acres. All fill material necessary for site preparation would be from the Mississippi River just south and east of Hero Canal. Approximately, 2.1 million cubic yards of fill may be anticipated to fill the EG site to elevation 1.0 foot National Geodetic Vertical Datum (NGVD). River sand and silt would be pumped directly from a permitted dredge location onto the site. Since this property is not owned by EPP it could cost approximately $13,800 more per acre to develop (Table 2.1). An increase in costs of $2,000 per acre has been predicted by Real Property Associates & Company (Appendix Q) as making the project infeasible to EPP. Land for the golf course would not be donated to Jefferson Parish, resulting in a nine year period for Jefferson Parish to obtain positive revenues from the project and reducing net direct revenues to the Parish by $3.3 million over the first ten years.

Alternative 3 - Marrero Land Company

This alternative would place the proposed development essentially unchanged on the Marrero Land Company property (MLC1) (Figure 2.8). The MLC1 property is also located on the West Bank of Jefferson Parish in the Estelle V-levee just north of EPP. Marrero Land's property is approximately 435 acres and is considered jurisdictional wetlands. This site is not accessible from Highway 3134, it lies along the eastern portion of the V-levee, currently only accessible from a dirt road utilized by the Parish for access to the Estelle pump station. All fill material necessary for site preparation would be from

the Mississippi River just south and east of Hero Canal. Approximately, 0.8 million cubic yards of fill are anticipated to fill this site to elevation 1.0 foot NGVD. River sand and silt would be pumped directly from a permitted dredge location onto the site. Since this property is not owned by EPP it could cost approximately $6,600 more per acre to develop (Table 2.1), making the project infeasible to EPP. An increase in costs of $2,000 per acre has been predicted by Real Property Associates & Company (Appendix Q). Land for the golf course would not be donated to Jefferson Parish, resulting in a nine year period for Jefferson Parish to obtain positive revenues from the project and reducing net direct revenues to the Parish by $3.3 million over the first ten years.

Alternative 4 - Landco

This alternative would place the proposed development virtually unchanged on the Landco property (Figure 2.9). The Landco site is also located to the northeast of the EPP site parallel to the Harvey Canal. The Landco property is approximately 869 acres of jurisdictional wetlands. The site would be assessed through the Woodmere subdivision or main road access would have to be provided. During housing and golf course construction activities, the site would have to be raised to a final grade about one foot above sea level. All fill material necessary for site preparation would be from the Mississippi River just south and east of Hero Canal. The estimated amount of fill required would be 1.4 million cubic yards. River sand and silt would be pumped directly from a permitted dredge location onto the site. Since this property is not owned by EPP it could cost approximately $6,100 more per acre to develop (Table 2.1). An increase in costs of $2,000 per acre has been predicted by Real Property Associates & Company (Appendix Q) as making the project infeasible to EPP. Land for the golf course would not be donated to Jefferson Parish, resulting in a nine year period for Jefferson Parish to obtain positive revenues from the project and reducing net direct revenues to the Parish by $3.3 million over the first ten years.

Alternative 5 - Plaquemines Parish 1

This alternative would situate the proposed action on Plaquemines Parish 1 (PP1) (Figure 2.10). This alternative site is located in Plaquemines Parish between the Mississippi River, Woodland Road, the Orleans Parish line, and Hebert Road. The property is approximately 655 acres of jurisdictional wetlands. Portions of the property are at sea level (0 feet NGVD), thus, fill would be required to elevate the site to a grade suitable for building the golf course/housing development. The amount of fill estimated is 1.1 million cubic yards. All fill material necessary for site preparation would be from the Mississippi River just south and east of Hero Canal. River sand and silt would be pumped directly from a permitted dredge location.

The PP1 alternative has the same approximate level of flood protection as EPP and the other Jefferson Parish alternatives. However, EPP and the other Jefferson Parish alternatives will be provided with 300 to 500 year storm protection within five years, the

PP1 site will not.

This property is not located in Jefferson Parish, therefore, the economic development and tax benefits generated from the proposed golf facility would not belong solely to Jefferson Parish. However, a golf course at this site would help meet the demand for play. Since this property is not owned by EPP it could cost approximately $9,500 more per acre to develop (Table 2.1), making the project infeasible to EPP. An increase in costs of $2,000 per acre has been predicted by Real Property Associates & Company (Appendix Q). Land for the golf course would not be donated to Jefferson Parish, resulting in a nine year period for Jefferson Parish to obtain positive revenues from the project and reducing net direct revenues to the Parish by $4.1 million over the first ten years.

In addition, Jefferson Parish would be operating a development outside of Jefferson Parish; a situation wrought with potential development difficulties. In addition, Plaquemines Parish was operating under a development moratorium until March 1996 for residential developments, trailer parks, and zoning changes. A moratorium still exists for industrial development. Development of this type in Plaquemines Parish has been halted due to the lack of available Parish services to newly developed areas south of Belle Chasse.

Alternative 6 - Bunge Corporation

Alternative No. 6 would relocate the proposed action on Bunge Corporation (Bunge) land (Figure 2.11). This alternative would result in downsizing and relocating the proposed development to St. Charles Parish. The Bunge site is located in St. Charles Parish between the St. Charles Parish Airport and the Jefferson Parish line on the West Bank of the Mississippi River. The property is approximately 400 acres. 277 acres of the property are considered agricultural lands and the remaining acreage is wetlands. Due to the property size and general location, this site is only being considered for the housing portion of the proposed development. Fill material may be required to elevate the site to a grade suitable for building the housing development. The amount of fill anticipated should be less than the EPP site and would be approximately 0.8 million cubic yards if the southern portion of the site was raised to 5.0 feet NGVD. All fill material necessary for site preparation would be from the Mississippi River. River sand and silt would be pumped directly from a permitted dredge location or from a barge on the River onto the site.

The Bunge alternative has 100 year storm event flood protection as provided by the mainline Mississippi River levee system. The majority of the site is at elevation +5.0 feet NGVD, thus, there is no forced drainage. There is a small earthen berm, approximately three feet in height, lying east to west down the middle of the site. South of this berm the land decreases in height toward the south to approximately 0 feet NGVD. The southern portion of the property is wetlands. This wet area interfaces with marsh to the south of the agricultural area. There are no levees to protect the Bunge site from flooding

from the south, due to storm surges through the marsh, hurricane storm surges, etc. The only protection from this type of flooding is the elevation of the property. The northern property line, which is at 12 feet NGVD could essentially provide 100 year flood protection.

The property is currently owned by Bunge Corporation. Bunge has indicated that they would be interested in selling the property for an undisclosed amount. Construction of housing on this site should require less preparation than the proposed EPP site. The property is in a developable condition, is located on Louisiana Highway 18 (River Road) and appears to be currently leased for cattle production.

Based upon Table 2.1 it is estimated it could cost EPP $3,200 more per acre to develop this site. An increase in costs of $2,000 per acre has been predicted by Real Property Associates & Company (Appendix Q) as making the project infeasible to EPP. In addition, the potential need for EPP to borrow additional funds to purchase this since will make it less economically feasible. Jefferson Parish would lose an estimated $4.68 million in net direct revenues from golf course operations and $6.86 million of tax revenues to St. Charles Parish within the first ten years of the project.

SUMMARY OF ENVIRONMENTAL IMPACTS

The impacts of the applicants' proposed action and alternatives are summarized in Table 2.7 of this FEIS. The following is a brief description of those impacts.

No Action Alternative

A. Physical Resources

No action would not impact mineral and depletable resources, and groundwater resources at the proposed project site. Surface water in the area would be anticipated to remain unchanged.

B. Biological Resources

The no action alternative would have minimal impact to the biological resources at the EPP project site. Continued pumping with the V-levee is expected to displace native species with less water dependent species. The cypress and tupelo trees are anticipated to be replaced by bottomland hardwoods within fifty years. Impact on existing wildlife populations and aquatic resources is anticipated to be minimal. Minimal impact on aquatic life is anticipated and no adverse impacts on threatened or endangered species are expected to occur.

C. Cultural Resources

No historical, archeological or cultural resources of Native American origin are anticipated to be impacted by the no action alternative.

D. Land Use

The no action alternative would have little impact on existing land use of the EPP site. The Jean Lafitte National Historic Park and Preserve (JLNHPP) would continue to receive increasing numbers of visitors based on current visitation figures. Utilization of other parks would continue in accordance with current trends. The major impact would be that the demand for a public golf facility would remain unsatisfied.

E. Economic and Social Resources

Middle and high income housing in Jefferson Parish would not be available together with a golf course or in a large tract. New housing may be available in scattered parcels, but may not provide the standard of living under consideration. Residents may have to look outside of Jefferson Parish for this type of housing. Long and short-term employment opportunities in Jefferson Parish would be reduced. Revenues for the golf facility would be lost and unavailable to Jefferson Parish. The parish's infrastructure should not be impacted.

Alternative Number 1 - Applicants' Proposed Action

A. Physical Resources

The impact of the proposed action on mineral and depletable resources, and groundwater resources is expected to be minimal. Surface water is the only physical resource anticipated to be impacted. Runoff from the housing development is not anticipated to further degrade local surface water quality. Pesticides and fertilizer use from operation of the golf facility could create additional loading of area water bodies; however, use of best management practices, retention basins, and EPA approved pesticides should decrease any threat. All stormwater will eventually enter Bayou Barataria. Impacts on this water body or the Bayou aux Carpes area should be minimal. No direct stormwater discharge to the Bayou aux Carpes area will occur.

B. Biological Resources

The primary impact from the project will be destruction of existing jurisdictional wetlands and their associated flora and fauna (Table 3.1). The majority of the existing vegetation would be removed. Much of the current wildlife population

would also be displaced with the exception of those species that adapt to human habitation and loss of primary habitat. Minimal impact on aquatic life is anticipated and no adverse impacts on threatened or endangered species are expected to occur.

C. Cultural Resources

No historical, archeological, or Native American resources are anticipated to be impacted by the proposed project. None are known to exist at the project site.

D. Land Use

The impact of the EPP project on agricultural resources is anticipated to be minimal. The use of the property fits into development plans of Jefferson Parish. The current land use will be converted from wetlands to residential. Retention ponds proposed for the site should minimize increases of stormwater runoff from the site. Currently (as an undeveloped wetland), one third of the site functions as flood storage during 10-year storm events. Once developed, this flood storage capacity will be removed. However, recent pump station upgrades should partially compensate for the loss of flood storage capacity. Conservative assumptions indicate the project could cause increases in 100 year flood elevations for surrounding areas of approximately 2.5 inches. The developed areas that could be impacted include the Woodmere and Woodmere South Subdivisions. Implementation of additional upgrades to the Estelle Pump Station could alleviate additional flooding if it occurs. The project is anticipated to meet the demand for a quality public golf facility.

E. Economic and Social Resources

The development at the EPP site would meet the projected demand for quality housing in the area. It would provide long term and short term employment opportunities. A net increase (after infrastructure costs) in sales taxes, ad valorem taxes, property taxes, and revenues from golf course operations of $11,040,000 would be obtained by Jefferson Parish within the first ten years of the project (Table 2.3). Jefferson Parish would be able to develop a public golf facility which generates revenue, available to be spent on other recreational activities. Secondary growth may be spurred by the development. The development will diminish the visual aesthetic resources of the EPP site. The infrastructure of Jefferson Parish should not be impacted to a great extent, but traffic would increase in the local area.

The May 1995 flood resulted in $306 and $545 million in damages in Orleans and Jefferson Parishes respectively. This flood was of such magnitude that it represents something of a worst-case scenario. Many long-standing homes never flooded before this event and it demonstrates that it is very difficult to avoid the

possibility of flooding in the New Orleans metropolitan area. Some 13,000 homes were flooded in Orleans Parish, 17,000 homes were flooded on the east bank of Jefferson Parish, and 4,000 homes were flooded on the west bank of Jefferson Parish. Looking specifically at Jefferson Parish, approximately 25 percent of the residences flooded and damages averaged about $19,800 per flooded home. If we assume that the proposed project were in place during an event of this size, up to 188 homes would have flooded using the 25 percent figure. Multiplying by the average damage per home (shown above), contributes about $3.7 million in damages or 0.67 percent of the damages in Jefferson Parish.

Alternative Number 2 - East Group

A. Physical Resources

The impact of this site on physical resources is anticipated to be similar to the EPP site. The primary difference is a need for greater amounts of fill material.

B. Biological Resources

The primary impact from the project will be destruction of existing jurisdictional wetlands and their associated flora and fauna (Table 3.1). The majority of the existing vegetation would be removed. Much of the current wildlife population would also be displaced with the exception of those species that adapt to human habitation and loss of primary habitat. A bald eagle's nest has been identified within one mile of the EG site. The effects of the project on the nesting eagles would have to be minimized. No other threatened or endangered species are expected to be affected by this project. Minimal impact on aquatic life is anticipated.

C. Cultural Resources

No historical, archeological, or Native American resources are anticipated to be impacted by the proposed site. A previously existing site containing shell middens is known to exist within the property limits. These resources may be impacted by the proposed development at this site.

D. Land Use

The impact of this site on land use is anticipated to be similar to the EPP site. However, increases in 100 year flood elevations may be approximated as 5 inches due to greater fill placement.

E. Economic and Social Resources

The development at the EG site would meet the demand for quality housing in the

area. It would provide long term and short term employment opportunities. A net increase (after infrastructure costs) in sales taxes, ad valorem taxes, property taxes, and revenues from golf course operations of $7,737,000 would be obtained by Jefferson Parish within the first ten years of the project (Table 2.3). However, Jefferson Parish may not be able to develop a public golf facility which generates revenue within its first nine years of operation. Secondary growth may be spurred by the development. EPP's need to purchase land for the housing development could increase development costs $13,800 per acre. The development will diminish the visual aesthetic resources of the EG site. The infrastructure of Jefferson Parish should not be impacted and appears well prepared for this type of development.

Alternative Number 3 - Marrero Land Company

A. Physical Resources

The impact of this site on physical resources is anticipated to be similar to the EPP site.

B. Biological Resources

The primary impact from the project will be destruction of existing jurisdictional wetlands and their associated flora and fauna (Table 3.1). The majority of the existing vegetation would be removed. Much of the current wildlife population would also be displaced with the exception of those species that adapt to human habitation and loss of primary habitat. Minimal impact on aquatic life is anticipated and no adverse impacts on threatened or endangered species are expected to occur.

C. Cultural Resources

No historical, archeological, or Native American resources are anticipated to be impacted by the proposed project. None are known to exist at the project site.

D. Land Use

The impact of MLC1 project on agricultural resources is anticipated to be minimal. Some loss of pasture for cattle production is anticipated. The use of the property is in accordance with the development plans of Jefferson Parish. The current land use will be converted from wetlands to residential. Retention ponds proposed for the site should minimize increases in stormwater runoff from the site. Currently (in an undeveloped state), one half of the site is utilized for flood storage during 10-year storms. This retention would be lost, however, recent pump station upgrades should be able to partially compensate for this removal of flood storage capacity. Increases in 100 year flood elevations may be

approximated as 2 inches due to lesser fill placement.

E. Economic and Social Resources

The development at the MLC1 site would meet the demand for quality housing in the area. It would provide long term and short term employment opportunities. An net increase (after infrastructure costs) in sales taxes, ad valorem taxes, property taxes, and revenues from golf course operations of $7,716,000 would be obtained by Jefferson Parish within the first ten years of the project (Table 2.3). However, Jefferson Parish may not be able to develop a public golf facility which generates revenue within its first nine years of operation. Secondary growth may be spurred by the development. EPP's need to purchase land for the housing development could increase development costs $6,600 per acre. The development will diminish the visual aesthetic resources of the MLC1 site. The infrastructure of Jefferson Parish should not be impacted and appears well prepared for this type of development.

Alternative Number 4 - Landco

A. Physical Resources

The impact of this site on physical resources is anticipated to be similar to the EPP site.

B. Biological Resources

The primary impact from the project will be destruction of existing jurisdictional wetlands and their associated flora and fauna (Table 3.1). The majority of the existing vegetation would be removed. Much of the current wildlife population would also be displaced with the exception of those species that adapt to human habitation and loss of primary habitat. Minimal impact on aquatic life is anticipated and no adverse impacts on threatened or endangered species are expected to occur.

C. Cultural Resources

No historical, archeological, or Native American resources are anticipated to be impacted by the proposed project. None are known to exist at the project site.

D. Land Use

The impact of this site on land use is anticipated to be similar to the EPP site. The primary difference is that the entire site would be eliminated from flood storage during 10-year storm events. Recent pump station upgrades at the Estelle Pump Station may be able to partially compensate for this removal, however, it

is likely that additional upgrades within the Woodmere South Subdivision would be necessary. Increases in 100 year flood elevations may be approximated as 3 inches due to greater fill placement than the EPP site.

E. Economic and Social Resources

The development at the Landco site would meet the demand for quality housing in the area. It would provide long term and short term employment opportunities. An net increase (after infrastructure costs) in sales taxes, ad valorem taxes, property taxes, and revenues from golf course operations of $7,737,000 would be obtained by Jefferson Parish within the first ten years of the project (Table 2.3). However, Jefferson Parish may not be able to develop a public golf facility which generates revenue within its first nine years of operation. Secondary growth may be spurred by the development. EPP's need to purchase land for the housing development could increase development costs $6,100 per acre. The development will diminish the visual aesthetic resources of the Landco site. The infrastructure of Jefferson Parish should not be impacted and appears well prepared for this type of development.

Alternative Number 5 - Plaquemines Parish 1

A. Physical Resources

The impact of this site in physical resources is anticipated to be similar to the EPP site.

B. Biological Resources

The primary impact from the project will be destruction of existing jurisdictional wetlands and their associated flora and fauna (Table 3.1). The majority of the existing vegetation would be removed. Much of the current wildlife population would also be displaced with the exception of those species that adapt to human habitation and loss of primary habitat. Minimal impact on aquatic life is anticipated and no adverse impacts on threatened or endangered species are expected to occur.

C. Cultural Resources

No historical, archeological or Native American resources are anticipated to be impacted by the proposed project. None are known to exist on the project site.

D. Land Use

The impact of PP1 site on agricultural resources is anticipated to be minimal. The use of the property fits into development plans of Plaquemines Parish. The

current land use will be converted from wetlands to residential. Due to its location, the site is not anticipated to increase visitation of JLNHPP or other recreational areas in Jefferson Parish. Existing recreational areas in Plaquemines Parish may become overcrowded. This golf course will not fulfill Jefferson Parish's recreational needs. Jefferson Parish would develop a public course it would have to subsidize to operate and which is not conveniently accessible to its residents. The project is anticipated to meet the demand for a quality public golf facility.

E. Economic and Social Resources

The development at the PP1 would meet the demand for quality housing in the area. It would provide long term and short term employment opportunities. An net increase (after infrastructure costs) in sales taxes, ad valorem taxes, property taxes, and revenues from golf course operations of $6,976,000 would be obtained within the first ten years of the project (Table 2.3). However, these benefits would not be obtained by one of the applicants, Jefferson Parish. The golf course facility would not produce revenue due to land purchase costs during its first ten years of operation. Jefferson Parish would lose a golf facility which could generate revenues or would have to share these revenues with Plaquemines Parish. The development will diminish the visual aesthetic resources of the PP1 site. The infrastructure of Plaquemines Parish may be taxed by this project and associated secondary growth. Existing drainage, sewage, and public health facilities are not capable of supporting this development. The ability of the Parish to provide other public services is also questionable. EPP's need to purchase land for the housing development could increase development costs $9,500 per acre.

Alternative Number 6 - Bunge Corporation

A. Physical Resources

The impact of moving the housing portion of the proposed action to this site on mineral and depletable resources, and groundwater resources is expected to be minimal. Potential impacts on surface water are anticipated to be less than at the EPP site due to removal of the golf course at this site. However, some surface water impacts will occur to the south of the Bunge site from the removal of wetlands and urban runoff.

B. Biological Resources

The primary biological impact from the project will be destruction of existing jurisdictional wetlands and their associated flora and fauna (Table 3.1). The majority of this site is not wetlands, as with other alternatives. The vegetation and wildlife displaced is expected to be minimal. Minimal impact on aquatic life is anticipated and no adverse impacts on threatened or endangered species are

expected to occur.

C. Cultural Resources

No historical archeological or Native American resources are anticipated to be impacted by the proposed project.

D. Land Use

The impact of the Bunge project on agricultural resources is anticipated to be significant. Approximately 70% of the Bunge property supports pasture oriented agriculture. The use of the property fits into anticipated development for this area. The current land use will be converted from wetlands and pasture to residential. Due to its location, this site is anticipated not to increase visitation of JLNHPP and other recreational areas. The elimination of the public golf course facility from this alternative, does not fulfill the area's need for this type of facility.

E. Economic and Social Resources

The development at the Bunge site may meet the demand for quality housing in the area. However, the quality of housing provided would be diminished with the absence of a golf course and lack of Parish infrastructure. It would provide long term and short term employment opportunities. An net increase in sales taxes, ad valorem taxes, and property taxes of $6,358,000 would be obtained within the first ten years of the project. However, these benefits would not be obtained by one of the applicants, Jefferson Parish. In addition, Jefferson Parish would lose a golf facility which could generate revenues. The development will diminish the limited visual aesthetic resources of the Bunge site. The infrastructure of St. Charles may be taxed by this project. Existing sewage and public health facilities are not capable of supporting this development. EPP's need to purchase land for the housing development could increase development costs $3,200 per acre.

CONTROVERSIAL OR UNRESOLVED ISSUES

1) The Corps does not recognize the specific need or demand for an inseparable golf course and housing project as the applicants have asserted. The alternatives developed considered the possibility of developing a public golf course and a housing development as separate projects. The DEIS also considered the purpose and need for the housing development and golf course separately. The applicants' have provided additional information in the FEIS which indicates the need for both projects (Appendix Q and Appendix R), but does not change the Corps opinion that fulfilling the two needs separately is a viable option.

2) Absolute values for acquisition costs for alternative sites identified in this EIS have not been established. Estimates were based on previously appraised values in the area and owner's willingness to sell. The reader is therefore cautioned that cost comparisons

between alternatives could only be grossly estimated.

3) Impacts to wetlands and wetland habitat will be mitigated as much as possible if a permit is issued, however, detailed mitigation plans are not a part of the EIS and will be prepared in accordance with the 404 public interest review process if it appears that a permit may be issued.

ESTELLE PLANTATION PARTNERSHIP
MUNICIPAL GOLF FACILITY AND HOUSING DEVELOPMENT
ENVIRONMENTAL IMPACT STATEMENT

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CHAPTER 1

PURPOSE AND NEED

1.1 INTRODUCTION

Estelle Plantation Partnership (EPP) and Jefferson Parish have applied for a U. S. Army Corps of Engineers (Corps) Section 404 permit that if issued, would allow EPP to construct a housing development and public golf-course in a 643-acre wetland parcel near Marrero, Jefferson Parish, Louisiana. The proposed project site is a 643 acre tract on the east side of Highway 3134 about two miles south of Marrero, Louisiana. EPP currently owns the entire 643-acre property and it is their intent to donate approximately 175 to 200 acres of this parcel to Jefferson Parish. Upon obtaining ownership of the property, Jefferson Parish would serve as the facilitator of the design, construction, maintenance, and operation of a Professional Golf Association (PGA) caliber public course on this acreage. EPP would develop the remaining acreage into middle to high income housing with the amenities of a golf course community. EPP and Jefferson Parish propose to clear, grade, and place fill material at the site to construct the public golf course and 748 individual residences. The site is within the New Orleans Metropolitan Statistical Area (MSA), which includes Jefferson, Orleans, St. Charles, St. John the Baptist, St. Bernard, and St. Tammany Parishes (Figure 2.1).

1.2 AUTHORITY

Under the provisions of Section 10 of the Rivers and Harbor Act of 1899 and Section 404 of the Clean Water Act, the Corps is charged with the responsibility of evaluating permit applications for dredging activities in and construction of structures on navigable waters of the United States and the deposition of fill material in the same waters and adjacent wetlands. The Corps Section 404 permit evaluation process under the National Environmental Policy Act (NEPA) and other laws, involves a characterization of the type and degree of impacts the proposed activity and its alternatives may have on the environment and a determination whether an Environmental Impact Statement (EIS) should be prepared. The EIS provides an analysis and evaluation of reasonable alternatives, in view of applicable economic, engineering, and environmental criteria. Upon completion of the EIS, the Corps will review the document and prepare a 404(b)(1) analysis, detailed mitigation plan if needed, and a Record of Decision (ROD).

1.3 PURPOSE OF PROPOSED ACTION

A. PGA Caliber Golf Course

The purpose for the applicants' proposed action is to develop a PGA caliber public golf course and to provide recreational opportunities for Jefferson Parish residents. Another purpose of the PGA caliber golf course is to increase economic development within Jefferson Parish by attracting vacationing and tourist golfers. Economic development would also occur by attracting corporate and professional tournaments, and Jefferson Parish residents which currently utilize

Orleans Parish facilities.

B. Housing Development

An additional purpose for the applicants' proposed action is to provide for a middle to high income community with a high standard of living and housing competitive with markets in Orleans and St. Charles Parishes. The housing development would help Jefferson Parish attract middle to high income residents from the New Orleans Metropolitan Area and/or retain current Jefferson Parish residents to maintain or expand its tax base and increase the economic viability of the West Bank.

C. Combined PGA Caliber Golf Course and Middle Income Housing

According to the applicants, the purpose of combining the PGA caliber public golf course with the housing development is to enhance the viability of both actions. The combination of both actions would enhance and help attain the high living standard intended for the proposed housing community. By developing a community with a higher standard of living, Jefferson Parish can achieve a greater attraction and retention of middle to high income residents. It has been stated in a report by Real Property Associates & Company (Appendix R) that there is historically a greater demand for golf course communities than non-golf course communities in the New Orleans Metropolitan Area. The golf course would also serve as a catalyst for EPP to obtain the full economic potential for the proposed housing development and their property. The purpose of combining the housing development with the golf course is to provide a basis of support for the golf course and to minimize the potential infrastructure costs necessary to support it. The Corps does not agree with the applicants that the golf course and housing must be combined.

1.4 NEED FOR PROPOSED ACTION

A. PGA Caliber Golf Course

In the past 10 years, the number of golfers in the United States has increased from 14.6 million to 24.7 million or 69%, while the number of courses has increased by 8%. The National Golf Foundation predicts that one new golf course per day until the year 2000 is required just to keep pace (Design Consortium, LTD, 1992). There is a large demand for public golf access in the State of Louisiana. The shortage of public courses has ranked Louisiana 49th of 50 states in course access (Ritz Hospitality Associates, Inc., October, 1994). (Course access is defined as population per 18 holes of publicly accessible golf.) This is a lower ranking than determined by Design Consortium, LTD in March, 1992 of 46th of 50 states.

The demand for public golf in Jefferson Parish was established through a "Comprehensive Golf Market Evaluation" performed by Golf Research Associates, Inc (Appendix A), experts in golf market analysis. The study indicated the only municipal course in Jefferson Parish is Brechtel Park in Gretna to serve a population of nearly one half million. It is estimated that their are 30,000 resident golf participants that normally prefer to play on public courses (Design

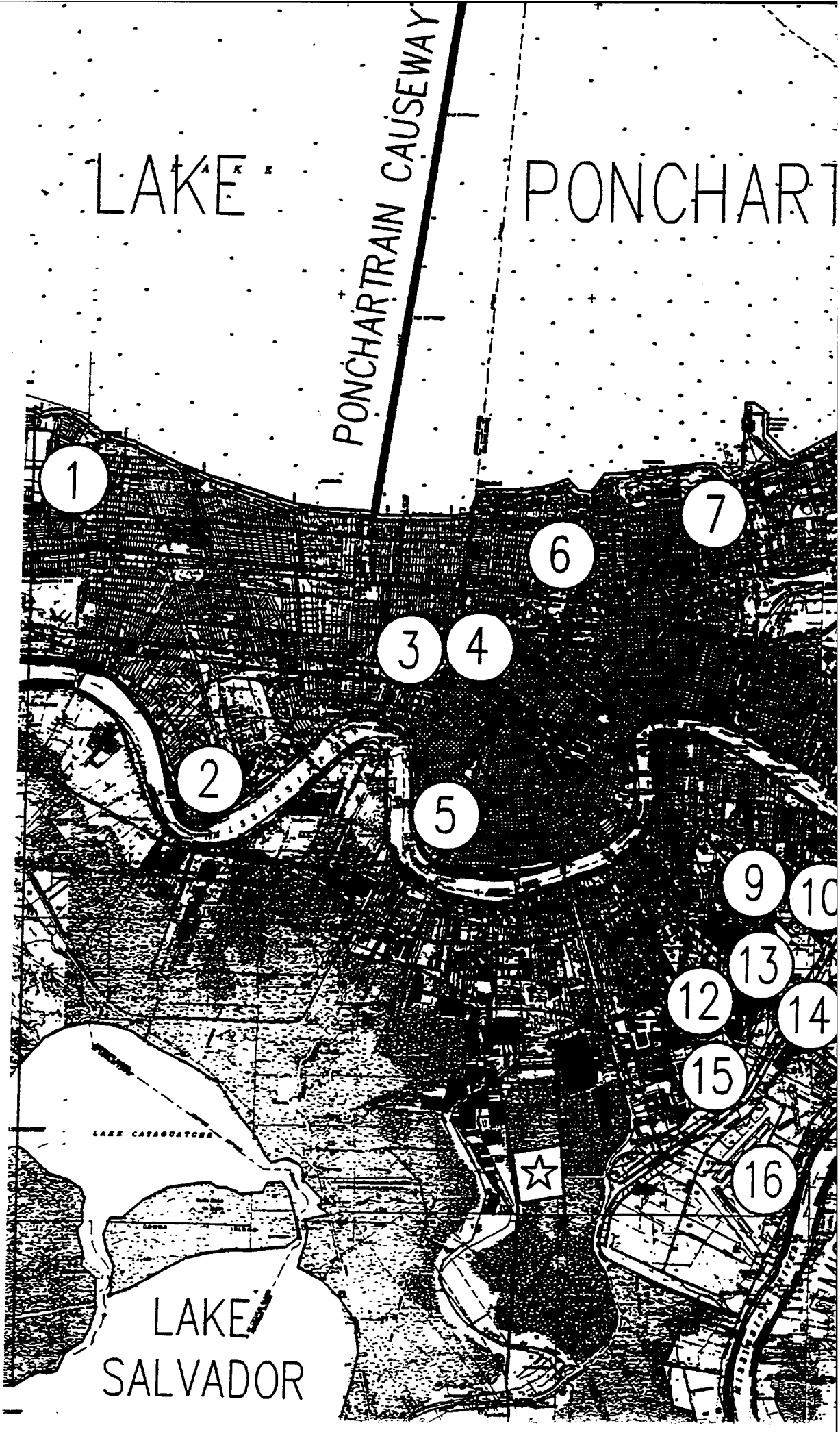
Consortium, LTD, 1992). There are at least three private courses available to the public. The nearest daily fee courses, or courses privately owned but open to public play, are Bayou Barriere in Belle Chasse and at Plantation Golf Course in Gretna. Courses identified in the vicinity of the Jefferson Parish golf course market area are shown in Figure 1.1. The golf course market area was defined by the maximum driving distance from the New Orleans Central Business District that golfers would undergo to utilize a quality course (40 minutes). The demand is anticipated to consist of public golfers, private crossover golfers, and visitor/tourist golfers. The 1992 study by Golf Research Associates estimated 29,000 public golfers generating 540,000 annual rounds of play, private crossover golfers generating 34,000 annual rounds of play, 135,000 visiting golfers generating 70,000 annual rounds of play, for total estimated annual rounds of play of 640,000 by 1995. It was estimated that the demand currently not served by the market area's existing public facilities is approximately 120,000 annual rounds of play and would require additional public golf courses. An updated study by Ritz Hospitality Associates, Inc. in October, 1994 indicated this demand had increased since 1992, but did not specify the amount of the increase.

The development of the proposed public golf course would also meet Jefferson Parish's economic and recreational development needs. The donation of land by EPP for the proposed golf course helps Jefferson Parish provide a golf facility which can provide revenues, as opposed to a course which would require nine to ten years of operation prior to providing a positive return on investment.

B. Housing Development

The demand for the type of housing development proposed by EPP was reported by Robert Charles Lessor & Company in two reports dated December 7, 1992 and October 17, 1994, respectively (Appendix B). The Competitive Market Area (CMA) for this demand was defined as all of Jefferson Parish south of the Mississippi River, north of Louisiana Highway 301, and east of Bayou Segnette Waterway and Dugues Canal. This demand consists of purchases by residents moving into the West Bank (new households), existing homeowners buying new homes due to growing families or lifestyle changes (owner preference purchases), or existing renters purchasing homes. Within a housing price range of $140,000 to $310,000 their study indicated a need of 350 units annually over the next five years, 164 units attributable to new households, 154 units to households "moving up", and 31 due to renter purchases. Real Property Associates & Company in another study utilizing a different methodology concluded an even higher demand may exist (Appendix Q). The areas of Estelle and Jean Lafitte on the West Bank of Jefferson Parish, are outpacing the developed and developing areas of the parish in population growth and housing starts. The EPP site lies within these two high growth regions and would supply some of the demand for new housing resulting from improved supply/demand conditions.

The 1994 report by Robert Charles Lessor indicated the demand calculated may be affected by factors such as economic conditions, the resale market, home mortgage interest rates, and existing inventory and competitiveness in the CMA. All current indicators are positive with recent increases in economic development and population within the New Orleans Metropolitan Area.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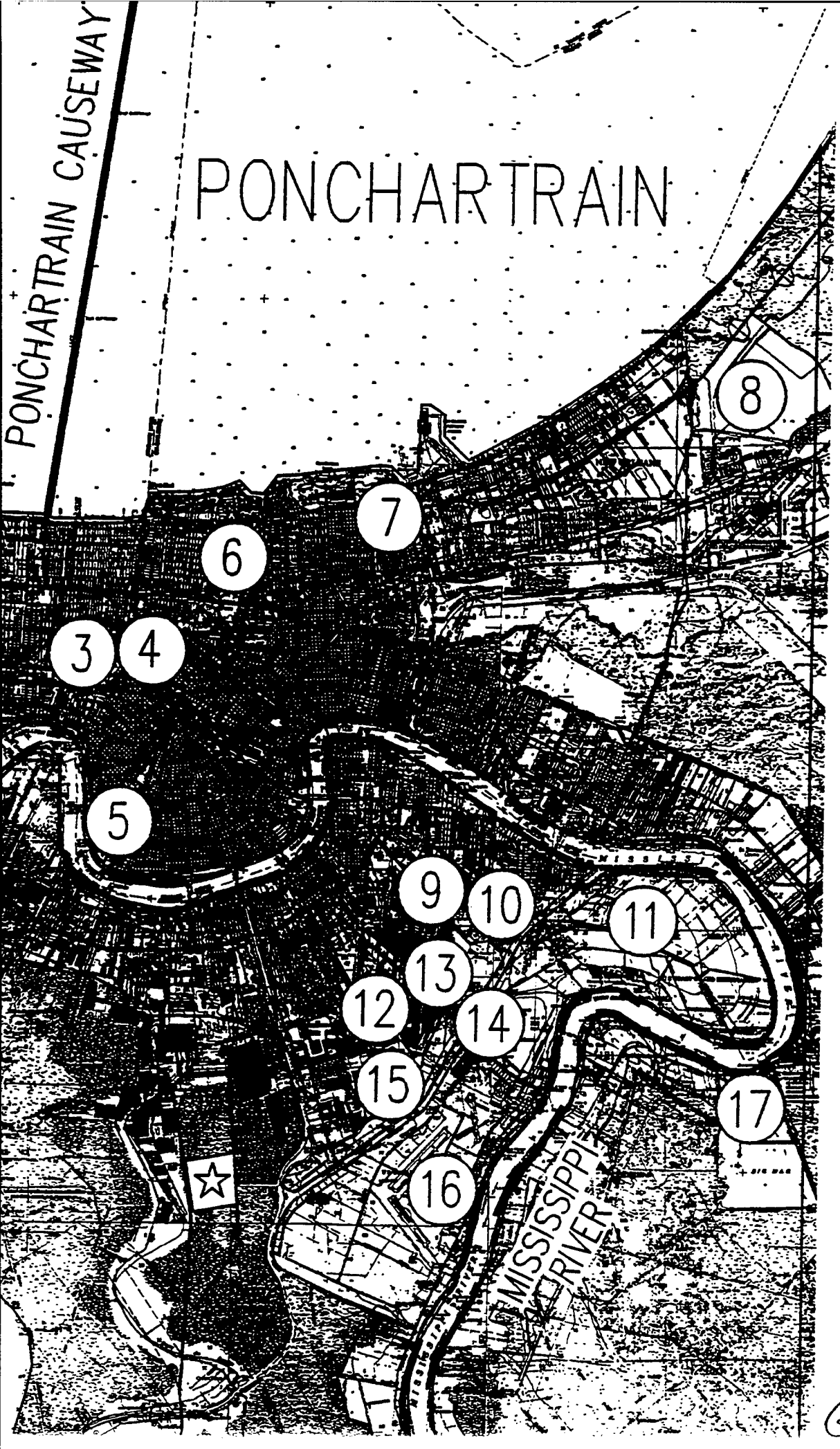
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MISSISSIPPI RIVER

DF: D

1. Chateau CC – 18 holes –PR
2. Colonial CC – 18 holes – PR
3. Metarie CC – 18 holes – PR
4. New Orleans CC – 18 holes – PR
5. Audobon Park – 18 holes – MU
6. City Park – 72 holes – MU
7. Bartholomew – 18 holes – MU
8. Eastover – 18 holes – DF
9. Brechtel Park – 18 holes – MU
10. Lakewood CC – 18 holes – PR
11. English Turn – 18 holes – PR
12. Timberlane – 18 holes – PR
13. Plantation – 18 holes – DF
14. Bayou Barriere – 27 holes – DF
15. Stonebridge – 18 holes – DF
16. U.S. Naval Station – 18 holes – MI
17. Braithwaite – 18 holes – DF

DF: Daily Fee MU: Municipal PR: Private MI: Military

☆ PROPOSED JEFFERSON PARISH GOLF FACILITY

Hartman Engineering, Inc.

JEFFERSON PARISH MARKET–
–AREA GOLF FACILITIES

FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT

Dr. Wade Ragas of the University of New Orleans, estimated that as of April 1996 there was less than six month's supply of new housing currently on the market (Appendix R). Over 9,100 homes were sold in 1993, the greatest number in the past decade. He also indicated that due to lack of land, a building surge is not expected in New Orleans in response to improved supply/demand conditions. The New Orleans MSA, Jefferson Parish, and the West Bank CMA had population growths of 0.5%, 0.8%, and 1.7% respectively, and employment growths of 0.7%, 1.2%, and undetermined, respectively form 1990 to 1994. This is compared to essentially no population growth in the area from 1980 to 1990. The growth in building permits within Jefferson Parish has increased from 648 in 1990 to 996 in 1994. The recovery of the oil and gas industry due to 3D seismic technology advances and directional drilling is anticipated to increase employment growth and housing demand on the West Bank of Jefferson Parish according to Real Property Associates & Company (Appendix R). The improved supply/demand conditions would provide demand for development at the proposed EPP site.

A review of the Regional Planning Commission (RPC) variables and the Managed Growth Plan indicates that the West Bank of Jefferson and Orleans Parishes are forecasted to receive significant growth by 2000. The West Bank of Jefferson Parish is expected to lead the New Orleans MSA in development, because of the greater availability of developable land and its expanding economy. The growth potential of the West Bank of Jefferson Parish is great, particularly along such corridors as U.S. 90, Manhattan Boulevard, Lapalco Boulevard, Barataria Boulevard, and Harvey Canal/Peters Road (Figure 3.13). These corridors traverse those areas in Jefferson Parish where developable land is available and readily accessible. The levels of residential, industrial, and commercial development that are presently being experienced are projected to continue until the year 2000 and then level off as suitable vacant land is absorbed. Most of the residential activity that is forecasted for Jefferson Parish is low density and would preserve the suburban character of the area. Beyond 1995 and 2000, medium to high density development would begin to gain importance as population densities begin to increase and land is absorbed.

C. Combined PGA Caliber Golf Course and Middle Income Housing

The Corps does agreee that the combination of the PGA caliber golf course and housing development should enhance the viability of both projects. Real Property Associates & Company demonstrated the historic demand for lots on golf course communities in the New Orleans Metropolitan Area is greater than 80 lots per year compared to 36 to 48 lots per year for conventional residential developments (Appendix R). Their report also indicated that the New Orleans Metropolitan Area has typically supported the development of five golf course communities with only two currently being developed. Of these two developments, one, Oak Harbor (near Slidell), was considered outside the CMA.

The golf course could increase the attractiveness and the standard of living of the housing development. The golf course should help EPP to sell real estate and to receive a higher price for its developable land. The benefits to Jefferson Parish include higher income housing which would further increase the Parish's tax base. Housing provided with better amenities such as the

golf course and the aesthetics associated with green space should be more competitive with housing provided on the north shore and elsewhere, thus attracting new and retaining more of the existing Jefferson Parish residents. The successful development of English Turn and Eastover in the New Orleans area, Country Club of Louisiana in Baton Rouge, and the LeTriomphe Golf and Country Club in Lafayette are indicative of this demand. A golf course community may increase or assure that the predicted 164 anticipated households per year or greater move into the West Bank of Jefferson Parish (Robert Charles Lessor, October, 1994). The tax base enhancement created from this golf course residential community should exceed that of a normal residential community.

The housing development should provide a strong basis of support for the golf course. It should draw to the course a population with incomes of $40,000 to $75,000 plus, which have the highest golf participation rate, 15 to 20%. The participation rate of residents in a golf community may be as high as 30% based on experience of other golf-oriented communities (Robert Charles Lessor & Co., October, 1994). If this population at least meets the golf market area's average frequency of play of approximately 25 rounds per year (Golf Research Associates, 1992), it would provide a strong basis of support for the course generating approximately 20 to 25% of its annual rounds. Also, construction of housing would defray costs of providing supporting infrastructure for the golf course including streets, drainage, lighting, and sewage collection. Most importantly the combination of the golf course and housing makes the donation of land to Jefferson Parish for the golf course possible. The donation of land by EPP for the proposed golf course helps Jefferson Parish provide a golf facility which can provide revenues, as opposed to a course which would require nine to ten years of operation prior to providing a positive return on investment. The economic viability of the combined project should be greater, providing a greater number of short term construction jobs and permanent jobs. A golf community would also have a greater potential to help fulfill Jefferson Parish's Development "2000" plans.

D. CORPS Review of Needs Data

The inclusion of Jefferson Parish as a co-applicant and the parish's stated need of enhancing its tax base virtually requires that the project be built on the West Bank of Jefferson Parish. The public need for the golf course is not significantly influenced by the inclusion of housing as a part of the project. The justification for the course has been based largely on three sets of golfers: individuals within the New Orleans area who would cross over to Estelle from nearby courses; golfers from courses outside of the immediate vicinity of Estelle; and visitors to New Orleans, assuming the course were of the high caliber planned. Hence, while a new subdivision nearby would be beneficial to the course, it would certainly not be critical to the course's success. Heavy reliance on the crossover and tourist golfers also indicates that, although it appears that the course would succeed, there is clearly a higher speculative element to the need for the course than would normally warrant a construction recommendation, as was alluded to in the golf consultant's report.

Separating the project components is damaging to the likelihood that a course will be built. it is less likely that the developer will donate a large parcel of land for the construction of a public

course if the future financial reward to result from the donation is less certain.

The analysis of public need is not focused on the percent of market share that the applicant would capture if the development plan was implemented. The focus of the analysis is to evaluate absorption trends and determine whether permit approval is necessary to satisfy future public need for residential housing. However, the likelihood of any single developer capturing all or most of a given total level of need may be a relevant issue.

Based upon the information contained in the applicants' analysis, it appears that a public need exists for additional vacant residential lots in the area under consideration, although not necessarily to the degree demonstrated by the applicant in his report dated May 16, 1996 (Appendix R) and in subsequent correspondence. The applicants intend to market 748 lots in six phases over 9.5 years (19 lots per quarter on average). However, the rate at which the applicant expects the public to purchase its vacant residential lots is higher than the 16 lots per quarter combined rate that the applicant has shown for four similarly-priced non-golf course developments in the market area since 1993 (Barkley Estates, Debattista Place, Magnolia Trace, and Ridgecrest). Based on recent trends, the applicants' report does not alone demonstrate a public need for all the lots that the applicants intend to make available.

The applicants did not include recent sales data for Stonebridge subdivision, which is the most comparable development in the market area since it is a golf course community. The effect of adding sales of lots at Stonebridge to the applicants' analysis would be to raise the average number of lot sales per quarter to 22.5. Under these circumstances, the number of anticipated lot sales at Estelle (19 per quarter) is within the bounds of recent market performance. The applicants have asserted that since Debattista Place, Ridgecrest, and Stonebridge are already sold out, or nearly so, future market undersupply is indicated. The availability of lots at Estelle that are offered within a unique golf course environment, which is comparable in this area only to Stonebridge, supports this reasoning.

CHAPTER 2

ALTERNATIVES

2.1 INTRODUCTION

The following chapter describes the applicants' proposed action and reasonable alternatives to the proposed action. Alternative development consisted primarily of identifying undeveloped parcels, which could support the proposed action and included the No Action alternative. The following text describes reasonable alternative sites, a description of why the alternative locations are considered potential sites, and a brief description of sites that were not considered reasonable alternatives. This chapter also addresses the screening process utilized to determine the ability of a site to function as an alternative site and a summarization of the potential impacts of each reasonable alternative.

The primary focus of the applicants' proposed action is to provide: 1) a public PGA caliber golf course facility and 2) high quality, upper middle to high income housing in Jefferson Parish. As a co-applicant, Jefferson Parish supports the donation of property from EPP for the construction and operation of a public golf course. The proposed action is located on the West Bank of Jefferson Parish. Chapter 3, Affected Environment, describes the West Bank of Jefferson Parish in detail. A subpopulation survey conducted with residents of the West Bank of Jefferson Parish provided data to support the hypothesis that there is a large population of residents currently residing on the West Bank of Jefferson Parish who want to stay on the West Bank (the subpopulation survey is provided as Appendix C). Therefore, the search for alternatives sites, in terms of site location, focused on the south shore of Lake Pontchartrain. The boundary of the alternative sites search area was further defined using the following assumption: people will drive a reasonable distance to their place of employment, approximately 30 to 45 miles, to live in an attractive environment. Thus, the alternative sites search boundary area was developed from the central business district of New Orleans, assuming New Orleans as the primary job location. In addition, people would be willing to drive a maximum of 40 minutes to play a round of golf on a PGA caliber golf course (Golf Research Associates, 1992). Since the proposed project would attract tourist golfers, the City of New Orleans was also the primary target area for these individuals. Additional alternatives considered included the separation of the golf and housing developments into a golf only or a housing only alternative.

The study area and search boundary utilized for the alternative sites search is shown in Figure 2.1. The northern boundary of the alternative study area is Lake Pontchartrain. The western boundary of the study area begins at the western guide levee of the Bonne Carre Spillway in St. Charles Parish and follows the Mississippi River to Hahnville. From Hahnville, the boundary follows along Highway 3160 to Highway 3127. The southern boundary begins where Highway 3127 intersects Highway 90. The boundary parallels Highway 90 approximately one mile to the

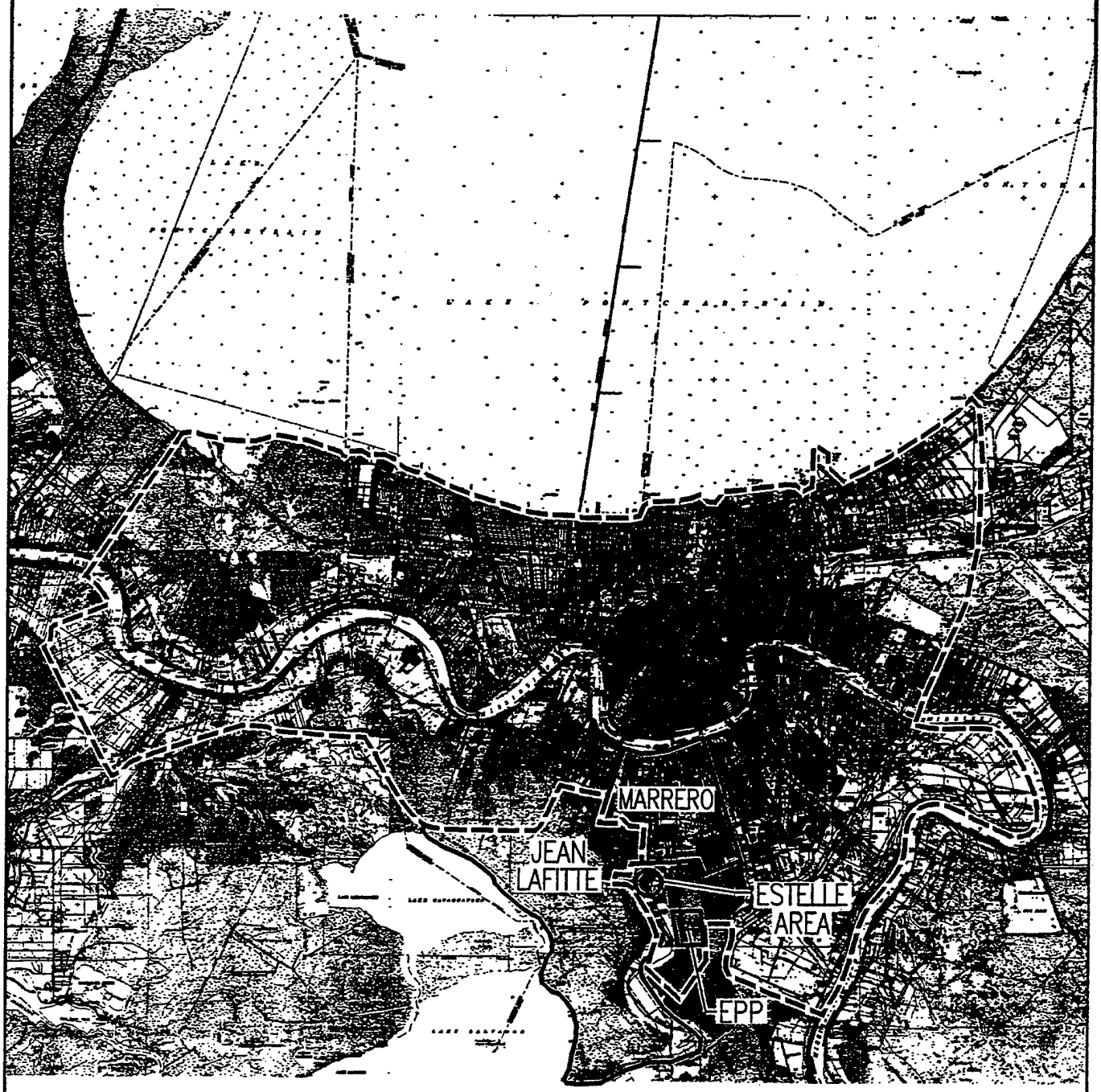

FIGURE 2.1

ALTERNATIVE SITE SEARCH BOUNDARY

FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT

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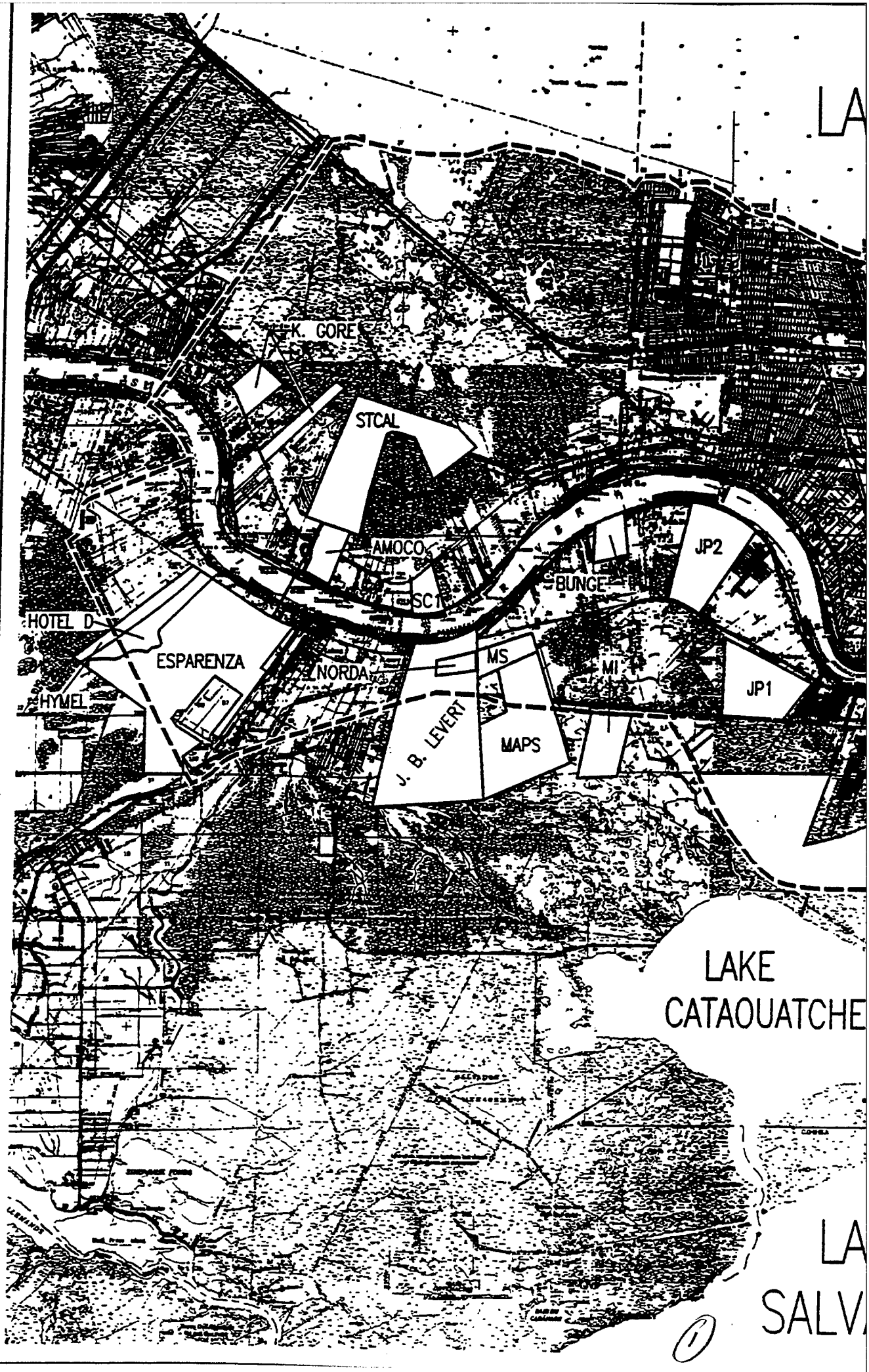
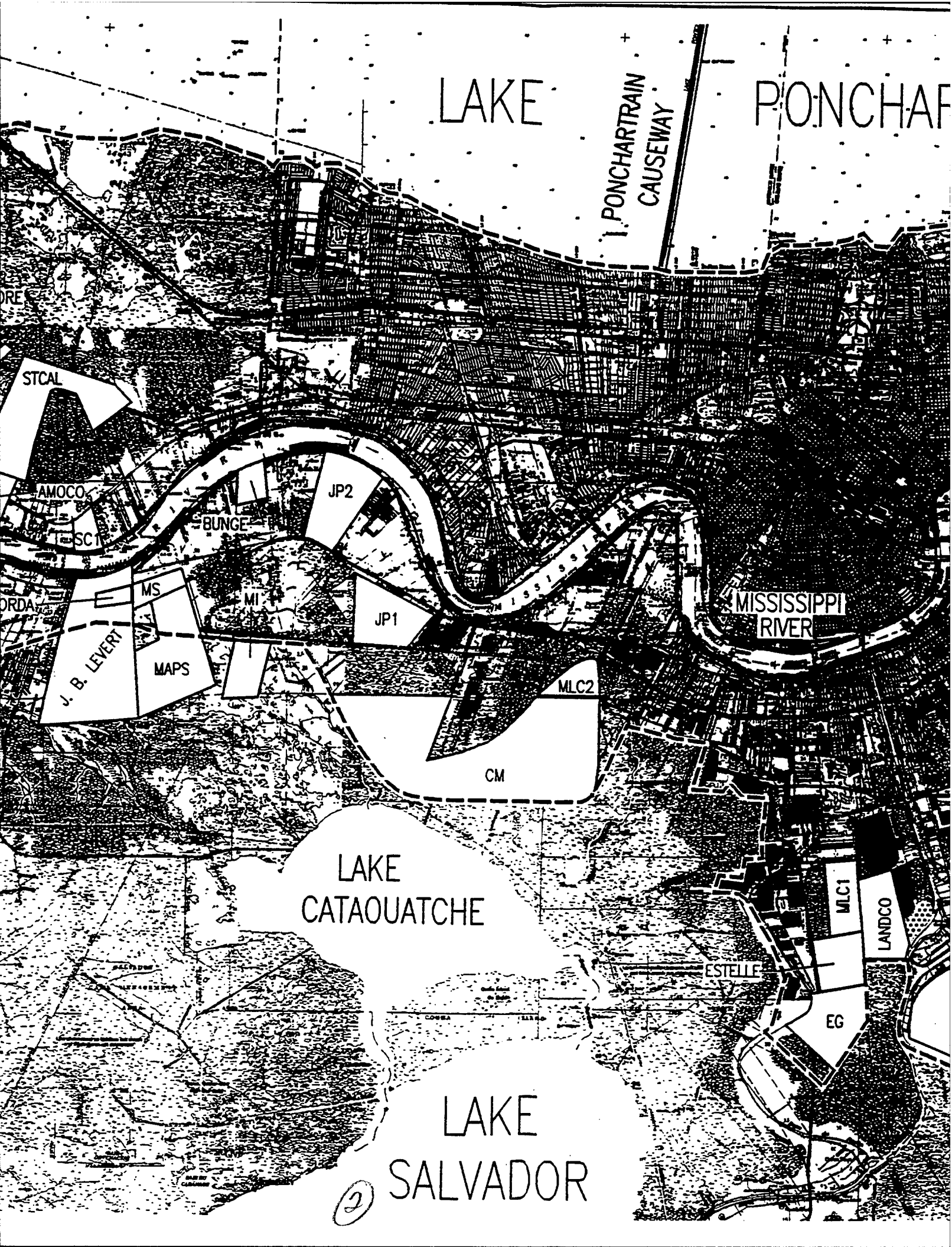
south and follows Highway 90 to the Cataouatche levee at Avondale. From the community of Avondale, the southern boundary follows the Federal flood protection levee system. The southern boundary crosses into Plaquemines Parish at Hero Canal. The eastern boundary follows the West Bank of the Mississippi River north and west into Orleans Parish, where it follows the I-510 and terminates at Lake Pontchartrain.

2.2 ALTERNATIVES SCREENING PROCESS

The alternatives screening process involved locating a suitable tract of property within the alternative search boundary that would support the proposed development. Tracts of land identified could be capable of supporting the housing and golf development, a housing development, or a golf facility. In order to support a golf facility only, the smallest component of the development, 200 acres would be necessary. Thus, a suitable tract of land would be currently vacant and at least 200 acres in size. The 200 acre figure was derived by rounding up the 175 acres to be donated by the applicant. It was determined that a rounded acreage figure would be more appropriate when searching for property ownership. Properties that were not considered jurisdictional wetlands were preferred. If the property was owned by Jefferson Parish, it would not have to be vacant to be considered. Properties of sufficient size with multiple landowners were also considered. The initial search indicated that there were no properties within the alternatives analysis area in Orleans or St. Bernard Parishes that were suitable for the housing and/or golf development. All alternative sites selected for initial analysis were located in Jefferson, Plaquemines, and St. Charles Parishes (Figure 2.2).

Lists of general criteria were developed to establish properties with the ability to serve as reasonable alternative sites. The criteria were termed initial, secondary, and additional depending on the degree of importance of the criteria. After this review, site specific criteria were examined to further determine the feasibility of a site to be considered a reasonable alternative. Initial criteria consisted of: 200-600 acres; multiple owners (preferably no more than 6); 40 minute travel time from the Superdome; in line for a Federal hurricane protection project; military special operations restrictions; parish of location; and local zoning compatibility. Acreage was a primary factor because the land had to be at least 200 acres to be considered an alternative site, with 600 acres being the ideal size for entire the proposed project. The multiple owner category was added because the possibility existed that a property could have too many landowners to locate, contact and negotiate with in reasonable time (two years). The travel time of 40 minutes from the Superdome was the maximum distance a golfer would travel in order to play on a championship course. In line for a hurricane protection project means that some type of Federal project is intended to take place on the alternative site. Military special operations indicates that the location has some type of restriction due to military operations. Identifying the parish of the site demonstrates that the golf course would not meet the need of the co-applicant if the alternative site was not in Jefferson Parish. Local zoning compatibility relates to whether the zoning of the surrounding properties, (i.e. commercial or industrial) and would detract from the value of the site or quality of living for residential housing.


LA
K. GORE
STCAL
AMOCO
SC1
BUNGE
JP2
HOTEL D
ESPARENZA
NORDA
MS
MI
JP1
HYMEL
J. B. LEVERT
MAPS
LAKE
CATAOUATCHE
LA
SALV


LAKE
PONCHAR
I. PONCHARTRAIN CAUSEWAY
STCAL
AMOCO
SC1
BUNGE
JP2
MS
MI
JP1
J. B. LEVERT
MAPS
MLC2
CM
MISSISSIPPI RIVER
LAKE CATAOUATCHE
MLC1
LANDCO
ESTELLE
EG
LAKE SALVADOR

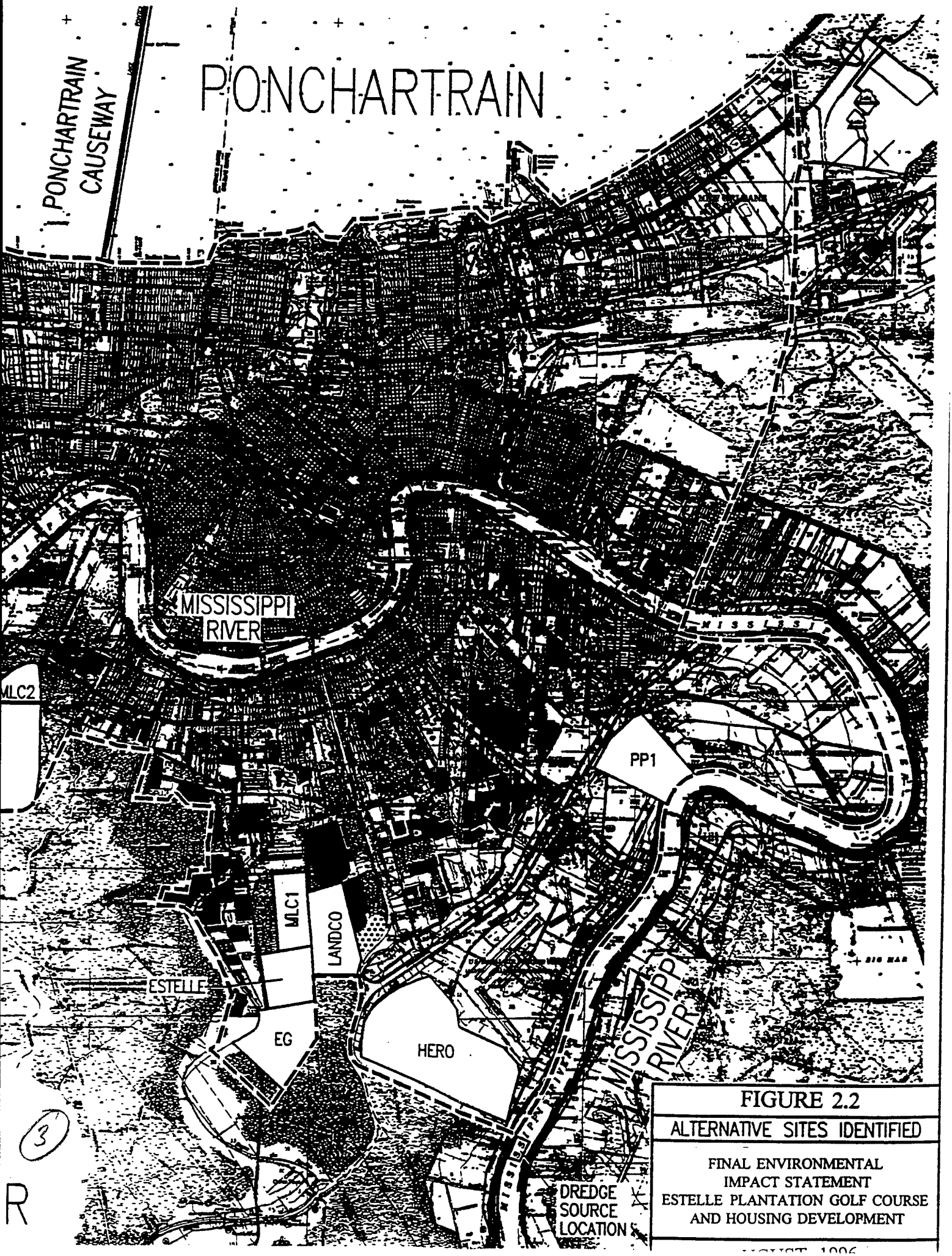


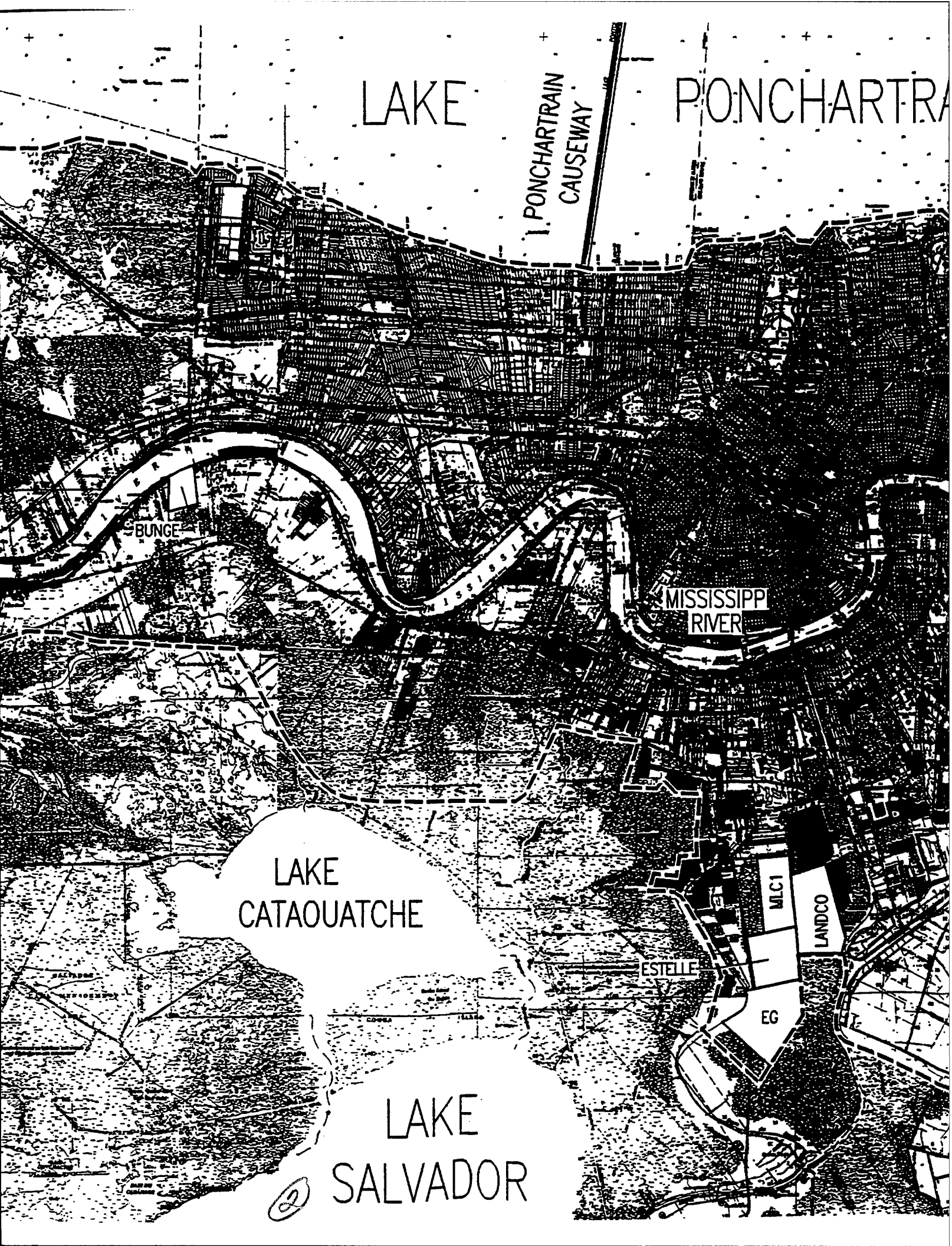
FIGURE 2.2

ALTERNATIVE SITES IDENTIFIED

FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE AND HOUSING DEVELOPMENT

AUGUST 1996

LAK
BUNGE
LAKE
CATAOUATCHE
LAK
SALVA


LAKE
PONCHARTRA
PONCHARTRAIN CAUSEWAY
BUNGE
MISSISSIPP RIVER
LAKE CATAOUATCHE
MLC1
LANDCO
ESTELLE
EG
LAKE SALVADOR

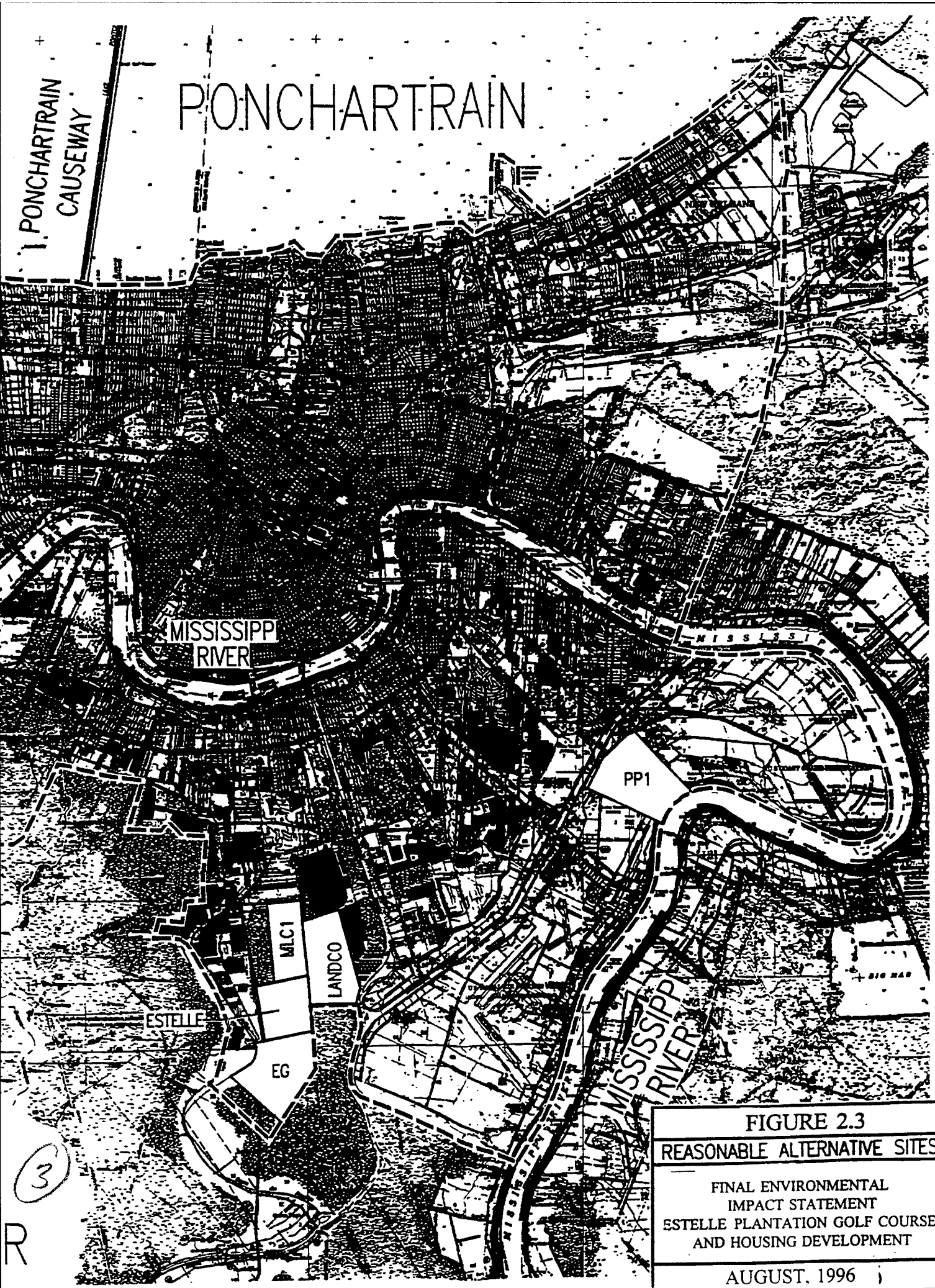


FIGURE 2.3

REASONABLE ALTERNATIVE SITES

FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE AND HOUSING DEVELOPMENT

AUGUST, 1996

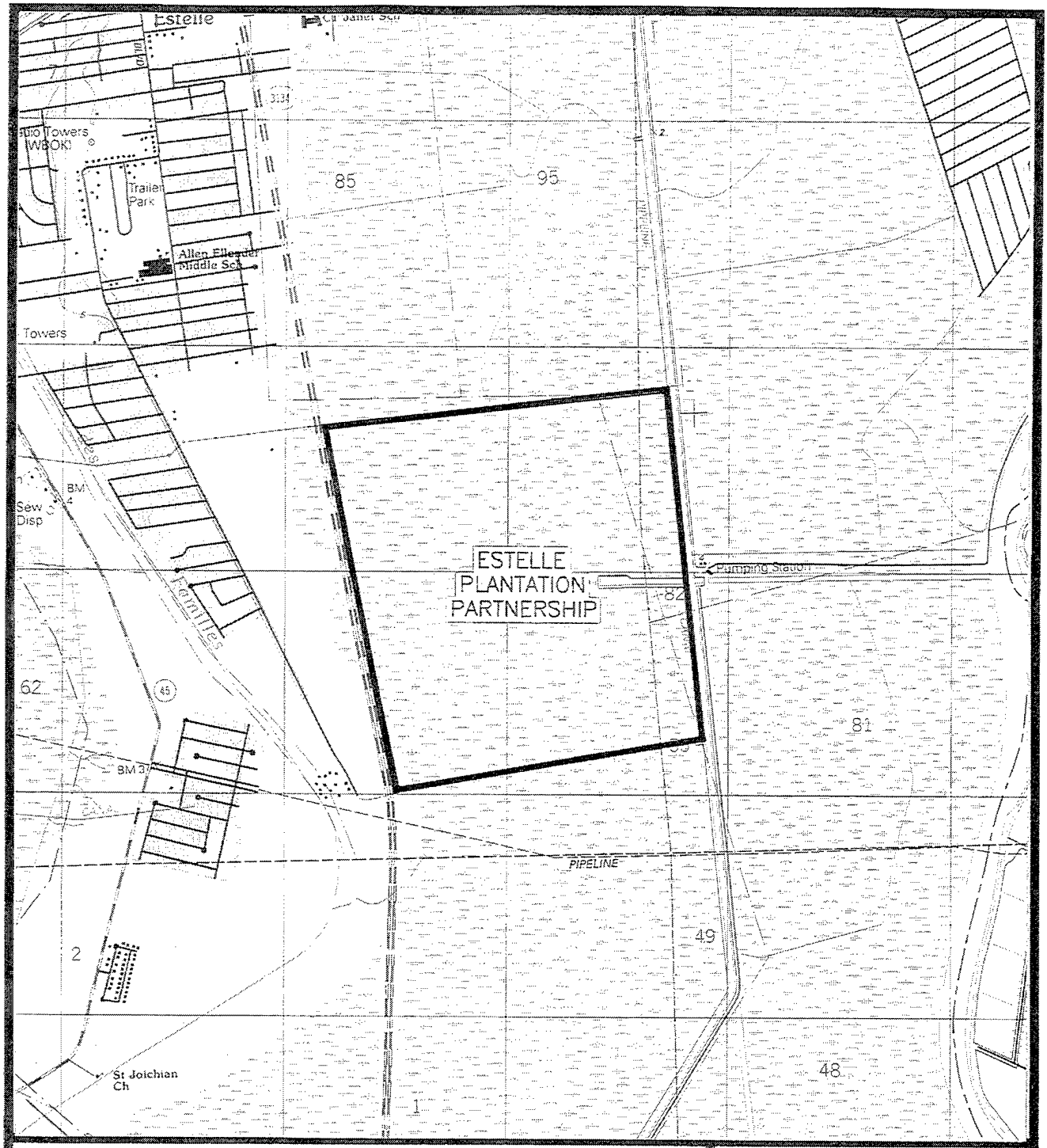


FIGURE 2.4

PROPOSED ACTION - LOCATION MAP
FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT
AUGUST, 1996

FROM 1992 USGS
QUADRANGLE
BERTRANDVILLE, LA.

SCALE 1:24,000

Secondary criteria were as follows: ownership; willingness to sell; prohibitive cost; flood protection; and access. Ownership refers to whether or not the applicant owns the site. Willingness to sell refers to whether or not the property could be purchased from its current owners, if not owned by the applicant. Prohibitive costs indicates that the current owner may have an interest in selling the property, but only at elevated costs. Flood protection refers to whether or not flood protection other than the Mississippi River levee is present. Accessibility by roadway either exists or does not exist, creating the possibility of additional development costs.

Additional criteria consisted of: the degree of flood protection; wetland or nonwetland site; site contamination; the location (in terms of the CMA); transportability; local zoning compliance; and additional permits required. The degree of flood protection refers to the storm size for which the levee has been rated. The wet/nonwet criteria were developed to determine if all the sites were considered jurisdictional wetlands. If all selected sites were discovered to be wetlands, an assessment of wetland value would have to be performed to determine comparative values and mitigation potential. It should be noted that wetland determinations were based upon aerial photography, review of maps, soils data, and previous field investigations conducted by the Corps. Likewise, when an assessment of wetland value was performed, the same data sources were utilized, including previous field investigation data collected by the U. S. Fish and Wildlife Service (USFWS) supplemented by site visits where possible. Site contamination indicates that there is a high potential for possible contamination of the site's surface and/or subsurface. Location refers to whether or not the property is within the CMA. The transportability category refers to tourist or business golfers that may or may not have access to hotel shuttles to get to the golf facility of their choice. Local zoning compliance demonstrates if the current zoning on the subject site is compatible with the project goals. The additional permits category would define if additional state or Federal permits would be required on any alternative site (in addition to a Section 404 permit).

2.3 RANGE OF ALTERNATIVES CONSIDERED

The alternatives considered ranged from the no action alternative to relocating to a different parish outside of the applicants' parish, Jefferson Parish. A map indicating the location of the reasonable alternative sites is included as Figure 2.3. The reasonable alternatives to be presented include the following:

No Action
1. Applicants' Proposed Action
2. East Group (EG)
3. Marrero Land Company (MLC1)
4. Landco
5. Plaquemines Parish 1 (PP1)
6. Bunge Corporation (Bunge)

These alternatives will be addressed in one of two categories: feasibility for a golf and housing development and a housing only development. The divisions were necessary because the Corps

determined that housing and golf developments are not inherently reliant upon each other to be successfully marketed. However, the development of a housing community centered on a golf facility appears to be a marketable concept that is in demand.

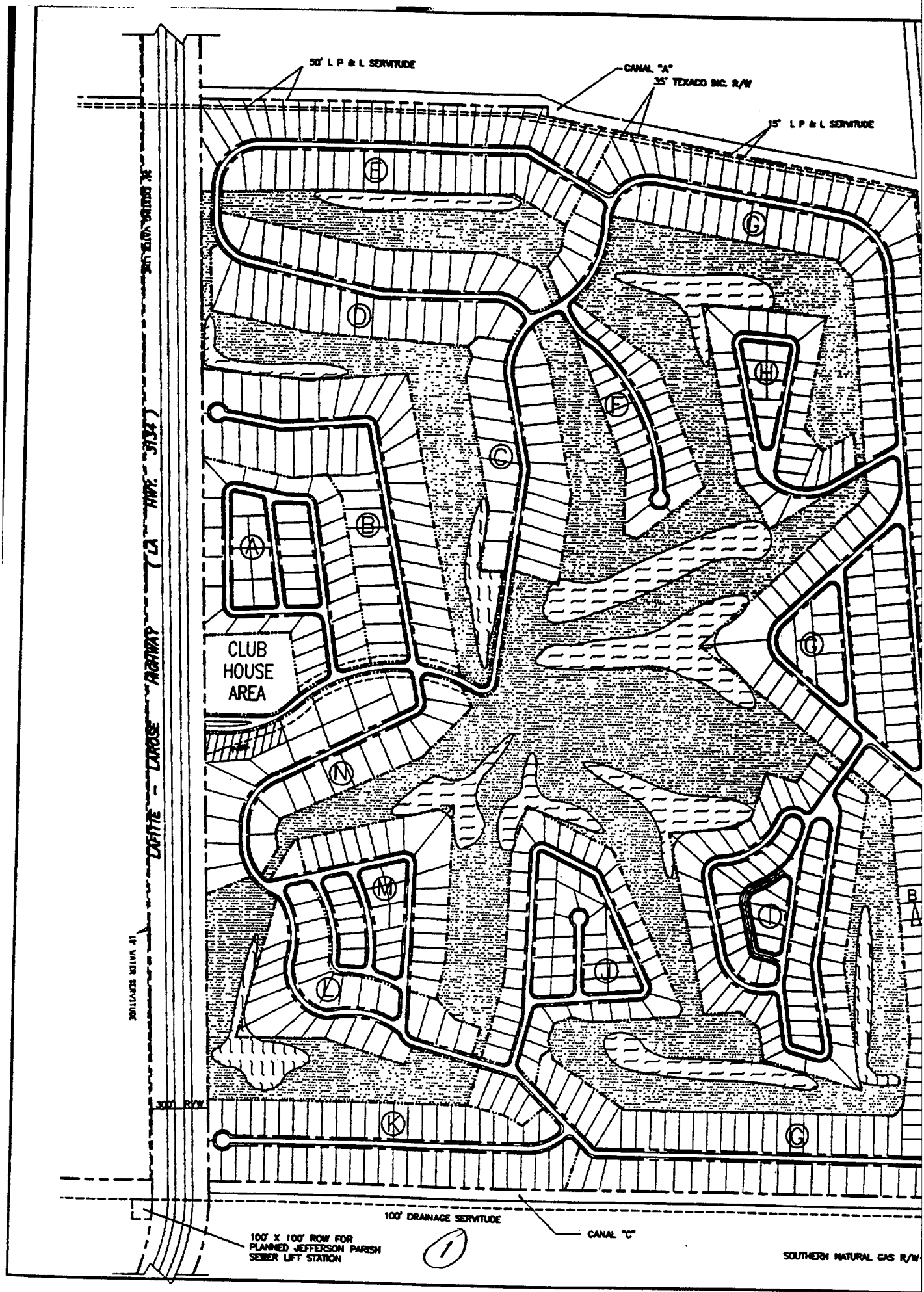
2.3.1 No Action Alternative

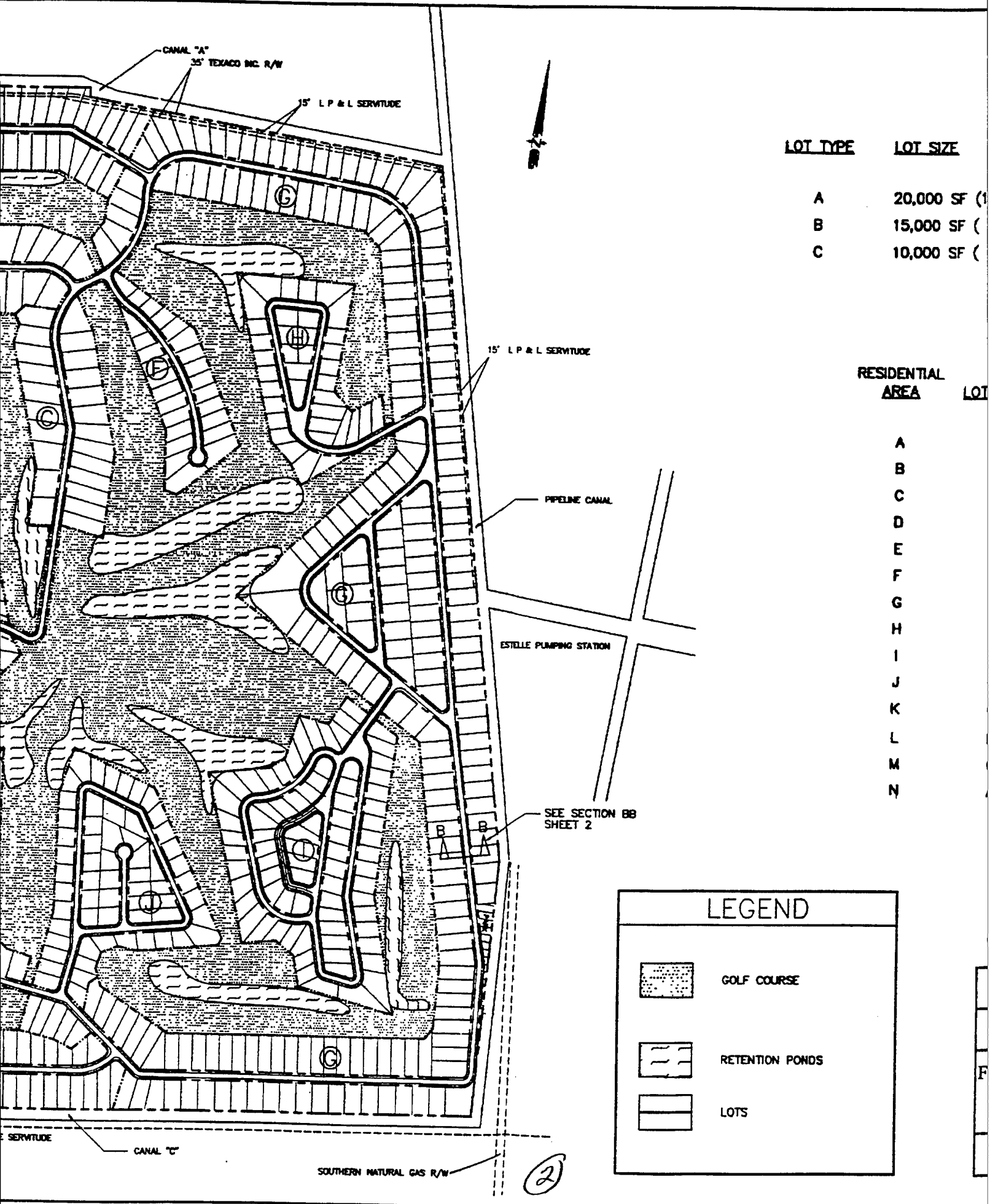
The No Action alternative must be considered along with alternative site locations. If no action is pursued, the situations to follow would result. The ability of Jefferson Parish to construct a public golf course would be diminished. Jefferson Parish would have to purchase property to develop a quality public golf facility. Without the property donation provided by EPP, Jefferson Parish would construct a golf course which would require nine to ten years of operation before it could generate revenues for the Parish. Pursuit of the golf course under these conditions would make it a less attractive venture for Jefferson Parish. New residents of Jefferson Parish may not have homes available to supply their demand and may have to leave Jefferson Parish in search of the quality of life they wish to achieve by purchasing a new home. New homes would likely have to be built on scattered parcels of land on the West Bank. No large planned communities would be constructed. The 73% of medium to high income West Bank residents who prefer to live on the West Bank (of Jefferson Parish) most likely would have to select new housing from the scattered parcels of land with fewer amenities.

A review of the RPC variables and the Managed Growth Plan indicates that the West Bank of Jefferson and Orleans Parishes are forecasted to receive significant growth by 2000. Jefferson Parish is expected to lead the West Bank parishes in development, because of the greater availability of developable land and its expanding economy. The growth potential of the West Bank of Jefferson Parish is great, particularly along such corridors as U.S. 90, Manhattan Boulevard, Lapalco Boulevard, Barataria Boulevard, and Harvey Canal/Peters Road. These corridors traverse those areas in Jefferson Parish where developable land is available and readily accessible. The No Action alternative slow expansion in a region expected to receive significant growth.

No action would also result in maintaining the EPP property as an undeveloped, manipulated wetland area. The areas which provide flood storage during 10-year and 100-year storms are shown in Figure 3.13. By not constructing the proposed housing and golf development, the wetlands enclosed within the V-levee, under a pumping system controlled by Jefferson Parish, would remain wetlands, though the wetlands would develop into a bottomland hardwood forest, a process which is currently underway. The Estelle V-levee would be upgraded by the Corps to provide 300+ year storm protection by the year 2000.

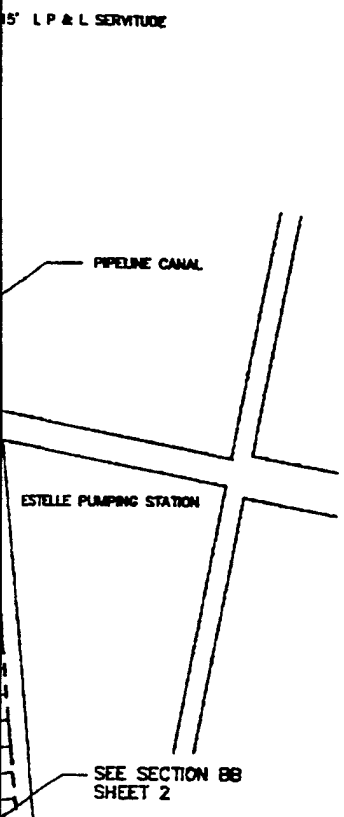
In addition, according to the 1986 Feasibility Report and Final Environmental Impact Statement, *West Bank of the Mississippi River in the Vicinity of New Orleans, LA.*, it is stated "Some of the lands impacted by construction are adjacent to but within the existing levee system and are subject to the effects of forced drainage. Because these lands are currently under pump, it would be reasonable to assume that they would be developed


50' L P & L SERVITUDE
CANAL "A"
35' TEXACO INC. R/W
15' L P & L SERVITUDE
E
G
D
H
F
C
B
A
CLUB
HOUSE
AREA
N
M
L
J
K
LAFITTE - LAROSE HIGHWAY (LA HWY. 3134)
12" WATER SERVITUDE
300' R/W
100' DRAINAGE SERVITUDE
CANAL "C"
100' X 100' ROW FOR
PLANNED JEFFERSON PARISH
SEWER LIFT STATION
SOUTHERN NATURAL GAS R/W


CANAL "A"
35' TEXACO INC. R/W
15' L P & L SERVITUDE
15' L P & L SERVITUDE
PIPELINE CANAL
ESTELLE PUMPING STATION
SEE SECTION BB
SHEET 2
SERVITUDE
CANAL "C"
SOUTHERN NATURAL GAS R/W
LOT TYPE
LOT SIZE
A
20,000 SF (1
B
15,000 SF (
C
10,000 SF (
RESIDENTIAL
AREA
LOT
A
B
C
D
E
F
G
H
I
J
K
L
M
N
LEGEND
GOLF COURSE
RETENTION PONDS
LOTS
(2)

LOT TYPE	LOT SIZE	GOLF LOTS	TOTAL LOTS
A	20,000 SF (100 X 200 TYP)	91	129
B	15,000 SF (85 X 175 TYP)	134	336
C	10,000 SF (75 X 135 TYP)	164	283
			748

RESIDENTIAL AREA	LOT TYPE	GOLF COURSE LOTS	TOTAL LOTS
A	B	0	38
B	A	23	43
C	A	23	23
D	A	32	36
E	B	24	52
F	C	26	26
G	B	95	219
H	C	27	38
I	C	44	77
J	C	32	60
K	C	18	50
L	B	15	27
M	C	17	32
N	A	13	27
		389	748



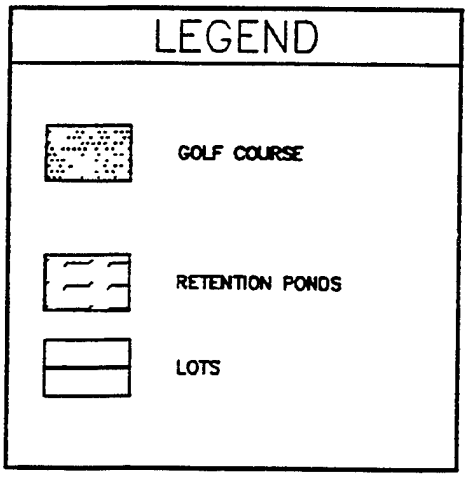


FIGURE 2.5

PROPOSED ACTION SITE LAYOUT

FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT

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whether impacted by this project (the Hurricane Protection Levee) or not." Based on this statement, it is reasonable to assume that if these lands were expected to be developed, there would be pressure to develop the area. All of the alternative sites in Jefferson Parish are within the Hurricane Protection Levee and fall into this category whether or not the applicants' proposed project is approved.

2.3.2 Alternative Number 1 - Applicants' Proposed Action

The applicant's proposed action is to construct a PGA caliber public golf course and high quality housing development on the EPP property; this is the preferred alternative. EPP is located on the West Bank of Jefferson Parish in the Estelle V-levee, Figure 2.4, and covers approximately 643 acres. The site is considered jurisdictional wetlands, however, it has been leveed and under pump for greater than thirty years. Jefferson Parish land use plans provide for continued pumping of this area and for an increase in pumping capacity to be provided. Access to the site is via Highway 3134. If permitted, additional roads associated with the construction of a housing development would have to be constructed. Likewise, sewer lines, and additional utilities would have to be provided. Figure 2.5 demonstrates the proposed layout of the development. During housing and golf course construction activities, approximately 1.1 million cubic yards of fill material would be placed at the site, raising the elevation to a final grade about one foot above sea level. The source of fill material would be Mississippi River sand. The dredging would take place at a point just south and east of the Hero Canal, which is in Plaquemines Parish just south of the airfield in Belle Chasse (Figure 2.4). The source would be an existing operation which has been permitted over thirty years and that has piping under the Mississippi River levee as well as under Highway 23, that continues west approximately 700 feet. The current operator has indicated that a permit modification would not be required to supply the fill required for this project. A pipeline would be floated west-northwest in the Hero Canal, submerged to cross the Intracoastal Waterway and continue north along the waterway to the Estelle Pump Station Canal, entering EPP just south of the eastern center point of the site (approximately 5 miles). A compartmentalized fill method using dikes would be utilized to protect portions of the site that are to be preserved. Some areas of the site would be left in their natural state to provide relief areas on the golf green, to enhance the quality of the housing development, and to provide retention of stormwater runoff (Figure 2.6). No additional drainage canals or new pumping systems would be necessary, the development would tie into the existing drainage system, which is planned to be and is currently being upgraded.

The Estelle V-levee is being incorporated into the West Bank Hurricane Protection System by the Corps. The V-levee currently provides flood protection for a 100-year storm event. Upon completion of the upgrade, anticipated in the year 2000, the levee system will provide protection for a 300 to 500-year storm event.

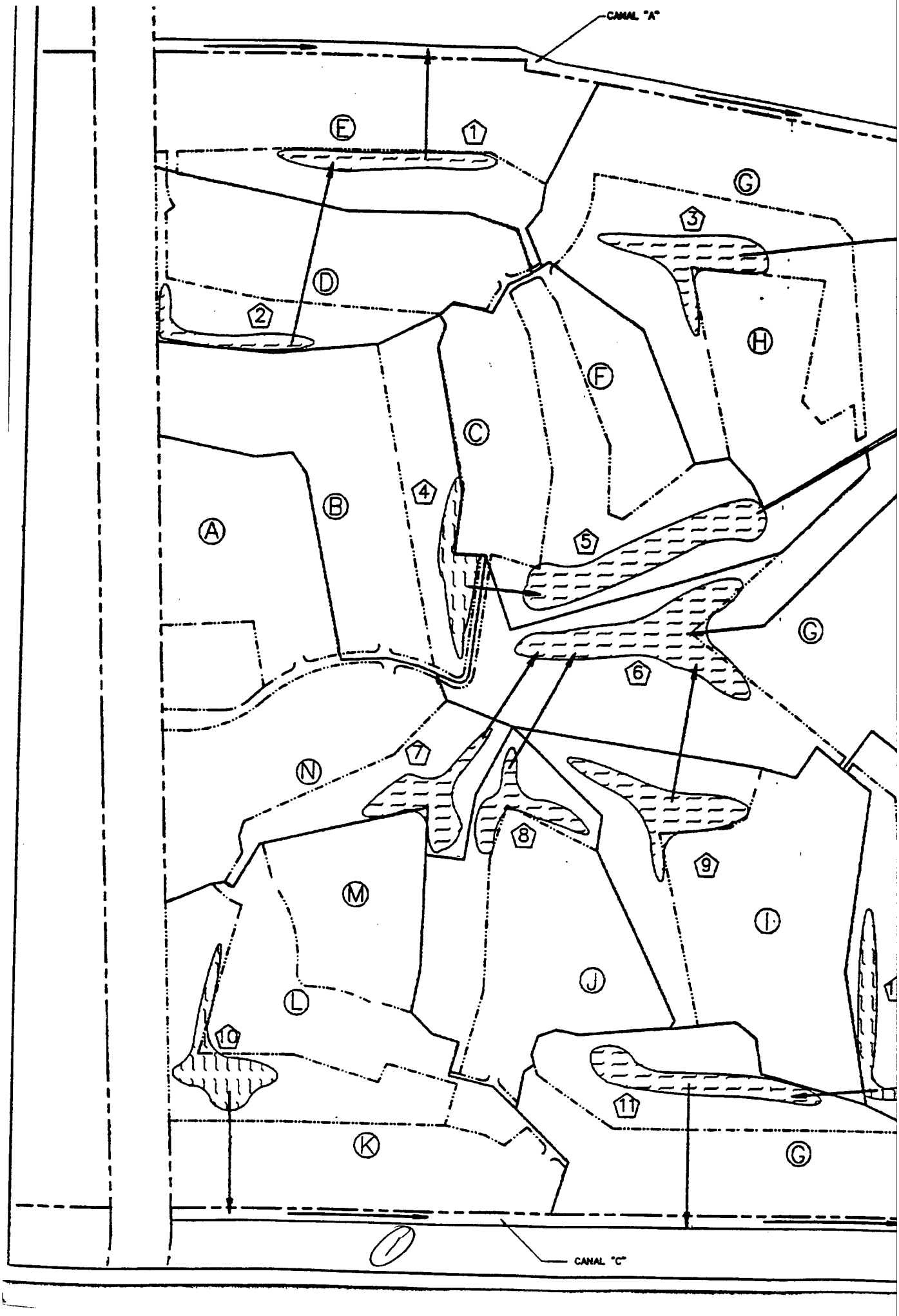
Twelve months would be required to prepare the EPP site for construction. First, the golf course would be designed and built according to United States Golf Association (USGA) standards by a respected golf designer as a championship quality, regulation play, 18-hole

golf course, developed on approximately 175 acres. The project would include the golf course, practice range, a combination club house/pro shop/ cart storage building, maintenance facilities and parking. Construction would begin after site preparation and should be completed in two years. The estimated project costs for the golf portion of the development would be $6,327,047 (Golf Research Associates, 1992) and would be born by Jefferson Parish. A total of 748 individual houses ranging between $140,000 and $310,000 would be constructed with 389 homes to be considered golf course lots. Figure 2.5 also demonstrates the type, size, and number of lots to be provided. Construction of homes would commence approximately upon completion of the golf course and would proceed in multiple phases over a 5 to 10 year period.

Anticipated costs to develop the EPP site are compared to other alternative sites in Table 2.1. Only the differences in construction costs are included in this table. Roadway, drain line, water line, sewer line, and house construction costs, anticipated to be similar for each alternative, were excluded. Also, land purchase costs for golf course construction were excluded. The cost of land at the EPP site was assumed as $16,000 per acre (RPA, 1996)(Appendix Q) with land purchase at other sites to cost a minimum premium of 25% or $20,000. Costs to purchase alternative sites were based upon similar acreage where possible. A discussion of the facilities necessary to tie-in the subdivision to existing utilities is provided in Sections 3.6.4 and 4.6.4. Fill placement costs are based upon $4 per cubic yard, water line costs on $35.5 per linear foot, force main costs on $40 linear foot, and roadway costs on $105 per linear foot assuming a 24 foot wide asphalt roadway with concrete curbs, underground electric and telephone service, and street lights. Based upon this table, development of the EPP site would cost EPP (not Jefferson Parish), $3,200 to $13,800 less per developed acre than other alternative sites. This would make the alternative sites economically unfeasible to EPP, since the estimated return on investment at the EPP site is approximately $2,000 per acre (RPA, 1996) (Appendix Q). In addition, the costs calculated in Table 2.1 do not include potential increases in financing costs due to land purchase at alternative sites.

In terms of recreational opportunities, EPP is donating the acreage necessary, 175-200 acres, for the construction of a PGA standard golf course and associated facilities. To obtain 175 to 200 acres, costs to the Parish may be anticipated as high as $4,000,000. With land donation, Jefferson Parish gains assistance in developing a recreational facility which would provide revenues to Jefferson Parish within its first year of operation, as opposed to a facility which could require nine to ten years to generate positive revenues. The ten year proforma as calculated by Ritz Hospitality Associates, Inc. is shown in Table 2.2. It indicates the Parish can generate revenues from this course of $4,823,360 over its first ten years of operation. This assumes the cost of constructing the course is financed over a thirty year period.

Anticipated increases in direct revenues to Jefferson Parish due to this project are summarized in Table 2.3. All revenues shown are determined over a ten year period. Anticipated infrastructure maintenance costs are based over the same ten year period. General costs to maintain and operate sewer and water lines within the proposed


CANAL "A"
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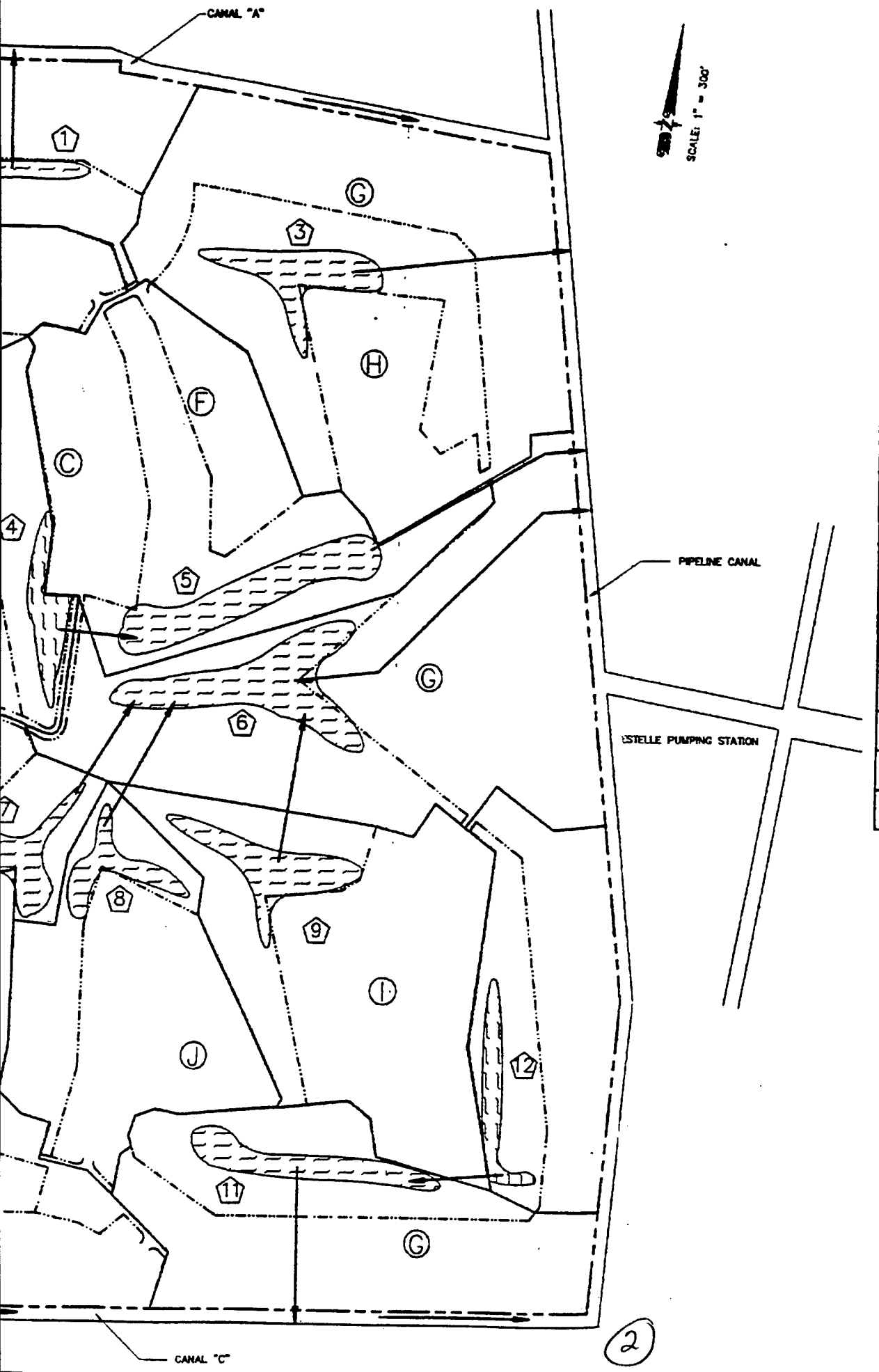

AREA	SUBCATCHME AREA
1	31.97 ACRE
2	26.00 ACRE
3	62.33 ACRE
4	33.45 ACRE
5	42.54 ACRE
6	56.62 ACRE
7	50.30 ACRE
8	28.80 ACRE
9	59.42 ACRE
10	43.00 ACRE
11	35.20 ACRE
12	23.6 ACRES
TOTAL	493.34 ACRE

AREA	SUBCATCHMENT AREA	PRE-DEV. RUNOFF	POST-DEV. * RUNOFF	POND * AREA
1	31.97 ACRES	49 CFS	109 CFS	2.0 ACRES
2	26.00 ACRES	40 CFS	89 CFS	1.8 ACRES
3	62.33 ACRES	95 CFS	213 CFS	3.5 ACRES
4	33.45 ACRES	51 CFS	114 CFS	2.3 ACRES
5	42.54 ACRES	65 CFS	146 CFS	5.3 ACRES
6	56.62 ACRES	86 CFS	194 CFS	6.2 ACRES
7	50.30 ACRES	77 CFS	172 CFS	3.0 ACRES
8	28.80 ACRES	44 CFS	99 CFS	2.3 ACRES
9	59.42 ACRES	90 CFS	203 CFS	3.5 ACRES
10	43.00 ACRES	65 CFS	147 CFS	3.1 ACRES
11	35.20 ACRES	54 CFS	120 CFS	3.5 ACRES
12	23.6 ACRES	36 CFS	81 CFS	2.3 ACRES
TOTAL	493.34 ACRES	752 CFS	1686 CFS	38 8 ACRES

ALL QUANTITIES ARE APPROXIMATE
* BASED ON 10 YEAR STORM

FIGURE 2.6

PROPOSED ACTION CONCEPTUAL STORMWATER DETENTION PLAN

FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT

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(3)

TABLE 2.1

ANTICIPATED ALTERNATIVE DEVELOPMENT COSTS

Cost Item[1]	No Action	EPP	EG	MLC[3]	Landco[4]	PP1	Bunge[5]
Fill Placement	$ 0	$4,400,000	$ 8,400,000	$ 3,200,000	$ 5,600,000	$ 4,400,000	$ 3,200,000
Land Purchase	$ 0	$7,264,000[2]	$ 8,820,000[6]	$ 5,500,000[6]	$ 9,000,000[6]	$11,375,000[6]	$ 8,000,000[6]
Force Main, Pump Station, and Sewage Facilities	$ 0	$ 260,000	$ 476,000	$ 62,000	$ 62,000	$ 500,000	$ 500,000
Water Line	$ 0	$ 7,000	$ 7,000	$ 46,000	$ 7,000	$ 0	$ 89,000
Access Roadway Construction	$ 0	$ 0	$ 0	$ 252,000	$ 21,000	$ 0	$ 0
Total	**$ 0**	**$11,931,000**	**$17,703,000**	**$9,061,000**	**$14,680,000**	**$16,275,000**	**$11,789,000**
Cost Per Developed Acre	**$ 0**	**$ 26,300**	**$ 40,100**	**$ 32,900**	**$ 32,400**	**$ 35,800**	**$ 29,500**

1. Home construction methods are assumed to be similar between alternative sites, with pile supported structures required at all sites. The primary construction cost differences were assumed to be the quantity of fill necessary.
2. Although EPP will not have to purchase land at the proposed project site, the value of the land is assumed as $16,000 per acre (RPA, 1996) (Appendix Q). A minimum 25% premium was assumed for actual purchase of property at alternative sites.
3. Alternative represents a site with approximately 180 less acres available for development than the EPP site.
4. Based upon the purchase of only 654 acres.
5. Alternative represents a site with approximately 50 acres less than the EPP site.
6. Does not include increased financing costs necessary for land purchase.

development are assumed to be zero since these costs are directly covered by user fees. A cost to rehabilitate roadways assumed a complete resurfacing of the development's entry road system within ten years. Firm costs for sewer line rehabilitation are not available for Jefferson Parish, however, the Parish currently spends approximately $330 per mile of sewer line per year for rehabilitation. Although, new sewer lines may not need rehabilitation, this cost per line was assumed annually for the development. Infrastructure items such as schools, hospitals, and drainage were determined to require no additional expenditure of revenues. Based on Table 2.3, direct revenues to Jefferson Parish after subtracting infrastructure costs over the first ten years are anticipated to be $11,000,000. After the first ten years these revenues are anticipated to be approximately $2,000,000 per year (based on the ten year revenue and tax returns from Tables 2.2 and 4.1, respectively).

Robert Charles Lessor indicated the housing development proposed by EPP would help fulfill a need for housing for new residents, move-up buyers, and renters purchasing their first home. The development is expected to capture approximately 20% of the market or approximately 76 sales per year.

The EPP property is located in an area that is anticipated to receive much of the growth to be experienced by the New Orleans MSA in the coming years. Significant growth is expected in this area by 2000. Jefferson Parish is expected to lead the West Bank parishes in development, because of the greater availability of developable land and its expanding economy. Corridors such as U.S. 90, Manhattan Boulevard, Lapalco Boulevard, and Barataria Boulevard, traverse those areas in Jefferson Parish where developable land is available and readily accessible.

Based on 1990 census data, Jefferson Parish had approximately 72,879 units of available housing; 9800 housing units were unoccupied. The majority of unoccupied units consisted of homeowner vacancies and rental vacancies. The exact numbers for each were unavailable from this census. However, they are most likely comparable to percentages reported for St. Charles and Plaquemines Parish, with the majority of unoccupied units consisting of renters.

A subpopulation survey was performed to assure there would be sufficient demand for housing on the West Bank from current West Bank residents (Appendix C). The survey indicated 65% of middle to high income residents would not move from the West Bank and 73% of these residents would not move if housing comparable to the North Shore of Lake Pontchartrain were available on the West Bank. This strongly indicated that it was not necessary to include the North Shore in the alternatives search area.

In addition to the Corps Section 404 permit required for the EPP alternative, some potential permits and approvals that may be required from other agencies are: local building permits; approval from the Department of Culture, Recreation, and Tourism (CRT); and Louisiana Department of Environmental Quality (LDEQ) Office of Water Resources; and consistency with all applicable state and Federal laws as listed in Chapter 5. No Coastal Use Permit is required by the Louisiana Department of Natural Resources

TABLE 2.2
ESTELLE PLANTATION GOLF COURSE
TEN YEAR PROFORMA
YEARS ONE THROUGH FIVE

INCOME	YEAR ONE	YEAR TWO	YEAR THREE	YEAR FOUR	YEAR FIVE
Golf Operations	$1,370,800	$1,537,202	$1,702,787	$1,899,981	$2,069,852
Food	$168,950	$193,662	$216,421	$247,442	$273,489
Beverage	$101,370	$116,197	$129,852	$148,465	$164,093
Golf Schools (Net)	$40,000	$43,000	$45,150	$47,408	$49,778
Other Income	$12,000	$12,000	$12,000	$12,000	$12,000
Total Income	**$1,693,120**	**$1,902,061**	**$2,106,210**	**$2,355,297**	**$2,569,212**
Total Cost of Sales[1]	*$225,041*	*$257,958*	*$288,272*	*$329,593*	*$364,287*
Gross Profit	**$1,468,079**	**$1,644,103**	**$1,817,938**	**$2,025,704**	**$2,204,925**
Total Payroll	$570,527	$602,629	$629,552	$657,693	$687,108
Total Other Expenses	$407,976	$447,944	$479,740	$514,350	$544,264
Total Payroll & Other Expenses	*$978,503*	*$1,050,573*	*$1,109,292*	*$1,172,043*	*$1,231,372*
Cash Available for Debt	**$489,576**	**$593,530**	**$708,646**	**$853,660**	**$973,553**
Debt Service on $6,000,000 @ 7%[2]	*$479,520*	*$479,520*	*$479,520*	*$479,520*	*$479,520*
Return on Investment (ROI)	**$50,016**	**$114,010**	**$229,126**	**$374,140**	**$494,033**
Accumulated ROI	**$50,016**	**$164,025**	**$393,151**	**$767,291**	**$1,261,324**

1) Total cost of food, beverage, golf, and golfing school sales
2) Assumes financing construction costs over thirty years.

(Ritz Hospitality Associates, Inc. October, 1994)

TABLE 2.2 (CONTINUED)
ESTELLE PLANTATION GOLF COURSE
TEN YEAR PROFORMA
YEARS SIX THROUGH TEN

INCOME	YEAR SIX	YEAR SEVEN	YEAR EIGHT	YEAR NINE	YEAR TEN
Golf Operations	$2,207,789	$2,324,175	$2,449,204	$2,557,009	$2,650,847
Food	$298,650	$318,943	$344,036	$364,931	$387,832
Beverage	$179,190	$191,366	$206,422	$218,959	$232,699
Golf Schools (Net)	$52,267	$54,880	$57,624	$60,505	$63,531
Other Income	$12,000	$12,000	$12,000	$12,000	$12,000
Total Income	**$2,749,895**	**$2,901,364**	**$3,069,286**	**$3,213,404**	**$3,346,909**
Total Cost of Sales[1]	*$397,802*	*$424,832*	*$458,256*	*$486,089*	*$516,592*
Gross Profit	**$2,352,094**	**$2,476,532**	**$2,611,030**	**$2,727,316**	**$2,830,316**
Total Payroll	$715,131	$744,383	$774,837	$806,543	$839,553
Total Other Expenses	$574,551	$599,476	$630,851	$660,298	$692,032
Total Payroll & Other Expenses	*$1,289,682*	*$1,343,858*	*$1,405,688*	*$1,466,840*	*$1,531,585*
Cash Available for Debt	**$1,062,412**	**$1,132,674**	**$1,205,342**	**$1,260,475**	**$1,298,732**
Debt Service on $6,000,000 @ 7%[2]	*$479,520*	*$479,520*	*$479,520*	*$479,520*	*$479,520*
Return on Investment (ROI)	**$582,892**	**$653,154**	**$725,822**	**$780,955**	**$819,212**
Accumulated ROI	**$1,844,217**	**$2,497,370**		**$4,004,148**	**$4,823,360**

2

1) Total cost of food, beverage, golf, and golfing school sales
2) Assumes financing construction costs over thirty years.

(Ritz Hospitality Associates, Inc., October, 1994)

TABLE 2.3

ANTICIPATED ALTERNATIVE REVENUE AND MAINTENANCE COSTS

Cost Item	No Action	EPP	EG	MLC	Landco	PP1	Bunge
Sales, Ad valorem, and Property Taxes	$ 0	$ 6,860,000	$ 6,860,000	$ 6,860,000	$ 6,860,000	$ 6,860,000[1]	$6,860,000[1]
Return on Golf Course	$ 0	$ 4,823,000	$ 1,520,000	>$1,520,000	>$1,520,000	$ 759,000	$ 0
Sewer & Water Line Maintenance	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Roadway Maintenance	$ 0	-$ 363,000	-$ 363,000	-$ 384,000	-$ 363,000	-$ 363,000	-$ 222,000
Sewer Line Rehabilitation	$ 0	-$ 280,000	-$ 280,000	-$ 280,000	-$ 280,000	-$ 280,000	-$ 280,000
Total Revenue	**$ 0**	**$11,683,000**	**$ 8,380,000**	**$ 8,380,000**	**$ 8,380,000**	**$ 7,619,000**	**$ 6,860,000**
Total Expenditure	**$ 0**	**-$ 643,000**	**-$ 643,000**	**-$ 664,000**	**-$ 643,000**	**-$ 643,000**	**-$ 502,000**
Total Benefit	**$ 0**	**$11,040,000**	**$ 7,737,000**	**>$7,716,000**	**>$7,737,000**	**$ 6,976,000[2]**	**$ 6,358,000**

1. Tax revenues from these sites will not be obtained by Jefferson Parish but by other Parishes.
2. **Revenues from this alternative may be eliminated by necessary drainage improvements because of the project.**

(DNR) since the property is considered "Fastlands". Appendix E contains a letter from the CRT stating that there are no known sites of historical, archeological, or cultural significance present at the proposed EPP site. State Water Quality Certification is located in Appendix F.

2.3.3 Alternative Number 2 - East Group Property

Alternative No. 2 would provide the proposed development on the East Group property (EG). This alternative would result in moving the proposed project to this location. The EG property is also located on the West Bank of Jefferson Parish within the Estelle V-levee, immediately south of EPP, Figures 2.3 and 2.7. Since the EG site is within the same levee system as the EPP site, the same level of flood protection is available at this site. East Group's property is approximately 641 acres and is primarily jurisdictional wetlands. The portion of the property that is not considered wetlands is located on the top of the Bayou des Familles ridge and would not be utilized if the proposed action were moved to this location, thus it is not included in the acreage figure. This site is also accessible from Highway 3134. If this site were selected, during housing and golf course construction activities, the site would have to be raised in elevation to a final grade about one foot above sea level. Approximately 2.1 million cubic yards of fill material would be placed at the site to achieve this elevation. Greater fill is required at this alternative site than the EPP site due to lower ground elevations compared to those at the EPP site. Fill material and methods of transporting and disposing of the fill would be the same as discussed for the EPP site except that from the Estelle Pump Station Canal, the transport pipeline would follow Pipeline Canal to the south, entering EG's norther border (approximately 5.5 miles).

A compartmentalized fill method using dikes would be utilized to protect portions of the site that are to be preserved. Some areas of the site would be left in their natural state to provide relief areas on the golf course and to enhance the quality of the housing development. Utilities such as electricity, sewage, and water would have to be provided. Additional streets would be required if the housing development were constructed.

The EG site would provide housing for middle to upper class families and golf in the New Orleans area and in Jefferson Parish. This property is not owned by the applicants and is under a purchase option which will terminate if the property is not purchased by the prospective buyer. Essentially, EPP could not donate land to Jefferson Parish for the construction and operation of a PGA caliber golf facility if it does not own the land. If, upon termination of the option, EPP could purchase the land, the purchase price would eliminate the gains EPP would receive from donating land they already own, thus, they may not be financially able to donate the property to Jefferson Parish unless they could sell the EPP property. To obtain 200 acres, costs to the Parish may be anticipated to be as high as $4,000,000. Without the property donation, Jefferson Parish would have to provide funds to construct and operate a golf course facility, as opposed to developing a facility which would provide revenues to the Parish. With land donation, the facility is expected to have a $4,800,000 return on its investment within its first 10 years of operation. This assumes construction costs are financed over a thirty year period. With

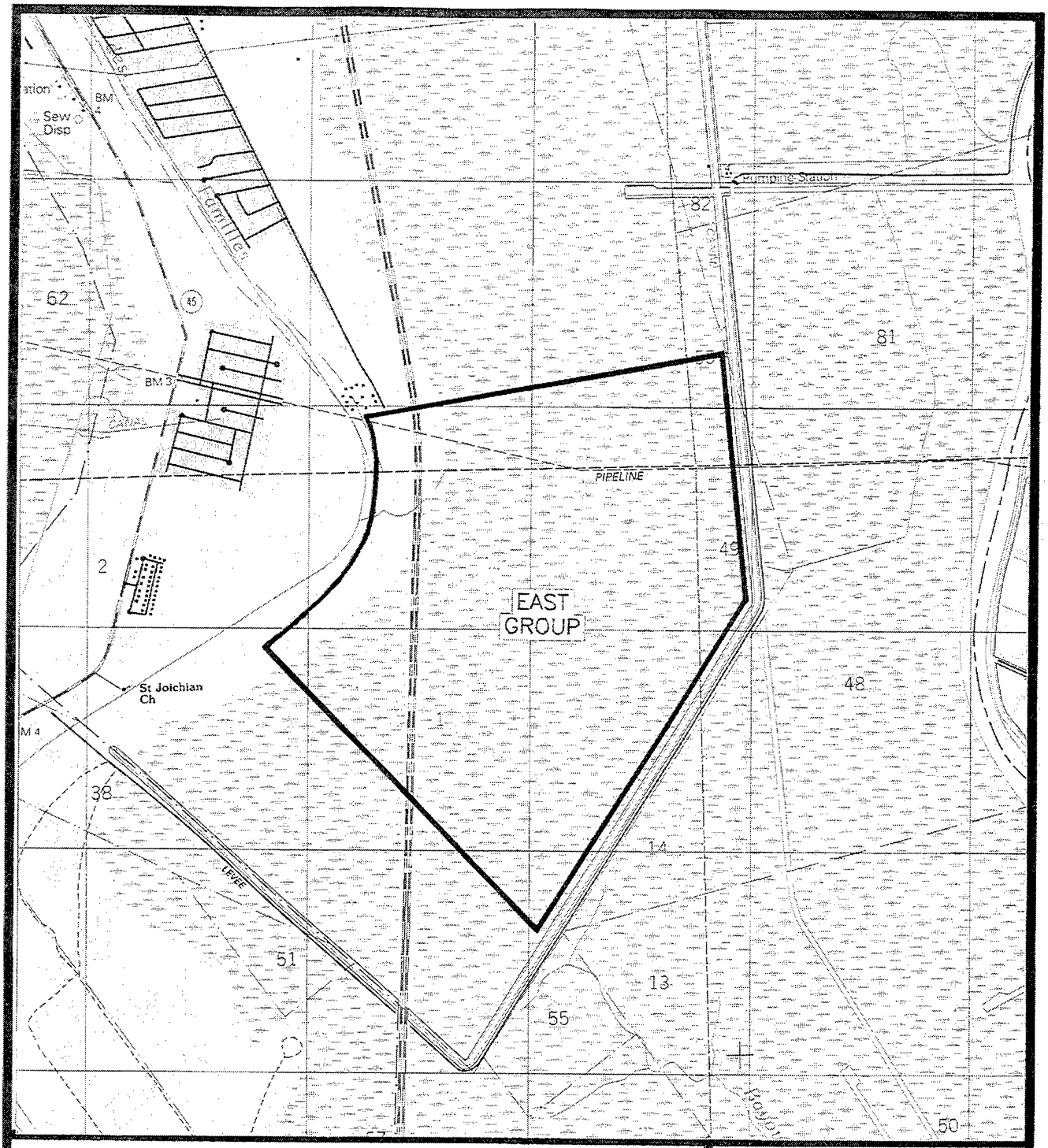


FIGURE 2.7

EAST GROUP - LOCATION MAP
FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT
AUGUST, 1996

FROM 1992 USGS
QUADRANGLE
BERTRANDVILLE, LA.

SCALE 1:24,000

the additional cost of purchasing the land, this return on the investment would be reduced. Housing demands for Jefferson Parish residents or the New Orleans CMA could be met at the EG site. The EG property is south of the EPP site and the majority of the site is contained within the same levee and pumping system. Therefore, similar environmental conditions exist at both locations.

To prepare the EG site for development would take at least twelve months, the same amount of time that would be required to prepare the EPP site for construction. The golf course would be designed and built on approximately 200 acres. The proposed project, as planned on the EPP site, could be built in the same general layout on the EG site, but with greater anticipated fill costs. Also, time delays related to obtaining the property and the possibility of uncovering archeological sites would change the planned project time frame.

Anticipated costs to develop the EG site is compared to the EPP site and other alternative sites in Table 2.1. Costs to purchase alternative sites were based upon similar acreage where possible. Discussion of the facilities necessary to tie-in the subdivision to existing utilities is provided in Sections 3.6.4 and 4.6.4. Based upon this table development of the EG site would cost EPP (not Jefferson Parish), $13,800 more per developed acre to develop. The majority of the cost difference comes from increased fill placement costs. This would make this alternative site economically unfeasible to EPP, since the estimated return on investment at the EPP site is approximately $2,000 per acre (RPA, 1996) (Appendix Q). In addition, the costs calculated in Table 2.1 do not include potential increases in financing costs due to land purchase at this alternative site.

Anticipated increases in direct revenues to Jefferson Parish due to developing the EG site are summarized in Table 2.3. All revenues shown are determined over a ten year period. Anticipated infrastructure maintenance costs are based over the same ten year period. General costs to maintain and operate sewer and water lines within the proposed development are assumed to be zero since these costs are directly covered by user fees. Infrastructure cost assumptions were the same as for the EPP site. The major difference between the EG and the EPP site is the reduction in revenues from operation of the golf course. This is due to the purchase price of 200 acres estimated at $4,000,000. This site will produce $3,300,000 less revenue for Jefferson Parish than the EPP site. In addition, the golf course will not generate revenue until its ninth year of operation. A nine year payback period on the golf course makes it a much riskier business venture for Jefferson Parish. After the first ten years, the revenues generated by the EG site are anticipated to be approximately $350,000 per year less than the EPP site (based on the ten year revenue and tax returns from Tables 2.2 and 4.1, respectively).

As with the applicants' proposed action, the EG property is located in an area that is anticipated to receive much of the growth to be experienced by the New Orleans MSA in the coming years. Significant growth is expected in this area by the year 2000. Jefferson Parish is expected to lead the West Bank parishes in development, because of the greater availability of developable land and its expanding economy. Corridors such as U.S. 90, Manhattan Boulevard, Lapalco Boulevard, and Barataria Boulevard, traverse

those areas in Jefferson Parish where developable land is available and readily accessible. A subpopulation survey indicated 65% of middle to high income residents would not move from the West Bank and 73% of these residents would not move if housing comparable to the North Shore were available on the West Bank.

Based on 1990 census data, Jefferson Parish had approximately 72,879 units of available housing; 9800 housing units were unoccupied. The unoccupied units consisted of a homeowner vacancies and rental vacancies. The exact numbers for each were unavailable from this census. However, they are most likely comparable to percentages reported for St. Charles and Plaquemines Parish, with the majority of unoccupied units consisting of renters.

In addition to a Corps permit, which would be required for the constructing the proposed development on the EG site, some potential permits and approvals that may be required from other agencies are: local building permits; LDEQ Office of Water Resources, State Water Quality Certification is required; and consistency with all applicable state and Federal laws as listed in Chapter 5. No Coastal Use Permit is required by DNR since the property is considered "Fastlands". Appendix E contains a letter from the CRT stating that there is a known site of historical, archeological, or cultural significance present on the EG site.

2.3.4 Alternative Number 3 - Marrero Land Company

Alternative No. 3 would place the proposed development on the Marrero Land Company property (MLC1). This alternative would result in moving the proposed project to this location. The MLC1 property is also located on the West Bank of Jefferson Parish in the Estelle V-levee, Figures 2.3 and 2.8. Since the site is within the same levee system as the EPP site the same level of flood protection is available at this site.

Marrero Land's property is approximately 475 acres and is considered jurisdictional wetlands. This site is not accessible from Highway 3134. It lies along the eastern portion of the V-levee, currently only accessible from a dirt road utilized by the Parish for access to the Estelle Pump Station. If this site were selected, a 2,500 foot access road would have to be provided. During housing and golf course construction activities, the site would have to be raised to the elevation one foot above sea level. Approximately, 0.8 million cubic yards of fill material would be required to raise this site to this elevation. The source of fill material would be Mississippi River sand. The dredging would take place at a point just south and east of the Hero Canal which is in Plaquemines Parish just south of the airfield in Belle Chasse. The source would be an existing operation which has been permitted over thirty years and that has piping under the Mississippi River levee as well as under Highway 23, that continues west approximately 700 feet. The current operator has indicated that a permit modification would not be required to supply the fill required for this project. A pipeline would be floated west-northwest in the Hero Canal, submerged to cross the Intracoastal Waterway and continuing northwest and entering MLC1's southeast corner (approximately 5.6 miles). A compartmentalized fill method using dikes would be utilized to protect portions of the site that are to be preserved.

Some areas of the site would be left in their natural state to provide relief areas on the golf course and to enhance the quality of the housing development. Utilities such as electricity, sewage, and water would have to be provided. Additional streets would be required if the housing development were constructed.

The MLC1 site could potentially supply the demand for housing and golf in Jefferson Parish. This property is not owned by the applicant and the current owner is non-responsive relative to selling the property. Essentially, EPP could not donate land to Jefferson Parish for the construction and operation of a PGA caliber golf facility if it does not own the land. The purchase price, if one could be determined, would eliminate the gains EPP would receive from donating land they already own, thus, they would not be financially able to donate the property to Jefferson Parish. To obtain 200 acres of this property, costs to the parish may be anticipated to exceed $4,000,000 due to the reluctance of the current owner to sell the property. Without the property donation, Jefferson Parish could not develop a golf facility which would generate revenues and may have to provide funds to operate the facility. The facility is expected to have a $4,800,000 return on its investment by year 10 of operation. With the additional cost of purchasing the land, this return on the investment would not be realized. Also, due to site limitations the size of housing development proposed would have to be reduced, further reducing EPP's ability to obtain an economic gain.

Housing demands for the New Orleans area and Jefferson Parish could possibly be met at the MLC1 site. The MLC1 property is north of the EPP site and is within the same levee and pumping system. Therefore, baseline environmental conditions are similar to the EPP site, yet there is more woody vegetation at the MLC1 site than the EPP site. To prepare the MLC1 site for development would take at least twelve months, the same amount of time that would be required to prepare the EPP site for construction. This figure does not account for purchasing the property within a reasonable time frame. The non-responsive attitude of the property owners indicates that long term negotiations may have to take place in order to obtain the property. The golf course would be designed and built on approximately 200 acres. The proposed project, as planned on the EPP site, could be built in the same general layout on the MLC1 site, with slightly less housing due to scaling down the project. Savings due to less fill would be obtained.

Anticipated costs to develop the MLC1 site are compared to the EPP site and other alternative sites in Table 2.1. Costs to purchase alternative sites were based upon similar acreage where possible. Discussion of the facilities necessary to tie-in the subdivision to existing utilities is provided in Sections 3.6.4 and 4.6.4. Roadway costs were based upon a 2,500 foot access roadway at $105 per linear foot or $262,500. Based upon Table 2.1, development of the MLC1 site would cost EPP (not Jefferson Parish), $6,600 more per developed acre. The majority of the cost difference comes from land acquisition costs and access road construction. This would make this alternative site economically unfeasible to EPP, since the estimated return on investment at the EPP site is approximately $2,000 per acre (RPA, 1996) (Appendix Q). In addition, the costs calculated in Table 2.1 do not include potential increases in financing costs due to land purchase at this alternative site.

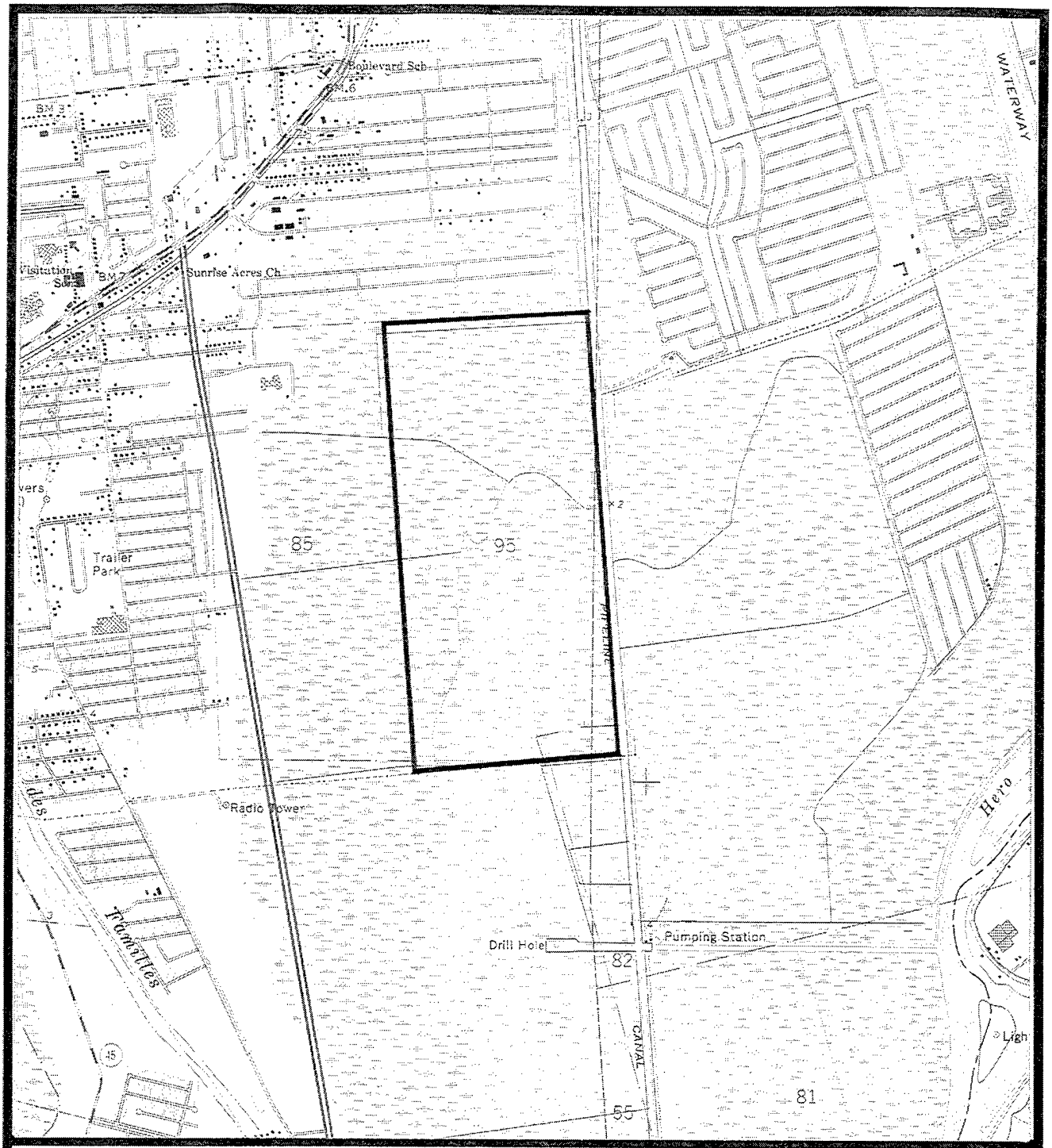


FIGURE 2.8

MCL1 - LOCATION MAP
FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT
AUGUST, 1996

FROM 1992 USGS
QUADRANGLE
BERTRANDVILLE, LA.

SCALE 1:24,000

Anticipated increases in direct revenues to Jefferson Parish due to developing the MLC1 site are summarized in Table 2.3. All revenues shown are determined over a ten year period. Anticipated infrastructure maintenance costs are based over the same ten year period. General costs to maintain and operate sewer and water lines within the proposed development are assumed to be zero since these costs are directly covered by user fees. Infrastructure cost assumptions were the same as for the EPP site. The major difference between the MLC1 and the EPP site is the reduction in revenues from operation of the golf course. This is due to the purchase price of the 200 acres estimated at greater than $4,000,000. Loss in revenue to Jefferson Parish for developing the MLC1 site as opposed to the EPP site is $3,300,000 or greater. In addition, the golf course will require additional monies to operate and will not generate revenue until its ninth or tenth year of operation. A nine to ten year payback period on the golf course makes it a much riskier business venture for Jefferson Parish. After the first ten years the revenues generated by the MLC1 site are anticipated to be approximately $350,000 less per year than the EPP site (based on the ten year revenue and tax returns from Tables 2.2 and 4.1, respectively).

As with the applicants' proposed action, the MLC1 property is located in area that is anticipated to receive much of the growth to be experienced by the New Orleans MSA in the coming years. Significant growth is expected in this area by 2000. Jefferson Parish is expected to lead the West Bank parishes in development, because of the greater availability of developable land and its expanding economy. Corridors such as U.S. 90, Manhattan Boulevard, Lapalco Boulevard, and Barataria Boulevard, traverse those areas in Jefferson Parish where developable land is available and readily accessible. A subpopulation survey indicated 65% of middle to high income residents would not move from the West Bank and 73% of these residents would not move if housing comparable to the North Shore were available on the West Bank.

Based on 1990 census data, Jefferson Parish had approximately 72,879 units of available housing; 9800 housing units were unoccupied. The unoccupied units consisted of a homeowner vacancies and rental vacancies. The exact percentages or numbers for each were unavailable from this census. However, they are most likely comparable to percentages reported for St. Charles and Plaquemines Parish, with the majority of unoccupied units consisting of renters.

In addition to a Corps permit, which would be required for the constructing the proposed development on the MLC1 site, some potential permits and approvals that may be required from other agencies are: local building permits; approval from the CRT; LDEQ Office of Water Resources, State Water Quality Certification is required; and consistency with all applicable state and Federal laws as listed in Chapter 5. No Coastal Use Permit is required by DNR since the property is considered "Fastlands". Appendix E contains a letter from the CRT demonstrating that there are no known sites of historical, archeological, or cultural significance present on the MLC1 site.

2.3.5 Alternative Number 4 - Landco

Alternative No. 4 would place the proposed development on the Landco property. The

Landco site is also located on the West Bank of Jefferson Parish, Figures 2.3 and 2.9. Flood protection for this site is provided by the Harvey Canal levee, which currently offers somewhat less protection than that of the Estelle V-levee (it is not of uniform height throughout its length). This levee is expected to be upgraded to 300 to 500-year storm protection by the year 2000.

The Landco property is approximately 869 acres and is jurisdictional wetlands. This site is not accessible from any major highway or parish road. The only current access to the site is through the Woodmere subdivision, which does not have a roadway extending into the subject site. If this site were selected, main road access would have to be provided. The road would be expected to be approximately 200 feet. During housing and golf course construction activities, the site would have to be raised to the elevation of one foot above sea level. If the entire site was filled to this elevation, approximately 1.4 million cubic feet of fill material would be required. The source of fill material would be Mississippi River sand. The dredging would take place at a point just south and east of the Hero Canal which is in Plaquemines Parish just south of the airfield in Belle Chasse. The source would be an existing operation which has been permitted over thirty years and that has piping under the Mississippi River levee as well as under Highway 23, that continues west approximately 700 feet. The current operator has indicated that a permit modification would not be required to supply the fill required for this project. A pipeline would be floated west-northwest in the Hero Canal, submerged to cross the Intracoastal Waterway and continuing north along the Intracoastal Waterway and entering Landco's southwest corner (approximately 5.5 miles). A compartmentalized fill method using dikes would be utilized to protect portions of the site that are to be preserved. Some areas of the site would be left in their natural state to provide relief areas on the golf course and to enhance the quality of the housing development. Utilities such as electricity, sewage, and water would have to be provided. Additional streets would be required if the housing development were constructed.

The Landco site could potentially supply the demand for housing and golf in Jefferson Parish. This property is not owned by the applicant and there are two current land owners. Essentially, EPP could not donate land to Jefferson Parish for the construction and operation of a PGA caliber golf facility if it does not own the land. The purchase price, if one could be determined, would eliminate the gains EPP would receive from donating land they already own, thus, they would not be financially able to donate the property to Jefferson Parish. To obtain 200 acres, costs to the Parish may be anticipated to exceed $4,000,000 due to the reluctance of the landowner to sell the property. Without the property donation, Jefferson Parish could not develop a municipal golf facility which would generate revenues within its first nine years of operation. The facility is expected to have a $4,800,000 return on its investment by year 10 of operation. This assumes the cost of the facility would be financed over thirty years. With the additional cost of purchasing the land, this return on the investment would be reduced.

Anticipated costs to develop the Landco site is compared to the EPP site and other alternative sites in Table 2.1. Costs to purchase alternative sites were based upon similar acreage where possible. Discussion of the facilities necessary to tie-in the subdivision to

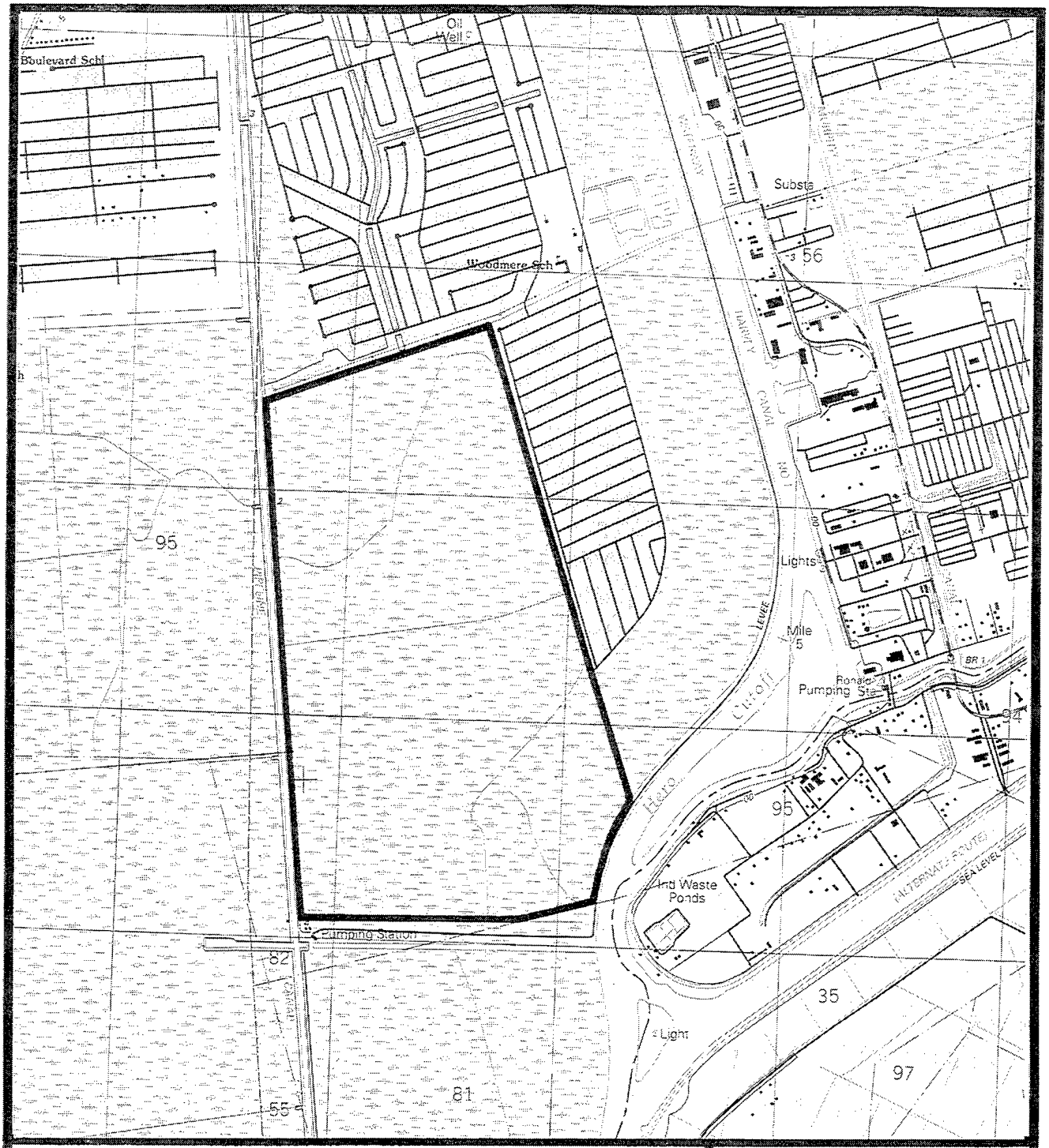


FIGURE 2.9

LANDCO - LOCATION MAP
FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT
AUGUST, 1996

FROM 1992 USGS
QUADRANGLE
BERTRANDVILLE, LA.

SCALE 1:24,000

existing utilities is provided in Sections 3.6.4 and 4.6.4. Roadway costs were based upon a 200 foot access road at $105 per linear foot. Based upon this table, development of the Landco site would cost EPP (not Jefferson Parish), $6,100 more per acre to develop. The majority of the cost difference comes from land acquisition costs and increased fill placement costs. This would make this alternative site economically unfeasible to EPP, since the estimated return on investment at the EPP site is approximately $2,000 per acre (RPA, 1996) (Appendix Q). In addition, the costs calculated in Table 2.1 do not include potential increases in financing costs due to land purchase at this alternative site.

Anticipated increases in direct revenues to Jefferson Parish due to developing the Landco site are summarized in Table 2.3. All revenues shown are determined over a ten year period. Anticipated infrastructure maintenance costs are based over the same ten year period. General costs to maintain and operate sewer and water lines within the proposed development are assumed to be zero since these costs are directly covered by user fees. Infrastructure cost assumptions were the same as for the EPP site. The major difference between the Landco and the EPP site is the reduction in revenues from operation of the golf course. This is due to the purchase price of the 200 acres estimated at greater than $4,000,000. Loss in revenue to Jefferson Parish for developing the Landco site as opposed to the EPP site is $3,300,000 or greater. In addition, the golf course will require additional monies to operate and will not generate revenue until its ninth or tenth year of operation. A nine to ten year payback period on the golf course makes it a much riskier business venture for Jefferson Parish. After the first ten years, the revenues generated by the Landco site are anticipated to be approximately $350,000 (or greater) per year less than the EPP site (based on the ten year revenue and tax returns from Tables 2.2 and 4.1, respectively).

Housing demands for the New Orleans area and Jefferson Parish could possibly be met at the Landco site. However, demand for the site may be diminished due to the poor quality of housing construction associated with the adjacent Woodmere South subdivision. Proper preloading of site soils was not provided for this subdivision and pile supports of the housing may have been insufficient. The Landco property is north and east of the EPP site. It is on the eastern side of the pipeline canal that forms the eastern boundary of the EPP site. Baseline environmental conditions are similar to the EPP site, however a wooded swamp exists over much of the site.

To prepare the Landco site for development would take at least twelve months, the same amount of time that would be required to prepare the EPP site for construction. This does not account for purchasing the property within a reasonable time frame. The golf course would be designed and built on approximately 200 acres. The proposed project, as planned on the EPP site, could be built in the same general layout on the Landco site and the amount and cost of fill material would be slightly greater if the entire site was filled due to its greater acreage. Also, time delays related to obtaining the property and obtaining additional permits would change the planned project time frame.
As with the applicant's Proposed Action, the Landco property is located in area that is anticipated to receive much of the growth to be experienced by the New Orleans MSA in the coming years. Significant growth is expected in this area by the year 2000.

Jefferson Parish is expected to lead the West Bank parishes in development, because of the greater availability of developable land and its expanding economy. Corridors such as U.S. 90, Manhattan Boulevard, Lapalco Boulevard, and Barataria Boulevard, traverse those areas in Jefferson Parish where developable land is available and readily accessible. A subpopulation survey indicated 65% of middle to high income residents would not move from the West Bank and 73% of these residents would not move if housing comparable to the North Shore were available on the West Bank.

Based on 1990 census data, Jefferson Parish had approximately 72,879 units of available housing; 9800 housing units were unoccupied. The unoccupied units consisted of a homeowner vacancies and rental vacancies. The exact percentages or numbers for each were unavailable from this census. However, they are most likely comparable to percentages reported for St. Charles and Plaquemines Parish, with the majority of unoccupied units consisting of renters.

In addition to a Corps permit, which would be required for the constructing the proposed development on the Landco site, some potential permits and approvals that may be required from other agencies are: a Louisiana Coastal Use Permit; local building permits; approval from the CRT; LDEQ Office of Water Resources, Water Quality Certification is required; and consistency with all applicable state and Federal laws as listed in Chapter 5. Local building permits may be required from Jefferson Parish. Appendix E contains a letter from the CRT demonstrating that there are no known sites of historical, archeological, or cultural significance present on the Landco site.

2.3.6 Alternative Number 5 - Plaquemines Parish 1

Alternative No. 5 would situate the proposed action on Plaquemines Parish 1 (PP1). This alternative would result in relocating the proposed development to this location in Plaquemines Parish. The PP1 site is located in Plaquemines Parish between the Mississippi River, Woodland Road, the Orleans Parish line, and Hebert Road, Figures 2.3 and 2.10. The property is approximately 655 acres and is mostly considered jurisdictional wetlands. The majority of the non-wetland is located northwest of Planters Canal. This area is not large enough to support the development and wetlands would be impacted in order to provide the size and quality of the proposed development. Portions of the property are at sea level (0 feet National Geodetic Vertical Datum (NGVD)), thus, approximately 1.1 million cubic feet of fill would be required to elevate the site to a grade suitable for building the golf course/housing development. The source of fill material would be Mississippi River sand. The dredging would take place at a point just south and east of the Hero Canal which is in Plaquemines Parish just south of the airfield in Belle Chasse. The current operator has indicated that a permit modification would not be required to supply the fill required for this project. A pipeline would be placed along the western banks of the Mississippi River and travel in a northeastern direction, cross the Mississippi River levee and enter the southwest corner of the PP1 site (approximately 7.30 miles). If this site is selected, the potential exists for fill material (dredged from the same location) to be pumped from a barge in the river to this location. Cost comparisons between the transport mechanisms have not been conducted at this time. The site can be

accessed from Woodland Road, but a main access road would be required. Utilities such as electricity, sewage, and water would have to be provided. Additional streets would be required if the housing development were constructed.

The PP1 alternative has the same approximate level of flood protection as EPP and the other Jefferson Parish alternatives. However, EPP and the other Jefferson Parish alternatives would be provided with 300 to 500-year storm protection within five years, the PP1 site would not. Plans to incorporate the levee systems of Plaquemines Parish, namely the Hero Canal levee and the Algiers Canal levee, into the West Bank Hurricane Protection System have been developed. Authorization to construct the upgrades has not been granted by Congress, therefore, the site can not be expected to have the same level of protection as Jefferson Parish prior to the year 2000.

This site is expected to be able to provide the golf and housing demands of the New Orleans area, but not Jefferson Parish. The property is currently owned by six separate landowners. All six of the owners are private individuals. The owners have been contacted and, for the right price, all are willing to discuss purchase options. This property is not located in Jefferson Parish, therefore, the economic development and tax benefits generated from the proposed golf facility would not belong solely to Jefferson Parish. Jefferson Parish or EPP would have to purchase this property in order to construct the proposed golf course. It has been stated that the property must be donated in order for Jefferson Parish to construct a golf course which can generate revenues for the Parish. The costs associated with purchasing the required acreage would prevent EPP from donating the land. Costs associated with purchasing 200 acres of the 655 acres available would be approximately $5,000,000 based on current market prices for land in the vicinity of PP1. This is anticipated to be the primary cost difference between the EPP figure 2.10 and PP1 sites. In addition, Jefferson Parish would be operating a Parish owned development outside of Jefferson Parish; a situation wrought with development difficulties. Time delays associated with an inter-parish agreement could well exceed the planned development time for the applicants' proposed action.

Anticipated costs to develop the PP1 site are compared to the EPP site and other alternative sites in Table 2.1. Costs to purchase alternative sites were based upon similar acreage where possible. Discussion of the facilities necessary to tie-in the subdivision to existing utilities is provided in Sections 3.6.4 and 4.6.4. Based upon this table, development of the PP1 site would cost EPP (not Jefferson Parish), $9,500 more per acre to develop. The majority of the cost difference comes from land acquisition costs and increased fill placement costs. This would make this alternative site economically unfeasible to EPP, since the estimated return on investment at the EPP site is approximately $2,000 per acre (RPA, 1996) (Appendix Q). In addition, the costs calculated in Table 2.1 do not include potential increases in financing costs due to land purchase at this alternative site.

Anticipated increases in direct revenues to Jefferson Parish due to developing the PP1 site are summarized in Table 2.3. All revenues shown are determined over a ten year period. Anticipated infrastructure maintenance costs are based over the same ten year period.

General costs to maintain and operate sewer and water lines within the proposed development are assumed to be zero since these costs are directly covered by user fees. Infrastructure cost assumptions were the same as for the EPP site. The major difference between the PP1 and the EPP site is the reduction in revenues from operation of the golf course. This is due to the purchase price of the 200 acres. Loss in revenue to Jefferson Parish for developing the PP1 site as opposed to the EPP site is $10,900,000 or greater. This includes a loss of $6,860,000 in tax revenues which would be obtained by Plaquemines Parish as opposed to Jefferson. The overall loss in revenue to both Parishes would be $4,000,000. In addition, the golf course will require additional monies to operate and will not generate revenue until its tenth year of operation. A ten year payback period on the golf course makes it a much riskier business venture for Jefferson Parish. After the first ten years the revenues generated by the PP1 site are anticipated to be approximately $390,000 (or greater) per year less than the EPP site with $1,230,000 of these revenues going to Plaquemines Parish (based on the ten year revenue and tax returns from Tables 2.2 and 4.1, respectively). In addition, major drainage improvements may be necessary due to the development of this site, possibly utilizing all the revenues generated.

PP1 would most likely fulfill the housing demands for the residents of the New Orleans MSA, but not Jefferson Parish. As has been demonstrated, the supply and demand for quality housing is expected to increase in the New Orleans area over the next ten years. Jefferson Parish is anticipated to lead the West Bank in development because of the greater availability of developable land and its expanding economy. Due to the expanding economy and increase in residents, the Parish needs new housing developments. To develop housing in Plaquemines Parish for Jefferson Parish residents would not meet Jefferson Parish's development goals and would remove an important source of tax revenues from the Parish.

Based on 1990 census data, Plaquemines Parish had approximately 9,432 units of available housing; 1220 housing units were unoccupied. This consisted of a homeowner vacancy rate of 1.6 percent and rental vacancy rate of 12.1 percent. Plaquemines Parish until March 1996 was operating under a development moratorium for residential developments, trailer parks, and zoning changes. This moratorium still precludes industrial development. Development of this type in Plaquemines Parish was halted due to the lack of available Parish services to newly developed areas south of Belle Chasse. Parish land use studies had anticipated that most residential development commencing after 1983 would occur north of Hero Canal, in the Belle Chasse area. The studies proved to be wrong and heavy residential development occurred south of Hero Canal. Thus, the Parish was not prepared and could not provide basic services to the newly developed areas (water, fire protection, police, etc.). Parish services essential to the proposed action such as schools, police, fire protection, hospitals, water and sewage treatment may not be readily available if the proposed action were to be constructed at this location.

In addition to a Corps permit, which would be required for the constructing the proposed development on the PP1 site, some potential permits and approvals that may be required from other agencies are: local building permits; approval from the CRT; LDEQ Office of

Water Resources, Water Quality Certification is required; and consistency with all applicable state and Federal laws as listed in Chapter 5. A Coastal Use Permit may be required by DNR unless the property is classified as "Fastlands". Local building permits would be required from Plaquemines Parish. Appendix E contains a letter from the CRT indicating that there are no known sites of historical, archeological, or cultural significance present on the PP1 site.

2.3.7 Alternative Number 6 - Bunge Corporation

Alternative No. 6 would relocate the proposed action on Bunge Corporation (Bunge) land. This alternative would result in downsizing and relocating the proposed development to St. Charles Parish. The Bunge site is located in St. Charles Parish between the St. Charles Parish Airport and the Jefferson Parish line on the West Bank of the Mississippi River, Figures 2.3 and 2.11. The property is approximately 400 acres. About 277 acres of the property are considered agricultural lands and the remaining acreage is wetlands. Due to the property size and general location, this site is only being considered for the housing portion of the proposed development, but a golf course could be built on a smaller amount of acreage in this location in lieu of housing. Approximately, 0.8 million cubic yards of fill would be required to raise the southern portion of the site to 5.0 feet NGVD. All fill material necessary for site preparation would be from the Mississippi River. River sand and silt would be pumped directly from a permitted dredge location or from a barge on the river onto the site. The current operator has indicated that a permit modification would not be required to supply the fill required for this project. It is anticipated that less than one mile of above ground pipeline would be necessary to serve as the transport mechanism for the material. It is anticipated the material would be pumped from the Mississippi due south to the northern boundary of the Bunge site.

Utilities such as electricity, sewage, and water would have to be provided. Additional streets would be required if the housing development were constructed. There is a locked gate to the pasture which currently provides access to the site. Since there is not a roadway through the pasture, main access would have to be provided to construct a subdivision.

The Bunge alternative has 100-year storm event flood protection as provided by the mainline Mississippi River levee system. The majority of the site is at elevation +5 feet NGVD, thus, there is no forced drainage. There is a small earthen berm, approximately three feet in height, lying east to west down the middle of the site. South of this berm the land decreases in height to approximately 0 feet NGVD. The southern portion of the property is wetlands. This wet area interfaces with marsh to the south of the agricultural area. There is no flood protection to protect the Bunge site from flooding from the south, due to storm surges through the marsh, hurricane storm surges,etc. The only protection from this type of flooding is the elevation of the property. The northern property line, which is at 12 feet NGVD could essentially provide 100-year flood protection. In contrast, the EPP site would have 300 to 500-year storm event protection within five years. The Bunge site is not anticipated to have such protection. There are no current plans to provide a levee system to the south of this alternative site.

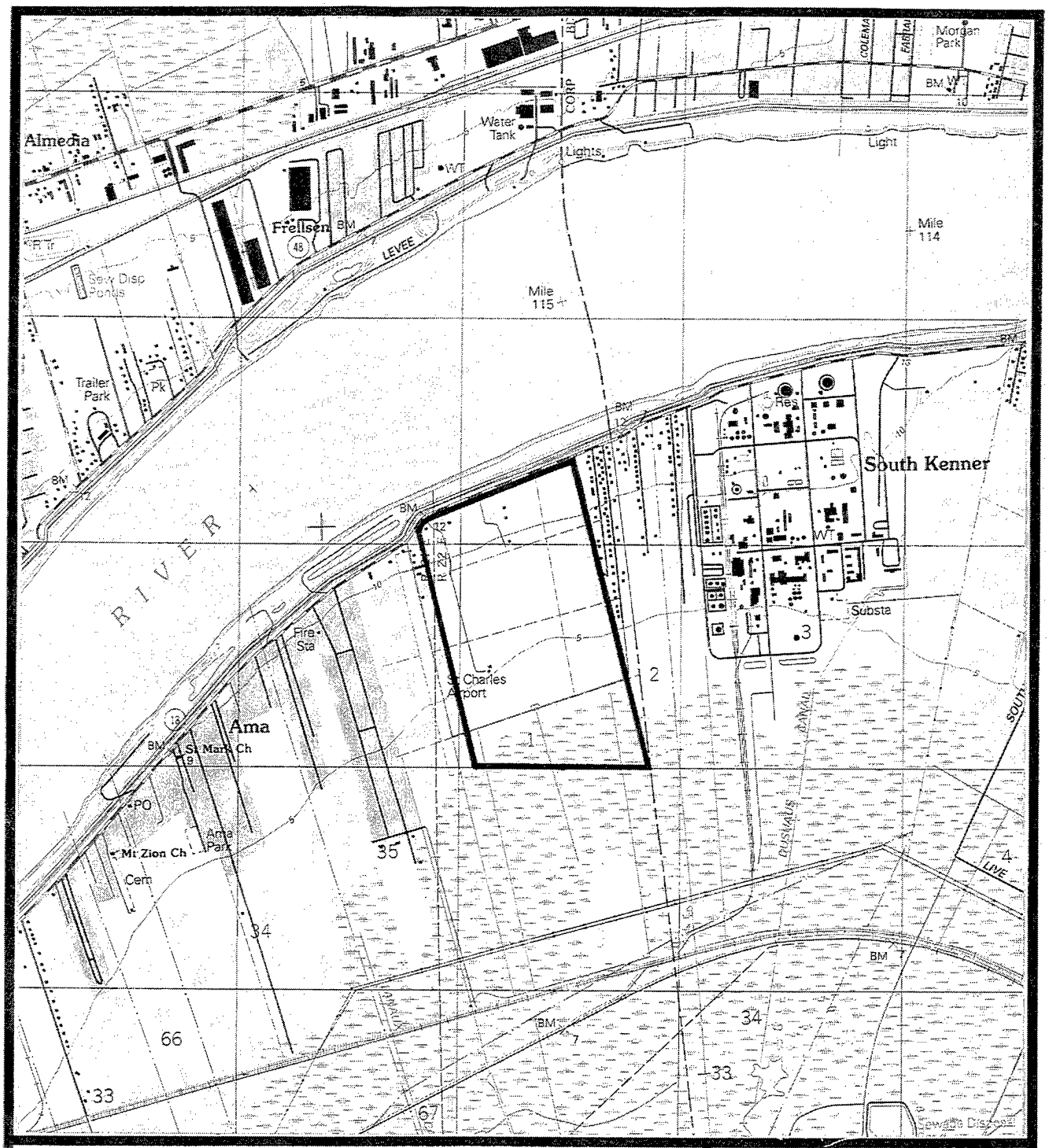


FIGURE 2.11

BUNGE - LOCATION MAP
FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT
AUGUST, 1996

FROM 1992 USGS
QUADRANGLE
BERTRANDVILLE, LA.

SCALE 1:24,000

This site will not be considered to provide the golf portion of the proposed development. The total acreage of the Bunge property is not sufficient to provide for the development of a PGA caliber golf course and a quality housing community. In addition, Jefferson Parish is a co-applicant for the proposed development and supports the establishment of a municipal golf facility. It was determined that the public interest would be better served utilizing this site only as a housing alternative. It should be mentioned that the applicant does not recognize this site as a potential alternative site because the proposed development is based on an existing demand for golf oriented housing communities and this site would not fulfill that demand.

The property is currently owned by Bunge Corporation. Bunge has indicated that they would be interested in selling the property for an undisclosed amount. Construction of housing on this site should require less preparation than the proposed EPP site. Less fill and site work would be necessary and housing construction would not have to wait on the completion of the golf course. Construction may be able to be initiated a year earlier than the EPP site. However, the increase in costs to purchase the site are anticipated to be greater than the decrease in site preparation costs. Land acquisition costs are expected to be higher than the savings generated by less fill and site preparation. Assumed land acquisition costs of $8,000,000 could be anticipated. The property is in a developable condition, is located on Louisiana Highway 18 (River Road) and appears to be currently leased for cattle production. Although Bunge Corporation would not quote a per acre cost, these site conditions indicate that the property provides an actual and potential income to Bunge Corporation that may be greater than its appraised value.

Anticipated costs to develop the Bunge site are compared to the EPP site and other alternative sites in Table 2.1. Costs to purchase alternative sites were based upon similar acreage where possible. Discussion of the facilities necessary to tie-in the subdivision to existing utilities is provided in Sections 3.6.4 and 4.6.4. Based upon this table, development of the Bunge site would cost EPP (not Jefferson Parish), $3,200 more per acre to develop. The majority of the cost difference comes from the cost of sewage treatment facilities. This would make this alternative site economically unfeasible to EPP, since the estimated return on investment at the EPP site is approximately $2,000 per acre (RPA, 1996) (Appendix Q). In addition, the costs calculated in Table 2.1 do not include potential increases in financing costs due to land purchase at this alternative site. Based upon information provided in the RPA reports in Appendix Q and R, the Bunge site is less likely to attract homeowners, further reducing the project's feasible to EPP. This is due primarily to the site's location and a reduction in house sales due to the elimination of the golf course from the project.

Anticipated increases in direct revenues to Jefferson Parish due to developing the Bunge site are summarized in Table 2.3. All revenues shown are determined over a ten year period. Anticipated infrastructure maintenance costs are based over the same ten year period. General costs to maintain and operate sewer and water lines within the proposed development are assumed to be zero since these costs are directly covered by user fees. Infrastructure cost assumptions were the same as for the EPP site. The major difference

between the Bunge and the EPP site is the loss in revenues from operation of the golf course. Loss in revenue to Jefferson Parish for developing the Bunge site as opposed to the EPP site is $11,000,000. This includes a loss of $6,860,000 in tax revenues which would be obtained by St. Charles Parish as opposed to Jefferson. The overall loss in revenue to both Parishes would be $4,460,000. After the first ten years the revenues generated by the Bunge site are anticipated to be approximately $ 1,000,000 per year less than the EPP site with all generated revenues going to St. Charles Parish (based on the ten year revenue and tax returns from Tables 2.2 and 4.1, respectively).

Bunge would most likely support the housing demands for the residents of the New Orleans area, but not Jefferson Parish, if the applicant could purchase the property for a reasonable amount. As has been demonstrated, the supply and demand for quality housing is expected to increase in the New Orleans area over the next ten years. Jefferson Parish is anticipated to lead the West Bank in development because of the greater availability of developable land and its expanding economy. Due to the expanding economy and increase in residents, the Parish needs new housing developments. To develop housing in St. Charles Parish for Jefferson Parish residents would not meet Jefferson Parish's development goals and would remove an important tax revenue source from the Parish. EPP would see reduced economic gains by reducing the size of its proposed development, purchasing property on which to construct the development, and producing a housing product without the quality of life enhancement provided by a golf course. In addition, the Bunge site is not zoned residential. The Parish would have to be petitioned in order to re-zone the property for residential development.

Based on 1990 census data, St. Charles Parish had approximately 17,616 units of available housing; 1600 housing units were unoccupied. This consisted of a homeowner vacancy rate of 2.5 percent and rental vacancy rate of 16.3 percent. Current high quality middle to upper class subdivisions in St. Charles Parish have not been demonstrating high levels of growth.

In addition to a Corps permit, which would be required for the constructing the proposed development on the Bunge site if wetlands are impacted, some potential permits and approvals that may be required from other agencies are: local building permits; approval from the CRT; LDEQ Office of Water Resources, Water Quality Certification is required; and consistency with all applicable state and Federal laws as listed in Chapter 5. A Coastal Use Permit may be required by DNR for complete development of the site since some portions of the property are at elevations less than +5 feet NGVD. Local building permits would be required from St. Charles Parish. Appendix E contains a letter from the CRT indicating that there are no known sites of historical, archeological, or cultural significance present on the Bunge site.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED

The twenty-three alternative site locations listed in Table 2.4 represent the alternative locations that were considered during the initial search and the criteria established in which to rate the sites

for their ability to serve as an alternative location. Subsequent tables address additional criteria applied to the sites that resulted in the list of reasonable alternative sites discussed in Section 2.3. Table 2.4 indicates that nine properties were eliminated from the list of alternatives after being subjected to the initial criteria. Those nine sites were; the SC1, MS, KGore, JBLevert, MAPS, MI, JP1, JP2, and Hero sites (Figure 2.2).

The SC1 site was removed because it was deemed unmanageable due to the large number of landowners. There are twenty-seven landowners that own as little as a half an acre of this alternative location site. Not all the of the landowners are listed in current tax records for St. Charles Parish. Given the time frame in which the proposed project is planning to be in place and operating, approximately two years, it would not be possible to contact all the landowners and negotiate for the land in a timely manner.

MS site is a portion of a larger estate formerly owned by Marcia Ann Penick Schornstien. Ms. Schornstien recently passed away and left the estate to her four children. Which child is the primary contact for this land has not been confirmed, but is believed to be Mark Schornstien. The estate is believed to be unsettled and the potential landowners have not been located. St. Charles Parish tax rolls for 1994 do not list the property under taxes paid. There is also some potential for this portion of the estate to be affected by the Davis Pond Diversion, a planned Federal project to divert water and sediments from the Mississippi River. For these reasons, the property has been eliminated as a potential alternative site.

1990 aerial photography indicated that the KGore site was developed and, as a result, could not be considered an alternative site.

Three of the nine eliminated sites, JBLevert, MAPS, and MI are situated within the outfall path of the planned Davis Pond freshwater/sediment diversion. These sites are wetlands to be enhanced by the diversion and will be under Federal management for protection and conservation, thereby making them ineligible for consideration as alternative sites.

The JP1 site was also eliminated during the initial criteria review. This undeveloped site lies in western Jefferson Parish within a quarter mile of several landfills. One of the landfills, the Kelven Landfill, has plans currently under permit review to expand. The expansion plans of this landfill incorporates a portion of the JP1 site. It has been determined that the future plans will be implemented and part of this potential alternative site will become part of the landfill. The proximity of the landfill would result in decreased quality of life for residents if the proposed project could be constructed there. In addition, the proposed project, to develop high quality housing for middle class to upper class residents, could not be successfully marketed adjacent to a municipal and industrial landfill. Thus it was eliminated from further consideration.

JP2, located off Louisiana Highway 18 in western Jefferson Parish, was eliminated from further study due to the excessive landowner situation. This site has greater than twenty landowners, no one or two of those landowners owns a large portion of the tract. Given the time frame in which the proposed project is planned to be in place and operating, approximately two years, it would not be possible to contact all the landowners and negotiate for the land in a timely manner.

TABLE 2.4
ALTERNATIVE SITES ANALYSIS

INITIAL CRITERIA FOR REMOVING SITES FROM FURTHER STUDY

ALTERNATIVE SITE	INITIAL CRITERIA							
	200-600 ac	Mult Owner	Travel time (40 min's)	Federal Project (planned)	Military Ops Restrictions	Parish (Golf only)	Local Zoning Compatability	Removed from further study
AMOCO	>600	no	yes	no	no	St. Charles		
STCAL	1000	no	yes	no	no	St. Charles	yes	
SC1	500	yes-27	yes	no	no	St. Charles	yes	+
NORDA	390	no	no	portions	no	St. Charles	unlikely	
MS	600	no	no	portions	no	St. Charles	unlikely	+
BUNGE	400	no	no	no	no	St. Charles	no	
ESPARENZA	1877	no	yes	no	no	St. Charles	no	
HYMEL	500	no	yes	no	no	St. Charles	yes	
HOTELD	500	no	yes	no	no	St. Charles	yes	
KGORE*	400	no	yes	no	no	St. Charles	no	+
JBLEVERT	1500	no	yes	yes	no	St. Charles	yes	+
MAPS	1500	no	yes	yes	no	St. Charles	yes	+
MI	1000	no	yes	yes	no	St. Charles	yes	+
CM	4500	no	yes	no	no	Jefferson	yes	
MLC2	350	no	yes	no	no	Jefferson		
JP1**	600	yes-10+	yes	no	no	Jefferson	no	+
JP2	800	yes-20+	no	no	no	Jefferson	yes	+
ESTELLE	643	no	yes	no	no	Jefferson	yes	
EG	790	no	yes	no	no	Jefferson	yes	
MLC1	>600	no	yes	no	no	Jefferson	yes	
LANDCO	>600	no	yes	no	no	Jefferson	yes	
HERO	>600	no	maybe	no	yes	Plaquemines	no	+
PP1	655	yes-6	yes	no	no	Plaquemines	yes	

* Property has already been developed
** Property is adjacent to a landfill

The last site removed during the initial criteria review was the Hero site. The Hero property is located directly south of the Belle Chasse Naval Air Station and north of Hero Canal. Most of the property is undeveloped and under forced drainage. Some areas adjacent to the property have industrial and commercial development. During a daily commuter drive time, this site would not be within the forty minute radius for alternative sites. For weekend golfers, it is on the fringe of the maximum drive time. Assuming that the travel time criteria can be met, this site would still not support the goals of the applicants' proposed action. The Hero site is situated just south of the Belle Chasse Naval Air Station. A large portion of the site is contained within two Naval Air Station restrictive zones; Air Protection Zone 1 (APZ1) and APZ2. Zone APZ1 indicates the zone where planes would be expected to crash in the event of an in flight failure. The construction of housing in this zone is discouraged and is allowable only on a one housing unit per acre basis. Zone APZ2 reflects areas of greatest noise impact. Noise impacts associated with the Naval Air Station would have an unacceptable impact on the housing community as well as golfers utilizing the golf course. The APZ1 and APZ2 zones were established when the air station began operations and are expected to expand in the near future; as per phone contact with the Naval Air Station. The quality of life issue driving the proposed project would not be attained in this location. In addition, it is anticipated that the golf course portion of the development would not be utilized if the proposed action were constructed at this location. Bayou Barriere, a public golf facility located north of the Hero location and well within the proposed travel time, is under utilized. The course is unable to attract the additional golfers necessary to sustain a revenue generating public facility. It is reasonable to assume that local golfers, who would provide most of the financial support for the course, would not utilize a public facility located at the Hero site. Thus, due to site safety concerns, noise impacts, and general location, the Hero site can not be considered a reasonable alternative site.

Table 2.5 lists secondary criteria that were applied to the remaining fourteen sites. During this second review, five sites were eliminated from further study. The sites removed were: STCAL, NORDA, Esparenza, Hymel, and HotelD.

The STCAL site was eliminated from further review for a combination of reasons. This site is not owned by the applicant. The current landowners have indicated that they would sell the whole parcel, or only the parcel south of Airline Highway. A portion of this property sold several years ago for approximately $60,000 an acre. The portion of the property south of Airline Highway is approximately 900 acres. The high cost to obtain this land, which contains more acreage than is necessary for the proposed action, would prevent the applicant from selling lots to the target market stated. Since ownership of the site can not be the sole factor in the removal of site from the alternative analysis, the assumption will be made that the applicant can purchase the land. Assuming the applicant purchased the land, the applicant would have to provide flood protection for the property because none exists. The site is considered wetlands. A moderate to high quality cypress swamp currently exists on the subject location. Throughout the year, approximately one foot of water covers most of this site. This site is considered to contain wetlands of a higher value (bio-diversity, general health) than those of the EPP site. The costs to develop this parcel, if the permits could be obtained to develop it, would far exceed anticipated development costs for the applicants' proposed action. In addition, the site could not be prepared for development within the time frame established for the EPP site.

The NORDA alternative site is located off of Louisiana Highway 18 in St. Charles Parish. The site lies between Davis Pond and the Davis Pond Diversion channel. A portion of this site has been committed to form the western edge of the Davis Pond Diversion channel. It is unknown if the remaining acreage would be necessary for the completion of the Davis Pond Diversion. If the property remained available, it does not meet the travel time criteria of 40 minutes and there is no flood protection for the site. In addition, there is no access to the site from LA 18. Thus, complete access must be provided through land that is not owned by the current owners of the NORDA site. For these reasons, the NORDA site has been removed from consideration.

Esparenza was also eliminated from further study under the second review. Esparenza is a large tract of land that is currently leased for sugar cane farming and commercial developments. The land that is not being utilized for farming has been partially developed and is not of sufficient size to support the proposed development. There are no levees protecting the site from flood waters, which would be necessary since the majority of the site is outside of the 100-year flood protection zone. The applicant would have to provide flood protection, which would increase the costs and time required for development. In addition, the farmland is not for sale, therefore, not obtainable by the applicant. If the property was for sale, it is anticipated that, due to current uses, the site would be exceptionally expensive to obtain. As with the STCAL site, the high cost to purchase the property and provide flood protection would hamper marketability to the target population.

The Hymel and HotelD sites are located adjacent to Esparenza in St. Charles Parish. As with Esparenza, the majority of the acreage composing these sites are not protected by 100-year flood protection. The applicant would have to provide flood protection for the development. In addition, the properties are not owned by the applicant and the owners are not willing sellers. For these reasons, it is anticipated that the proposed action could not be constructed on either of these sites within the time frame established for the EPP site. Both the Hymel and HotelD alternative sites have been removed from further study.

Table 2.6 demonstrates additional criteria applied to the remaining alternative sites to determine if, in combination with criteria from Tables 2.4 and 2.5, more of the potential sites would be considered unreasonable alternatives. The three sites that were eliminated from continued review were the Amoco site, CM site and the MLC2 site. The Amoco site is located in St. Charles Parish under the Luling (Hale Boggs) Bridge, between the bridge and the ADM Grain Elevator on the east bank of the Mississippi River. The property is approximately 650 to 700 acres. Southern and central portions of the Amoco alternative site are at elevation +10 and +5 feet NGVD. Only the northern most portion of the site is below the +5 feet elevation. 85% of the site is considered to be non-wetlands. The Amoco alternative has 100-year storm event flood protection as provided by the mainline Mississippi River levee system. There is no forced drainage due to the locally high elevation of the site. The northern most portion of the property is wetlands and could be avoided if this property had been selected as an alternative site. This wet area interfaces with cypress-tupelo swamp to the north. This swamp typically has one foot of standing water throughout the year. There is no flood protection to protect the Amoco site from flooding from the north, due to hurricane storm surges elevating water levels in Lake

TABLE 2.5
ALTERNATIVE SITES ANALYSIS

SECONDARY CRITERIA FOR REMOVING SITES FROM FURTHER STUDY

ALTERNATIVE SITE	Ownership	Willing to sell (whole or part)	Prohibitive Cost	Flood Protection	Access (a or b)	Removed from further study
AMOCO	no	no	yes	no	a	
STCAL	no	yes-whole	yes	no	a	+
NORDA	no	yes-whole	yes	no	b	+
BUNGE	no	yes-whole	unknown	no	a	
ESPARENZA	no	no	yes	no	a	+
HYMEL	no	no	yes/5x AV	no	a	+
HOTELD	no	yes-whole	yes/5x AV	no	a	+
CM	no	no	yes	yes	b	
MLC2	no	unknown	unknown	yes	a	
ESTELLE	yes	ownership	ownership	yes	a	
EG	no	yes-whole	no	yes	a	
MLC1	no	unknown	unknown	yes	b	
LANDCO	no	unknown	unknown	forthcoming	b	
PP1	no	yes-whl/part	yes	forthcoming	a	

AV = Appraised Value

* "a" means some form of access exists (may require upgrade)
  "b" means no access exists

Pontchartrain. The only protection from this type of flooding is the elevation of the property. In contrast, the EPP site will have 300 to 500-year storm event protection within five years. The Amoco site is not anticipated to have such protection.

The Amoco alternative site is split in half by the Illinois Central Gulf railroad, Destrehan yard. Illinois Central Gulf (ICG) operates this yard as a switching location, freight loading and unloading area, a temporary storage yard, and to stall trains that are ahead of schedule. This is the only switching yard ICG operates between Geismar and Harahan. Approximately four trains pass through the Destrehan yard on a daily basis. Those numbers can be as high as eight depending the time of the year and demand of local products. It is not uncommon for several locomotives to be "lain over" at the yard for more than 24 hours. The trains that load, unload, switch, and wait at this yard carry a variety of materials, many of which are considered hazardous materials. Chemical cars carrying liquid, solid and/or gaseous chemicals and substances are common to many of the trains. During grain season, extra trains are required to travel this route to accommodate the grain production. ICG receives regular complaints from the Ormond subdivision, north of the railroad location. Most of the complaints relate to trains sitting on the tracks too long and excessive steam production from the locomotives. The presence of the railroad switching yard is not an appealing amenity for a golf course and housing community.

Proximity of the Amoco site to the ADM Grain Elevator may pose some health concerns. Elevated levels of soy and corn dust in the vicinity of the subject site have been detected. High levels of organic dusts are believed to have the potential to cause respiratory system problems. Residential areas near the grain elevators in St. Charles Parish have protested the dust levels since the grain elevators began operations in the 1960's (Bell, 1995). It is anticipated that a residential/golf development adjacent to the grain elevator would raise the same concerns.

Another item of concern related to the Amoco alternative site is the history of the property. A refinery was present on the Amoco alternative site. This refinery was closed during 1956. Historical aerial photography indicates that there were numerous large volume storage tanks on the site north and south of the railroad tracks. The footprints of those tanks were still visible on the site in 1990. This site is currently being investigated by both Federal and state authorities for surface and subsurface soil contamination and groundwater contamination. Heavy metal and hydrocarbon based contamination has been discovered on various locations on the site.

Given the subsurface contamination, Jefferson Parish would not be interested in leasing this property for the construction of a municipal golf facility. The applicant would be assuming environmental liability risks by purchasing some of the property for housing and sub-leasing 200 acres for a golf facility. Costs associated with the leasing of 200 acres for a golf course development and attempting to purchase surface rights on this land could far exceed anticipated project costs for the EPP preferred alternative. In addition, contamination remediation costs associated with the development of this site could be too extensive for the applicants to incur. The presence of the railroad and the potential contamination from the operation of the refinery also prevent consideration of this site for a housing community.

TABLE 2.6
ALTERNATIVE SITES ANALYSIS

ADDITIONAL CRITERIA FOR REMOVING SITES FROM FURTHER STUDY

ALTERNATIVE SITE	ADDITIONAL CRITERIA							
	Degree of Flood Protn	Wet/NonW	Contamination of site	Location CMA	Transportability (a or b)*	Local Zoning Compliance	Additional Permits Req.	Removed from further study
AMOCO	100 yr	Wet/NonW	yes	no	b	no	maybe	+
BUNGE	100 yr	Wet/NonW	no	no	b	no	yes	
CM	100 yr	Wet/NonW	no	no	b	yes	yes	+
MLC2	100 yr	Wet/NonW	no	no	b	yes	yes	+
ESTELLE	300-500 yr	Wet	no	yes	a	yes	no	
EG	300-500 yr	Wet	no	yes	a	yes	yes	
MLC1	300-500 yr	Wet	no	yes	a	portions	maybe	
LANDCO	300-500 yr	Wet	no	yes	a	yes	maybe	
PP1	100 yr	Wet/NonW	no	no	a	portions	maybe	

* "a" means shuttle service from major downtown hotels available
"b" means shuttle service from major downtown hotels is not currently available

CM is located in Jefferson Parish within the Cataouatche levee. This site lacks available access. To obtain access, a right of way would have to be purchased from adjacent landowners. The levee system that protects this site does not provide the same level of protection that the Estelle V-levee provides. The Estelle V-levee will be enhanced and incorporated into the Westwego to Harvey Federal Hurricane Protection Levee system. This levee system is anticipated to be completed within five years and will provide protection from a 300 to 500-year storm event. The Cataouatche levee system will be upgraded to provide protection from a 200-year storm event if funding for the project is authorized. Since the project does not have authorization, the anticipated start date can not be determined. Thus, the flood protection level at the CM site is far below that of the EPP site. In addition to these items, the owner of the CM site is not willing to sell the property. The lack of comparable levee protection and the costs and time involved to attempt to obtain the site are the factors that eliminate this site from further study.

The MLC2 site represents an unreasonable alternative site for reasons similar to the CM site. MLC2 is also located within the Cataouatche levee, thus, in an area where comparable levee protection is not available and even with the potential of an upgrade, the levee system would still provide less protection than the Estelle V-levee. There is no access to this location. Access would have to be obtained through adjacent property owners, increasing the time and cost factor of constructing the proposed action at this site.

The remaining six sites, EPP, EG, MLC1, Landco, PP1, and Bunge did not demonstrate unreasonable site characteristics, thus, they were established as reasonable alternative sites.

2.5 PROPOSED PROJECT IMPACTS

Table 2.7 summarizes potential impacts that could result from the applicants' proposed action and the various reasonable alternative locations. Impacts are discussed in depth in Chapter 4.

TABLE 2.7

POTENTIAL IMPACTS OF ALTERNATIVE PROJECT SITE
ENVIRONMENTAL RESOURCES

ALTERNATIVES	POTENTIAL IMPACT ON SIGNIFICANT ENVIRONMENTA			
	PHYSICAL RESOURCES		BIOLOGICAL RESOURCES	
	SOILS	WATER RESOURCES	VEGETATION/WETLANDS/WILDLIFE	T/E SPECIES
BASE LINE SITUATION	Soils of the study area consist primarily of organic mucks and clays. The soils have suffered from subsidence and erosion as a result of forced drainage throughout much of the study area.	Resources of the study are drainage canals and the Mississippi River. The drainage canals have a low fishery value and seasonal water quality problems. The river maintains a productive fishery, however, it does exhibit marginal water quality in part of the study area. Groundwater is used sparingly for livestock.	Wetland habitats exist on all six of the alternative sites. Wetlands within the V-levee have degraded due to drainage and soil subsidence. Birds, mammals, reptiles, and amphibians utilize the study area.	Two T/E species a in the study area; t sturgeon and the b is located within tw Jefferson Parish al
NO ACTION	Soils will continue to be affected by subsidence, oxidation and erosion due to continued and improved forced drainage.	There would not be major impact on surface water, water quality, or the aquatic resources of the study area. Groundwater resources would not be affected.	The cypress/tupelo swamp is expected to be replaced by a bottomland hardwood community within 20 years. Wildlife should not be impacted.	It is not anticipated would be affected
ESTELLE	Placement of approximately 1.1 million cubic yards of fill material would compact and bury the native soils.	Impact should be minimal due to installation of stormwater retention ponds and use of best management practices for the golf facility.	Anticipated loss of approximately 292 acres of bottomland hardwoods and 362 acres of marsh. Migration of wildlife expected. Loss of 303 AAHUs anticipated.	USFWS and LDWF there would be no eagles by propose Pallied sturgeon ha or anticipated to be vicinity of the prop
EG	Same as Estelle, except fill material will be approximately 2.1 million cubic yards.	Same as Estelle.	Anticipated loss of approximately 450 acres of bottomland hardwoods and 191 acres of marsh. Migration of wildlife expected. Loss of 318 AAHUs anticipated.	Eagles exist within Regulations and re implemented by th the Endangered Sp apply. Pallid Sturg to be impacted by
MLC1	Same as Estelle, except fill material will be approximately 0.8 million cubic yards.	Same as Estelle.	Anticipated loss of approximately 320 acres of bottomland hardwoods and 115 acres of marsh. Migration of wildlife expected. Loss of 186 AAHUs anticipated.	Same as Estelle.
LANDCO	Same as Estelle, except fill material will be approximately 1.4 million cubic yards.	Same as Estelle.	Anticipated loss of approximately 808 acres of bottomland hardwoods and less than 61 acres of marsh. Migration of wildlife expected. Loss of 461 AAHUs anticipated.	Same as Estelle.
PP1	Same as Estelle.	Same as Estelle.	Anticipated loss of approximately 600 acres of bottomland hardwoods and woodlands. Migration of wildlife expected. Loss of 429 AAHUs anticipated.	Same as Estelle.
BUNGE	Bunge requires less fill. Due to the elevation and the location of the site, some of the native soils are similar to the fill to be used.	No golf facility is proposed for this alternative. Wetlands located to the south of the property would be expected to filter run-off from the housing development, thereby having minimal impact on water resources.	Anticipated loss of 123 acres of bottomland hardwoods. 277 acres of pasture will likely be displaced. Less impact on wildlife due to less area and wetlands south of site. Loss of 84 AAHUs anticipated.	Same as Estelle.

TABLE 2.7

'S OF ALTERNATIVE PROJECT SITES
ONMENTAL RESOURCES

T ON SIGNIFICANT ENVIRONMENTAL RESOURCES			
BIOLOGICAL RESOURCES		OTHER RESOURCES	
LANDS/WILDLIFE	T/E SPECIES	CULTURAL RESOURCES	RECREATION/PROTECTED AREAS
ist on all six of . Wetlands within egraded due to ubsidence. ptiles, and he study area.	Two T/E species are known to exist in the study area; the pallid sturgeon and the bald eagle. A nest is located within two miles of the Jefferson Parish alternatives.	There are no properties listed on the National Register of Historic Places in the study area. There are no known cultural, Native American or archeological sites known to exist on any of the alternatives.	Primary recreational resources include JLNHPP, Bayou Segnette State Park, the Salvador WMA, and local facilities. Nature oriented recreation including hiking, canoeing and fishing is common in the parks. Local facilities provide tennis, baseball, basketball, but no public golf facilities (in Jefferson Parish).
swamp is aced by a od community ildlife should	It is not anticipated that bald eagles would be affected by no action.	There would be no impact on cultural resources because no work would occur.	Would not achieve the goal of this proposed action; to provide a public golf facility for the residents of Jefferson Parish. Minimal impact to other recreational areas.
pproximately land hardwoods arsh. Migration . Loss of 303	USFWS and LDWF agreed that there would be no effect on the eagles by proposed action. Pallied sturgeon has not been seen or anticipated to be present in the vicinity of the proposed fill source.	There should be no impact since there are no known resources on the site.	Impact would be the construction and operation of a PGA caliber public golf facility.
pproximately land hardwoods arsh. Migration . Loss of 318	Eagles exist within one mile of site. Regulations and restrictions implemented by the USFWS and the Endangered Species Act would apply. Pallid Sturgeon not expected to be impacted by dredge site.	Previously existing site known to have been within property bounds. Site is believed destroyed, thus, there should be no impact to cultural resources.	Same as Estelle.
pproximately land hardwoods arsh. Migration . Loss of 186	Same as Estelle.	Same as Estelle.	Same as Estelle.
pproximately land hardwoods res of marsh. expected. Loss pated.	Same as Estelle.	Same as Estelle.	Same as Estelle.
pproximately land hardwoods gration of oss of 429	Same as Estelle.	Same as Estelle.	Nearby public golf facility is under-utilized. Over crowding likely to occur at limited public facilities. National and State parks likely not impacted due to distance from facilities.
123 acres of ods. 277 acres be displaced. life due to less outh of site. nticipated.	Same as Estelle.	Same as Estelle.	There is no golf facility associated with this alternative, therefore it does not meet the stated goal. Limited public resources may become over-crowded. Distance to parks in Jefferson Parish would limit impacts.

TABLE 2.7 (Continued)

POTENTIAL IMPACTS OF ALTERNATIVE PROJECT SITES
ECONOMIC/SOCIAL RESOURCES

VARIABLES	ALTERNATIVE SITES					
	ESTELLE	EG	MLC1	LANDCO	PP1	BUNGE
LAND USE	+	+	+	+	+	o
INFRASTRUCTURE	o	o	o	o	-	-
EMPLOYMENT	+	+	+	+	+	+
TAX REVENUES FOR J.P.*	+	+	+	+	o	o
HOUSING DEMAND MET (WBCMA	+	+	+	+	o	o
REGIONAL GROWTH	+	+	+	+	+	o
INCREASE J.P. ECONOMY	+	+	+	+	-	-
QUALITY OF LIFE IN J.P.	+	+	+	+	o	o
VISUAL AND AESTHETICS	-	-	-	-	-	o
INCOME TO EPP**	+	-	-	-	-	-

+ Positive Impact
- Negative Impact
o No Impact

*J.P. - Jefferson Parish
**EPP - Estelle Plantation Partnership

CHAPTER 3

AFFECTED ENVIRONMENT

3.1 GENERAL DESCRIPTION

The study area was defined in Chapter 2 and is illustrated in Figure 2.1. Within the study area, the proposed action and alternative sites are located on the West Bank of the Mississippi River in Jefferson, St. Charles and Plaquemines Parishes. References specific to Jefferson, St. Charles and Plaquemines Parishes describe conditions unique to the particular parish, with emphasis on the areas where the alternative sites are located.

The study area lies in the Central Gulf Coastal Plain. Specifically, the study area includes that portion of the Barataria Basin that runs east to west from the West Bank of the Mississippi River to the Bonne Carre Spillway and north of Hero Canal. It also includes the South Shore portion of the Lake Pontchartrain Basin from the Bonne Carre Spillway to New Orleans East. The applicants' proposed project location is on the West Bank of Jefferson Parish, south of New Orleans and on the deltaic plain of the Mississippi River (Figure 2.1). Prominent land features of the study area include the natural ridges of the Mississippi River and Bayou Barataria, abandoned distributaries of the Mississippi River such as Bayou des Familles, Lake Salvador, crevasses, and bayous connecting and crossing swamps and marshlands. Man-made canals dredged to aid in navigation and levees constructed for flood protection are also prominent land features.

The typical elevation of the project area and the West Bank of Jefferson Parish is several feet below sea level (0 feet NGVD). Most of the area is protected from flooding by the mainline levee system of the Mississippi River. The majority of the undeveloped land in the study area is considered wetlands. Fresh marsh, brackish marsh, forested swamp and bottomland hardwoods are common throughout. Some pasture land exists on properties close to the levee systems. There is a levee to the south, east and west of the EPP proposed action location: the Estelle V-levee (Figure 2.4). This levee is over 30 years old and the land within the levee has been under pump equally as long. The pumping of the property has caused subsidence of the soils and draw down of the water table, thus exposing tree roots and weakening root systems. Jefferson Parish maintains the water level at approximately -4.4 to -5.4 feet NGVD. Other locations within the study area are actively pumped and drained through a system of drainage canals. A levee along the Algiers Canal in Plaquemines Parish provides flood protection for the Belle Chasse area. Belle Chasse is pumped and drained through one major drainage canal that runs the length of the Belle Chasse area; the Planters/Bayou Barriere Canal. Figure 3.1 demonstrates the location of these levees and canals.

The general climate in the study area reflects the physical aspects of the Mississippi deltaic plain. Low elevation, sub-tropic latitude, the proximity of the Gulf of Mexico, and the numerous lakes,

bayous and swamps shape the weather patterns of this area. According to Soil Surveys of Jefferson, St. Charles and Orleans Parishes, the average annual temperature is 68°F. The monthly temperature range is from 82°F in July to 51-52°F in January. Winds are generally out of the southeast during the summer months and the northeast during the winter months. Pressure changes associated with the Bermuda high and Mexican low are the primary forces behind the easterly winds. Monthly precipitation averages about 5 inches, with the annual average ranging from 59 to 64 inches, depending on location in the study area. Louisiana, and the general Gulf Coast region, experience a high frequency of storms rated as tropical storms or depressions with winds ranging in speed from 39 to 75 mph. Occasionally, once every ten to twenty years, storms, or hurricanes, with winds over 100 mph will impact Louisiana. These types of storms usually occur between July and December.

Air quality of the study area is considered good by the LDEQ. Jefferson Parish does not contain any communities currently listed as not meeting emission standards. The nearest neighboring city not currently meeting air emission standards on a regular basis is Hahnville in St. Charles Parish. This is due to elevated levels of organic material associated with the operation of several grain elevators. Major air pollution problems do not exist in this area primarily as a result of the southeasterly winds. These winds tend to bring in fresh, clean air from the Gulf of Mexico and numerous lakes and bayous and push pollutants out of urban areas over Lake Pontchartrain where the pollutants are dispersed.

Existing background noise in Jefferson Parish in the vicinity of the four alternative site locations is minimal. One highway, Highway 3134 provides access to the four sites. The RPC does not consider this highway a major highway and noise impacts are minimal. In St. Charles Parish, background noise consists of Mississippi River activities, the St. Charles Parish Airport, and minimal highway noise. The low decibel levels generated by industrial activity on the Mississippi River in the vicinity of the Bunge site are not considered to pose adverse impacts on residents of near-by neighborhoods. However, the small airport facility may create noise impacts for the Bunge site since it is directly adjacent to the alternative site location. Plaquemines Parish noise impacts are primarily associated with the Mississippi River and the Alvin Callendar Naval Air Station (NAS). As with St. Charles Parish, the Mississippi River is not expected to create adverse noise conditions. The NAS conducts jet maneuvers on a regular basis, usually over the Mississippi River to the north and south of the NAS. Although the location of the PP1 alternative site does not lie in the currently defined APZ2 zone for the NAS, impacts from jet maneuvers have been observed in the vicinity of the PP1 site.

3.2 PHYSICAL RESOURCES

3.2.1 GEOLOGY

3.2.1.1 LAND FEATURES

The general elevation of the proposed project site and undeveloped areas of the West Bank of Jefferson Parish is several feet below sea level (0 feet NGVD). Most of the area

is protected from Mississippi River flooding by the mainline levee system of the Mississippi River. However, flood waters from the Gulf of Mexico and surrounding lakes, primarily during hurricane storm surges and winter storms, will travel across the marshes and through canals to flood the area from the south. The Bayou des Familles ridge is approximately 4.5 feet NGVD and affords some flood protection. Other locally constructed levees, the Estelle V-levee, and the Harvey and Algiers canal levees are used for flood protection.

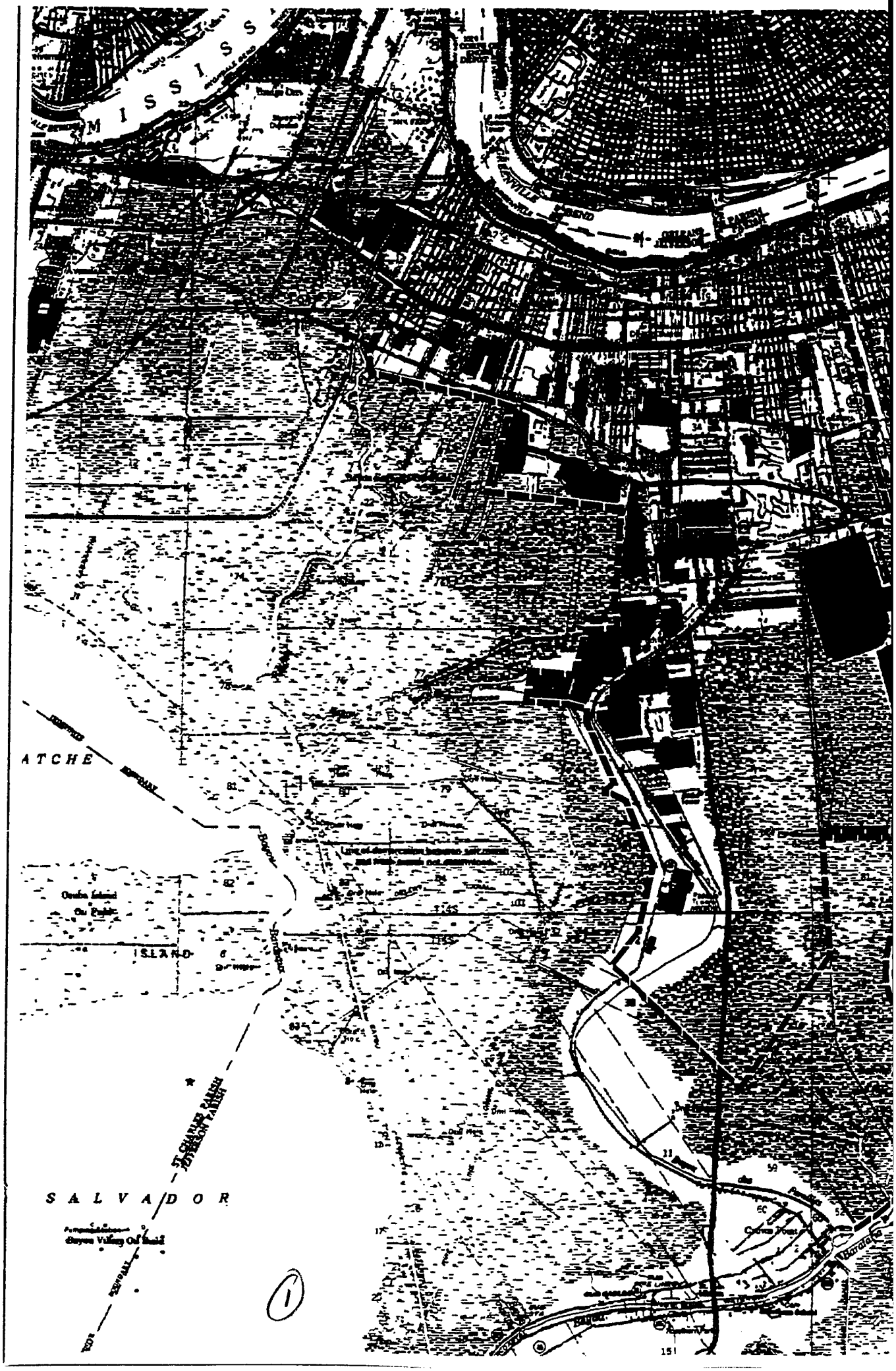
The Estelle V-levee, in Jefferson Parish, is a man-made levee wherein lies the proposed action and two of the Jefferson Parish alternative sites (EG and MLC1). This levee is currently utilized for flood protection and the undeveloped land within the levee has periodically retained stormwater during larger storms. The levee is currently maintained at a height of approximately 6 feet NGVD; one and one-half feet lower than 100-year storm protection. However, the Corps has completed studies and committed funding to upgrade the Estelle V-levee as part of its West Bank Hurricane Protection System. By the year 2000, the V-levee and the remaining Westwego to Harvey segment of the Hurricane Protection System will provide flood protection for a 300 to 500-year storm event. Figure 3.1 indicates the alignment of the planned Federal hurricane protection levees on the West Bank of the Mississippi River.

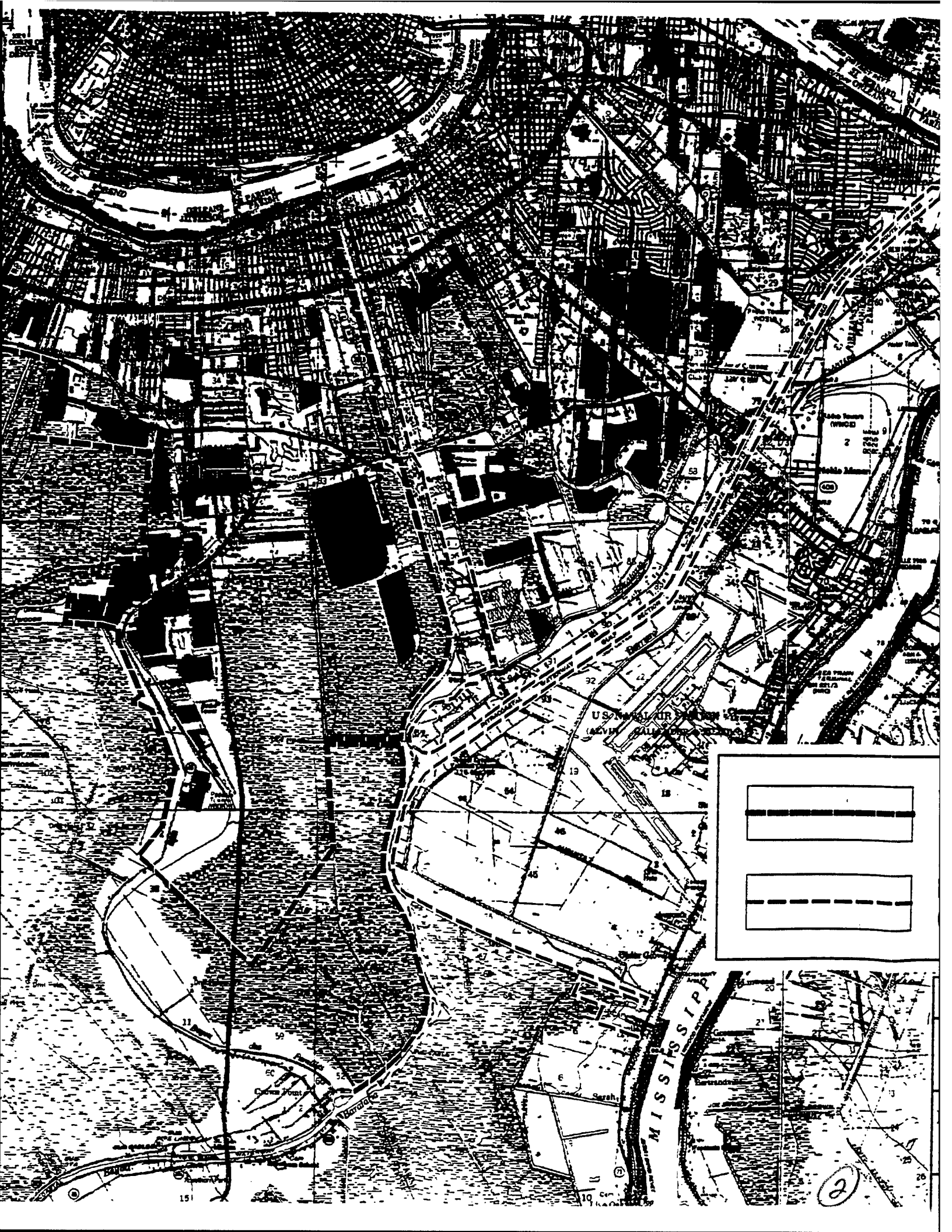
Another levee in Jefferson Parish scheduled to be incorporated into the West Bank Hurricane Protection Levee system is the Harvey Canal levee, which parallels the eastern border of the Landco alternative site. This levee was constructed partly by the Federal government and partly by the industries located along the canal. As a result, the Harvey Canal levee is as low as three feet in some areas. Portions of this canal will receive floodwalls rather than earthen levee construction.

The Algiers Canal levee in Plaquemines Parish was constructed to provide protection during minor hurricane events. The level of protection currently offered by the seven foot NGVD levee is just under that of the 100-year storm event. When funded, this levee will be upgraded to provide protection from a 300 to 500-year storm event as part of the East of Harvey portion of the West Bank Hurricane Protection System. Funding for this levee has not currently been approved, and there is some uncertainty if the Federal administration will recommend this project to Congress for funding.

3.2.1.2 SUBSURFACE GEOLOGY

The subsurface geology of the study area is typical of the Barataria Basin. At approximately fifty to one hundred feet below the ground surface, undifferentiated Pleistocene deposits are found. The Pleistocene deposits are shallower at the northern portion of the basin and deepen towards the Gulf of Mexico, thus, in the project area, Pleistocene deposits can be expected at depths less than 100 feet (SCS, 1989). These deposits often contain sands and gravel and exhibit higher bearing strengths than the overlying Holocene deposits.


M I S S I S
ATCHE
ISLAND
S A L V A D O R
151


MISSISSIPPI
Bayou
Barataria
Crown Point
Seraph
Lake Pontchartrain
(WBCD)
Metairie Cemetery
Canal
Esplanade
Orleans
Bienville
Conti
Bayou St. John
Gentilly
Elysian Fields
Claiborne
Carrollton
Broad
Jefferson
Metairie
Veterans
Causeway
Pontchartrain
Expressway
Interstate
Railroad
Parish
Boundary
2

WESTWEGO TO HARVEY
(UNDER CONSTRUCTION)

EAST OF HARVEY
(PROPOSED START IN 1996)

FIGURE 3.1

PROPOSED WEST BANK LEVEE ALIGNMENTS

FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT

AUGUST, 1996

Intradeltaic and prodeltaic deposits dominate the Holocene layer. These sediments were deposited in the Plaquemines and Balize deltaic lobes, thus, they are the most recent geologic deposits on the Louisiana coast (SCS, 1989). Due to their recent deposition, higher levels of subsidence may occur from consolidation of the recently deposited sediments and compression of the underlying materials. Above this layer are interdistributary prodeltaic and intradeltaic deposits. In the western portions of the basin (Lafourche, St. Charles Parish), the deposits consist of mixed layers of organic muck, peat and clayey inorganic sediments. On the eastern side of the basin (Plaquemines and Jefferson Parish), the deposits exhibit a higher portion of inorganic contents. The upper ten to twenty feet of material consists primarily of organic marsh deposits. Marsh deposits can be found throughout the entire Barataria Basin with the exception of linear strips adjacent to the Mississippi River and Bayou Barataria. Linear strips along the Mississippi River and Bayou Barataria exhibit greater than ten feet of silty inorganic natural levee deposits. The surface soils are characterized by the Soil Conservation Service and are discussed in Section 3.2.1.3.

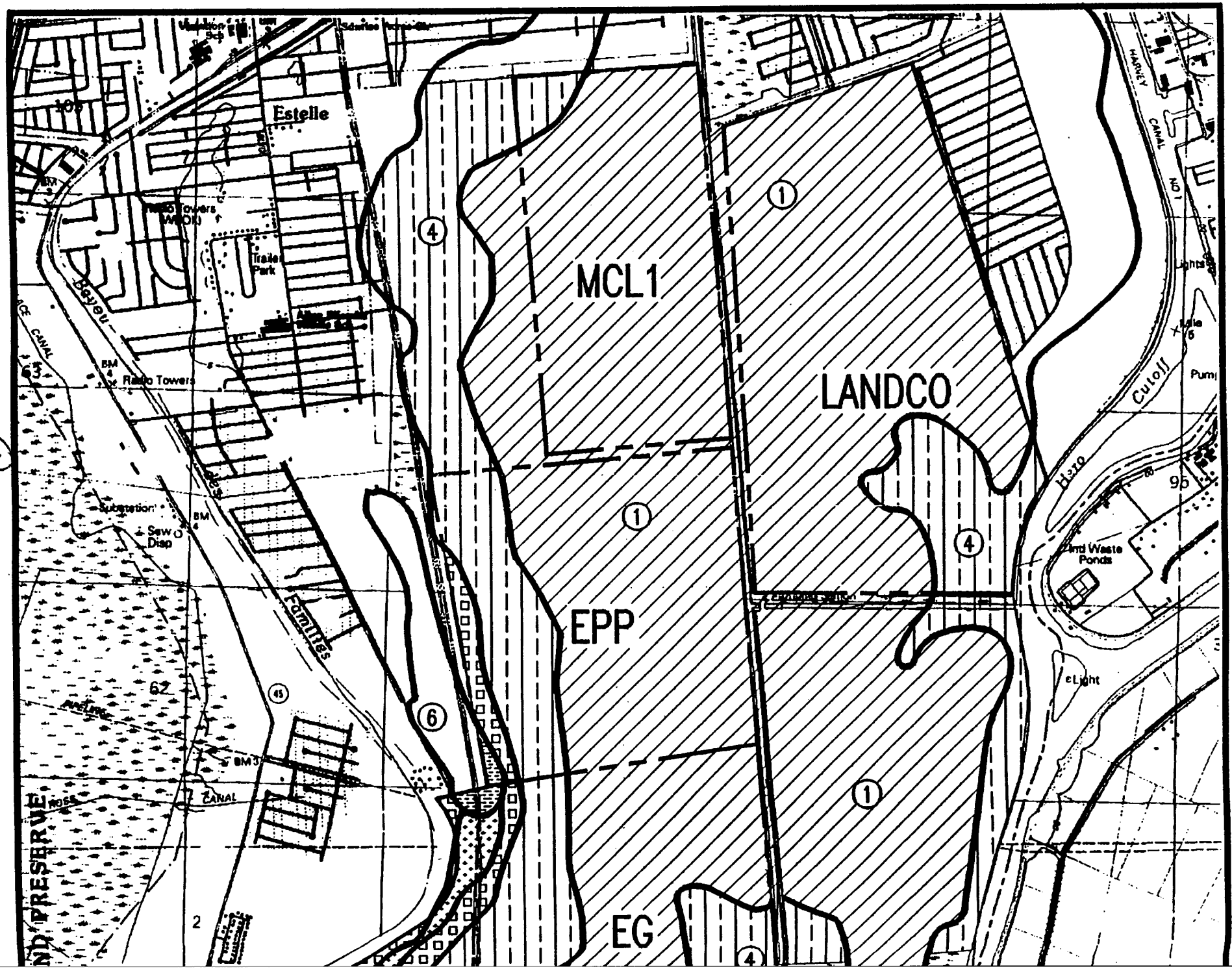
3.2.1.3 SOILS

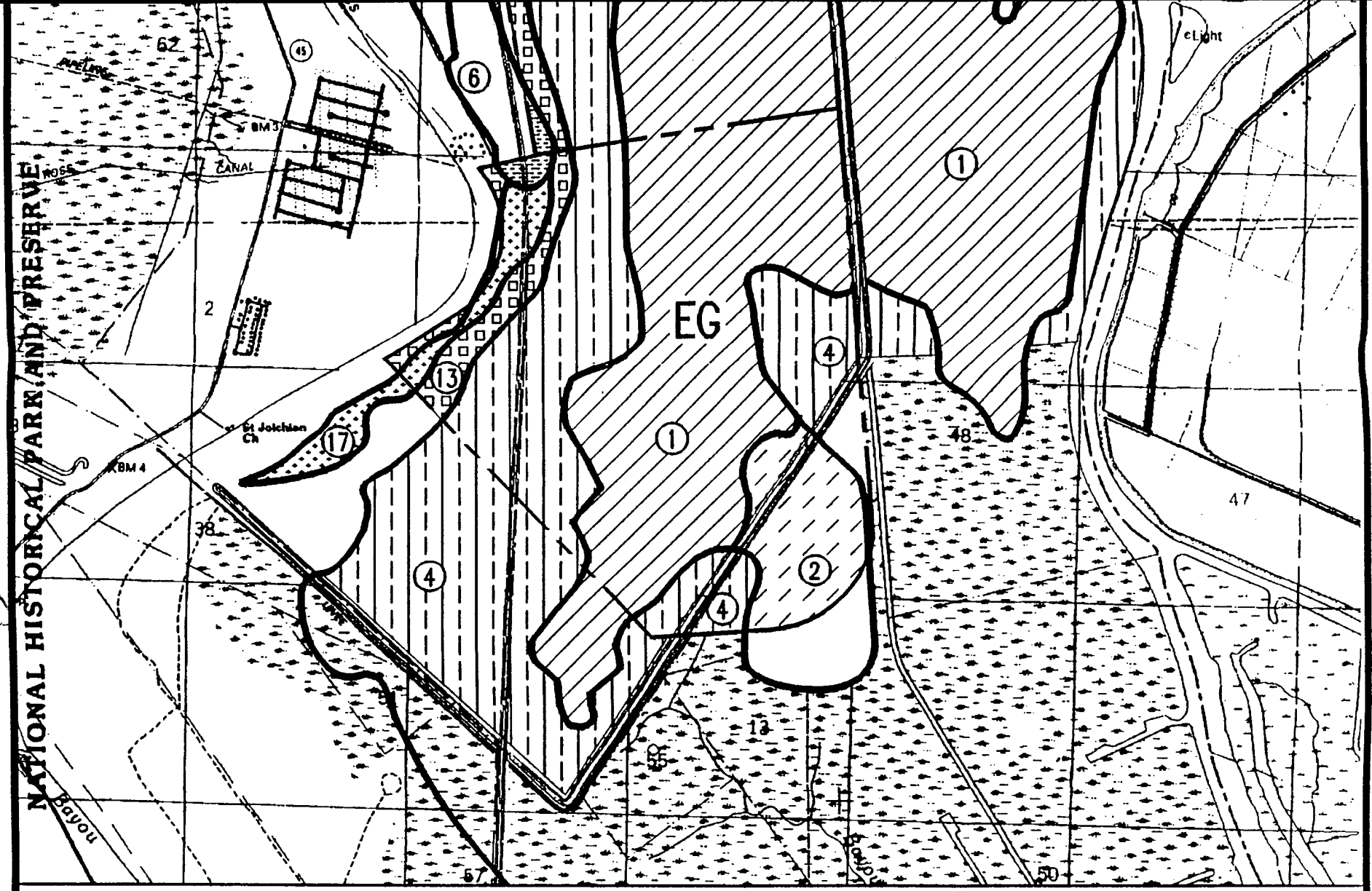
3.2.1.3.a Jefferson Parish

According to the Soil Survey of Jefferson Parish, the Estelle V-levee area and adjacent property to the east (up to Woodmere Subdivision) has three major soil types; the Allemands drained muck, the Barbary muck and the Sharkey muck (SCS, 1983). The locations of these three general associations are shown in Figure 3.2.

Approximately 80% of the Estelle V-levee area soil is comprised of Allemands drained muck. This soil comprises approximately 85%, 45%, 81%, and 97% of the EPP, EG, Landco, and MLC1 sites, respectively. This soil is a poorly drained organic soil that is found in former freshwater marshes. There is an abundance of plant and animal residue, the organic matter content is high and ranges from 30 to 70 percent. The surface layer has a low shrink-swell potential, but the underlying layer has an extremely high shrink-swell potential. Flooding is rare, since permeability is rapid in the organic surface layer and very slow in the clayey underlying material. Cracks in the surface layer are open and extend into the underlying material. Since water and air move freely through these cracks, natural fertility is high. The available water capacity and potential total subsidence is high.

Allemands drained muck soils are poorly suited to urban uses and intensive forms of recreation, since flooding, wetness, subsidence, low strength, and high shrink-swell potential are the main limitations (SCS, 1983). This soil is moderately well suited to pasture, but wetness may create problems for grazing animals. The Allemands drained muck soils of the project location would be flooded or ponded most of the time, however, due to the levee and forced drainage, standing water is only common during rain events. Wetness, flooding, and low soil strength create difficult construction situations. Drainage


MCL1
LANDCO
EPP
EG
Estelle
Bayou
Trailer Park
Radio Towers
Substation
Sewage Disp
Families
Sewage Lagoons
Lights
Pump
Cutoff
Lagoon
Lift Station
Lagoon
Lagoon
Lagoon



(1) ALLEMANDS MUCK, DRAINED

(2) ALLEMANDS MUCK

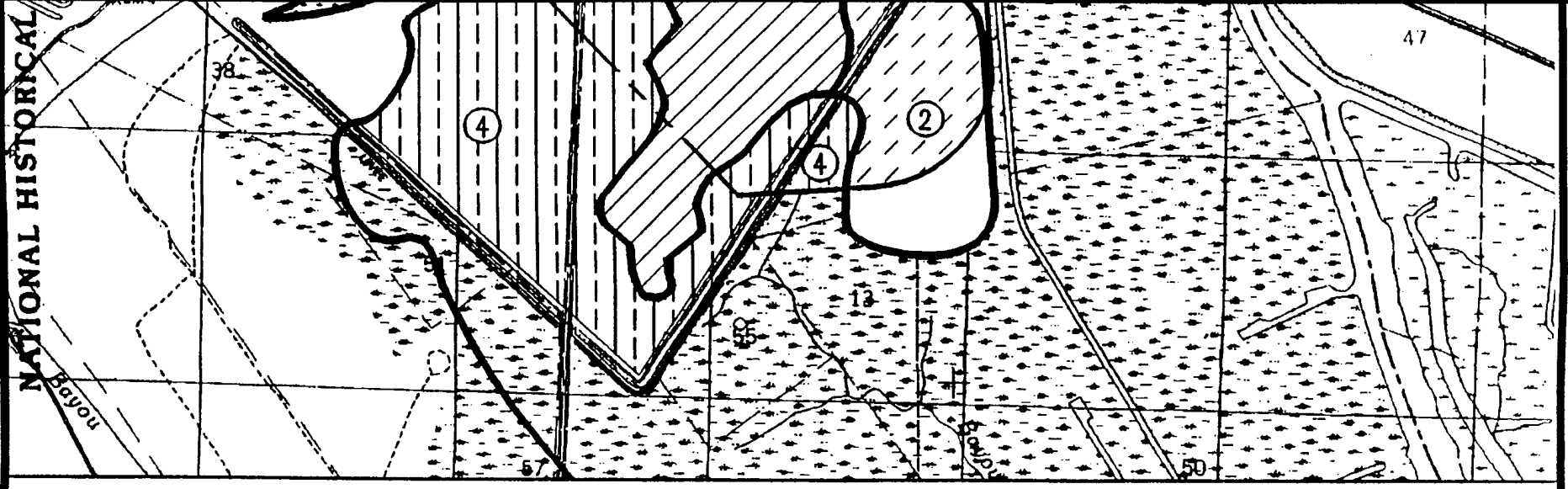
(4) BARARY MUCK

(6) COMMERCE SILTY CLAY LOAM

(13) SHARKEY CLAY

(17) COMMERCE SILT LOAM

FIGURE 3.2



(1) ALLEMANDS MUCK, DRAINED

(2) ALLEMANDS MUCK

(4) BARARY MUCK

(6) COMMERCE SILTY CLAY LOAM

(13) SHARKEY CLAY

(17) COMMERCE SILT LOAM

3

FIGURE 3.2

JEFFERSON PARISH SOIL ASSOCIATIONS

FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT

AUGUST, 1996

is only feasible with extensive systems of levees and water pumps. Shrinking and cracking due to dryness may cause levees and structures to fail.

Barbary muck is the second most abundant type of soil found on the alternative site locations. This level, very poorly drained, semifluid mineral soil is primarily found in swamps. Logs, stumps, and wood fragments are common throughout all levels of the soil, thus, the content of organic matter is high. Barbary muck, as with Allemands muck, is a soil that is normally flooded or ponded throughout the growing season with the water table ranging from above the surface to one foot below the surface. However, due to the forced drainage situation, these characteristics are not displayed throughout the growing season; they are primarily observable during rainfall events. Barbary muck is poorly suited for pasture, crops, woodland, and urban uses. Wetness, low strength, and the very high shrink-swell potential, are severe limitations, and flooding is a severe hazard. The shrink-swell potential is the same as for the Allemands drained muck; low for the surface layer and extremely high for the underlying layer. Drainage ditches are difficult to construct because buried stumps and logs are common. If drainage is achieved, subsidence is a problem.

Sharkey clay is the third clay found in the Estelle V-levee area. This soil comprises approximately 3%, 7%, 0%, and 0% of the EPP, EG, Landco, and MLC1 sites, respectively. This poorly drained, firm mineral soil is in low positions on the natural levees of the Mississippi River and its distributaries. The shrink-swell potential for Sharkey clay is extremely high.

Sharkey soil is very slowly permeable. Water runs off the surface at a slow rate and stands in low places for short periods after heavy rains. Flooding is rare, but it can occur. Typically the soil has been drained, and flooding is controlled with pumps. The shrink-swell potential is very high. Deep cracks form during long periods of dry weather, and the cracks close when the soil is wet. Available water capacity is high. The organic matter content is low to moderate and the fertility of the Sharkey soil is high. Sharkey soil is well suited for pasture and to woodland, but it is moderately suited to cultivate crops. Urban land uses such as buildings and roads can be constructed on the Sharkey soil without piles due to the firmness of the clay. However, wetness, flood potential, high shrink swell potential, and low strength for roadways hamper heavy development.

In general, the soils composing the project area have been severely affected by the continued pumping of the area within the "V-levee". Pumping was initiated some time between 1954 and 1966. Continued pumping has caused severe draw down of the water table resulting in shrinkage due to desiccation, consolidation from loss of the buoyant force of ground water, compaction, and oxidation of the highly organic substrate. This dewatering has resulted in severe subsidence on the sites, and has greatly affected the Barbary and the Allemands drained muck. It is estimated that at least one to two feet of subsidence has occurred throughout the site, some portions of the property within the V-levee have experienced greater than four feet of subsidence. Subsidence is expected to continue with the continued pumping of the area.

3.2.1.3.b Plaquemines Parish

According to the Natural Resources Conservation Service (NRCS, 1995), three soil associations are located on the PP1 alternative site; Westwego clay, Sharkey clay, and Harahan clay. The approximate locations of these three general associations are shown in Figure 3.4.

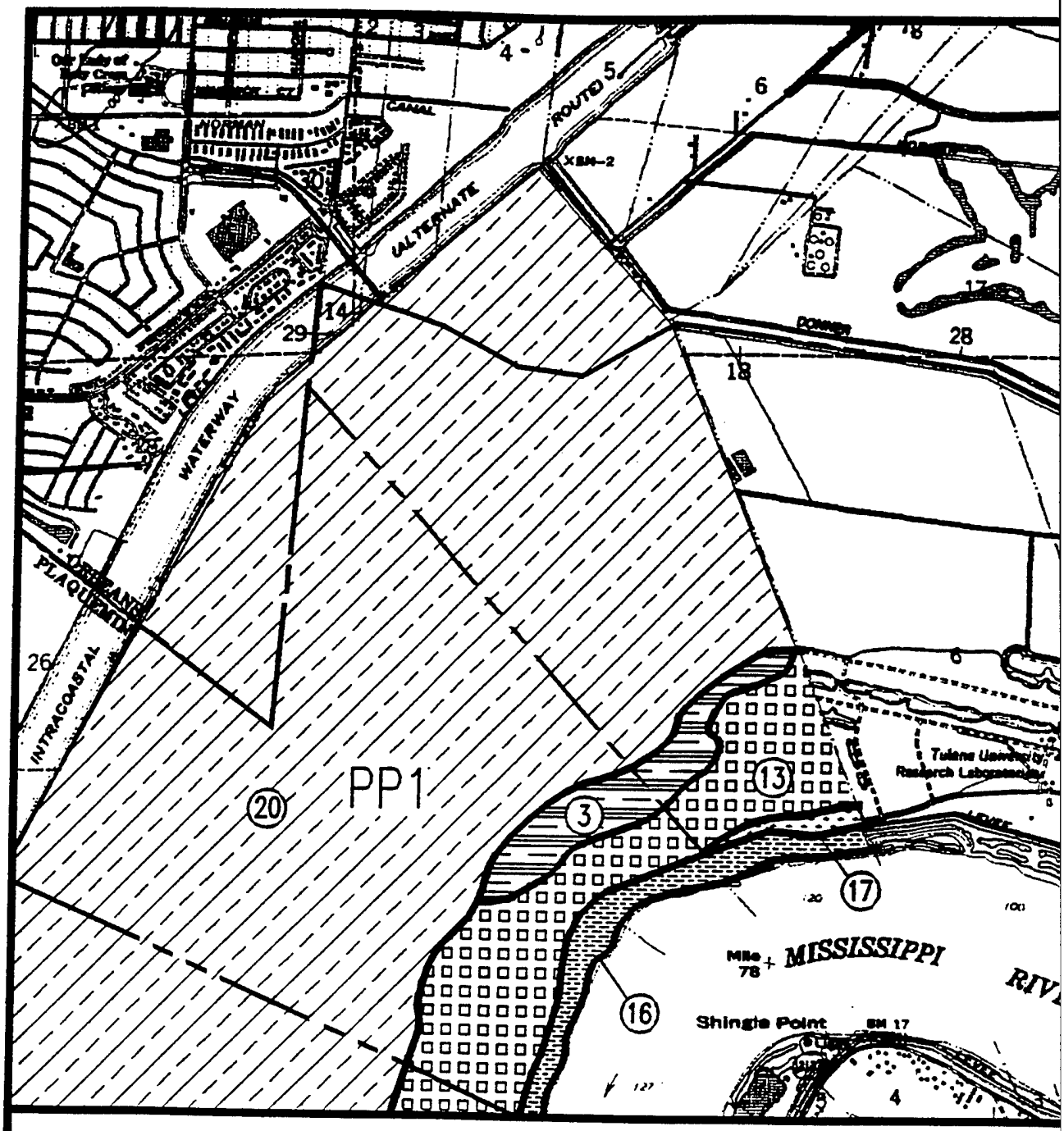
Westwego clay is present on approximately 75% of the PP1 site. This soil is generally located in former swamps that are being or have been drained and are protected from flooding. Westwego clay is commonly considered poorly drained. In areas where development has occurred, sandy or loamy fill material has been placed over the surface to provide a more secure building foundation.

The water table is typically located at one to three feet below the ground surface. However, after heavy rains and in areas where the soil has subsided, the water table is at the ground surface. Flooding occurs when levees and drainage fail or during hurricane and severe winter storm events. Permeability through the soil material is slow, however, cracking is common and water flows freely through the cracks. Even in areas where the clay has been overlain with sandy or loamy fill, the water flows readily through the subsurface cracks. Available water capacity is high, as is the shrink swell potential and subsidence potential.

This type of soil is well suited to woodlands and pasture and poorly suited for urban and recreational areas. Crop production is limited by the wetness of the soil. A large portion of the Westwego clay acreage in the Belle Chasse area remains in woodland and pasture uses. Flooding, wetness, subsidence, and high shrink swell potential make Westwego clay a poor choice for urban development. If development is necessary, adequate water control must be developed as well as special design criteria for foundations and roadbeds. Fill material is a necessity.

Sharkey clay is found on approximately 20% of the PP1 alternative site. This Sharkey clay soil is generally located in low positions on the natural levee of the Mississippi River and is similar to the Sharkey soils found in Jefferson and St. Charles Parishes. Flooding is rare, and the soil is poorly drained. Water and air move through Sharkey clay slowly and water is slow to run off the surface of this soil, sometimes ponding after heavy rains. Sharkey clay has a high shrink swell potential and is sticky when wet. The available water capacity is high and the soil is highly fertile. The uses mimic those of Jefferson and St. Charles Parish.

The third soil association located on this alternative site is the Harahan clay. This clay is present on approximately 5% of the site. It is located in former swamps and is protected from flooding by levees and pumping systems. Water and air move through Harahan clay slowly and water is slow to run off the surface of this soil, often flooding after heavy rains, hurricanes, or pump failures. This soil has a high shrink swell potential, high fertility, available water capacity is moderate to high and the soil suffers from



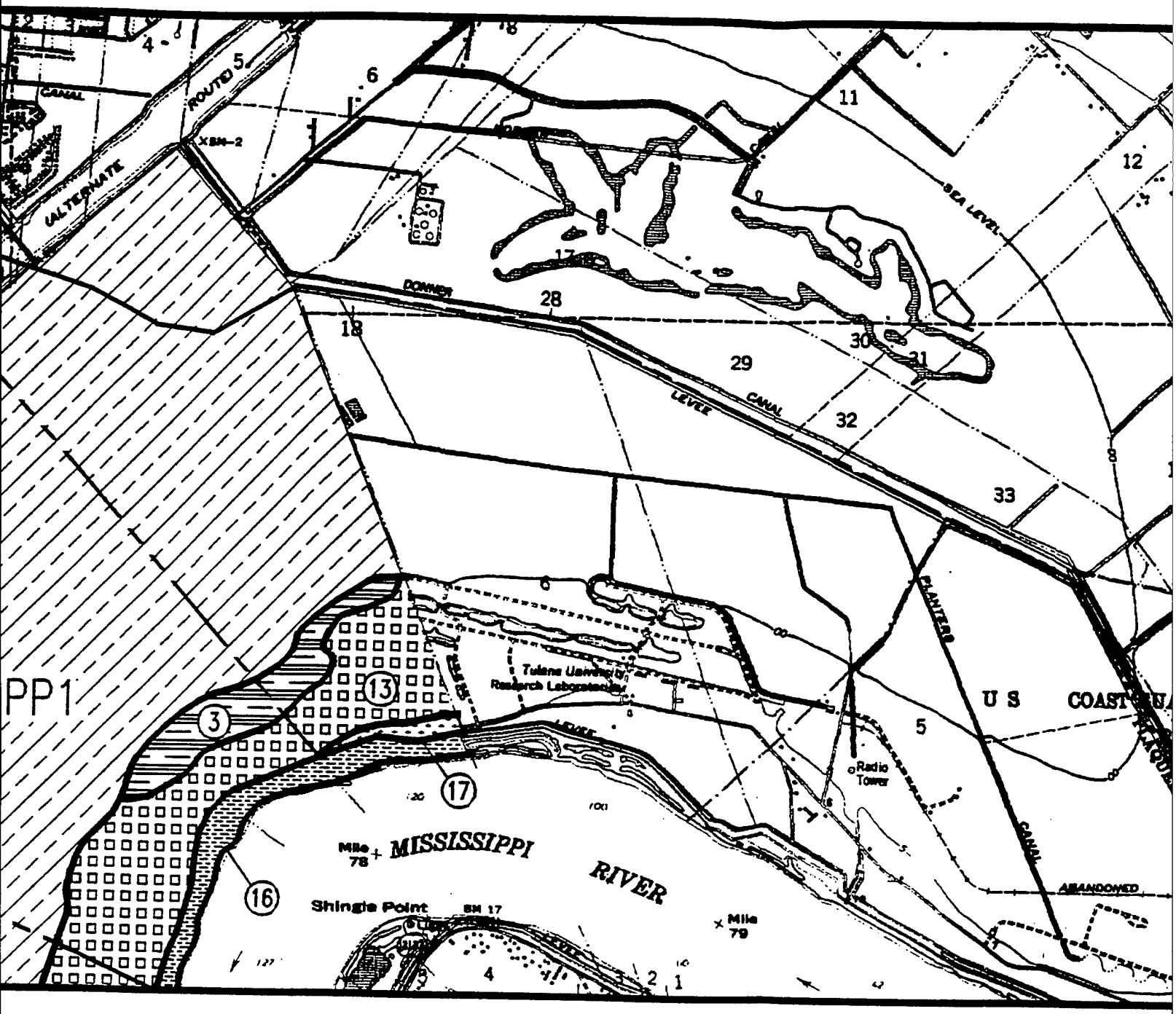
3 HARAHAN CLAY

13 SHARKEY CLAY

16 VACHERIE SILT LOAM

17 COMMERCE SILT LOAM

20 WESTWEGO CLAY



LOAM

LT LOAM

AY

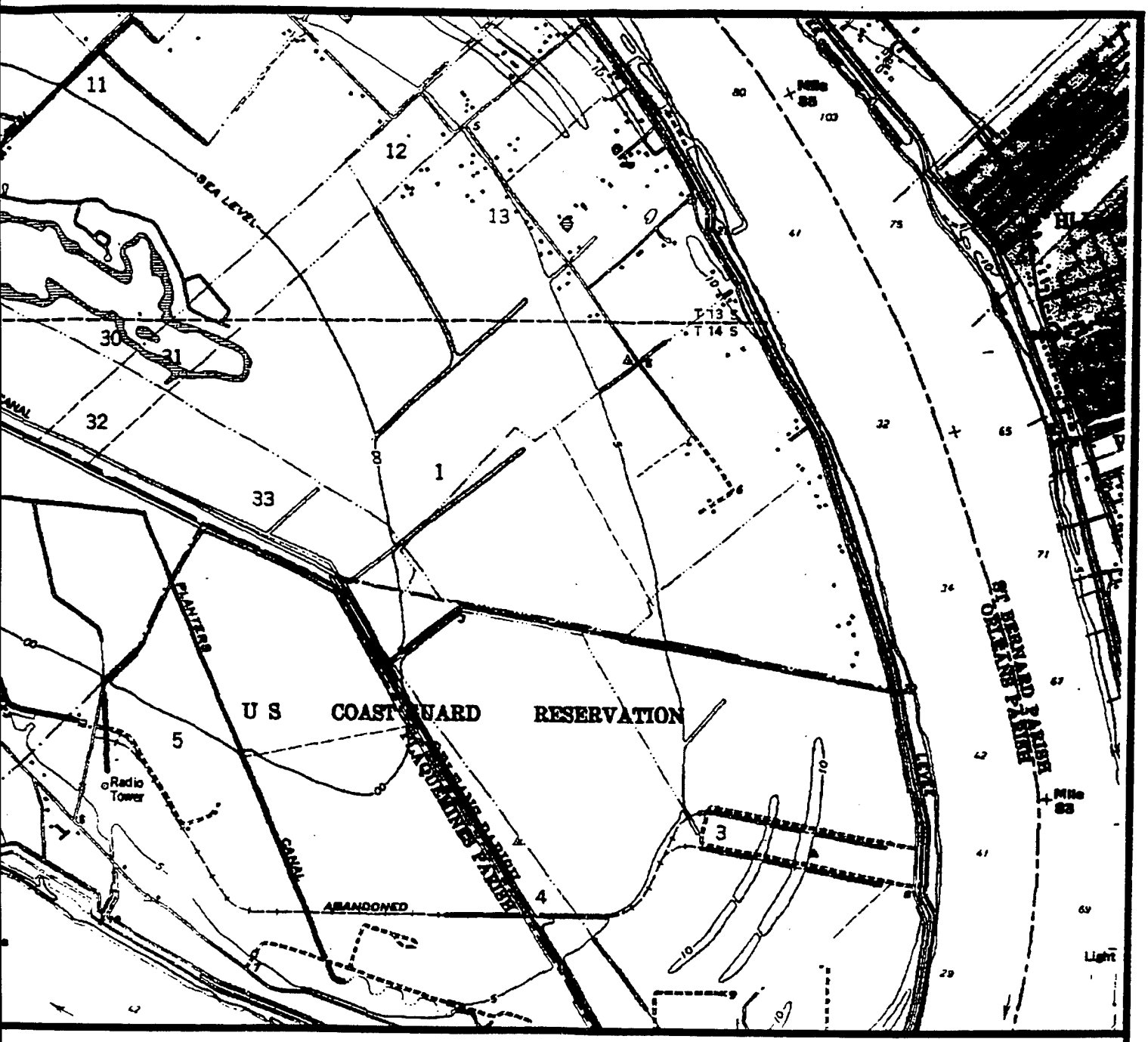


FIGURE 3.3

PLAQUEMINES PARISH
SOIL ASSOCIATIONS

FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
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moderate subsidence.

Harahan clay soils primarily support pasture. Cultivated crops are not successful due to equipment limitation caused by the soil. Urban uses and intensive recreational areas are not well suited to Harahan clay. Pasture is a well suited use due to the fertility of the soil which is generally sufficient for non-irrigated fields. Wetness and the clayey surface layer are the primary limitation to cultivated crops, bottomland hardwoods and urban uses. Urban uses require special design criteria and the addition of sandy or loamy fill material to overcome the soil's constraints.

3.2.1.3.c St. Charles Parish

According to the Soil Survey of St. Charles Parish (SCS,1987), the Bunge Alternative Site has three primary soil associations; Commerce silt loam, Sharkey clay, and Sharkey silty clay loam. Two additional associations, frequently flooded Sharkey clay, and Commerce silty clay loam are located on the potential project site. The locations of these general associations are shown in Figure 3.3.

The Bunge alternative site is approximately 30% Commerce silt loam. Commerce silt loam soils are generally located in high and intermediate positions on the natural levee of the Mississippi River. The soil is protected from flooding by the mainline Mississippi River levee system. This soil is commonly considered poorly drained with a mildly acidic surface layer. Water and air move through Commerce silt loam rather slowly and water is slow to run off the surface of this soil. These characteristics, combined with moderate shrink swell potential, make Commerce silt loam a highly fertile soil. This type of soil is well to moderately suited to a variety of uses. This soil primarily supports pasture, cropland, urban or industrial uses. Cultivated crops, pasture, and the production of paper producing trees are three uses Commerce silt loam is well suited to provide. Citrus, sugarcane and soybeans are common cultivated crops located on Commerce silt loam in St. Charles Parish (LSU, 1994). Wetness is the primary limitation to successful pasture use. With proper management, the soil and pasture can remain healthy during periods of high wetness. Commerce silt loam is moderately well suited for urban land uses and intensive recreational use. Urban land uses such as buildings and roads can be constructed on this soil with proper design criteria to counter the effects of moderate shrink swell potential, wetness, and slow permeability.

Sharkey clay has similar properties to Commerce silt loam and is also found on the Bunge site. Approximately 40% of the Bunge location is Sharkey clay and 20% of the site is Sharkey silty clay loam. These Sharkey clay soils are generally located in intermediate and low positions on the natural levee of the Mississippi River and are similar to the Sharkey soils found in Jefferson Parish. The soils are subject to rare flooding. Both Sharkey clay soils are commonly considered poorly drained. Water and air move through Sharkey clay slowly and water is slow to run off the surface of this soil, sometimes ponding after heavy rains. In contrast to the Commerce silt loam, Sharkey clay has a high shrink swell potential and is sticky when wet. Sharkey clay is a highly fertile soil.

Sharkey clay soils primarily supports pasture, cropland, urban or industrial uses. Pasture is the use most well suited to this soil type. Wetness is the primary limitation to successful pasture use. With proper management, the soil and pasture can remain healthy during periods of high wetness. These soils are also well suited for the production of paper producing trees and bottomland hardwoods. Sugarcane and soybeans are the primary cultivated crops that can be moderately successful on Sharkey clay in St. Charles Parish. Sharkey clay has a tendency to become sticky when wet, hard and possibly cloddy when dried, and lose fertility. These characteristics do not support the growth of many other cultivated crops. These clays are poorly suited for urban land uses and intensive recreational use. Urban land uses such as buildings and roads can be constructed on the Sharkey soil without piles due to the firmness of the clay. However, wetness, flood potential, high shrink swell potential, and low strength for roadways hamper heavy development.

Of the remaining soil associations located on the site, the Commerce silty clay loam, which covers approximately 2% of the Bunge site, is quite similar to Sharkey silty clay loam. It is both alkaline and located in the intermediate level of Mississippi River natural levees. This soil is highly fertile and well suited to cultivated crops and pasture. Other uses such as urban and recreational development can occupy this soil type with proper management techniques. The frequently flooded Sharkey clay soil is somewhat similar to the Fausse clay. This soil is moderately suited for bottomland hardwood production and poorly suited for agricultural and urban uses; wetness and flooding are too severe to support these types of activities.

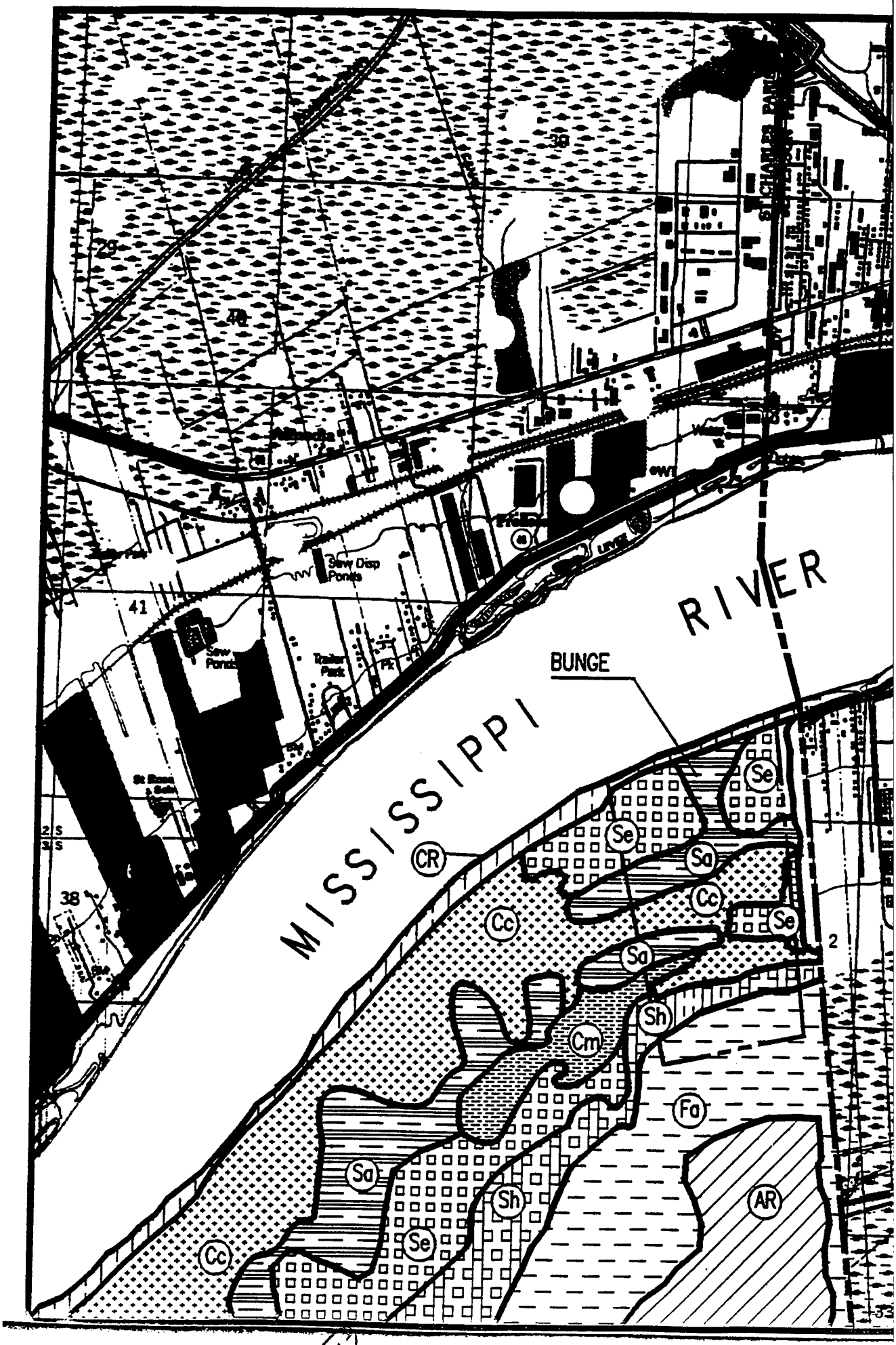
3.2.2 MINERAL AND DEPLETABLE RESOURCES

Due to the geology of the study area, the only identified mineral resources are oil and gas. Sand mining in the Mississippi River is also considered a mineral resource. However, this resource is considered renewable, since the river continually deposits sand. Depletable biological resources such as wildlife habitat, wetlands, etc. are addressed in Section 3.3 of this chapter.

The DNR Office of Conservation has stated that the mineral resources of the project area primarily consist of petroleum, natural gas, and salt water wells (personnel communication with Mr. Calvin Thomas of the Office of Conservation).

In Jefferson Parish, there are a total of 122 petroleum, gas, and salt water wells that have been drilled within a five mile radius of the EPP site. This radius encompasses the EG, MLC1, and Landco sites as well. The 122 wells consisted of 84 (69%) wells that were dry and subsequently plugged; 22 (18%) wells that were plugged and abandoned; 5 (4%) wells have expired drilling permits; 5 (4%) active and producing wells; 3 (2%) shut-in productive wells; 2 (2%) salt water disposal wells; 1 (1%) shut-in well and one dry hole. Appendix G includes information from the Office of Conservation on mineral resources.

There are no petroleum, natural gas, nor salt water wells on the EPP site. MLC1, Landco, and EG, the alternative sites surrounding the EPP site, also have no petroleum,


MISSISSIPPI RIVER
BUNGE
Slow Disp Ponds
Slow Ponds
Trailer Park
St Charles Parish
39
29
41
38
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3S
CR
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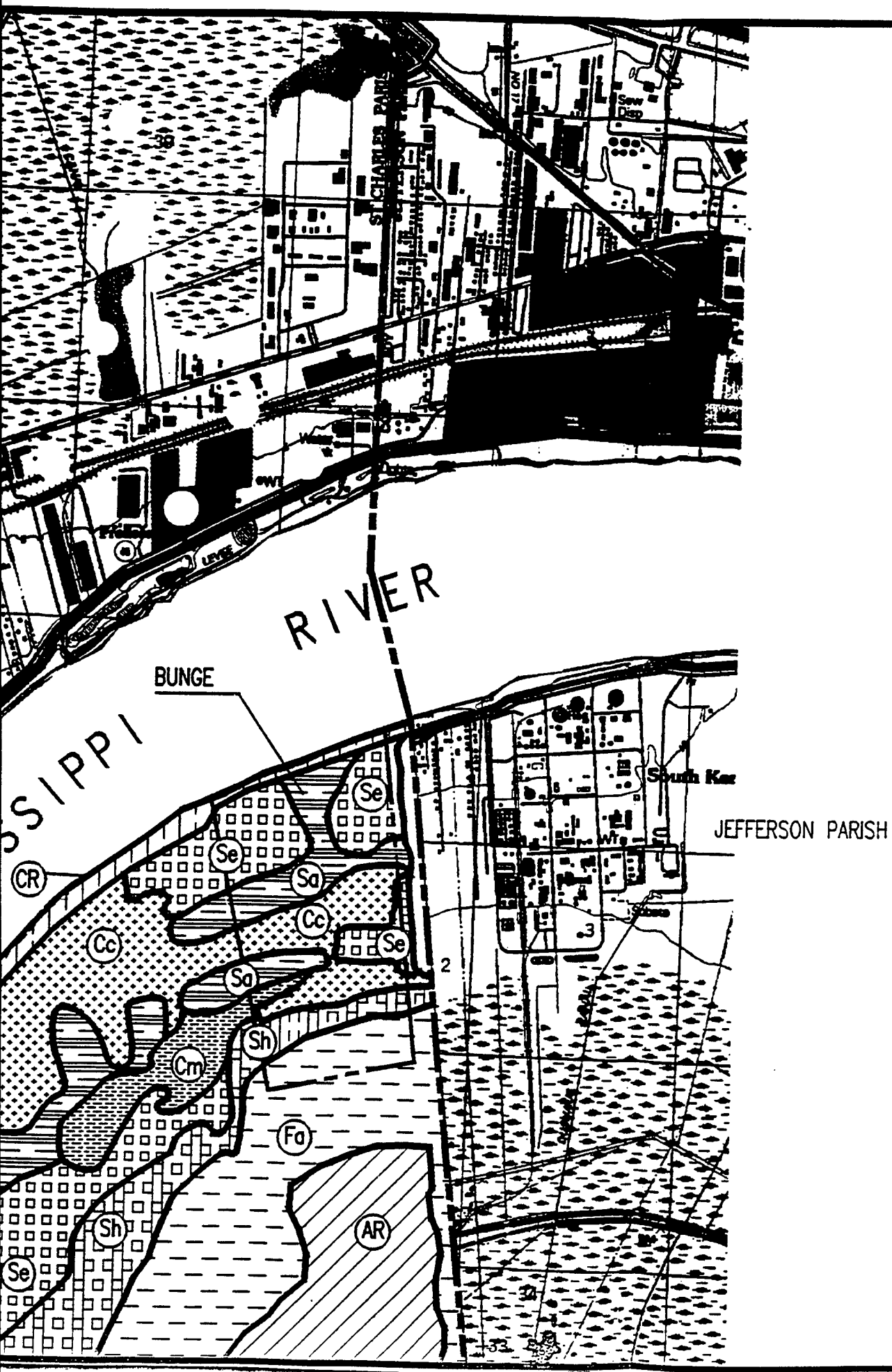
Sa
Cc
Sh
Cm
Fa
AR
2
33



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Cc C
Cm C
CR C
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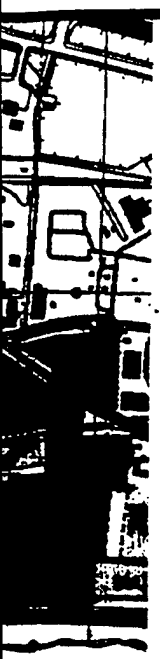
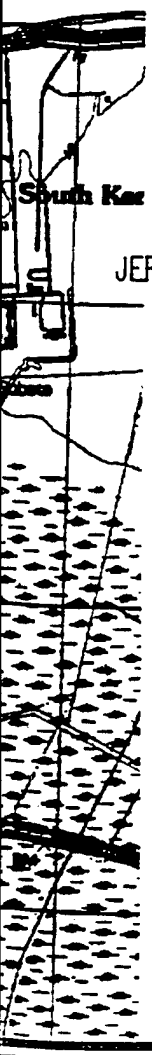
Sa SI
Se SI
Sh SHAR





JEFFERSON PARISH

(AR) ALLEMANDS–LAROSE

(Cc) COMMERCE SILT LOAM

(Cm) COMMERCE SILTY CLAY LOAM

(CR) CONVENT & COMMERCE/FREQUENTLY FLOODED

(Fa) FAUSSE CLAY

(Sa) SHARKEY SILTY CLAY LOAM

(Se) SHARKEY CLAY

(Sh) SHARKEY CLAY/FREQUANTLY FLOODED

FIGURE 3.4

ST. CHARLES PARISH SOIL ASSOCIATIONS

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natural gas, or salt water wells within their property boundaries. Landco is the only property which has experienced any drilling activity which consists of one dry, plugged, and abandoned well. The nearest oil and gas fields are the Bayou Segnette Oil Field and the Stella Land Oil and Gas Field, both are three to four miles to the northwest and to the east of the EPP, EG, MLC1, and Landco sites.

In St. Charles and Plaquemines Parishes there is no indication of any past or present drilling activity surrounding the Bunge or PP1 alternative sites. The nearest major oil and gas field to the Bunge site is the West Avondale Oil and Gas Field approximately 2.5 miles south of the Bunge site. The nearest major oil and gas field to the PP1 site is the Stella Oil and Gas Field approximately 4.0 miles south of the PP1 site.

3.2.3 SURFACE WATER

3.2.3.a Jefferson Parish

The site of the applicants' proposed action, the three Jefferson Parish alternative sites, and the PP1 site, is located in the Barataria Water Quality Management Basin (02), in the Bayou Barataria/Barataria Waterway - Intracoastal Waterway to Bayou Rigolettes stream segment (020802). The basin consists largely of wooded wetlands and fresh to brackish marshes, having some saline marsh on the fringes of Barataria Bay. Elevations range from minus two to four feet above sea level. Currently, the LDEQ report that the stream segment 020802 is partially supporting its designated uses. Suspected sources of pollutants include petroleum activities, runoff/leachate from land disposal and unsewered properties. Suspected causes of partial support of designated uses include nutrients, organic enrichment/dissolved oxygen, pathogen indicators, and oil and grease from non-point sources.

In terms of surface water, the EPP site and the three Jefferson Parish alternative sites are classified as effluent limited by the LDEQ, Water Quality Management Plan/Water Quality Summary (LDEQ, 1994). An effluent limited stream segment is defined as any segment where water quality is meeting and will continue to meet applicable water quality standards after application of effluent limitations required by Federal Clean Water Act. The most recent water quality data for the Jefferson Parish sites is displayed by the Corps in their Jefferson and Orleans Parishes, Louisiana Urban Flood Control and Water Quality Management Study (Corps, 1992). The data for this study was collected by the Jefferson Parish Environmental and Development Control Department during 1989 and 1990. The suspended solids load for the Estelle Subbasin (Figure 3.12) was the lowest on the West Bank, and it measured 15 mg/L. The 5-day biochemical oxygen demand (BOD_5) for Estelle Subbasin averaged from about 3 to 4 mg/L. This low level of BOD_5 indicates bodies of water on the site are highly suitable for aquatic life and various human uses. Estelle Subbasin's pH level measured 7.1, which lies comfortably between the acceptable Louisiana standard range of 6.5 and 9.0. The subbasin has a log mean fecal coliform count between 200 and 400/100ml. The inherent variability of coliform and other bacterial populations in water is usually large with respect to the log mean values. The standard deviation in fecal coliform counts was 500/100ml for Estelle. Six metals,

cadmium, chromium, copper, mercury, lead and arsenic, have been regularly monitored in the Estelle Subbasin. The average cadmium concentration was 0.5 to 0.6 ug/l. The average chromium level was 1 to 4 ug/l; the average copper concentration was 6 to 8 ug/l. The lead concentration was at a low 3 ug/l. Detectable mercury concentrations were reported in 6 of 20 samples in the Estelle Subbasin. The arsenic concentrations were not in violation of the law. All six metals did not exceed the EPA's acute and chronic aquatic toxicity limits.

Surface water flow on the EPP, MLC1, and EG sites is sheet flow into small channels, and eventually discharging into either the Pipeline Canal on the eastern border of the sites, the canal that forms the southerly boundary of the sites, or into the drainage systems which border each side of the Highway 3134. The surface water flow on the Landco site is sheet flow into small channels, and eventually discharging into either the Pipeline Canal on the western border of the site, or into Bayou Barataria/Harvey Canal on its eastern border.

The EPP, MLC1 and EG tracts are leveed and drained by the Estelle pumping station, which has a nominal pumping capacity of 450 CFS. This pumping station is scheduled to be upgraded by 1996. The Estelle pumping station discharges into the Barataria Waterway. Suspended solids and turbidity levels in the upper Bayou Barataria are usually moderate with suspended solids measuring 40 to 60 mg/l. Dissolved oxygen (DO) levels are consistently higher than the Louisiana standard of 4.0 mg/l, and are considered adequate for aquatic life and the assimilation of biodegradable pollutants, except temporarily following intense storms. BOD_5 is usually less than 2.0 mg/l. Nutrient levels are potentially problematic in Bayou Barataria above Bayou Segnette, which is northwest of the site, primarily because of the large influxes of nitrogen and phosphorus in storm water runoff from the pumped basins. These nutrients can cause eutrophication. Eutrophication is the enrichment of a body of water with high concentrations of nutrients. The result can be an abundant growth of algae and other aquatic species which can form floating mats and clog streams. Also, eutrophication reduces DO levels in shallow water bodies especially in summer months. However, none of these signs of eutrophication have been observed in this reach.

Fecal coliform and certain other bacterial strains are useful indicators of fecal pollution in water. Fecal coliform colony counts in the upper Bayou Barataria are in frequent violation of the law, where the logarithmic mean values of 300/100ml to 600/100ml more commonly occur. It is predicted that untreated or partially treated sewage enters Bayou Barataria below the Harvey and Algiers Canals, which are always below the standard.

3.2.3.b Plaquemines Parish

The two significant sources of surface water in the vicinity of the PP1 site in Plaquemines Parish are the Mississippi River and Planters Canal. The Planters Canal discharge to the Intracoastal Waterway stream segment 020802 as mentioned in section 3.2.3.a above. No water quality data is available for Planters Canal. It is a drainage canal that discharges into Algiers Canal and is not regularly sampled by resource agencies. The most recent

water quality data available for the Mississippi River in the vicinity of the alternative site was taken by the U. S. Geological Survey at the Belle Chasse Station. The Mississippi River would be affected if forced drainage were pumped to the river. Data was obtained from June 1990 to April 1995. DO levels ranged from a high of 13.0 mg/L in January 1992 to a low of 5.3 mg/L in July 1993. On average, DO levels were approximately 8.8 mg/L. The BOD_5 for the river at the Belle Chasse station ranged from 0.1 mg/L to 3.8 mg/L over the nearly five year period. This low level of BOD_5 indicates bodies of water on the site are highly suitable for aquatic life and various human uses. The pH averaged 7.6, which lies between the acceptable Louisiana standard range of 6.5 and 9.0. The fecal coliform maximum count was 1000 colonies/100ml for the Belle Chasse area. Heavy metals sampling is conducted in this area as well as sampling for radioactive elements.

This reach of the Mississippi River is considered water quality limited, as opposed to effluent limited, according to the LDEQ, Water Quality Management Plan/Water Quality Summary (LDEQ, 1994). In the Plaquemines Parish/Belle Chasse area, the Mississippi River is afflicted with organics, nutrients, some metals and pathogen indicating organisms (fecal coliform). This situation is a result of point source discharges from industrial and municipal facilities, sewage overflows due to inflow and infiltration, urban run-off, and spills all primarily upstream of Belle Chasse. With continued industrial development expected along the Harvey Canal in Jefferson Parish and continued discharges from other upstream developments, the Belle Chasse reach of the river will continue to be affected by pollutants from upstream sources.

3.2.3.c St. Charles Parish

The only significant source of surface water in the vicinity of the Bunge site in St. Charles Parish is the Mississippi River. The river would only be impacted if forced drainage is pumped to the river; there is no forced drainage at the Bunge alternative site. The wetlands that interface with the southern portion of the site do not contact a major surface water source (Sellers Canal to Bayou Verret) for over one mile (Figure 2.11). No water quality data is available for the wetland area. The wetlands may be expected to filter pollutants from stormwater drainage prior to this water contacting the Sellers Canal. The most recent water quality data available for the Mississippi River in the vicinity of the alternative site was taken by the U. S. Geological Survey at the Luling Station. Data was obtained from June 1990 to April 1995. DO levels for this reach of the river ranged from a low of 5.9 mg/L in June of 1990 to a high of 14.0 in March of 1993. The BOD_5 for the Mississippi River at the Luling station ranged from 0.1 mg/L to 5.4 mg/L over the nearly five year period. This low level of BOD_5 indicates bodies of water on the site are highly suitable for aquatic life and various human uses. The pH averaged 7.7, which lies between the acceptable Louisiana standard range of 6.5 and 9.0. The maximum fecal coliform count was 3700 colonies/100ml for the Luling area. Heavy metals sampling is conducted in this area as well as pesticide and herbicide testing.

This reach of the Mississippi River is considered water quality limited, as opposed to effluent limited according to the LDEQ, Water Quality Management Plan/Water Quality Summary (LDEQ, 1994). Water quality limited means the water body does not meet

applicable water quality standards or will not meet applicable water quality standards even after application of the effluent limitations required by the Clean Water Act, as amended. In the St. Charles area, the Mississippi River is afflicted with insecticides and herbicides, organics, nutrients, and pathogen indicating organisms (fecal coliform). This situation is a result of point source discharges from industrial and municipal facilities, sewage overflows due to inflow and infiltration, urban run off, and spills. With continued industrial development expected in St. Charles Parish, effluent limitations on industrial discharges may not be enough to prevent continued degradation of the Mississippi River.

3.2.4 GROUNDWATER

The EPP site and the general study area are in locations that do not recharge any major freshwater aquifers (Figure 3.5). The aquifer recharge potential for each soil association within the geologic recharge areas was based on such soil characteristics as parent material; subsoil texture, permeability, and drainage; surface slope; and surface runoff. These characteristics affect the movement of water from the surface, through the soil horizon, and into the underlying geohydrologic systems. These interpretations are based on the soil characteristics up to six feet below the surface.

3.2.4.a Jefferson Parish

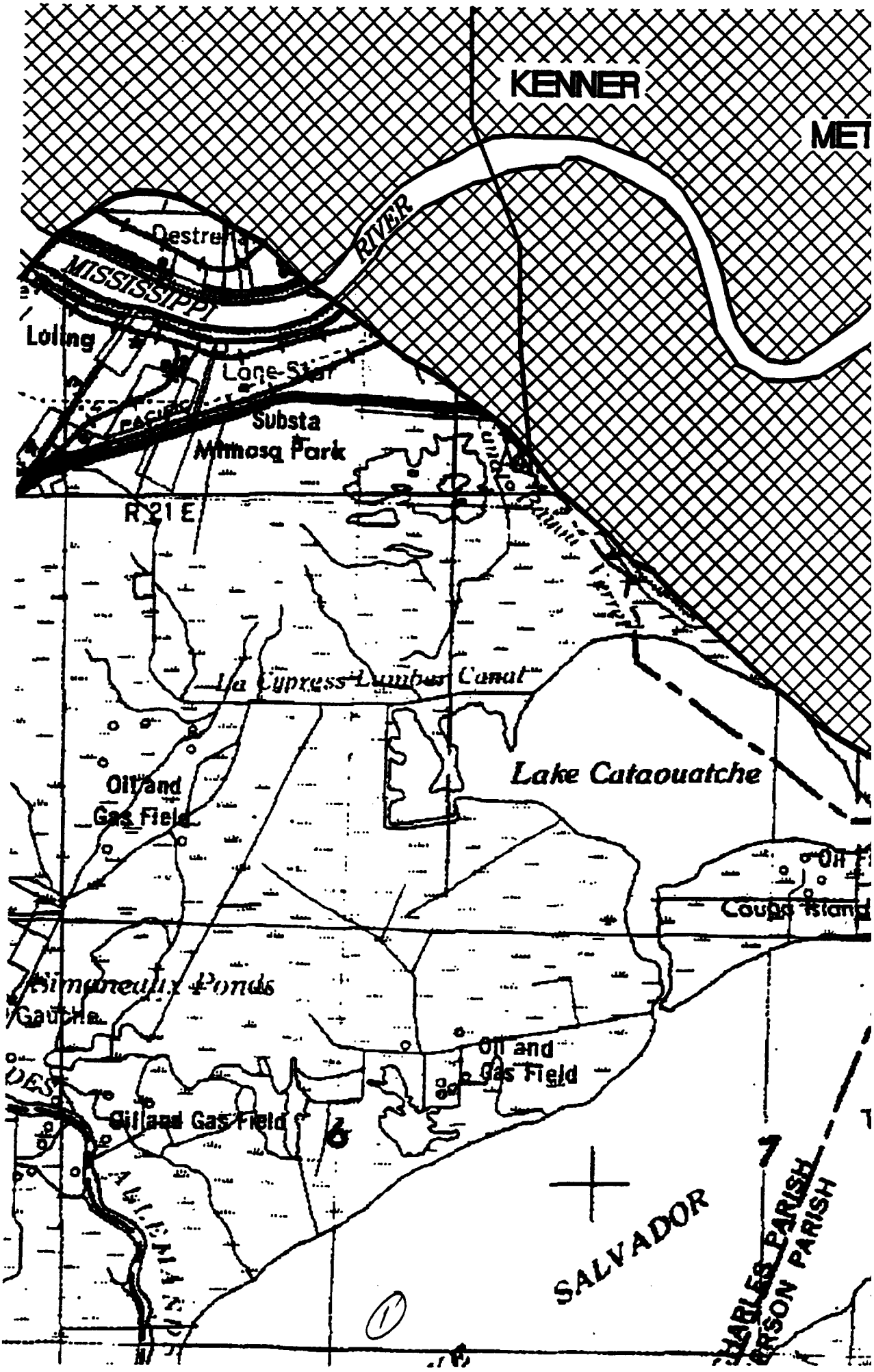
A 700-foot sand aquifer is the principal aquifer in the New Orleans area, and it is the only aquifer found in the vicinity of the proposed action and three alternative sites in Jefferson Parish (LDEQ, 1989). However, according to the Jefferson Parish Department of Water, Jefferson Parish does not obtain water from this aquifer.

The water found in the aquifer has less than 250 parts per million of chloride. Approximately 8.75 million gallons of water per day were pumped from this aquifer in 1963. Projections made estimated that the water level of the 700-foot sand aquifer would decline from a 1965 range of -40 to -90 feet to a range of -100 to -190 feet by 1985, if the aquifer was to be utilized from 1985 to 1995.

The Louisiana Department of Transportation and Development (LDOTD), Water Resources Section, maintains a data base on productive water wells in Louisiana. From this data base, a radius search of the alternative site locations was conducted to determine if any public water supply wells existed on any of the properties (EPP, EG, MLC1, and Landco); all data received are included in Appendix H. The data indicate that there are no water wells registered on any of the Jefferson Parish alternative sites.

3.2.4.b Plaquemines Parish

Plaquemines Parish does not utilize any groundwater sources for the Parish's potable water. All water that passes through the parish treatment systems is from the Mississippi River. Most of the groundwater south of Point a la Hache is highly saline and is not anticipated to have many uses. This water exists from depths beginning at approximately 350 feet to approximately 600 feet (Rollo, 1962).


KENNER
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Mimosa Park
R 21 E
La Cypress Lumber Canal
Lake Cataouatche
Oil and Gas Field
Couba Island
Simmeneux Ponds
Gauche
Oil and Gas Field
Oil and Gas Field
SALVADOR
CHARLES PARISH
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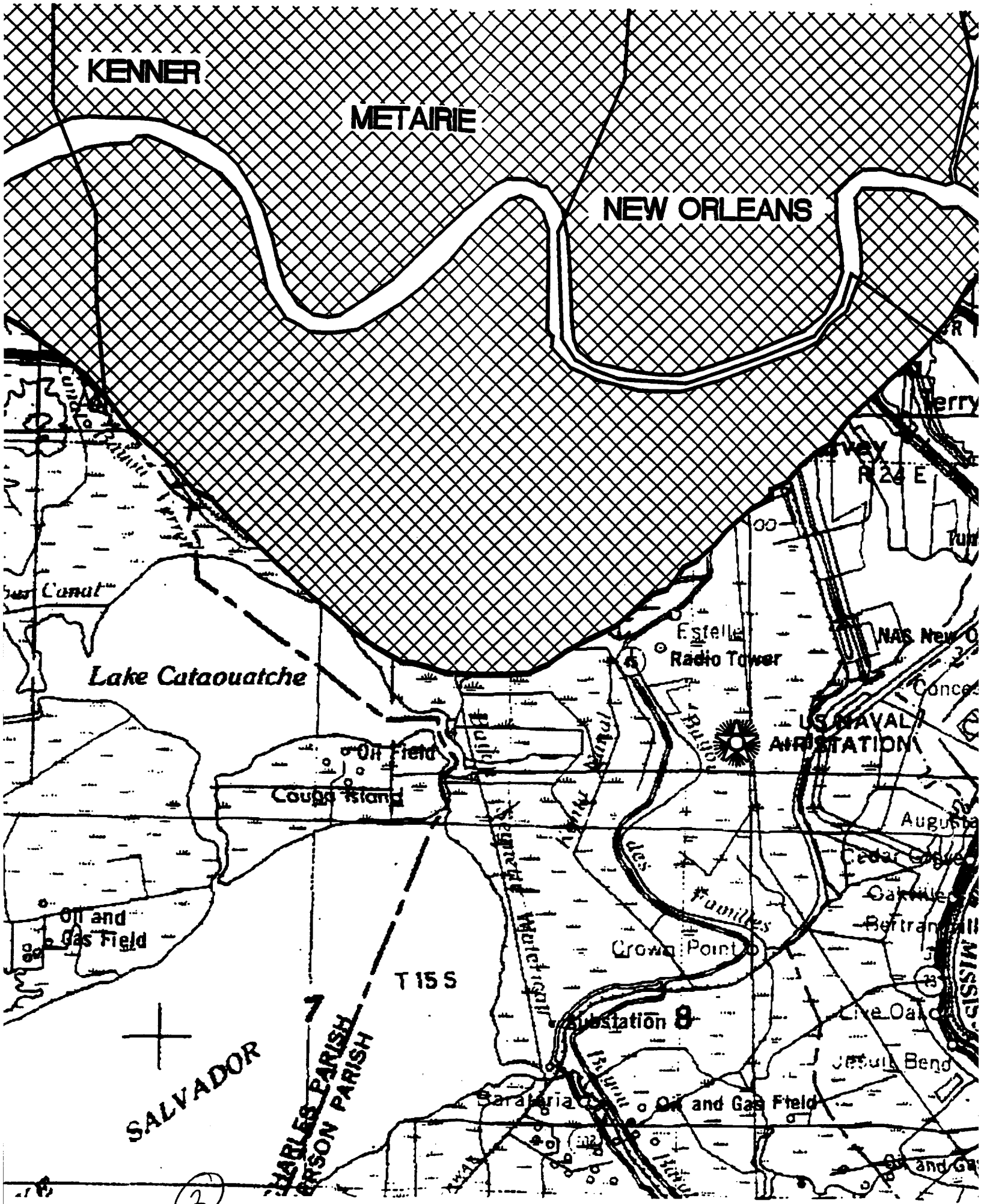
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Estelle
Radio Tower
US NAVAL
AIR STATION
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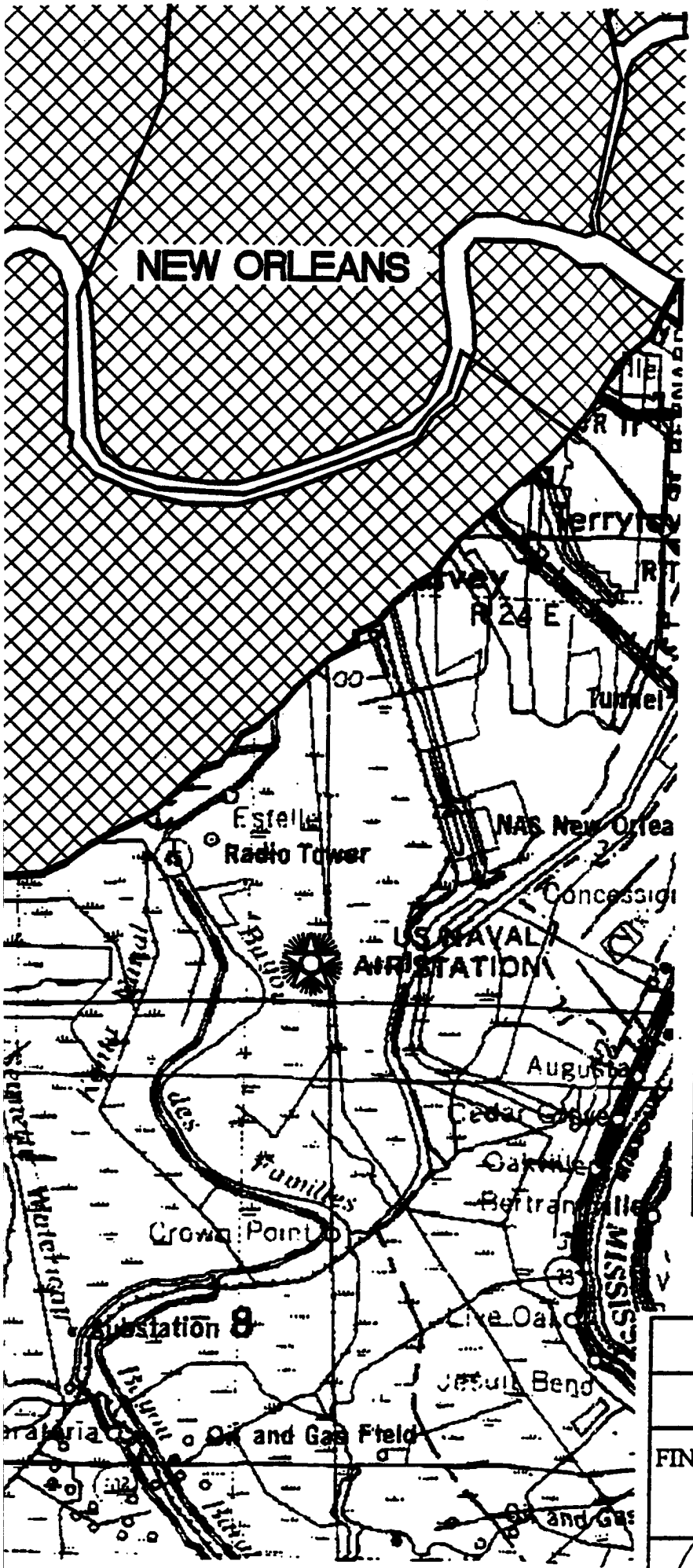
Couba Island
Oil and
Gas Field
Crown Point
T 15 S
Substation 8
SALVADOR
CHARLES PARISH
ORSON PARISH
Barataria
Oil and Gas Field
Bayou des Familles
Bayou Barataria
Intracoastal Waterway
Cedar Grove
Oakville
Bertrandville
Live Oak
Jesuit Bend
Augusta
2



Map #16 of the Aquifer Recharge Atlas

Aquifer Recharge Potential
of the
New Orleans Quadrangle

1988
2nd Printing 1992

LEGEND

AQUIFER SYSTEM: ALLUVIAL
AGE: HOLOCENE AND PLEISTOCENE
FORMATION: ALLUVIUM
DESCRIPTION: CLAY, SILT, SAND, AND GRAVEL. AQUIFER UNITS CONSIST OF FINE TO MEDIUM SAND NEAR TOP, GRADING TO COARSE SAND AND GRAVEL IN LOWER PARTS.

AREAS THAT DO NOT RECHARGE MAJOR LOUISIANA FRESHWATER AQUIFERS.

AREAS OF LOW RECHARGE POTENTIAL

ESTELLE PLANTATION PARTNERSHIP

NOTE: NO AREAS OF AQUIFER RECHARGE POTENTIAL ARE PRESENT WITHIN THIS EXHIBIT.

FIGURE 3.5

ESTELLE REGION AQUIFER MAP

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Between 200 and 400 feet deep, north of Point a la Hache and into the Belle Chasse area, lies an aquifer that ranges from slightly saline to moderately saline. This aquifer is irregularly shaped with highly mineralized water occurring in the lower portions of the sand. These mineralized waters could create a situation where, with continued pumping, the water becomes more highly saline. It is anticipated that water from this region could be utilized as an industrial coolant.

The natural levee deposits of the Mississippi River yield the primary source of fresh groundwater in Plaquemines Parish. The water is located in the near-surface silt and very fine sands of the clayey natural levee deposits. The depth of these sources vary with the elevations of the Mississippi River. Water from this aquifer region is suitable and has been utilized for livestock watering and irrigation. The only other potential source of fresh water for the Parish comes from point bar deposits located in the Belle Chasse area and near Buras. Point bar deposits in Plaquemines Parish are hydraulically connected to the Mississippi River, therefore, subject to infiltration from the Mississippi River. They may be located as shallow as 50 feet, to depths of 100 feet. During periods of low flow, it is possible for these sands to be contaminated by salt water flowing upriver from the Gulf of Mexico. However, when normal to high flow conditions return, the deposits are flushed and recharged with fresh water. These deposits are highly localized and have not been tested to determine water quality.

The LDOTD, Water Resources Section, maintains a data base on productive water wells in Louisiana. From this data base, a radius search of the PP1 alternative site location was conducted to determine if any public water supply wells existed within one mile of the site; all data obtained is included in Appendix H. The data indicates that one public supply well for the U. S. Navy is located within one mile of the PP1 site. This well was drilled in 1944, and it has since been abandoned. It is at a depth of 800 feet within the Gonzales-New Orleans aquifer.

3.2.4.c St. Charles Parish

Groundwater resources in St. Charles Parish amount to four freshwater aquifer systems. The systems are: shallow aquifers including point bars, the Gramercy aquifer, the Norco aquifer, and the Gonzales-New Orleans aquifer (SCS, 1987). The shallow aquifers are limited and irregular and are located at depths of less than 150 feet. Abandoned channel deposits from the Mississippi River and its distributaries left sands capable of producing substantial amounts of water. The quality of the water is poor; it is hard and high in iron content. The water also contains chlorides in varying quantities. Due to the water quality and limited occurrence, these shallow aquifers are utilized only to provide a water source to small livestock wells.

The Gramercy aquifer or 200-foot sand is a hydraulic link between the overlying and underlying aquifers (SCS, 1987). The quality of water produced in this aquifer is also considered poor. Chloride levels have been decreasing in areas now containing salty water, however the displacing water is very hard. The Gramercy aquifer is not utilized.

The Norco aquifer or 400-foot sand is the most important aquifer in St. Charles Parish. It averages in thickness from 100 to 150 feet, but it has extremes of 25 feet and 300 feet. In the Norco area, it is at a depth of 300 feet, further south, it is at a depth of approximately 400 feet. This aquifer is separated from the underlying Gonzales-New Orleans aquifer by a 200 to 300 foot thick layer of clay. Although not developed at this time, it is anticipated that this aquifer has great development potential for the Norco and Laplace areas, where it is fresh throughout.

The deepest of the four aquifer systems is the Gonzales-New Orleans aquifer. It is located at 700 feet with a regional dip of approximately 25 to 50 feet per mile to the south and has an average thickness of between 200 and 250 feet. Depth to the top of the aquifer is about 800 feet in the vicinity of Lake Cataouatche. The aquifer is capable of yielding large quantities of water, however, pumping from the aquifer near the surface would cause an increase in overall salinities.

The LDOTD, Water Resources Section, maintains a data base on productive water wells in Louisiana. From this data base, a radius search of the Bunge alternative site location was conducted to determine if any public water supply wells existed within one mile of the site; all data received is included in Appendix H. The data indicate that three wells were drilled on the site between 1923 and 1935. Two of the wells were for domestic use and have since been abandoned. A third well, drilled in 1934, was utilized for stock irrigation. The files do not indicate that this well has been plugged and/or abandoned, therefore, this well may still be active.

3.3 BIOLOGICAL RESOURCES

3.3.1 VEGETATION

Wetland determinations were utilized to develop some of the vegetative data. Determinations were conducted by the Corps using existing maps, aerial photography, soils data, and previous field investigations.

3.3.1.a Jefferson Parish

The vegetative types present on the EPP property are indicative of a wetland environment. Of the 654 acres included in the project area on EPP, 362 acres are covered by fresh marsh, 292 acres consist of bottomland hardwoods (Figure 3.6). This total acreage figure does not match the figure stated in the permit application, 643 acres. The 654 acreage figure was developed by utilizing a planimeter on a 1995 aerial photograph of the Estelle site to obtain an acreage figure for each of the habitat types present on the property. Utilizing this method, the total acreage figure for the site was determined to be 654 acres. For the purposes of the habitat review (including biological and aquatic resources, wildlife populations and habitat, and endangered and threatened species) the 654 acre figure will be utilized for baseline conditions and to assess impacts, which are discussed in Chapter 4. The dominant plant species in the fresh marsh are maidencane and goldenrod with

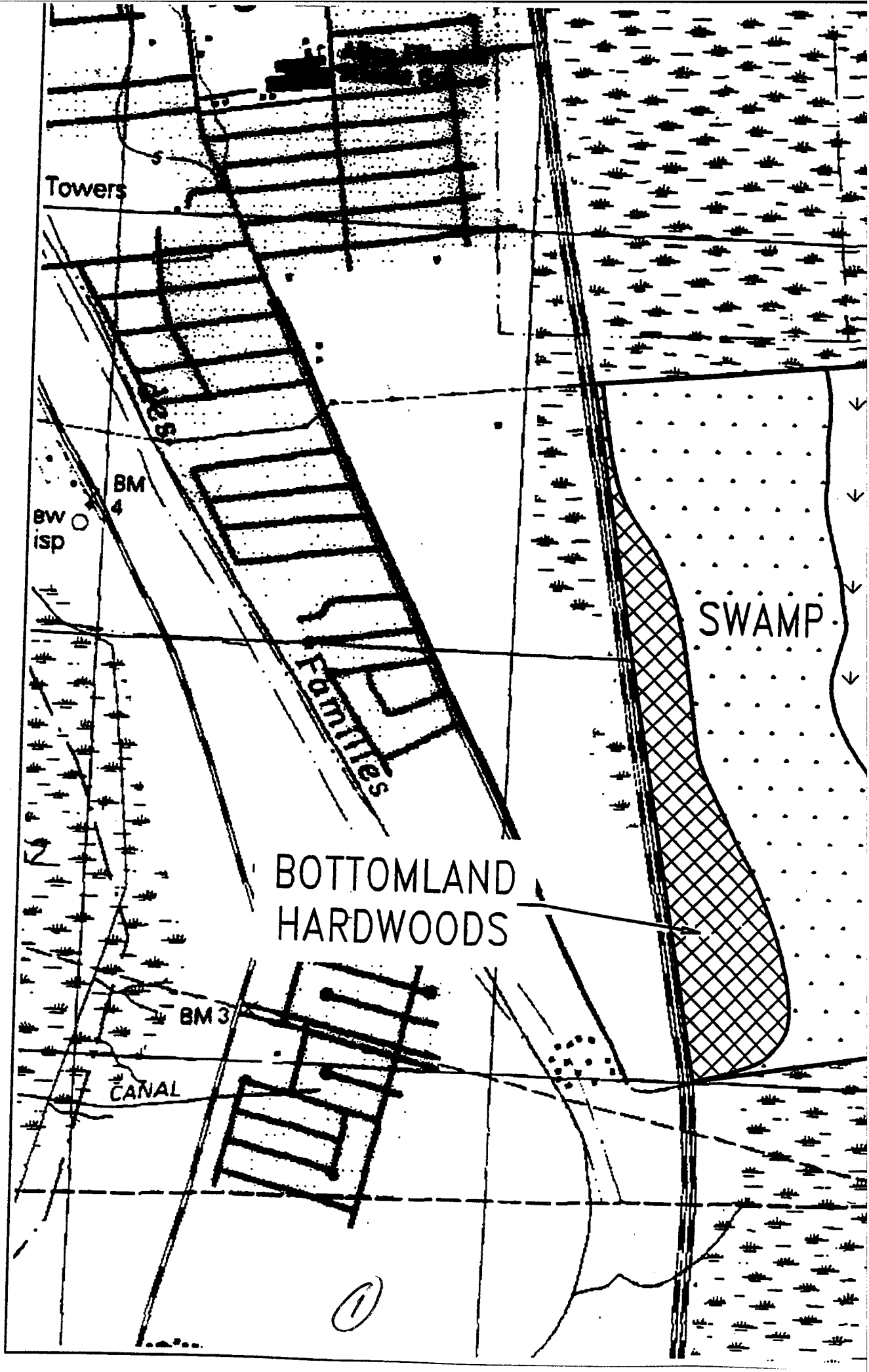
smaller areas colonized by cattail and elderberry (Corps, 1993). There are also scattered stands of Drummond red maple and black willow in the fresh marsh area. Due to the lack of water and severely degraded condition of the former swamp area, the entire wooded area consists of a former swamp that the Corps is considering as bottomland hardwoods for this EIS. The prominent tree species are bald cypress, tupelo gum, and Drummond red maple with some water oak. Prominent understory species include elderberry, ferns, and jack-in-the-pulpit. Other trees in this area include American elm, tupelo gum, sweetgum, and sugarberry.

The EG site also supports vegetation consistent with wetland environments. The EG site is approximately 641 acres (excluding the acreage across Highway 3134 which is excluded from the project). It is estimated that 450 acres of the property consists of bottomland hardwoods and former wooded swamp (surface water removed due to forced drainage). The marsh is an extension of the marsh existing on the EPP site and is also composed primarily of maidencane. The bottomland hardwood area supports a higher percentage of bald cypress trees than the EPP site. Tupelo gum and red maple share the overstory with the cypress. There is a ridge that crosses through this site. The ridge area is characterized by more oaks and maples than the surrounding bottomland area. In the midstory throughout this site, oaks (primarily water oak) and maples dominate. The understory species include lizard tail, pickerelweed, ferns, and palmetto.

Since access to the MLC1 site was not provided, vegetative composition was determined through aerial photograph interpretation, minimal data collected in 1986 by the USFWS, and assumptions based on the location of the property within the Estelle V-levee.

The approximate acreage of the forested bottomland hardwoods present on the MLC1 site was determined to be 320 acres, with the remaining 155 acres being marsh and pasture. The marsh area is an extension of the marsh present on the EPP site, therefore, it can be assumed to be dominated by maidencane. The bottomland hardwood area should support species similar to those present on the EPP and EG sites. Bald cypress, tupelo gum and red maple should be the most dominant overstory species with a scattering of water oak and sugarberry, since there appear to be some higher areas and more edge than the other two sites due to the pasture. Midstory and understory species can be expected to be composed of smaller oaks, sugarberry, maples, elderberry, palmetto, and ferns.

Landco, another site where direct access to the property was denied, was also characterized through the use of aerial photographs, assumptions, and data collected in both 1986 and in 1992. Both sets of data were collected by the USFWS, the most recent of which was collected in conjunction with a Section 404 permit application by Jefferson Parish, Jefferson Parish Wetlands 109. The Landco site is estimated to contain approximately 869 acres. Approximately 808 of those acres are considered to be bottomland hardwoods and the other 61 acres, marsh. As with the other three sites, the marsh on the site is dominated by maidencane with some intrusion of giant cutgrass and baccharis on the edge. The forested community contains species similar to EPP, EG, and MLC1 sites. Overstory and midstory dominant species consisted of red maple, bald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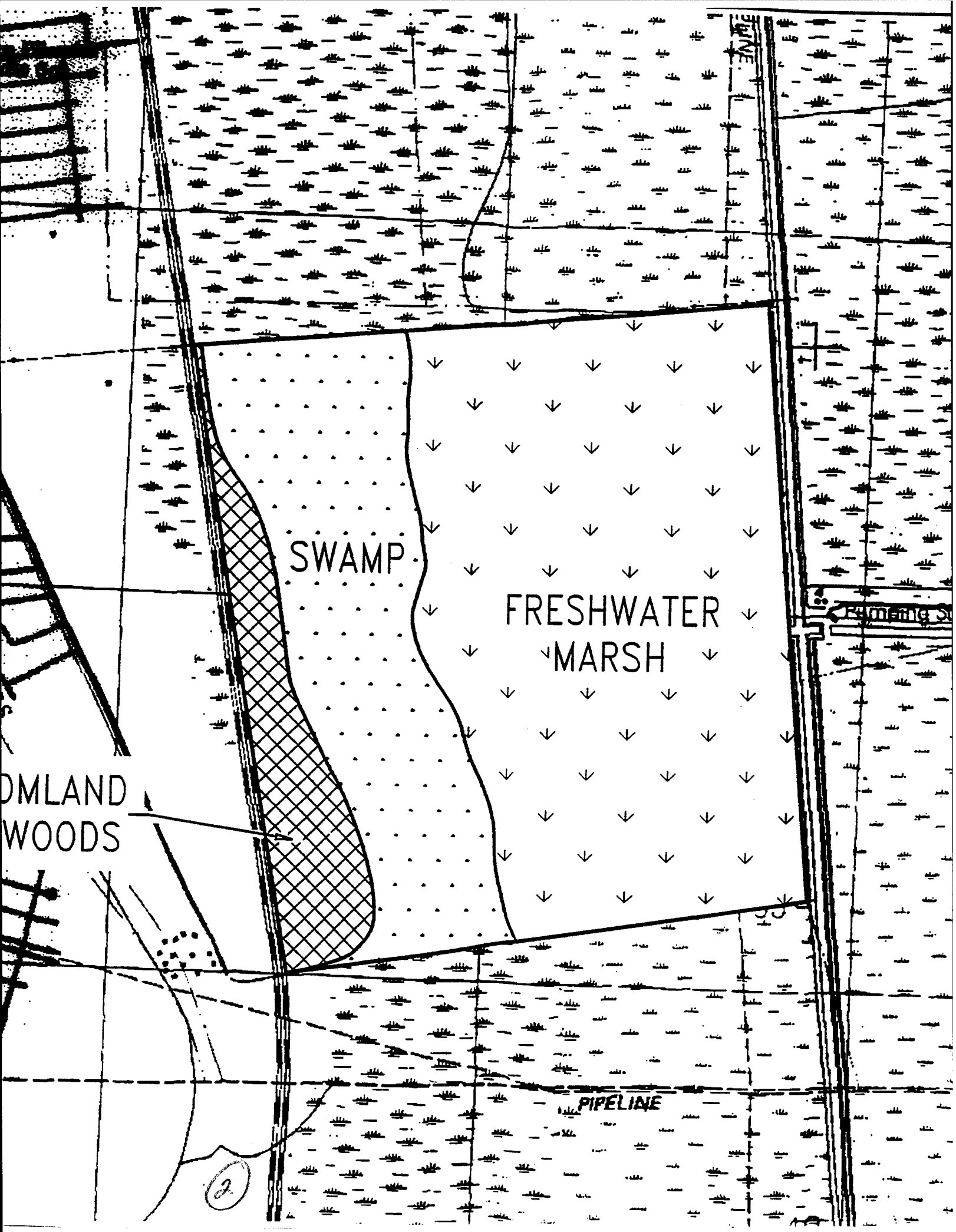
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DMLAND
WOODS
PIPELINE
2

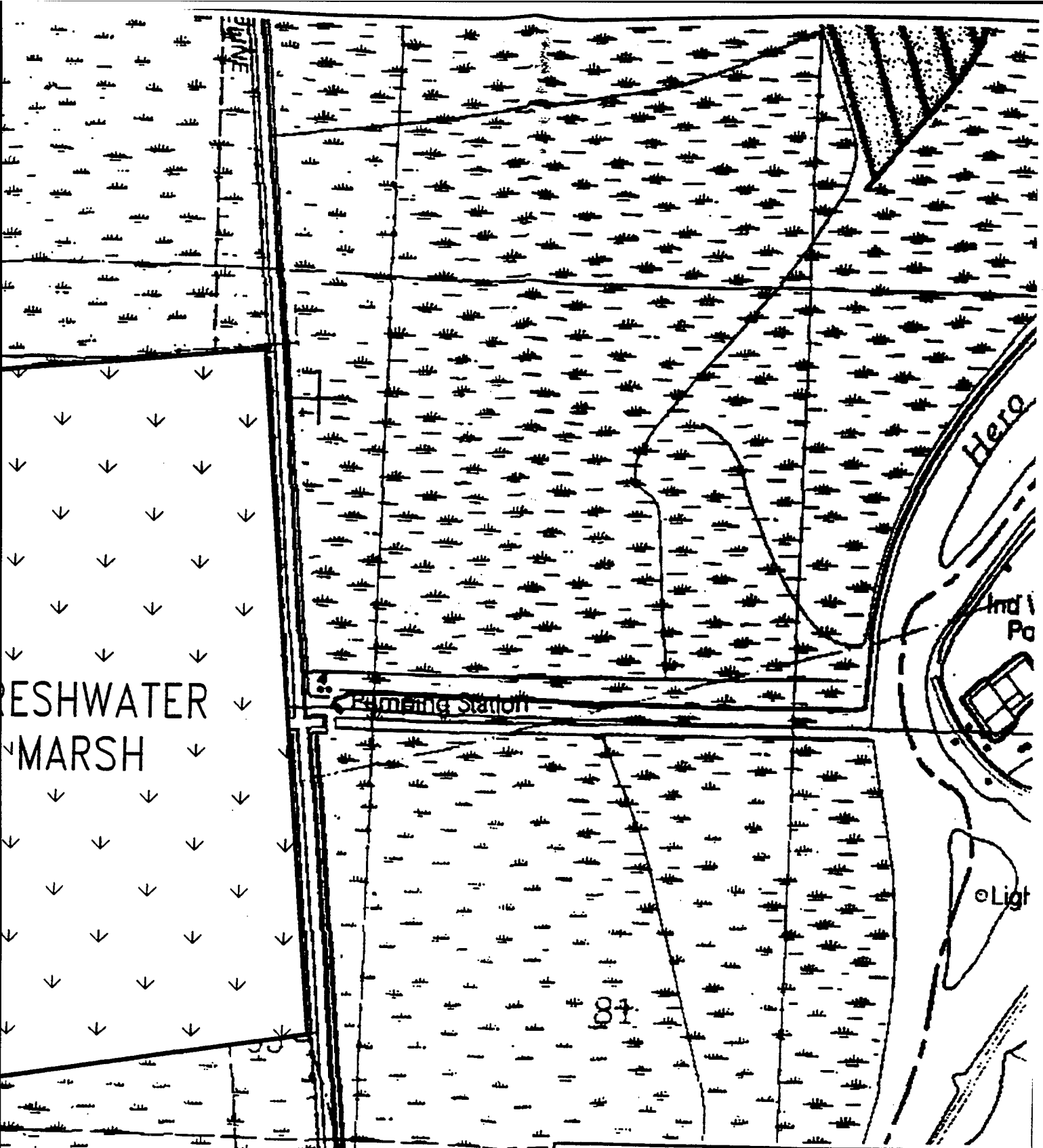

FIGURE 3.6

WETLANDS MAP OF ESTELLE PLANTATION PARNERSHIP

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cypress, tupelo gum, and box elder. The edge community nearest to the Woodmere subdivision contained additional trees such as water oak and willow oak. Less abundant tree species were mulberry and American elm. The understory supported elderberry, lizard tail, and palmetto.

Although the vegetative species in the V-levee area are primarily wetland species, the V-levee site has been partially enclosed within a levee system for over 33 years and under pump for greater than 32 years. The subsequent draw down of the water table has caused high levels of subsidence, which has severely stressed the vegetation in the area. In a 1984 report by Coastal Environments, Inc., biologists noted that the soils had subsided approximately one foot, exposing tree roots and cypress knees. The report also noted that recent vegetation did not include cypress or other wetland dependent tree seedlings. The condition of the site has continued to degrade over the last ten years. Currently, subsidence is estimated at one to three feet throughout the EPP, MLC1, and Landco sites. Subsidence levels on the northern portion of the EG site were observed at greater than four feet and reduced to approximately two feet on the southern portion. Tree roots are significantly exposed. The exposure is causing deterioration of the roots and undermining the support that root systems provide for the trees, thus, some of the trees have fallen. In general, the canopy trees are seriously stressed and poorly anchored in the organic soils; a severe storm event could be catastrophic to the overstory vegetative community.

The 1993 Environmental Assessment for the Westwego to Harvey Canal Hurricane Protection Levee states that the habitat within the V-levee is less valuable than the adjacent habitat along Highway 45 and in JLNHPP (Corps, 1993). Primarily, the habitat value is less due to the pumping and associated vegetative stress.

The JLNHPP is located to the west of the V-levee (Figure 3.7). Habitat types in the park are similar to those contained by the V-levee, however, they are considered healthy and valuable resources primarily because they are not under forced drainage. JLNHPP is not within a leveed system and the core area is protected by the "park protection zone" to the north. The vegetative composition of the park is varied. There are areas of swamp, marsh (fresh and brackish), bottomland hardwoods, and open and trail side grassy areas. Swamp habitat is composed primarily of water tupelo and bald cypress bordered by Drummond red maple and pumpkin ash in the overstory and bugle weed, salt marsh mallow, and pennywort in the understory. Some of the species present in the marsh habitat are bulrush, horned rush, spike rush, bulltongue, southern wild rice, and cord grass. The bottomland hardwood habitat of the park consists of several species of oak, sugarberry, elm, ash, holly, and privet. Understory vegetation in the bottomland habitat contains palmetto, violet, muscadine, dogwood, and persimmon (White, et al. 1983)

3.3.1.b St. Charles Parish

Access to the Bunge site was not granted, thus, vegetative composition was determined through aerial photograph interpretation, visual assessment from the adjacent airfield, and assumptions based on the characteristics of adjacent properties. The approximate acreage

of the Bunge site is 400 acres. 277 acres are estimated to be pasture and 123 acres are believed to be forested bottomland hardwoods. The bottomland hardwood area appears to support fairly young overstory species such as sugarberry, pecan, American elm, red maple, and Chinese tallow. Midstory species consisted primarily of various oaks, red maple and elm. The understory was dominated by palmetto with ferns and lizard tail.

3.3.1.c Plaquemines Parish

Access to the PP1 site was not granted, thus, vegetative composition was determined through aerial photograph interpretation, visual assessment from the adjacent park and River Road, previous field investigations by the Corps, and assumptions based on the characteristics of adjacent properties. The approximate acreage of the PP1 site is 655 acres. Approximately 609 acres are estimated to be forested bottomland hardwoods and 46 acres are assumed to be pasture. The bottomland hardwood area appears to support a diverse population of trees. Overstory species range from a prevalence of hackberry on the west to northwest portions of the site to pecan, red maple, bald cypress, Chinese tallow, sugarberry, and red and white oaks (water, live, and Nuttall) on the northern and eastern sides of the property. Since the southern portion of the site was inaccessible without crossing the property, it was assumed that the southern portion resembled the northern portion with the potential to be more wet.

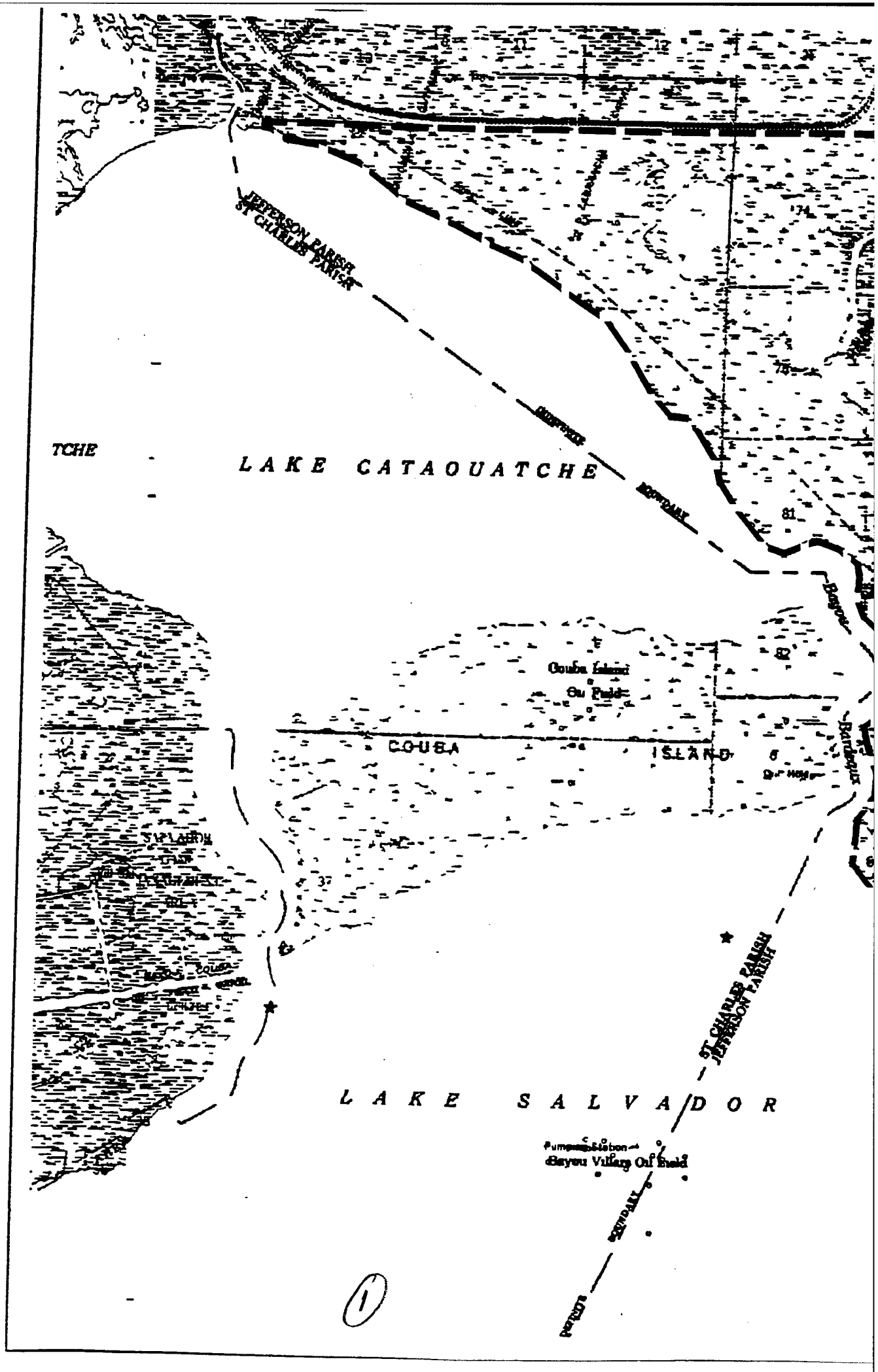
Previously collected data from the Corps indicated that the southern to center portion of the site was the area most likely to be inundated, thus, supporting more wet species such as bald cypress and tupelo. Midstory species consisted primarily of various oaks, red maple, Chinese tallow, elderberry, rough dogwood, and red mulberry. The understory also supported elderberry, palmetto, and blackberry.

3.3.2 WILDLIFE POPULATIONS AND HABITAT

Habitat evaluations using the Wetland Value Assessment (WVA) mathematical models developed for the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) were conducted on all six alternative site locations to develop some of the following information (DNR 1994 and CWPPRA Technical Committee 1992). The 1992 version of the model was used after consultation with USFWS and LDWF because it was determined that the 1994 version overemphasized the habitat value of solid marsh. Appendix I contains the methodology behind Wetland Value Assessments and the corresponding models. A summary of Average Annual Habitat Units (AAHUs) for each project are shown in Table 3.1. The total habitat units lost can be determined by multiplying the AAHUs by 50 (50 years is the assumed project impact time under the WVA model). Appendix I also contains the actual evaluations.

3.3.2.a Jefferson Parish

Since the habitat of the study area site consists primarily of wetlands, both forested and marsh areas, the wildlife species present and expected to be present in the project area are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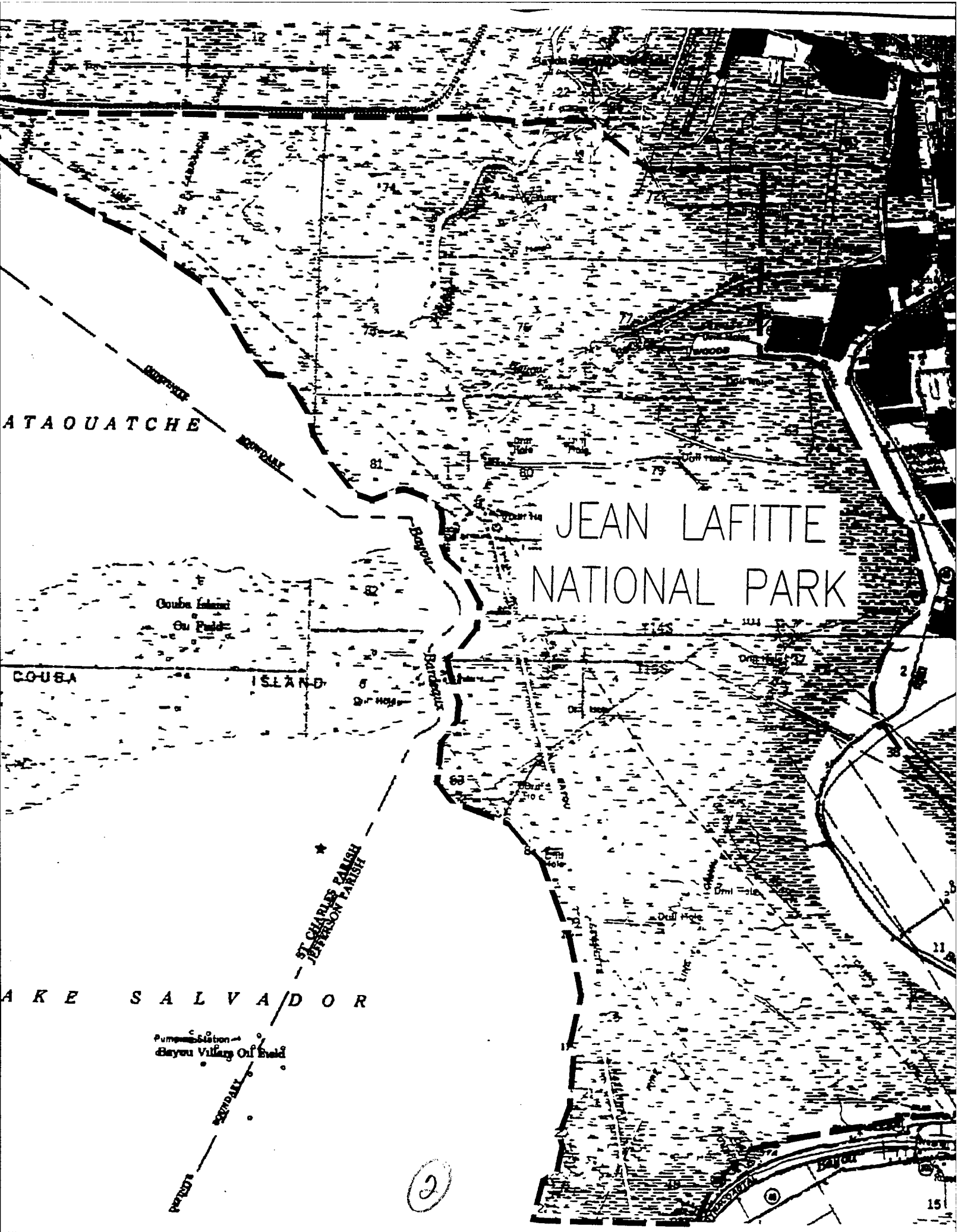
COUBA ISLAND
Couba Island
Oil Field
LAKE SALVADOR
ST CHARLES PARISH
JEFFERSON PARISH
Pumping Station
Bayou Villars Oil Field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Bayou Barataria
ST CHARLES PARISH
JEFFERSON PARISH
AKE SALVADOR
Pumping Station
Bayou Villag Oil Field
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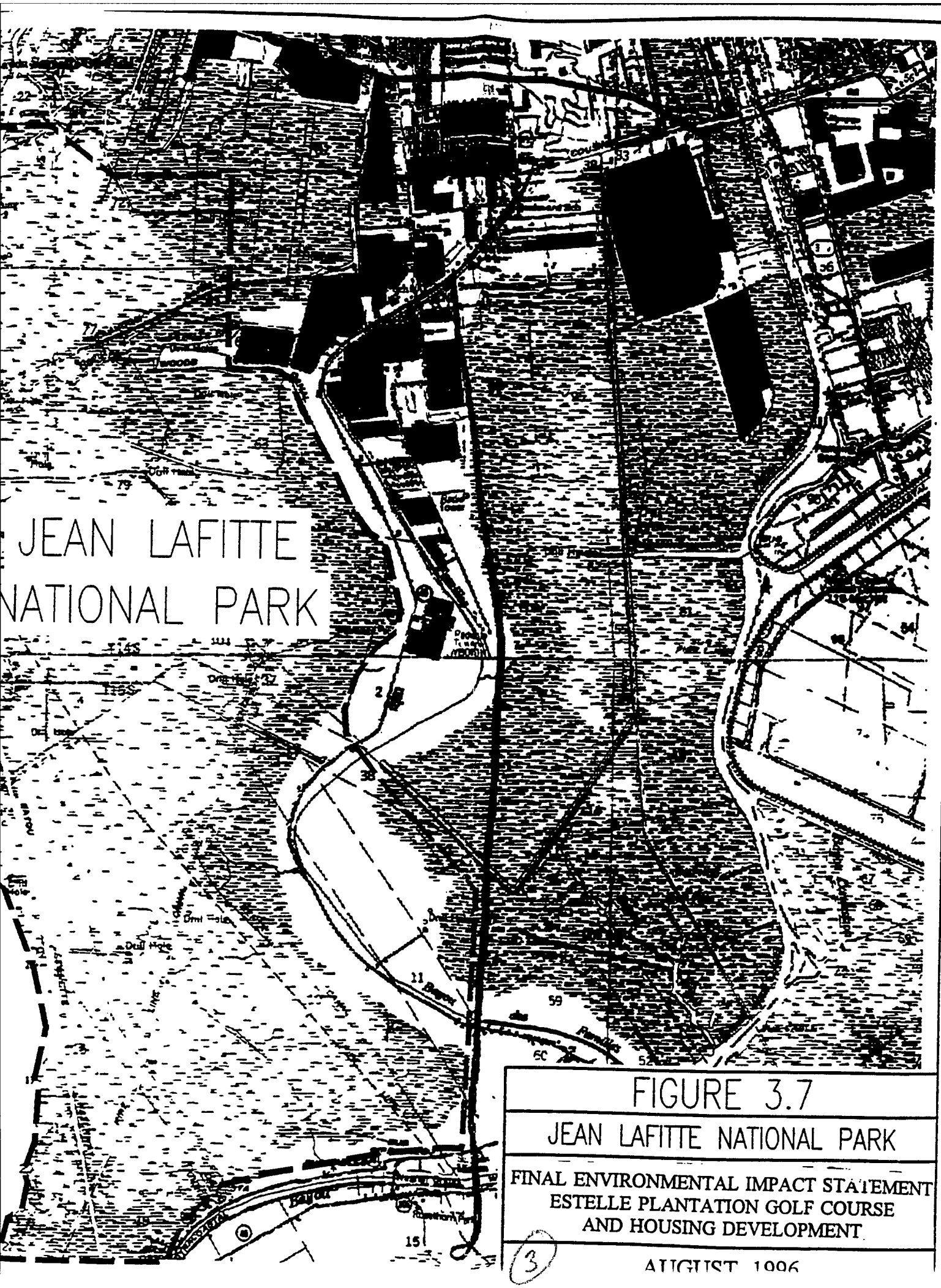

FIGURE 3.7

JEAN LAFITTE NATIONAL PARK

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indicative of wetland environments. Species observed, indicated or expected to be present on all of the four Jefferson Parish alternative sites are listed in the following text. Avian species including cattle, snowy, and great egrets, herons, a large variety of songbirds (warblers, robins), woodpeckers, and raptors (hawks, owls) can be supported by the environment present in the project area. Mammals indicative of the area include white tail deer, squirrels, muskrat, mink, nutria, swamp rabbits, raccoons, and river otters. Various species of reptiles and amphibians inhabit the project site, including boxturtles, the American alligator, snakes (observed species included the cottonmouth water moccasin and copperhead), tree frogs, and toads.

The Estelle Pump Station maintains the water level within the V-Levee at approximately -4.4 to -5.4 feet NGVD. As a result, standing water is observed on the alternative sites primarily during and after periods of heavy rain. Areas which are flooded during 10-year and 100-year storm events are shown in Figure 3.13. The lack of consistent standing water decreases the likelihood of the property sustaining a substantial population of mammals which live in and around water; such mammals would be nutria, muskrat and river otter, signs of which have been observed on the project site. Mammals present in the project location maintaining small to substantial populations include deer, raccoons, squirrels, mink, rats, mice, opossums and swamp rabbits. Raptors, wading birds, and songbirds continue to utilize the site even though the area has experienced shorter periods of standing water.

In the JLNHPP supports a healthy population of water utilizing furbearers, deer, small mammals, song birds, wading birds, waterfowl and other game birds, and raptors. Nutria, mink, and river otter are commonly observed throughout the Park. Many of these animals move to and from the park and would be expected to use the habitat within the V-levee regularly. Deer are present in moderate to high numbers in the JLNHPP. The JLNHPP maintains a healthy food base for deer and deer can move freely between the EPP site and the JLNHPP. Small mammals present in the JLNHPP include the same species present in the V-levee area such as squirrels, rats, mice, raccoons, and rabbits. Various species of hawks and other raptors, wading birds, songbirds, and waterfowl occupy the JLNHPP year round and some are seasonal visitors. The bird population present at the JLNHPP is likely to contain many of the same species located in the V-levee area. Examples of such species would be warblers, vireos, thrushes, woodpeckers, swallows, hawks, herons, and egrets. Some birds more likely to be found in greater numbers at the park than on the project site include kingfishers, terns, gulls, ibis', teal and other waterfowl, and cormorants.

The WVA mathematical model yielded estimates of the current habitat value of each alternative site in Jefferson Parish and the loss of habitat if the proposed action is developed on each site. Information for the model was obtained from site visits to the EPP and EG properties. Since access to the MLC1 site was not provided, habitat composition was determined through aerial photograph interpretation, minimal data collected in 1986 by the USFWS, and assumptions based on the location of the property within the Estelle V-levee. Landco, was also characterized through the use of aerial

TABLE 3.1
WVA MODEL RESULTS FOR ALTERNATIVE SITES

	BOTTOMLAND HARDWOOD FOREST			MARSH		
SITE	AAHU* WITH PROJECT	AAHU* WITHOUT PROJECT	AAHU LOST	AAHU* WITH PROJECT	AAHU* WITHOUT PROJECT	AAHU LOST
EPP	26.2	171.3	-145.1	2.8	160.5	-157.7
EG	34.6	278.3	-243.7	1.3	75.8	- 74.5
MLC1	17.6	162.0	-144.4	0.8	42.5	- 41.7
LANDCO	101.5	543.1	-434.6	0.5	27.0	- 26.6
BUNGE	15.3	99.2	- 83.9	0.0	0.0	0.0
PP1	53.6	482.6	-429.0	0.0	0.0	0.0

* Average Annual Habitat Units calculated over fifty years.

photographs, assumptions, and data collected in both 1986 and in 1992. Both sets of data were collected by the USFWS, the most recent of which was collected in conjunction with a Section 404 permit application by Jefferson Parish, Jefferson Parish Wetlands 109.

The results of the WVA model are summarized in Table 3.1 by habitat type, bottomland hardwood forest or marsh. Estimates of habitat units for each site with and without the proposed action are provided. The results indicate the EPP and EG sites have a similar bottomland hardwoods habitats which would lose a similar amount of AAHUs over a fifty year period if developed, approximately 145. The EG site and Landco site are estimated to have a larger and more valuable bottomland hardwood habitat and would lose significantly more AAHUs if utilized for the proposed golf course and housing development, 244 and 435 units, respectively. For marsh habitat the EPP site would lose the most AAHUs, if developed, followed by the EG, MLC1, and Landco sites with losses of 158, 75, 42, and 27 AAHUs, respectively. The Bunge site would have the lowest loss of AAHU's of the alternative sites.

3.3.2.b Plaquemines Parish

The PP1 property is a forested bottomland community that has some low lying wetland areas and functions as a retention basin for stormwater run-off. The site is also immediately west of the Mississippi River. Due to its location near the Mississippi River and the ability of the site to maintain standing water, a wide variety of avian species are likely to utilize this property. Fishing birds such as kingfishers and cormorants and wading birds (egrets, herons) would be present on the site during periods of inundation

on the eastern rim close to the Mississippi River, in the central wetland area, and along area canals. Warblers, vireos, thrushes, woodpeckers, cardinals, blackbirds, and other seed and insect eating birds are expected to be found on this site. Hawks and owls would also be supported by the resources of the site. Mammals likely to be located on the PP1 property include rabbit, armadillo, mink, squirrel, raccoon, skunk, mice, and rats. Reptiles and amphibians are expected to flourish on the property as well. Turtles, lizards, and snakes of various species would be found on this site.

For calculation of the WVA model to determine the habitat value of the PP1 site, access was not granted, thus, habitat composition was determined through aerial photograph interpretation, visual assessment from the adjacent park and River Road, previous field investigations by the Corps, and assumptions based on the characteristics of adjacent properties. The habitat value and estimated loss of habitat value due to the proposed action was substantial for bottomland hardwoods and minimal for marsh (Table 3.1). AAHUs anticipated to be lost due to the proposed action would be 429. This is significantly greater than the EPP site and other sites with the exception of the Landco site.

3.3.2.c St. Charles Parish

Although approximately seventy-five percent of the Bunge site is pasture, some species expected to be present in the forested community may utilize the pasture habitat as well. Mammals such as rabbits, deer, squirrel, raccoon, and armadillo are likely to be found in both habitats. Nutria, muskrat, and river otter would likely not be present due to the lack of standing water on the site. A healthy avian community would be expected to utilize this property. Cattle egrets are frequently observed on the pasture land. Warblers, vireos, the northern cardinal, swallows, and thrushes are expected to be common on the site. Wading birds and fishing birds such as herons, kingfishers, and ibis are not likely to be located on the site due to the lack of marsh and standing water. Some of these species may be observed on occasion when the water from the wetland area to the south of the site invades the Bunge property. It is expected that the Bunge site also supports a variety of snakes, turtles, frogs, toads, and lizards.

For calculation of the WVA model to determine the habitat value of the Bunge site, access was not granted, thus, habitat composition was determined through aerial photograph interpretation, visual assessment from the adjacent airfield, and assumptions based on the characteristics of adjacent properties. The habitat value and estimated loss of habitat value due to the proposed action was much less than any of the other alternative sites (Table 3.1). AAHUs anticipated to be lost due to the proposed action would 84 and 0, respectively for bottomland hardwood and marsh habitats, respectively.

3.3.3 AQUATIC RESOURCES

3.3.3.a Jefferson Parish

The limited standing water, as a result of pumping, in the Estelle V-Levee area has decreased the value of the area to aquatic organisms. Figure 3.13 indicates the frequency of flooding for the area. The only continuous sources of surface water within the V-levee are borrow canals. Most of the canals were established for drainage purposes, thus, they vary in depth and width and have slow to non-existent flow. Aquatic vegetation present in the canals primarily consists of water hyacinth, duckweed and blue-green algae. The fishery supported by the canals is considered poor. Species which could be present include gar, catfish, bowfin, and sunfish (LDEQ, 1994). Benthic organisms exists in low numbers (LDEQ, 1994). Under flooded conditions, the wetland environment within the V-levee could support a healthier benthic community (dragonfly larvae and amphipods), crawfish, snails, grass shrimp, and juvenile and adult fish of the same species as mentioned above.

The aquatic habitats in the vicinity of the proposed project area (outside of the V-levee), Bayou des Familles and the wetlands of JLNHPP, support moderate to high fishery value and provide nursery areas and a detrital source for adjacent estuaries (Corps, 1986). Blue crabs, grass shrimp, snails, sunfish, and menhaden are a few of the species expected to be flourishing in these waters.

3.3.3.b Plaquemines Parish

For the PP1 alternative site, aquatic resources are limited to the Mississippi River, navigation canals and drainage canals on site and in the surrounding area. The actual PP1 area does not generally support surface water, since this area of Belle Chasse is also pumped and drained. Crawfish are one of the few aquatic species that may be supported by this environment. The potential project area drains into Planters Canal, which is incorporated into the site. This drainage canal is typical of most drainage canals. It does not support a diverse fishery. There is little habitat diversity and vegetation (duckweed, water hyacinth, algae) tends to build up in the canal during the summer months. Flow can range from high flow during heavy rains and winter storms to virtually no flow in the summer months (conversation with Charles Lambert of PSG/Plaquemines Parish Department of Water). The Planters Canal discharges to the Algiers and Hero Canals. The Algiers Canal and Hero Canal are considered to have moderate water quality, but have contaminated sediments, especially in the vicinity of the Harvey Canal. Contaminated sediments tend to diminish the value of a water body to fish and other aquatic species. Aquatic species that may be present in these canals are gar, catfish, sunfish, crawfish, and possibly larval shrimp.

The primary fishery of the Belle Chasse area is the Mississippi River. Water quality in the Mississippi River is considered to be fairly good, thus the fishery is in good condition. The river, in the Belle Chasse area, is capable of supporting several sand mining

operations without impact to water quality or fishery health. It is from this area that the fill material will be obtained for the applicants' proposed action.

3.3.3.c St. Charles Parish

The Mississippi River constitutes the primary aquatic habitat near the potential alternative site of Bunge. There are a minimum of 123 acres of wetland habitat that are inundated for short periods. Aquatic species expected to be present in the wetland area include crawfish, juvenile garfish and sunfish, and benthic dwellers such as dragonfly larvae. The water quality of the Mississippi River is fairly good, thus the fishery it supports remains healthy. Channel catfish, blue catfish, and gar are examples of species that are common to the Mississippi River.

3.3.4 THREATENED AND ENDANGERED SPECIES

3.3.4.a Jefferson Parish

Jefferson Parish is home to some Federally listed threatened and endangered species. All of the following species can be found in Jefferson Parish: 1) bald eagle; 2) brown pelican; 3) piping plover; 4) pallid sturgeon; and 5) Kemp's Ridley sea turtle. The bald eagle and piping plover are listed as threatened species, the other three are endangered species. Formal responses from the USFWS and the LDWF are included in Appendix K.

The southern bald eagle, is the only avian species that is documented as nesting within several miles of the Estelle V-levee area. Due to the location of the bald eagle's nest, no restrictions would be needed upon construction on the EPP, MLC1 or Landco sites. The EG site falls within one mile of the nest and would have to abide by regulations set by the Endangered Species Act, as amended. Brown Pelicans are known to utilize the Harvey Canal in Jefferson Parish, however, this canal will not be impacted by the proposed development.

Dredge material for fill is proposed to be obtained from the Mississippi River and pumped to the project location. The source for the dredge material would be from lower Belle Chasse. There should be no impact on the pallid sturgeon, as there have been no sightings of these sturgeons in this area for over twenty years (phone memo of 10/23 from Larry Hartzog) (Appendix J). The nearest sighting of a pallid sturgeon has been between River Mile 95 and 100. The potential dredge location is at River Mile 70.

3.3.4.b Plaquemines Parish

Plaquemines Parish provides habitat able to support some of the Federally listed threatened and endangered species. All of the following species can be found in Plaquemines Parish: 1) bald eagle; 2) brown pelican; 3) piping plover; 4) pallid sturgeon; 5) Kemp's Ridley sea turtle; 6) green sea turtle; and 7) loggerhead sea turtle. The bald eagle, piping plover, green sea turtle, and loggerhead sea turtle are listed as threatened

species, the other three are all endangered species. Formal responses from the USFWS and the LDWF are included in Appendix K.

There are no known rare, threatened, or endangered species or critical habitat within five miles of the PP1 alternative site, save the pallid sturgeon which is known to inhabit the Mississippi River. Dredge material for fill is proposed to be obtained from the Mississippi River and pumped to the project location. The source for the dredge material would be from lower Belle Chasse. There should be no impact on the pallid sturgeon, as there have been no sightings of these sturgeons in this area for over twenty years (phone memo of 10/23 from Larry Hartzog). The nearest sighting of a pallid sturgeon has been between River Mile 95 and 100. The potential dredge location is at River Mile 70.

3.3.4.c St. Charles Parish

Several Federally listed threatened and endangered species reside in St. Charles Parish. All of the following species can be found in St. Charles Parish: 1) bald eagle; 2) brown pelican; 3) gulf sturgeon; and 4) pallid sturgeon. The bald eagle and gulf sturgeon are listed as threatened species, the other two are endangered species. Formal responses from the USFWS and the LDWF are included in Appendix K. The nearest species to the proposed alternative site is the threatened bald eagle. A bald eagle's nest is located approximately 4.5 miles from the Bunge alternative site location in St. Charles Parish. Since the nest is located over one mile away, there would be no restrictions on the potential development of this site.

3.4 CULTURAL RESOURCES

3.4.1 HISTORIC AND ARCHEOLOGICAL SITES

3.4.1.a Jefferson Parish

There are no sites or properties either listed on or which have been determined eligible for listing on the National Register of Historic Places in the vicinity of the EPP site or the surrounding area (see Appendix E). In addition, there are no other known cultural or archeological resources on the EPP, MLC1 or Landco sites. There is however one archeological site within the boundaries of the EG property. This site is a shell midden, containing some bone and pottery. It is anticipated that this site was extremely disturbed, possible destroyed during the construction of Highway 3134. If the EG site were selected as the project site, a survey of this potential resource location would have to be conducted.

3.4.1.b Plaquemines Parish

There are no sites or properties either listed on or which have been determined eligible for listing on the National Register of Historic Places in the vicinity of the PP1 alternative

project site or the surrounding area. In addition, there are no other known cultural or archeological resources on the PP1 site or in the surrounding area (see Appendix E).

3.4.1.c St. Charles Parish

There are no sites or properties either listed on or which have been determined eligible for listing on the National Register of Historic Places in the vicinity of the St. Charles Parish alternative site, Bunge, or the surrounding area. In addition, there are no other known cultural or archeological resources on the Bunge site or the surrounding area (see Appendix E).

3.4.2 NATIVE AMERICAN RESOURCES

3.4.2.a Jefferson Parish

There are no known Native American, cultural or archeological resources within the project area. The nearest location of such resources are shell middens located along the Bayou des Familles ridge; across the highway and west, north and south of the EPP location.

3.4.2.b Plaquemines Parish

There are no known Native American, cultural or archeological resources on or in the vicinity of the PP1 site in Plaquemines Parish.

3.4.2.c St. Charles Parish

There are no known Native American, cultural or archeological resources on or in the vicinity of the Bunge site in St. Charles Parish.

3.5 LAND USE

3.5.1 GENERAL LAND USE

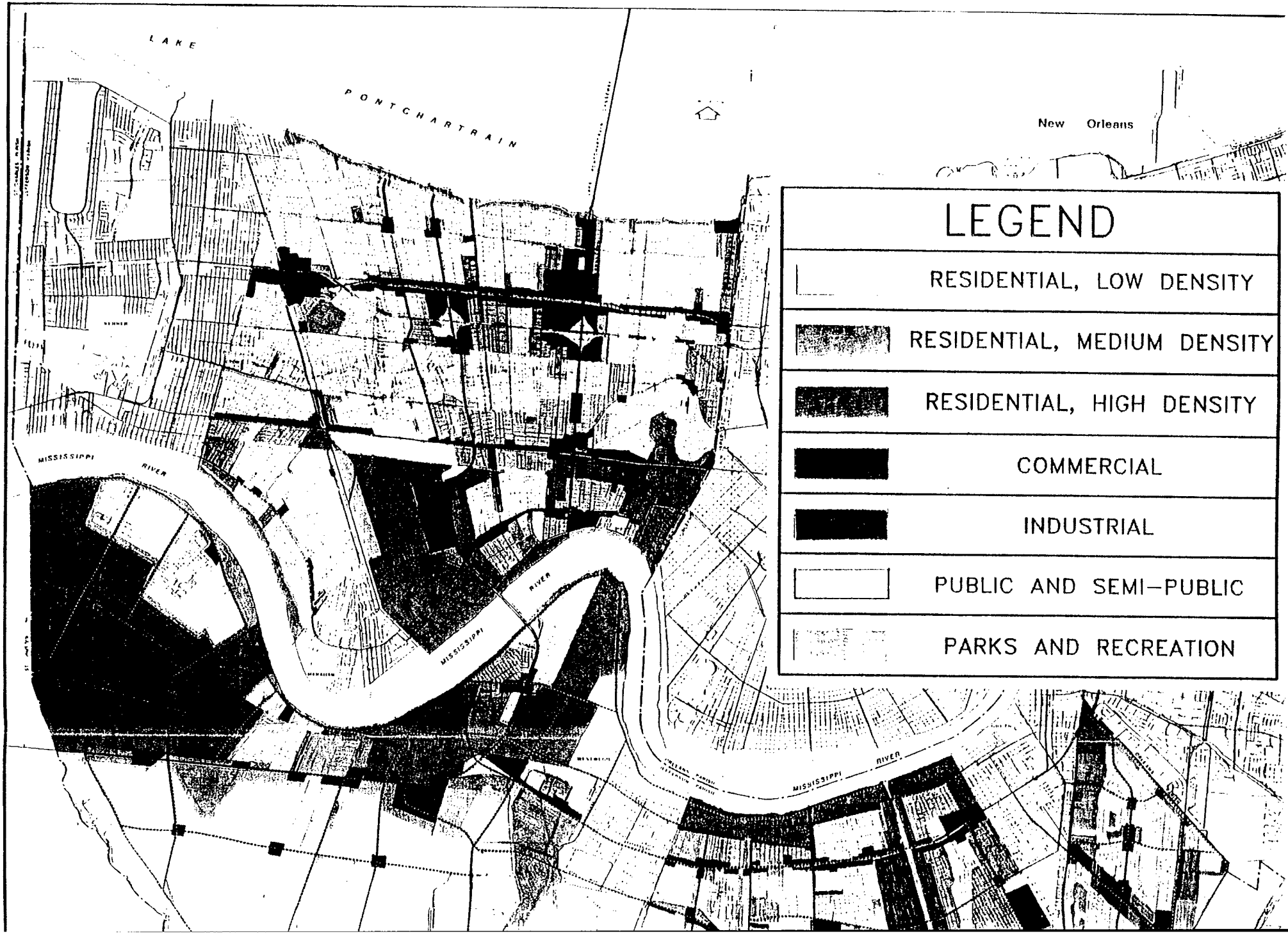
The urban land use in Jefferson Parish is mostly residential. Existing and future planned land use patterns for the Parish are shown in Figure 3.8. Northern and middle Jefferson Parish is mostly medium to high density residential. Low density residential areas are found in the southern parts of the parish, since this area consists mostly of brackish marshes that are flooded or ponded most of the time. This area provides a suitable habitat for wetland wildlife, and it is used for hunting, fishing, and other outdoor activities; parks and recreational areas are limited in the parish. Commercial properties are found adjacent to major streets and intersections, while industrial uses are popular along the major waterways of the parish. A high density of industry is found near the Mississippi River and the Harvey Canal. The Jefferson Parish Coastal Zone Management Program indicates that the alternative sites in Jefferson Parish are contained within the West Bank

Management Unit. This management unit is designated for use as residential and industrial, thus, the proposed project is in compliance and consistent with the management goals of this unit. The Coastal Zone Management Program also considers the properties of EPP, EG, and MLC "fastlands" because they are leveed and under pump. The Landco site is not entirely enclosed within a levee system, therefore, it is not considered "fastlands". These areas have also been designated and dedicated by Jefferson Parish as an area for conventional development and growth to meet the needs of the Parish and is included as an area within the Coastal Zone Management Program for "planned residential, commercial, and industrial development . . .". The commitment of this area to conventional use and development has been previously recognized with the approval of the alignment and permit for construction of the West Bank Hurricane Protection Levee.

Land use in St. Charles Parish has changed in the last 25 years. Once a principally agricultural parish, St. Charles converted a large portion of formerly agriculture land to industrial, commercial and residential uses. However, the Parish remains a rural parish. Less than 35% of its land area is developed for urban, industrial and agricultural use. The remaining 65% consists of wetlands, swamps and marsh that are frequently flooded and do not possess constructed drainage canals and pumping systems (SCS, 1987). Industry is gaining a stronger foothold in St. Charles, primarily due to the Mississippi River and access to major railroad systems. Grain elevators, chemical plants and refineries are prospering in the parish. Industrial development is likely to continue. A Coastal Zone Management Program approved by DNR does not exist for St. Charles Parish.

Although Plaquemines Parish is comparatively large in land area when compared to Jefferson and St. Charles Parishes, there is a relatively small percentage of developable land. Only about 5% of Plaquemines Parish is considered developable (Bisso-Vogt, 1983). Since the Mississippi River cuts a linear swath down the center of the Parish, land development has been in a linear fashion and divided between the East Bank and West Bank communities. There is approximately one mile on either side of the Mississippi River that is considered developable in the northern portion of the Parish. As a result of this situation, small communities have developed along both sides of the river throughout the Parish. This type of development restricts the ability of the Parish to provide services to all the communities. Since the alternative site that is being considered for this DEIS is in the Belle Chasse vicinity and Belle Chasse is the most populous area of the Parish, land use patterns in that area will be discussed.

Land use in the Belle Chasse area of Plaquemines Parish is primarily industrial and residential. There are large tracts of undeveloped woodland areas throughout this area. The residential areas are primarily along Belle Chasse Highway. Industrial areas are located along the Algiers Canal, north of Hero Canal and along the Mississippi River. Between the east/west portion of Belle Chasse Highway and Hero Canal is the Alvin Callendar Naval Air Station, which occupies almost half of the land area in Belle Chasse. Future land use projections have not come to fruition, as a result, the parish passed a development moratorium on residential developments in the Belle Chasse area until the


LAKE
PONTCHARTRAIN
New Orleans
MISSISSIPPI RIVER
MISSISSIPPI RIVER
MISSISSIPPI RIVER
LEGEND
RESIDENTIAL, LOW DENSITY
RESIDENTIAL, MEDIUM DENSITY
RESIDENTIAL, HIGH DENSITY
COMMERCIAL
INDUSTRIAL
PUBLIC AND SEMI-PUBLIC
PARKS AND RECREATION

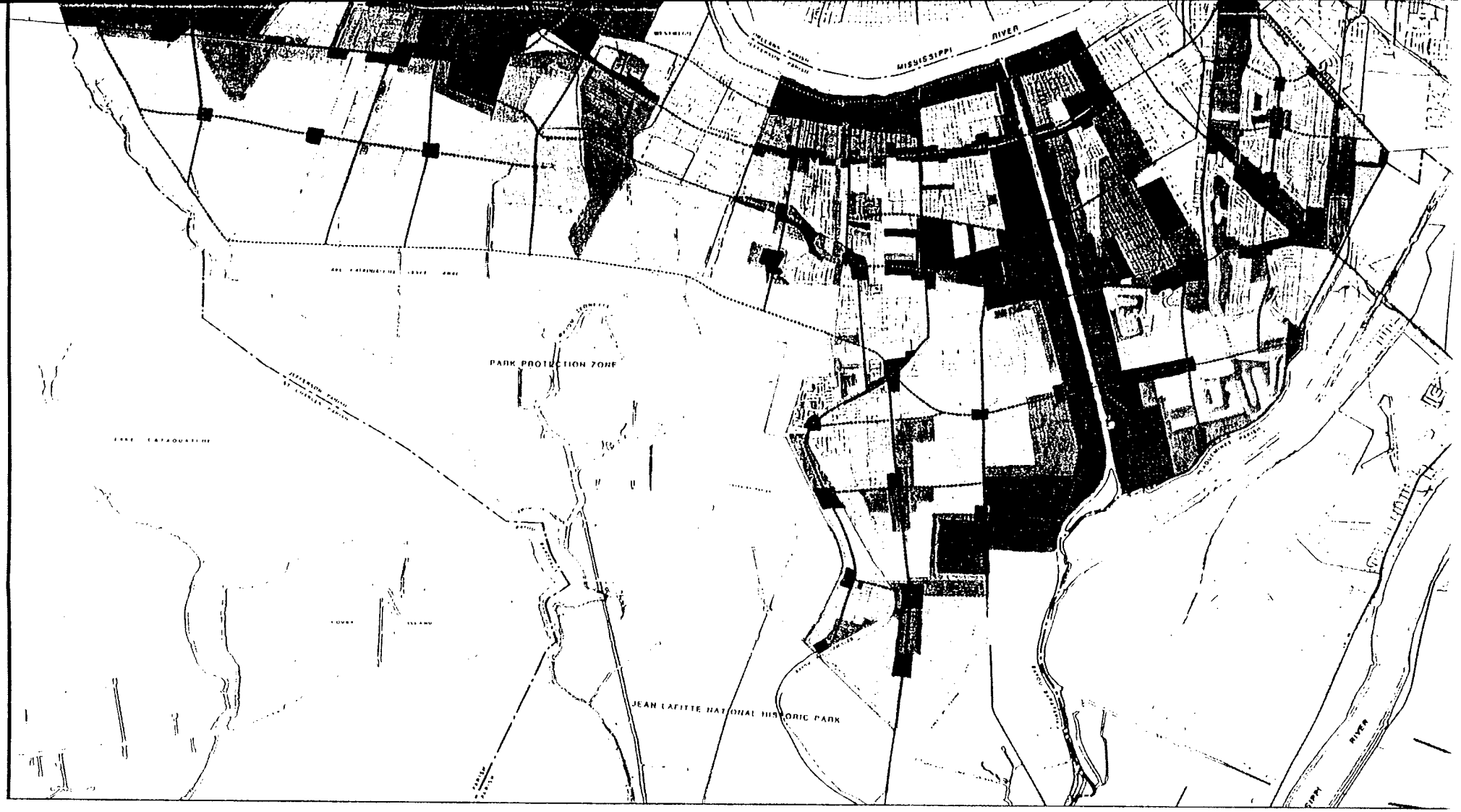


FIGURE 3.8

LAND USE PLANNING MAP
JEFFERSON PARISH – DEVELOPMENT 2000

FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT

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Parish could provide services to newly developed areas south of Belle Chasse. It is anticipated that future land use in the Belle Chasse area would continue to be primarily industrial and residential. A Coastal Zone Management Program approved by DNR does not exist for Plaquemines Parish.

3.5.2 AGRICULTURE

3.5.2.a Jefferson Parish

Agricultural activities within the boundaries and in the vicinity of the V-levee consist primarily of undeveloped wetlands and forested wetlands. The main uses of the area are trapping, hunting, and animal grazing. Animal grazing is the primary profit generating agricultural activity of the study area.

Primary soil associations for the EPP EG, MLC1, and Landco sites are the Allemands drained muck, Barbary muck, and Sharkey clay (Figure 3.2). These soils dictate the type and extent of agricultural activities that may take place in the vicinity of the project. The Allemands association is moderately well suited to pasture, however, it is soft and usually ponded and indicative of fresh marsh. Barbary muck is poorly suited to woodlands, cropland and pasture. The soil is too soft to support most types of harvesting equipment and the wetness and flood potential will not support crops or pasture vegetation. Barbary muck supports fresh swamp vegetation such as bald cypress (*Taxodium distichum*) and tupelo gum (*Nyssa aquatica*). Sharkey clay is located in a small section on the west side of the EPP site. This soil is well suited to pasture, crops, and woodland vegetation. Pasture plants supported by this soil association are bahiagrass, common bermudagrass, dallisgrass, ryegrass, vetch, red and white clover. The main crop grown is vegetables, but sugarcane, soybeans, grain sorghum, and rice are potential candidates. Sharkey clay also supports the production of bottomland hardwoods such as ashes (*Carpinus* spp.), sweetgum (*Liquidambar styraciflua*), and American elm (*Ulmus americana*).

No cultivated crops are produced on any of the Jefferson Parish alternative sites. The only alternative site location with an active agricultural venture is the MLC1 site. This property currently supports some cattle grazing and pasture maintenance.

3.5.2.b Plaquemines Parish

The Belle Chasse area of Plaquemines Parish does not support commercial agriculture. Woodlands and wetlands prevail on vacant land areas north of Hero Canal. South of Hero Canal and outside of the study area citrus farming and nursery plants are the most active form of vegetative agriculture. Other forms of agriculture, aquaculture and marine fisheries, are the most productive and economically valuable in the parish.

The primary soils associations for the PP1 alternative site location are Westwego clay, Sharkey clay and Harahan clay. These associations support pasture based agriculture and woodlands. Harahan clay is the only association not particularly suited to support

woodland and bottomland hardwood production. Although the site is not utilized for pasture, pasture grasses such as bahiagrass, white clover and dallisgrass are well suited to the soil conditions. Woodland tree species occupy most of the land area of the site. Trees such as ashes (*Carpinus* spp.), pecan (*Carya illinoensis*), American sycamore (*Platanus* spp.), red oaks (*Quercus* spp.) and sweetgum (*Liquidambar styraciflua*) can be found on the site.

3.5.2.c St. Charles Parish

The primary agricultural ventures in St. Charles Parish are sugarcane, cattle production, and vegetable farming. Over 2000 acres of the West Bank of St. Charles Parish is dedicated to sugarcane farming. Vegetable farming occurs on both the East Bank and the West Bank of the Mississippi River in the vicinity of Luling, Destrehan, St. Rose, and Taft. The majority of the cattle production occurs on the West Bank of St. Charles in the vicinity of Des Allemands. The Bunge site presently supports cattle grazing and wetlands.

Soil associations of the Bunge site support crops, pasture, and woodlands. Sugarcane and soybeans are common cultivated crops located on Commerce silt loam, Commerce silty clay loam, and Sharkey clay soils in St. Charles Parish. Soils on the Bunge site are primarily composed of Commerce silt loam and Sharkey clay (See Section 3.2.1.3.6). Pasture grasses such as ryegrass, bermudagrass, and white clover flourish on these soils. In addition to pasture and crops, Sharkey clay soils also support the production of bottomland hardwood species such as Nuttall oak (*Quercus nuttalli*), water oak (*Quercus nigra*), sweetgum (*Liquidambar styraciflua*) and eastern cottonwood (*Populous deltoides*). Frequently flooded Sharkey clay also supports wetland hardwoods and other species.

3.5.3 NATIONAL/STATE PROTECTED AREAS

There are several National and State protected areas in the study area (Jefferson, Plaquemines, St. Charles Parishes). Bayou Segnette State Park and the Salvador Wildlife Management Area are state managed areas and the JLNHPP and the Bayou Aux Carpes 404(c) area are Federally managed. Bayou Segnette State Park offers facilities such as camp grounds, cabins for rent, a boat launch, picnic areas, natural trails, and a pool area. This park charges an admission fee and various user fees. The Segnette Park boat launch is an excellent location to launch a boat for fishing or to observe the natural environment of Bayou Segnette or the Salvador Wildlife Management area. Figure 3.9 demonstrates the general location of these protected and recreational areas.

The Salvador Wildlife Management area is located in the Lake Cataouatche-Lake Salvador complex. It consists of approximately 32,000 acres of lake, wetland and forested areas. Access to the wildlife management area is primarily through Bayou Segnette and Bayou Barataria.

The JLNHPP, Barataria Unit, is located west and southwest of the V-Levee (Figure 3.7). Jean Lafitte consists of a core zone of approximately 20,000 acres and a 12,000 acre park

protection zone. The park protection zone is located to the north and west of the core area and is designated as such to protect and preserve the water resources, air and water quality, the vegetation, and the integrity of the biological and ecological systems of the core area. The park supports a variety of recreational and educational resources.

The Bayou Aux Carpes 404(c) area (Figure 3.10) was granted this designation because the area is deemed to be a highly productive wetland habitat with open water bodies supporting commercial and recreational important fish and shellfish, as well as waterfowl and mammals, which would be unacceptably impacted by the placement of dredge or fill material. The 404(c) designation means that the deposition of dredge or fill material is only allowable in the project area with specific permissions.

3.5.4 RECREATIONAL RESOURCES

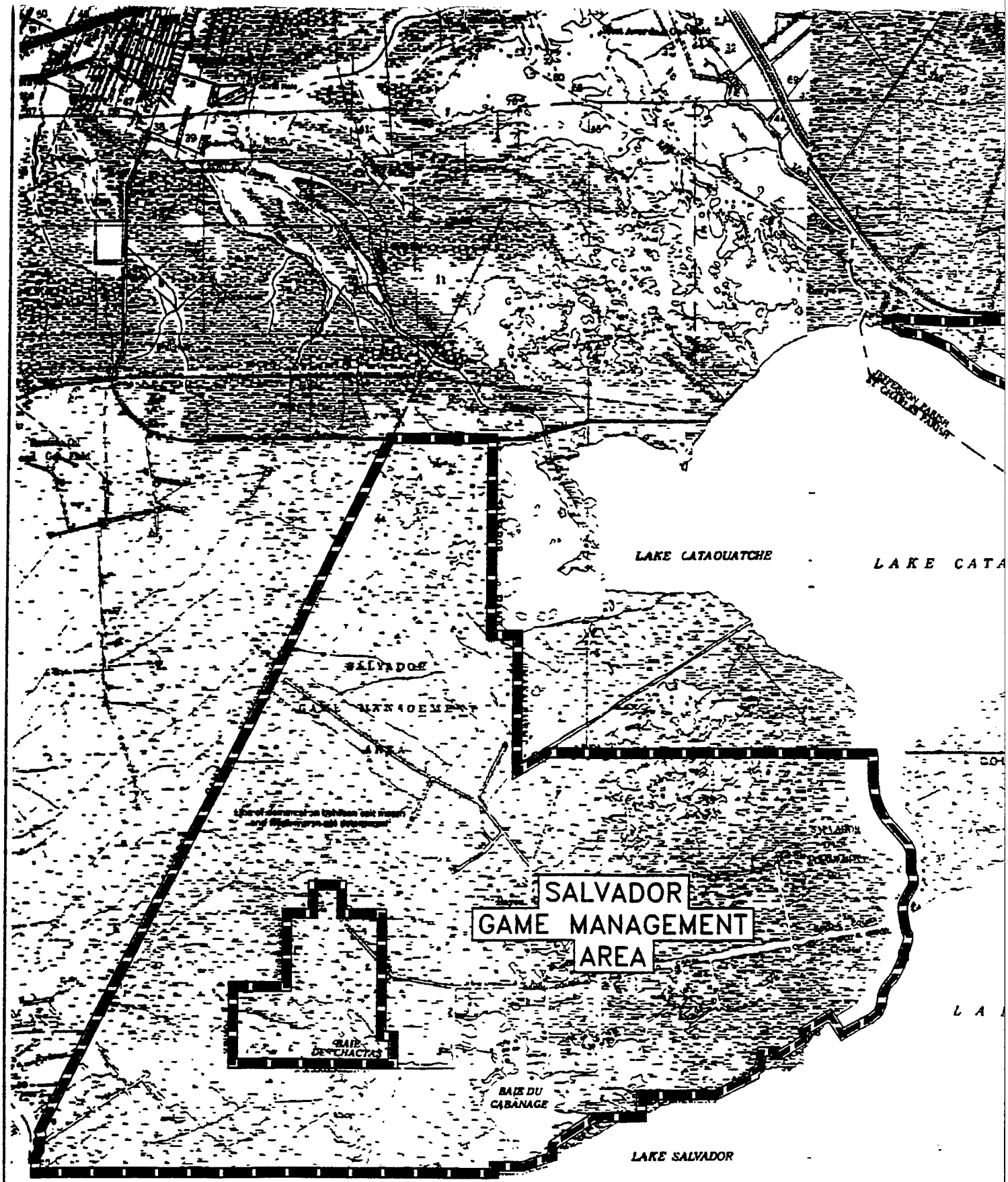
3.5.4.a Jefferson Parish

Recreational activities can be found within and outside of the Estelle V-levee, EPP, EG, and MLC1 are within the V-levee, the Landco alternative is north and east of the V-levee. Recreational resources available outside the Estelle V-levee range from canoeing to hunting and fishing to baseball. There are various locations for recreational activities near the location of the proposed action. In addition to the Federal and state protected areas, which double as recreational areas, Rosethorne Park, a mile south of Crown Point, has a boat launch, tennis courts, softball/baseball fields, and a playground. The boat launch allows fisherman and recreational boaters to launch into the Intracoastal Waterway. The park is operated by the Jefferson Parish Department of Parks and Recreation. In Crown Point, private canoe rental and swamp tour businesses operate out of Bayou Des Familles. There is also a small public park in Crown Point, Gleason Park, where residents can launch their boats or utilize the picnic facilities.

Within the V-Levee, recreational opportunities consist primarily of hunting and birding. The Marrero Land Company and the Estelle Hunting Club lease land within the levee for deer hunting. The land north of the project location is somewhat drier and supports more healthy mast producing trees. Fresh shoots of marsh grass and elderberry in wetter areas may provide an additional food source for deer populations. Large populations of song birds are supported by the environment within the V-Levee, as are smaller groups of raptors, offering opportunities for birding.

Rosethorne Park is the only recreational facility in the study area that offers recreational opportunities that are not nature oriented. There are no other Parish owned swimming facilities, ball fields, or tennis facilities on the West Bank.

There is only one municipal golf course in Jefferson Parish, however, there are some privately owned golf facilities that allow public participation (daily fee courses) and there are some public courses in the study area. Public golf facilities or private facilities that currently allow public access that exist in the study area are shown in Figure 1.1. There


LAKE CATAOUATCHE
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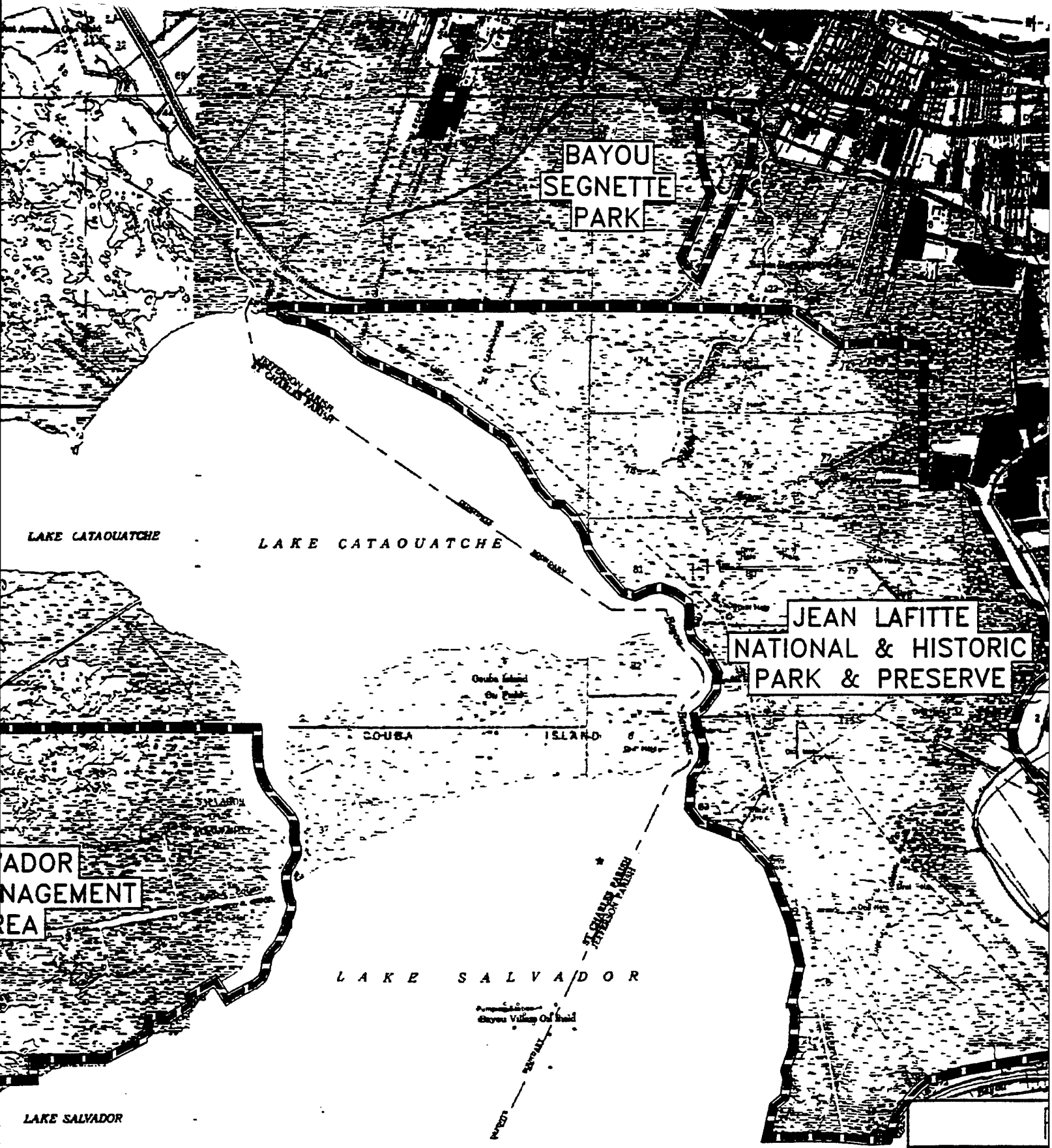
SALVADOR
GAME MANAGEMENT
AREA
BAIE DES CHACTAS
BAIE DU CABANAGE
LAKE SALVADOR



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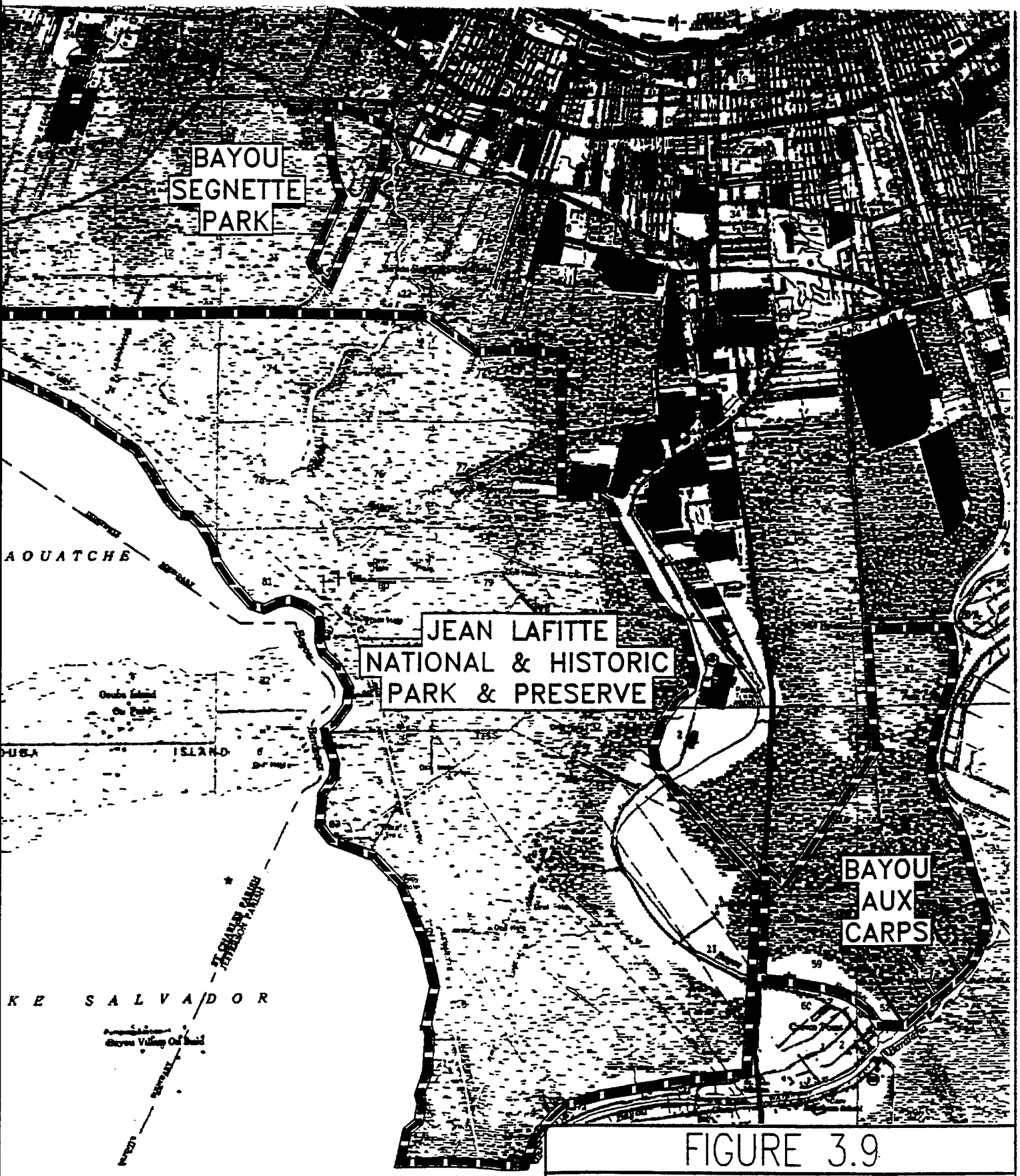
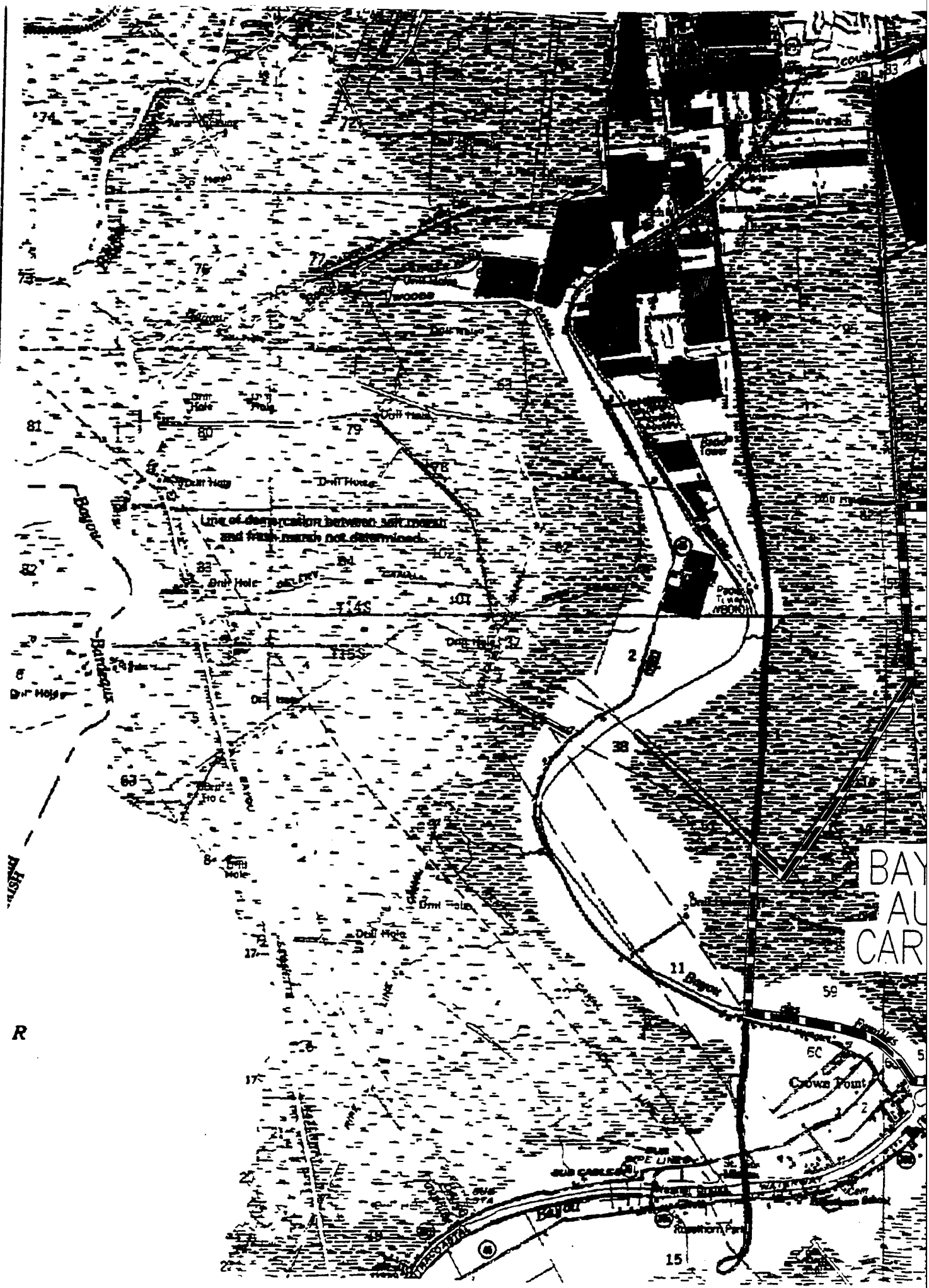


FIGURE 3.9

PROTECTED AREAS

FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT

3 AUGUST, 1996


Line of demarcation between salt marsh and fresh marsh not determined.
Bayou
Crown Point
Bayou
BAY
AU
CAR

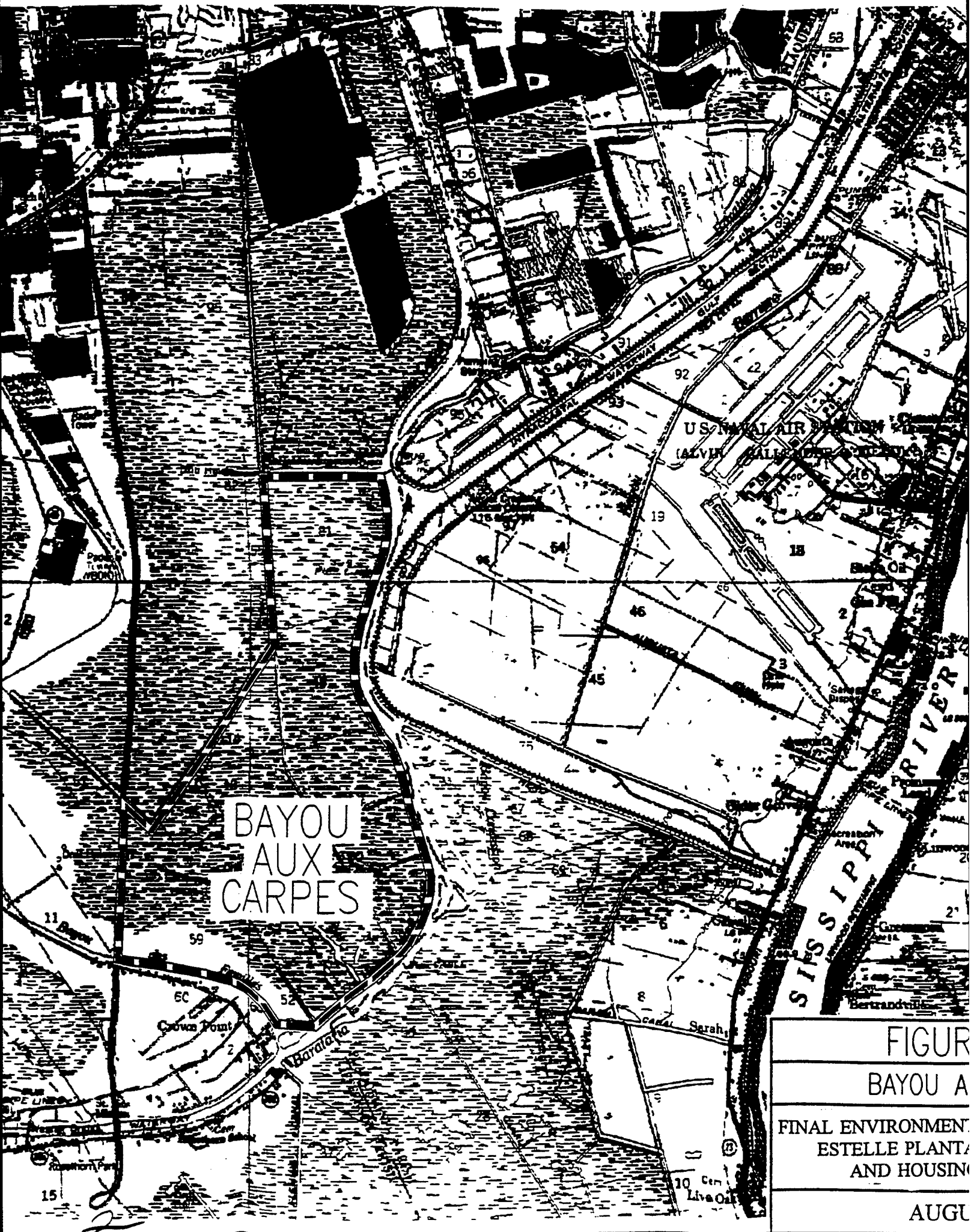


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FIGURE 3.10

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FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
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are approximately 17 golf facilities in study area. Of those 17, 9 are municipal or daily fee courses. Only one municipal course is in Jefferson Parish, Brechtel Park in Gretna. The other Jefferson Parish golf facilities are considered private courses or daily fee course. Many of the study area municipal courses (of which there are four) are considered marginally maintained and not aesthetically pleasing (GRA,1992).

It is estimated that the existing area golf facilities currently accommodate an estimated 524,500 annual rounds of public play. It is estimated the combined resident public golf facility users, crossover private golfers, and visitor/tourist golfers would generate 640,000 annual rounds of play. Thus, it was estimated that the demand currently not served by the area's existing public facilities is approximately 120,000 annual rounds of play and would require two to three additional public golf courses. An updated study by Ritz Hospitality Associates, Inc. in October, 1994, indicated this demand should have increased since 1992, but did not elaborate on the amount of the increase.

3.5.4.b Plaquemines Parish

The state and Federal wildlife management areas and parks in Jefferson Parish provide the majority of the recreational options for residents of Plaquemines Parish. In the vicinity of Belle Chasse, there are only two recreational facilities. Cypress Park, the larger of the two, consists of five baseball/softball fields. This park is commonly overloaded with users, sometimes in access of 600 people. The second park, Fort St. Leon, is more like a playground. The park has a few tennis courts in addition to swing sets, see-saws, gym bars, and other playground equipment. The parish also sponsors basketball and football programs at some of the public school gyms and sports fields. There is one semi-private golf facility, Bayou Barriere in the Belle Chasse area to serve their public golf needs. The NAS maintains a golf facility for employees of the air station and there is a private course, English Turn, directly north of the PP1 alternative location. Natural areas in Plaquemines Parish also support recreational activities. Fishing is the most popular past time for residents and visitors to Plaquemines Parish. Easy access to the Gulf of Mexico through the marshes and via the Mississippi River is the primary reason. South of Point a la Hache towards the delta region of the Parish, several protected areas provide unique opportunities for hunting, fishing and photography. These areas are the Delta National Wildlife Refuge and Pass a Loutre Game and Fish Preserve/State and Public Hunting Grounds.

3.5.4.c St. Charles Parish

In addition to the state and Federal wildlife management areas and parks, St. Charles Parish offers residents a variety of recreational options. There are three primary parks in St. Charles Parish, the East Bank, West Bank and Monsanto Park (on the West Bank). The Bunge alternative site location is within several miles of the Monsanto Park. There are baseball/softball fields at all three parks. The West Bank park offers sand lot volleyball and the Monsanto park has tennis courts. There are playgrounds associated with some of the smaller parks, like Bayou Gauche, which has a playground and sand lot

volleyball. The parish also sponsors basketball programs at some of the public school gyms. There is one public golf facility, Fashion Golf and Country Club, in St. Charles Parish. It is located near the St. Charles Parish Courthouse in Hahnville. Two private courses exists, Willowdale Country Club and Ormond Estates.

Natural areas in St. Charles Parish also support recreational activities. The Bonne Carre spillway supplies access to fishing and boating in the spillway and adjacent Lake Pontchartrain. The swamp and marsh areas of the Parish are a haven for hunters, bird watchers, and photographers. Bayou Des Allemands, Bayou Trepagnier and Bayou La Branche, Figure 3.11, are all listed as Natural and Scenic Rivers of Louisiana. Bayou Des Allemands is located outside of the study area and is a portion of the Parish line between Lafourche and St. Charles Parishes. The other two streams are approximately ten miles from the Bunge site. The scenic stream designation provides these water courses with protection through the State Scenic Streams program administered through the LDWF. These areas are commonly utilized for canoeing, fishing, and photography.

3.6 ECONOMIC AND SOCIAL RESOURCES

3.6.1 DEMOGRAPHICS

3.6.1.a Jefferson Parish

According to the RPC of New Orleans, the total Jefferson Parish West Bank population was 187,604, 36% of the population of Jefferson Parish. RPC data on Jefferson Parish population trends is located in Appendix L. The population change for the West Bank of Jefferson Parish was -4,060, while the total population change for Jefferson Parish was -6,286 between the 1980 and 1990 Census. As of 1990, the West Bank consisted of 91,158 males and 96,445 females. Most of the population ranged from 25 to 44 years old (34%); 31% of the population is under 18 years; and only 7.5% are over 65 years. However, according to Louisiana Tech, the population of Jefferson Parish has increased by 2% from the period of 1990 to 1994. The number of housing starts increased by 70% over the same time period. In addition, to the reported Parish-wide population increase, the Robert Charles Lessor report (October, 1994) indicated a West Bank CMA population increase of 1.7% between 1990 and 1994, and projected further population increases between 1994 and 1999. The East Bank of Jefferson Parish is considered "built out". There is little available land on which to construct new housing. There are two new communities in the City of Kenner, which have absorbed most of the remaining available vacant land on the East Bank of the Parish. Residents planning to construct their own homes in Jefferson Parish must look to the West Bank to find vacant land in residentially zoned areas.

The RPC's 1990 Census stated there existed 63,090 total households on the West Bank of Jefferson Parish. There were 48,445 (77%) households where two or more related persons live under one roof, and there were 15,257 (23%) non-family households. The total number of housing units was 72,879; 63,090 were occupied. Although data was not

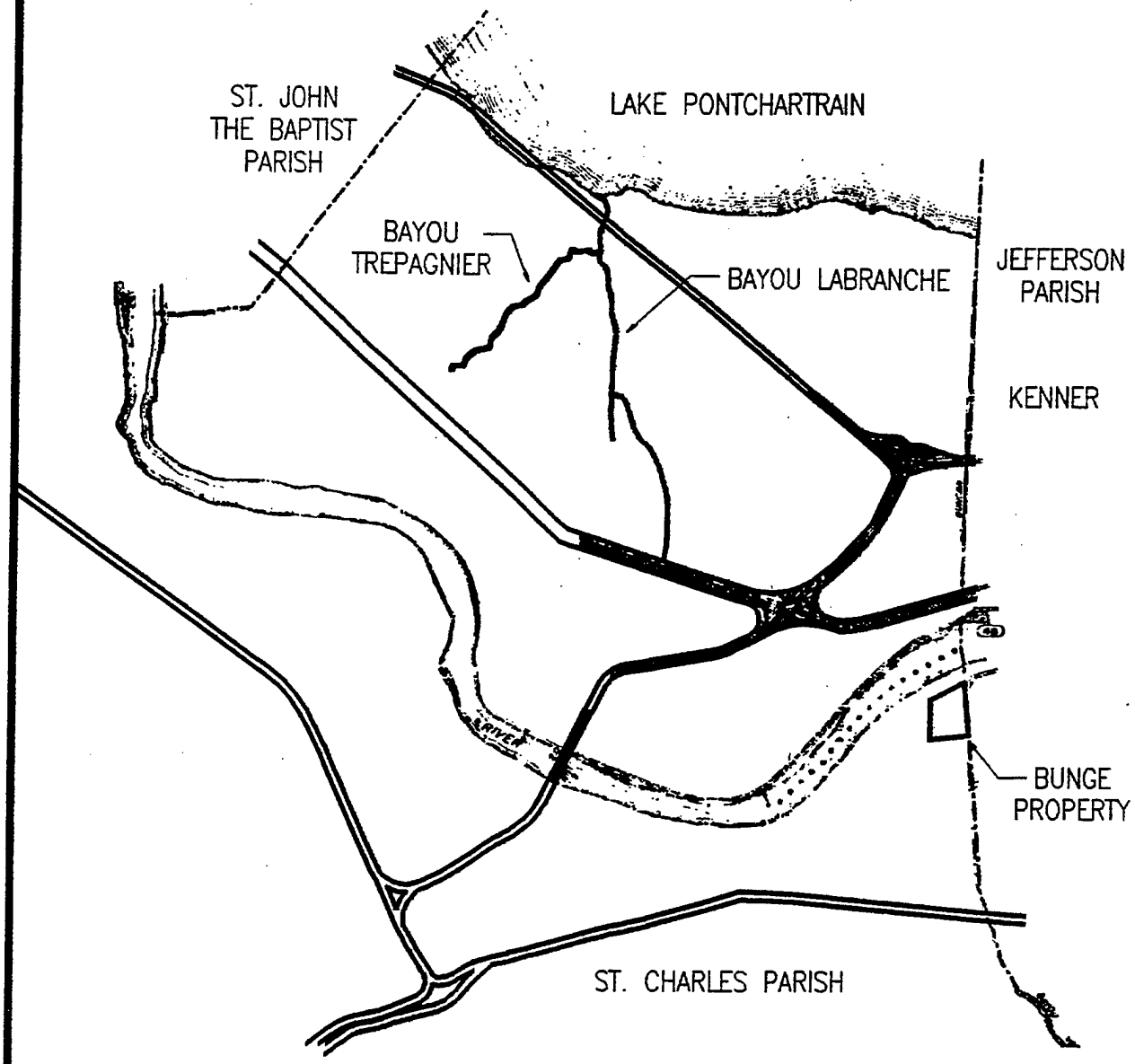

FIGURE 3.11

STATE SCENIC STREAMS

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available it anticipated the majority of unoccupied units are rental units. 41,502 (66%) of the housing units were owner occupied and are valued between $50,000 and $99,000. 21,588 (34%) were renter occupied with an average rent between $250 and $499 per month.

According to the Census Bureau, Marrero had 36,548 residents in 1980, which is a 10,702 increase from the 1970 census. The majority of the population was between the ages of 35 and 44 years. The total number of housing units was 11,725 with a mean value of $42,700; 7,815 were owner occupied, and 3,146 were rented units. The population of Marrero increased by only 123 persons (less than 1%) over the past decade. In 1980 the reported population was 36,548, while the 1990 Census counted 36,671 persons. The majority of the population falls between the ages of 25 and 34 years old. The number of housing units increased 1,495 (13%) over the past decade. There were 11,725 housing units counted in 1980 and 13,220 units in 1990. 21,573 residents lived in the same house with a mean value of $56,700.

There is one other population center within two miles of the EPP site, and it is the Estelle area. The 1990 census reported a population of 14,091 persons, while the 1980 census reported a population of 12,724 persons. This is an 11% increase over the past decade. According to the 1990 census, the population of the "under 18" age group decreased slightly, while the "18 and over" age group increased significantly. The decrease for the "under 18" age group was 285 persons (-5%), and the increase for the "18 and over" age group was 1,652 persons (+22%).

3.6.1.b Plaquemines Parish

According to the RPC of New Orleans the total 1990 population of Plaquemines Parish was 25,575 (Appendix N contains RPC population data), which is 2% less than the 1980 population of 26,049. Plaquemines Parish's population consists of 12,951 males and 12,624 females. Most of the population range from 25 to 44 years of age; 32% of the population is under 18 years; and 8% is over 65 years.

The RPC's 1990 Census stated that there were 8,213 total households in Plaquemines Parish. There were 6,574 (80%) households where two or more related persons lived under one roof, and 1,639 (20%) non-family households. The total number of housing units was 9,432, with 8,213 occupied. 6,236 (76%) of the housing units were owner occupied. 1,977 (24%) of the housing units were renter occupied with an average rent between $250 and $499 per month.

Plaquemines Parish does not have a high potential to support the growing population of the New Orleans MSA. In terms of land area, Plaquemines Parish is approximately 75 miles long with a one mile wide strip of land on of each side of the Mississippi River available for development. This natural condition creates a linear development pattern that is difficult to maintain. A development moratorium that forbid residential development in the Belle Chasse area was recently lifted on March 28, 1996, but still

forbids industrial development. The parish had prepared for future development to occur in the Belle Chasse area, however, development occurred south of Belle Chasse and parish services were not on line to support the development. The Belle Chasse area represents the most likely area to receive new residential development. With enhanced flood protection and drainage systems prepared to be operational within the next ten years, this area is the most prepared to receive the bulk of residential growth in the parish. However, due to lack of developable land, it is not anticipated that this area can support the high levels of residential growth predicted for the New Orleans MSA.

3.6.1.c St. Charles Parish

According to the 1990 Population Census from the RPC of New Orleans, the total population of St. Charles Parish was 42,437, which is 12% higher than the 1980 Census (Appendix M contains population data from the St. Charles Economic Development Department). There were 4,678 more people living in St. Charles Parish in 1990 than in 1980. St. Charles Parish consists of 20,742 males and 21,695 females. Most of the population ranges from 25 to 44 years of age; 32% of the population is under 18 years; and 12% is over 65 years.

The RPC's 1990 Census stated there existed 14,333 total households in St. Charles Parish. There were 11,422 (80%) households where two or more related persons lived under one roof, and 2,911 (20%) non-family households. The total population of the West Bank of St. Charles Parish, where Bunge is located, was 10,345 in 1990. The West Bank of St. Charles Parish consists of 4,928 males and 5,416 females. Most of the population range from 25 to 44 years of age; 39% of the population is under 18 years; and 1,220% is over 65 years.

On the West Bank of St. Charles Parish the RPC's 1990 Census stated that there existed 3,510 total households. There were 2,721 (78%) households where two or more related persons live under one roof, and there were 1,401 (40%) non-family households. The total number of housing units was 3,955, and 3,510 were occupied. 2,628 (75%) of the housing units are owner occupied. 882 (25%) housing units were renter occupied with an average rent between $250 and $499 per month.

St. Charles Parish does not have a high potential to support the growing population of the New Orleans MSA. In terms of land area, St. Charles Parish is approximately 65% marsh and swamp habitat, leaving only 35% of the remaining land area for development. Since 1980, the Parish has experienced a 12% increase in population. However, residential development is slow due to the lack of available land for subdivision development. One of the more popular subdivisions in the Parish, Ormond Estates, suffers from flooding, sometimes severe, during heavy rains. Due to its location on a former cypress/tupelo swamp, elevations within the subdivision vary so that higher lots drain into the street and lower lots. There were more than 1,000 vacant housing units available for purchase or rent in 1990.

3.6.2 ECONOMICS

3.6.2.1 EMPLOYMENT

3.6.2.1.a Jefferson Parish

Jefferson Parish has been experiencing a stronger recovery from the recession of 1991 than other areas of the New Orleans MSA such as Orleans, St. Charles, St. Bernard, and St. John the Baptist Parishes, in terms of population and employment. Currently, more than 40 percent of all population growth in the New Orleans MSA is occurring on the West Bank of Jefferson Parish (Lessor, 1994). This trend is expected to continue through 1998 primarily due to the lack of land for new housing in other areas of the New Orleans MSA and the rise in employment in the parish. Table 3.2 indicates population and employment trends in Jefferson Parish and the New Orleans MSA. In New Orleans, employment trends have shifted from trade oriented to service oriented as in Jefferson Parish. The casino industry is new to Orleans and Jefferson Parish and may also increase the number of new jobs in the area as well as the need for additional housing. It is also possible that, due to a lack of land on which to expand, some trade oriented businesses, such as port facilities, may move out of Orleans Parish and into Jefferson Parish. Such a move would create a further demand for additional jobs, thus increasing the demand for housing.

The recovery of the oil and gas industry along the Gulf coast due to 3D seismic technological advances and directional drilling will enhance employment in the southern portion of Jefferson Parish (RPA, 1996) (Appendix R). While a return to the rapid job growth of the 1975-1985 period may not occur it is likely much stronger employment growth will occur in 1997-2000 than from 1991 to 1994 (RPA, 1996) (Appendix R). An existing published forecast by the University of New Orleans Division of Business and Economic Research indicate relatively slow growth in employment for 1996 followed by stronger employment gains in 1997. These expectations are consistent with the large expansions in exploration budgets of major oil firms for projects in the Gulf of Mexico. It is also consistent with the surge in construction of deep water drilling rigs to support exploration in water depths of 3,000 feet.

3.6.2.1.b Plaquemines Parish

According to Plaquemines Parish the unemployment rate in 1994 was 7.2%. Previous rates of unemployment were unavailable. There is a general lack of economic information available for Plaquemines Parish. The RPC does not include the parish in its statistics for the New Orleans area and the Plaquemines Parish government did not support a economic development department until 1994. As previously stated, development in Plaquemines Parish is limited due to the natural linear layout of the parish, as established by the Mississippi River. The primary fields of employment in Plaquemines Parish are natural resource related. Oil, gas, and sulfur mining jobs are common in the parish. Likewise, the abundance of wildlife and fishery resources creates over $62,000,000 in annual gross

TABLE 3.2

POPULATION AND EMPLOYMENT TRENDS

LOCATION STATISTICS	KNOWN 1990	ESTIMATED 1994	PROJECTED 1999	ANNUAL GROWTH 1990-1994
NEW ORLEANS MSA				
	691,920	696,870	747,890	1.4%
Population	1,305,806	1,312,652	1,343,454	0.5%
Households	479,256	482,400	498,032	0.6%
Household Size	--	2.71	2.64	
JEFFERSON PARISH				
Non-Farm Employment	233,967	236,760	271,680	2.7%
Population	459,625	463,398	480,125	0.7%
Households	171,740	173,521	182,101	1.0%
Household Size	--	2.63	2.57	
WEST BANK CMA*				
Population	175,630	178,631	192,145	1.4%
Households	59,996	61,094	66,282	1.6%
Household Size	--	2.7	2.58	

(Source: Robert Charles Lessor)

* Population quoted for the West Bank CMA, not the entire West Bank of Jefferson Parish.

TABLE 3.3
HOUSEHOLD INCOME DISTRIBUTION

JEFFERSON PARISH

INCOME RANGES	TOTAL HOUSEHOLDS
1990	
$35,000 to $49,999	30,152
$50,000 to $74,999	22,652
$75,000 to $99,999	6,318
TOTAL	59,122
1994	
$35,000 to $49,999	31,306
$50,000 to $74,999	31,103
$75,000 to $99,999	11,129
TOTAL	73,538
1999	
$35,000 to $49,999	31,891
$50,000 to $74,999	36,624
$75,000 to $99,999	17,338
TOTAL	85,853

WEST BANK CMA

INCOME RANGES	TOTAL HOUSEHOLDS	HOUSEHOLDS THAT PREFER WB HOUSING
1990		
$35,000 to $49,999	9,696	7,078
$50,000 to $74,999	6,966	5,085
$75,000 to $99,999	1,658	1,210
TOTAL	18,320	13,373
1994		
$35,000 to $49,999	10,544	7,697
$50,000 to $74,999	10,143	7,404
$75,000 to $99,999	3,128	2,283
TOTAL	23,815	17,384
1999		
$35,000 to $49,999	11,475	8,377
$50,000 to $74,999	12,199	8,905
$75,000 to $99,999	5,420	3,957
TOTAL	29,094	21,239

NEW ORLEANS MSA

INCOME RANGES	TOTAL HOUSEHOLDS
1990	
$35,000 to $49,999	72,994
$50,000 to $74,999	55,554
$75,000 to $99,999	16,297
TOTAL	144,845
1994	
$35,000 to $49,999	76,509
$50,000 to $74,999	74,410
$75,000 to $99,999	27,406
TOTAL	178,325
1999	
$35,000 to $49,999	77,368
$50,000 to $74,999	87,242
$75,000 to $99,999	42,069
TOTAL	206,679

SOURCE: Robert Charles Lesser & Company

TABLE 3.4

INCOME RANGE AND HOME AFFORDABILITY FOR THE WEST BANK CMA

INCOME RANGE	HOME AND LOT COST
$40,000 to $49,999	$140,000 to $160,000
$50,000 to $62,499	$160,000 to $200,000
$62,500 to $74,999	$200,000 to $240,000
$75,000 to $84,999	$240,000 to $270,000
$85,000 to $95,000	$270,000 to $310,000

(Source: Robert Charles Lessor, 1994)

value for those employed in fish and wildlife related trades and businesses (LSU, 1994). The recovery of the oil and gas industry is anticipated to result in employment gains in Plaquemines Parish similar to those anticipated for Jefferson Parish.

3.6.2.1.c St. Charles Parish

According to the Louisiana Department of Labor Research and Statistics Unit from 1989 to 1994, St. Charles Parish has experienced an increase in the annual average unemployment rate. In 1989, the annual average unemployment rate of St. Charles Parish was 6.6%, and in 1990 and 1991 it dropped to 5.3% and 5.9%, respectively. In 1992, the unemployment rate increased to 7.7%, and it increased again in 1993 to 8.2%. In 1994, it dropped to 7.9%.

According to the Louisiana Department of Labor Research and Statistics Unit from 1989 to 1994, St. Charles Parish has experienced an increase in the annual labor force. The average annual labor force for 1989 was 19,300, and in 1990 it was 19,600. The labor forced increased to 20,500 in 1991, and peaked in 1992 at 20,900. The annual labor force returned to 20,500 in 1993 and slightly rose in 1994 to an average of 20,700.

Service oriented jobs are not commonly the "higher wage" earning jobs, like finance, trade, or production oriented jobs. Therefore, there is a need for housing that is available at moderate costs, primarily less than $ 200,000 (Lessor, 1994). Table 3.3 demonstrates household income for the New Orleans MSA, Jefferson Parish, and the West Bank CMA. Table 3.4 relates income to home affordability.

3.6.2.2 HOUSING DEMAND

3.6.2.2.a Jefferson Parish

The demand for the type of housing development as proposed by EPP for the study area was calculated by Robert Charles Lessor & Company in two reports dated December 7, 1992 and October 17, 1994, respectively. The CMA for this demand was defined as all of Jefferson Parish south of the Mississippi River, north of Louisiana Highway 301, and east of Bayou Segnette Waterway and Dugues Canals. This demand consists of purchases by residents moving into the West Bank (new households), existing homeowners buying new homes due to growing families or lifestyle changes (owner preference purchases), or existing renters purchasing homes. Within a housing price range of $140,000 to $310,000, their study indicated a need of 350 units annually over the next five years in the study area. Dr. Wade Ragas of the University of New Orleans, indicated that as of mid-year 1994, there was less than one year's supply of new housing currently on the market. Over 9,100 homes were sold in 1993, the greatest number in the past decade. He also indicated that due to lack of land, a building surge is not expected in New Orleans in response to improved supply/demand conditions. The areas of Estelle and Jean Lafitte, on the West Bank of Jefferson Parish, are out pacing the developed and developing areas of the Parish in population growth and housing starts. The EPP site lies within these two high growth regions.

A review of the RPC variables and Managed Growth Plan indicates that the West Bank of Jefferson and Orleans Parishes are forecasted to receive significant growth by the year 2000. Jefferson Parish is expected to lead the West Bank parishes in development, because of the greater availability of developable land and its expanding economy. The growth potential of the West Bank of Jefferson Parish is great, particularly along such corridors as U.S. 90, Manhattan Boulevard, Lapalco Boulevard, Barataria Boulevard, and Harvey Canal/Peters Road. These corridors traverse those areas in Jefferson Parish where developable land is available and readily accessible. A recovery in lot demand began in 1990 with a 5% rise in raw land values for parcels suitable for development occurring in the Barataria Corridor (RPA, 1996) (Appendix R).

According to a market analysis update by Robert Charles Lessor and Company, population and income measures indicate that the homeowners in the New Orleans MSA are becoming older and wealthier. The percentage of households earning more than $35,000 per year is at 34 percent and the average age range of 35 to 44 has replaced the 25 to 34 age range that was most prominent in the past. According to national trends, the change in age range will create more of a demand for upgrade and move-up housing, since the desire for such housing is stronger among married couples and those with children.

In the New Orleans MSA, there is a general lack of land to support the construction of new residential communities. Therefore, as housing supply becomes more restricted, prices are expected to increase. New communities will need to be constructed with affordable housing for service oriented business people. Such an occurrence could spur

growth and fuel the economy of the West Bank of Jefferson Parish, one of the few areas in the New Orleans MSA with land available for residential development.

Most of the residential activity that is forecasted for Jefferson Parish is of low density and would preserve the suburban character of the area. Beyond 1995 and 2000, medium to high density development would begin to gain importance as population densities begin to intensify and land is absorbed.

The number of houses beginning construction in Jefferson Parish increased greatly from 1990 to 1994, according to the Jefferson Parish Planning Department. There were 1,030 houses constructed in 1994 versus 610 in 1990.

3.6.2.2.b Plaquemines Parish

A demand exists for housing development in Plaquemines Parish (RPC, 1995). The total population of Plaquemines Parish increased from 1980 to 1990 according to the RPC. Plaquemines Parish has experienced an increasing amount of residential growth in recent years and the trend is expected to continue. This growth creates a need for additional housing developments. Development was expected to occur on vacant lands near the more developed Belle Chasse area. However, residential development over the last ten years occurred south of Belle Chasse. It is apparent that, due to the linear nature of the parish, development occurs in narrow bands over a long area defying typical development trends. It is logical to assume, however, that as a result of increased accessibility and additional drainage, the location of the PP1 site in the Belle Chasse area is a prime location for new residential development.

Developable vacant land is a must for the continuation of major development. The proposed alternative site, PP1, has sufficient acreage to support a large residential community and would most likely be a primary recipient of future expansion. Since the RPC forecasts significant growth for Plaquemines Parish by the year 2000, the proposed property represents a suitable tract of land adjacent to a more developed area with the infrastructure to support additional residents. This area should develop prior to less accessible areas of the parish that do not have the infrastructure present to support residential growth.

3.6.2.2.c St. Charles Parish

There is a demand for housing development in St. Charles Parish (RPC,1995). The total population of St. Charles Parish increased 12% from 1980 to 1990, according to the RPC. St. Charles Parish has experienced an increasing amount of residential growth in recent years and the trend is expected to continue as new industries come into the Parish. This growth creates a need for additional housing developments.

Most of the growth is expected in the vicinity of Luling, Destrehan, and St. Rose. The

Bunge alternative site is on the Parish line between St. Charles Parish and Jefferson Parish, approximately five miles east of Luling. Growth is expected in existing communities because vacant land in developed areas is the first to be absorbed and then uncommitted areas in proximity to existing developments are utilized for development. The Bunge site does not border any St. Charles Parish developments.

St. Charles Parish experienced an increase in house construction from 1990 to 1994. According to the St. Charles Parish Planning Department, there were 81 more houses being constructed in 1990 than 1994.

3.6.3 VISUAL AND AESTHETIC RESOURCES

The visual and aesthetic resources of the study area consist of undeveloped tracts of forested and unforested wetland habitat, scenic waterways, and the associated wildlife and vegetative composition of the wetland and riparian habitats. Forested wetland habitat within the study area is primarily located in leveed areas, highly visible to the general public, thus, it provides a resource with increased aesthetic value. Marsh and bottomland hardwood habitats draw wildlife enthusiasts and bird watchers into their unique environments wherever they are located. The habitat in and around the Jefferson Parish alternatives provides a rare opportunity for visitors to view a natural marsh and forested wetland. The PP1 location provides a woodland/wetland habitat that also supports birds and wildlife worthy of attention. Only the Bunge site fails to provide a roadside view of wetland habitat. This site is approximately 60% active pasture which is considered to have a lessor aesthetic value than wetlands.

The Bayou aux Carpes area is a natural area of significance (Figure 3.10). This area is considered ecologically valuable, thus it has been designated as a 404(c) site. The habitat consists of marsh and forested wetlands and open water areas. Some of the species supported by the Bayou aux Carpes area are songbirds, the American alligator, waterfowl, furbearers and potentially the southern bald eagle. The presence of a bald eagle in the vicinity of this area constitutes a significant visual and aesthetic resource. The Bayou aux Carpes site is located within three to four miles of all four Jefferson Parish alternative sites. The EG site is less than one mile away.

Two state designated Scenic Streams are located in the study area. Bayou Trepagnier and Bayou La Branche are both located in St. Charles Parish immediately south of Lake Pontchartrain. These scenic streams are considered to be high value visual and aesthetic resources, thus their designation and protection as State Scenic Streams. The wetlands associated with these streams support a variety of fish and wildlife species rarely viewed outside of protected park and management areas of the study area.

3.6.4 INFRASTRUCTURE

3.6.4.1 Public Health

3.6.4.1.a Jefferson Parish

The public health infrastructure of Jefferson Parish includes water supply monitoring, sewage treatment and monitoring, vector control, and health care. Jefferson Parish obtains its water from the Mississippi River. The Parish has a sampling and monitoring program for the water after it has been treated at the water treatment plant to ensure it is in compliance with drinking water standards. The West Bank of Jefferson Parish has the capacity to produce 44 million gallons per day (mgd) of water, however, only 24 mgd is utilized. Sewage treatment facilities are discussed in Section 3.6.6.

Jefferson Parish maintains a mosquito and rodent control program. The mosquito control program is more active during the summer months and when heavy rains leave standing water for long periods of time. Although the mosquito control program is most active during the summer, the program continues for twelve months each year. Night time spraying occurs as well as day time larva spotting. The Parish studies the species of mosquitos that are found in Jefferson Parish to better combat population growth. Species specific insecticides are utilized nightly to control mosquito numbers. The rodent control program operates on request basis. Rodent problems are reported to the Parish, the parish confirms the problem and implements rodent control measures.

On the West Bank of the Parish, three public health centers serve the residents. West Jefferson General Hospital, Meadowcrest Hospital, and the Jefferson Parish Health Unit provide health services to West Bank residents. West Jefferson General Hospital is a full service hospital with 462 beds available (55% utilized). Meadowcrest Hospital, which is located on Belle Chasse Highway in Gretna, is a full service hospital with 200 beds (53% utilized). The Jefferson Parish Health Unit, which is located in Marrero, is not a hospital but an immunization facility. They provide immunization shots to the community as well as pre-natal care, sexual transmitted disease control, and pregnancy tests.

3.6.4.1.b Plaquemines Parish

There is no rodent control program in Plaquemines Parish, but the parish maintains a mosquito control program. The mosquito control program is similar to Jefferson Parish and St. Charles Parish. It is a continuous program, which occurs twelve months a year, involving nighttime spraying as well as day time larva spotting. Studies are conducted to determine the species of mosquito common to the Parish. These species are then sprayed for nightly in different areas of the Parish.

There are no hospitals in Plaquemines Parish in the vicinity of the proposed alternative site. There is an emergency center called Plaquemines Parish Comprehensive which is open 24 hours a day, and is considered an emergency health care facility. Patients are not admitted. There are two nurses, an X-ray technician, and a receptionist available at all times. A doctor is continuously on call. The nearest hospital is Meadowcrest Hospital

in Jefferson Parish. Meadowcrest Hospital, which is located in Belle Chasse, is a full service hospital with 200 beds (53% utilized).

3.6.4.1.c St. Charles Parish

Although there is no rodent control program, St. Charles maintains a mosquito control program. The mosquito control program is a continuous program that occurs twelve months a year. Night time spraying occurs as well as day time larva spotting. Since there are over one hundred different types of mosquitos, studies are conducted to determine the species found in St. Charles Parish. These species are then sprayed for nightly in St. Charles Parish.

The only hospital in St. Charles Parish, St. Charles Parish Hospital, is located in Luling. This hospital is a small service center with 50 beds (54% utilized). There is no gynecology department, however the hospital offers pediatrics, general surgery, orthopedics, dentistry, geriatrics, adult and child care, radiology, and a physical therapy department.

3.6.4.2 Drainage

3.6.4.2.a Jefferson Parish

As of 1981, the Estelle Drainage Basin consisted of 630 developed acres and 5,232 undeveloped acres (Figure 3.12). Development within the northwest corner of the basin and the expansion of Woodmere Subdivision have increased the total number of developed acres. It is bordered on the north by Barataria Boulevard and Lapalco Boulevard, on the east by the Harvey Canal and Bayou Barataria, on the south by the V-levee and on the west by Barataria Boulevard. This basin encompasses EPP as well as the alternative sites of EG, MLC1, and Landco. The existing pump station has a capacity of 450 CFS, which is inadequate for the area. Jefferson Parish has planned improvements for the drainage system in this basin. A few of the planned drainage projects have been permitted and are in the process of being constructed.

One of the major developments in the Estelle Drainage Basin is on the west side of Barataria Boulevard. This limited development is served by a simple network of canals. The other major development is the Woodmere Subdivision. A single major north-south canal, Pipeline Canal, is located about one mile east of Highway 3134 and collects storm runoff from three existing canals which flow generally west to east. This canal borders the Woodmere South Subdivision. Two 54-inch pipe culverts are located in the Pipeline Canal at the divide between the Estelle Drainage Basin and the drainage basin to the west. There is no positive control at these culverts to prevent interchange of floodwater between the two basins.

The developed northwest area of the basin, which is included in the community of Marrero, is drained by Pritchard Canal and Breaux Canal. At the southern boundary of the basin, the V-levee Canal flows first southeast along the V-levee and then northeast along the same levee until it joins Pipeline Canal.

The existing Estelle Pump Station is located near the center of the basin just east of Pipeline Canal on a canal which serves as the station discharge channel to Bayou Barataria. In 1981, the station had three 150 CFS, 54-inch vertical pumps with electric motors for a total capacity of 450 CFS. To address the inadequate pumping capacity for the Estelle Pump Station and other areas, a drainage master plan was completed by URS Consultants for the West Bank of Jefferson Parish in March of 1981. With approximately 89 percent of the Estelle basin undeveloped at that time, the proposed improvements consisted of constructing new canals or enlarging existing canals as areas are developed.

The majority of the recommendations of the Master Drainage Plan for the Estelle Drainage Basin were accepted by Jefferson Parish. Some of the recommended actions are considered future potential projects in the event that the basin continues to experience new development. One plan that was revised by the Parish was the recommendation to abandon the Estelle Pump Station. This station will operate at a pumping capacity of about 450 CFS until it is upgraded and the existing pumps replaced. Initially, one 90 CFS pump was installed and three future 90 CFS pumps will be installed at a cost of $1,500,000. A new pump station is under construction with an ultimate capacity of 1200 CFS at a contracted cost of $5,565,000. The additional capacity to be provided by the new pump station will accommodate current development in the Estelle Drainage Basin, such as Bent Tree Subdivision. The new station will have the ability to be upgraded should it be necessary due to increased development.

Should canal improvements prove necessary upon completion and operation of the new pump station, a Section 404 permit for improvements to the canal system of the basin will be resubmitted. Pritchard, Breaux, Canal A, and Pipeline Canal, are all canals that are scheduled for improvements when additional drainage appears necessary (Figure 3.12).

Canal C, a canal requiring immediate improvements, had been scheduled to receive a new box culvert at Highway 3134. This project, designed by Richard Lambert with construction by D & O Construction, was initiated during the summer of 1995 and should be completed by January 1996.

A new canal, Canal G, is proposed to be the suction canal for the new Estelle Pump Station. A Corps Section 404 permit has been granted for the construction of Canal G, however, construction had not been initiated as of September 1995.

Overall, Jefferson Parish has assessed and planned the drainage necessary for full development of this area. However, the ultimate drainage capacity constructed will be dependent on the need for additional drainage capacity and a determination by the Corps as to whether this need justifies further impacts on wetlands caused by drainage improvements.

Several of the Jefferson Parish alternatives could be considered as potential stormwater runoff retention areas during rainfall events. Such retention areas would assist drainage efforts by preventing flooding in existing developed areas. Figure 3.13 illustrates how each of these sites would assist in retaining stormwater runoff during 10-year and 100-year storm events (Corps, 1992). The figure indicates that the Landco site provides the

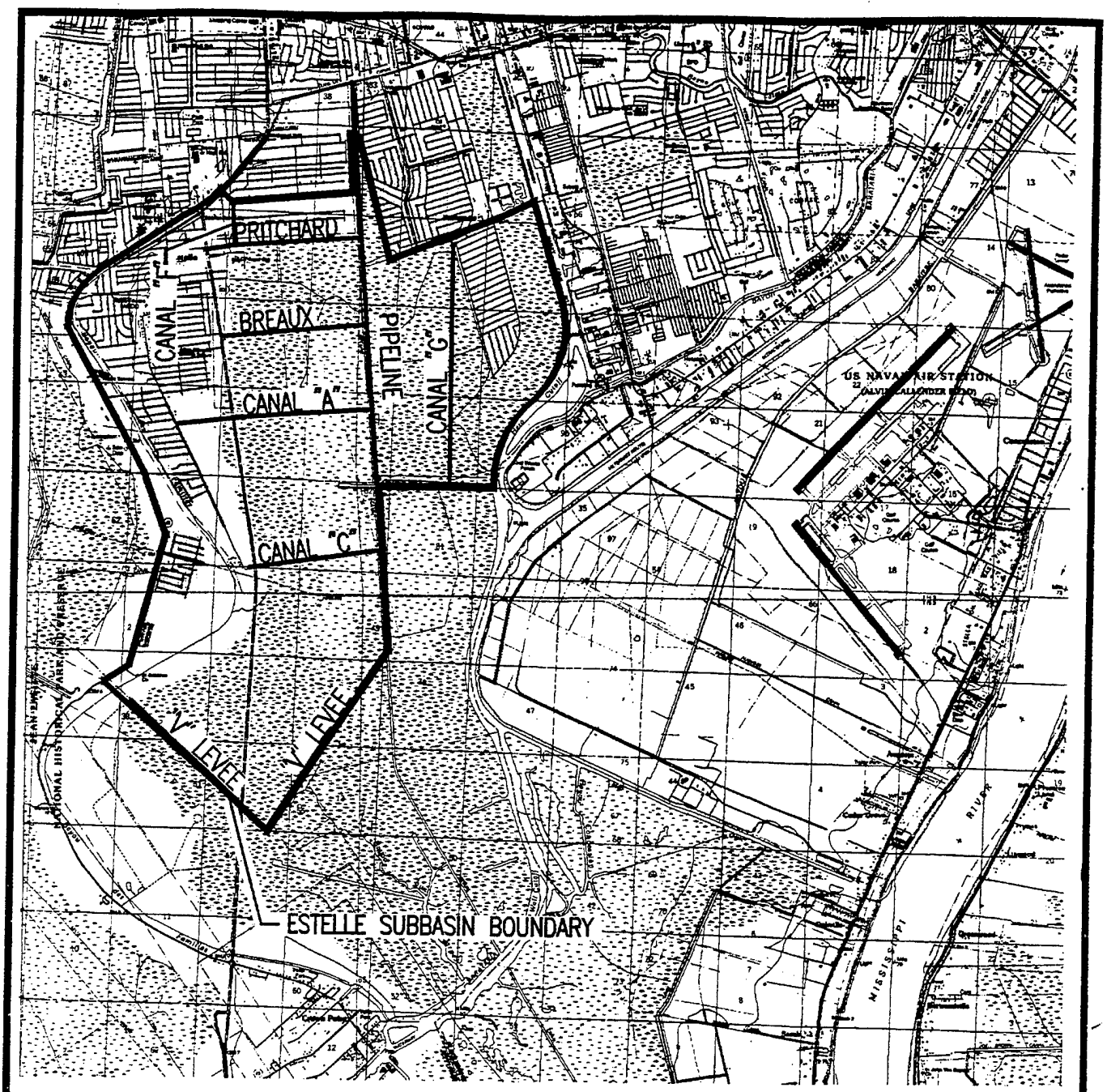

FIGURE 3.12

ESTELLE DRAINAGE SUBBASIN

FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT

AUGUST, 1996

most stormwater retention with the entire site inundated during a 10-year storm. Approximately one half of the MLC1 site and one third of the EPP and EG sites would be inundated during a 10-year storm event, without construction of the proposed project. The majority of all the sites, in their current undeveloped condition, would be inundated during a 100-year storm event.

3.6.4.2.b Plaquemines Parish

Presently the PP1 alternative site drains into Planters Canal to Plaquemines Pumping Station, which is located at the end of Barriere Road. The entire Belle Chasse vicinity drains into Planters Canal, which runs from the Plaquemines' Parish line to Oakville. Plaquemines Pump Station, which is located on the east bank of the Algiers Canal, is the only pumping station for the area, and has a pumping capacity of 4000 CFS. The current PP1 alternative site provides stormwater retention during high rainfall periods.

There are drainage improvements under construction for the area that are scheduled for completion by July 1995. These improvements consist of building a new pump station, Belle Chasse Pumping Station No. 2, and two new canals leading to the pump station. Belle Chasse Pumping Station No. 2 will have a pumping capacity of 1000 CFS, and it will be located on the east bank of the Algiers Canal across from Planters Pumping Station in Orleans Parish. Two small canals will be built to connect the pumping station to the Algiers Canal. This new pump station will provide additional drainage to the PP1 site. It is not anticipated, however, that the new pumps would provide enough drainage to discontinue use of the site as a retention basin.

Plaquemines Parish was under a moratorium for residential development, zoning changes, and mobile home parks north of Naomi until March of 1996. This moratorium still precludes industrial development. Since there can be no development on the PP1 site, the efficiency of the new pump station to drain the area will not be known until some development takes place after the moratorium.

3.6.4.2.c St. Charles Parish

St. Charles Parish does not maintain forced drainage in the vicinity of the Bunge property. The Bunge site fronts on River Road at a maximum elevation of +12 feet NGVD and grades to south to 0 feet NGVD, thus, the site does not require forced drainage; the Bunge property currently drains naturally from north to south.

3.6.4.3 Sewerage

3.6.4.3.a Jefferson Parish

The West Bank of the Parish has three active sewage treatment plants. All three plants are trickling filter plants and are located to the north of the project area. There are over 310 miles of gravity flow sewage lines on the West Bank and approximately 155 lift stations to help move wastewater to the treatment plants. The plants discharge their effluent into the Mississippi River and the sludge is disposed of at the Parish's landfill,

U.S. 90
BARATARIA BLVD.
LAPALCO
BAYOU SEGNETTE
BARATARIA BLVD.
LA 45
MLC1
EPP
3134
HIGHWAY
EG

U.S. 90
U.S. 90
BARATARIA BLVD.
MANHATTAN BLVD.
LAPALCO
LAPALCO
HARVEY CANAL
PETERS ROAD
MLC1
LANDCO
BARATARIA BLVD.
LA 45
EPP
3134
HIGHWAY
EG

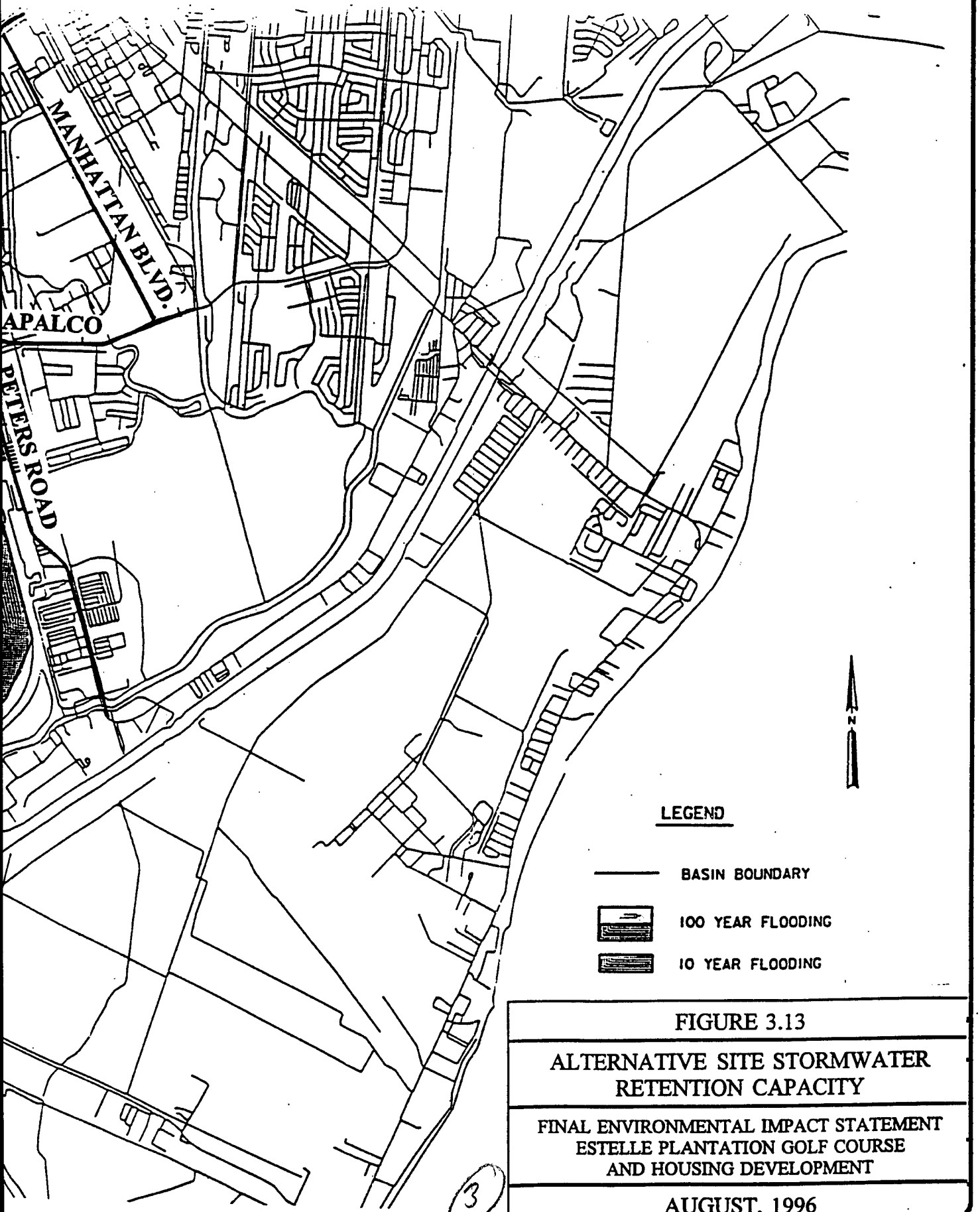

FIGURE 3.13

ALTERNATIVE SITE STORMWATER RETENTION CAPACITY

FINAL ENVIRONMENTAL IMPACT STATEMENT
ESTELLE PLANTATION GOLF COURSE
AND HOUSING DEVELOPMENT

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the Kelven Landfill, in Waggaman, Louisiana.

The Jefferson Parish Department of Sewerage has one major lift station in the Estelle region and this lift station would service EPP and two other Jefferson Parish alternative sites. The major lift station is located at the intersection of Highway 3134 and Pritchard Road, one mile north of the EPP site. This lift station as well as the Ames and Mayronne lift stations feed into the Marrero Treatment Plant. The Lafitte/Larose-Pritchard major lift station, which would service all of EG, EPP, and MLC1 alternative sites, is a fence enclosed submersible lift station with five Clow-Yeoman SER 9000 eight inch pumps. The lift station uses a bubbler level control system. This station should be capable of handling additional flows from new developments in this area.

The major lift station in the vicinity of the Landco alternative site is the Woodmere lift station located at the western end of the Northern Kornman Drive, in the southwest corner of the Woodmere North Subdivision. It currently has 2 pumps with a total capacity of 3,276 gpm. This lift station pumps to the Ames and Mayronne lift station.

The Marrero Treatment Plant received $3,250,000 worth of various capital improvements from 1993 to 1994. Beginning in 1995, the Marrero plant is scheduled to receive $1,000,000 of improvements to complete a 6 mgd expansion. The expansion is expected to be phased in over a period of sixteen months. This additional capacity will increase total capacity of the plant; an increase in average flows to 9.6 mgd and peak flows to 34.0 mgd. This expansion should be more than adequate to service the expanding service area.

3.6.4.3.b Plaquemines Parish

There are no sewer collection systems in the vicinity of PP1 alternative site. The only sewer system in the general vicinity is located in Orleans Parish and includes one lift station on Woodland Highway.

3.6.4.3.c St. Charles Parish

St. Charles Parish maintains five wastewater treatment plants (WWTP) on the West Bank of the parish. If the Bunge site were developed, sewer lines would have to be provided by the development. The treatment plant that would serve the site is located in Ama, approximately two miles west of Bunge. A five horse power lift station is located approximately 2500 feet from the site.

3.6.4.4 Water Availability

3.6.4.4.a Jefferson Parish

The water treatment plants on the West Bank of Jefferson Parish have a current capacity of 44 mgd. The consumers use 24 mgd on the West Bank. No water lines should have to be added for the alternative sites in Jefferson Parish since there are numerous water lines in the vicinity. The nearest water tower is in Lafitte; there are no water towers surrounding the Jefferson Parish proposed property sites.

3.6.4.4.b Plaquemines Parish

The water usage data for the PP1 alternative site was not available. All water lines in the vicinity of PP1 are located along the eight foot servitude paralleling Woodland Highway, Hebert Boulevard and Main Street. Since Woodland Highway and Hebert Boulevard border the site, access to the water supply should not be a problem. LDOTD records indicate that there are no water wells located on the PP1 site.

3.6.4.4.c St. Charles Parish

The water treatment plants that serve the West Bank of St. Charles Parish have a capacity of 9 mgd. The consumers use 4 mgd on the West Bank, so the potential water demands of the St. Charles Parish alternative site, Bunge, can be satisfied. No water lines should have to be added to the surrounding area. LDOTD records indicate that there were three water wells located on the proposed alternative site (Appendix H). Two of the wells were utilized for domestic uses and have been abandoned, the third is an irrigation well drilled in 1934 which may be active.

3.6.4.5 Transportation

3.6.4.5.a Jefferson Parish

Traffic generated by the proposed development would utilize the following routes to reach the Central Business District (Figure 3.13):

LA 3134
LA 45 Barataria Blvd
US 90 Business West Bank Expressway (Crescent City Connection)

The LDOTD recorded a 1993 Average Daily Traffic Counts (ADT) at the following locations:

- 5,500 vehicles for LA 3134 one mile north of Crown Point
- 40,530 vehicles for LA 45 north of LA 3134
- 43,930 vehicles for LA 45 south of US 90
- 68,680 vehicles for US 90 at the Orleans Parish Line.

The critical link in this travel network would be the intersection of LA 45 and US 90. A 1992 Traffic Study Report was prepared for the RPC, in cooperation with Jefferson Parish, and the LDOTD, for Barataria Blvd, LA 45, from the West Bank Expressway to Ames Blvd. The report concludes that Barataria Blvd. is one of the most heavily traveled roadways on the West Bank of Jefferson Parish. This route is the major connector between the northern and southern portions of West Jefferson Parish. The intersection of Barataria Boulevard and West Bank Expressway, on the south side, would be the critical link that all traffic generated by the proposed development would pass in order to reach the CBD in the morning. Capacity analyses for the movement of the right turn lane of the north bound approach, a movement which would be increased by the proposed

development, operated at a Level of Service F during the peak morning hours. Level of Service F is described as, "a forced-flow operation at slow speeds, where volumes are below capacity. In the extreme, both speed and volume can drop to zero. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion" (Pignataro, 1973). The north side of the Barataria Boulevard intersection with the West Bank Expressway, would be the critical intersection in the peak evening hours. The movement of the left turn lane on the west approach, which motorists from the proposed development would need to negotiate heading home, operates at Level of Service E. Level of Service E is described as, "Flow is unstable and there may be stoppages of momentary duration. This level of service is associated with operation of a facility at capacity flows" (Pignataro, 1973). The report also indicates an operational problem exiting at the intersection concerning this traffic movement. West bound vehicles on the West Bank Expressway wishing to turn left onto Barataria Blvd. must make the left turn maneuver, and que in the median area to await the green signal to proceed southbound on Barataria Blvd. The left turn demand during the evening peak hour far exceeds the available queue space in the West Bank Expressway median. Vehicles then begin to queue along the West Bank Expressway.

There are many existing traffic plans, programs, and studies affecting major arterial roadways on the West Bank of Jefferson Parish. The projects would improve the overall traffic operations as well as increase the flow of traffic. Information was collected from the Crescent City Connection, RPC, LDOTD, and the Jefferson Parish Department of Public Works (Engineering and Traffic Engineering Divisions). Included below are the identification of the projects, project type, implementation schedule, project cost, and funding sources for projects which have occurred or are planned on the West Bank of Jefferson Parish.

1. The Mississippi River Bridge Authority (MRBA) of the State of Louisiana has recently constructed a new, high level, multimodal bridge across the Mississippi River in New Orleans, Louisiana. The bridge is located 400 feet downstream and parallel to the old Greater New Orleans (GNO) Bridge, which is designated one-way toward the West Bank. The new bridge can accommodate four lanes and two exclusive transit lanes. It operates as a one way facility and serves traffic from the West Bank destined into New Orleans.

   In addition to a new Mississippi bridge, widening and access improvements were made on existing East Bank approach roadways (Pontchartrain Expressway) and West Bank approach roadways. Increased capability of both bridges has been provided with exclusive transit lanes and transit ramps, additional vehicular traffic lanes, exclusive truck ramps, new vehicular ramps, relocated vehicular ramps, and new parallel surface roadways. The capacity of the Greater New Orleans Bridge was 65,000 vehicles per day, but with both bridges operating the combined capacity is at least 130,000 vehicles per day.

   The construction of the new bridge has made traveling easier between the West Bank and East Bank. It will accommodate existing and future travel demands in

the New Orleans area. Not only does the new bridge provide an improved access to the New Orleans CBD, but it enables through traffic to readily bypass the CBD when necessary. Economic and social isolation of East Bank and West Bank communities has decreased greatly due to the construction of the bridge.

Some Federal, state, and locally funded projects scheduled for the next three years are described below.

2. Plans for a local/state project involving Ames Boulevard from Lapalco to Ehret Road are being prepared by Pepper & Associates and are nearing completion. This is a Intermodal Surface Transportation Efficiency Act (ISTEA) funded project using Surface Transportation Program (STP) funds. The project would add two lanes to the existing two lane roadway and includes subsurface drainage and a sidewalk along the east side. The estimated cost is $3.6 million. There appears to be some question as to whether adequate funding is available for the entire project, as a result it may be built in phases as funds are obtained. This project requires local matching funds of 20% ($720,000.00). Local funds have been obtained, and the bid date is scheduled for September, 1995. This project is included in the 1995 Metrovision Transportation Priorities Package.

3. Another local/state project on Ames Boulevard is planned that has a scheduled bid date for November of 1997. Although the design work has not been authorized to proceed according to the LDOTD, Ames Boulevard will be widened from two to four lanes from Ehret Road to Barataria Boulevard. This ISTEA funded project will use STP funds allocated to the area at an estimated cost $2 million. The local matching funds of 20% amounts to $400,000.00. Sources of local matching funds may be a proposed bond issue. This is reflected in the current Jefferson Parish Capital Budget, which reflects obtaining the bond money in 1996.

4. The LDOTD will overlay Barataria Boulevard between Ames Boulevard and the V-levee. The estimated cost is $600,000.00, and the proposed bid date is March, 1995. While no additional capacity is being provided, the improved roadway surface will improve traffic flow.

5. A Parish project has been designed to connect Cousins Boulevard from its intersection with Oakmere Drive to Paxton Street in 1995. This will be accomplished by constructing a box culvert in the canal that currently separates the streets. The current Jefferson Parish Capital Budget shows the local matching funds will come from future bonds. By providing this connection, traffic congestion that exists at the Lapalco Boulevard/Barataria Boulevard intersection should be reduced.

The next two projects do not have a scheduled date for construction on the West Bank of Jefferson Parish.

6. In 1991-92 a traffic study was done for the section of Barataria Boulevard from the West Bank Expressway to Ames Boulevard. The basic recommendation was

to widen Barataria Boulevard from four to six lanes. At the time of the writing of this EIS, the only funding designated for this project was for the intersection of Oak Alley Boulevard and Barataria Boulevard. The intersection calls for construction of a left turn storage lane onto Oak Alley Boulevard. Funding in the amount of $45,000 was provided in 1994-95 Capital Outlay Bill, but the project has not been implemented.

7. The West Bank Major Street Plan done in 1981 pointed out the need for a major traffic facility south of, and parallel to, Lapalco Boulevard. The road is known as State Route "A", and it was proposed from the Donner Canal Expressway to US 90, west of Bridge City. The estimated cost in 1981 was in excess of $51 million. The project is not included in the RPC's Transportation Improvement Program (TIP) or the proposed Parish Bond Issue. At this time there are no funds allocated for this project.

3.6.4.5.b Plaquemines Parish

The PP1 site has access to the CBD by utilizing two possible routes.
The first route would be:

LA 406 Woodland Highway
LA 23 Belle Chase Highway
US 90 Business West Bank Expressway (Crescent City Connection)

The second route would be:

LA 406 Woodland Highway
LA 407
LA 428
US 90 Business West Bank Expressway (Crescent City Connection)

There is one existing traffic plan affecting this alternative project location. This project would improve the overall traffic operations as well as increase the flow of traffic. Information was collected from the RPC and the LDOTD. The only traffic improvement project in the PP1 area involves the upgrading Woodland Highway (LA 406) from 2 to 4 lanes. This is a state project that would be funded by tolls. The total construction cost is $4 million dollars, but there are no immediate plans for this project to begin.

3.6.4.5.c St. Charles Parish

Traffic generated by proposed development in this location would utilize the following routes in reaching the New Orleans Central Business District:

LA 18 River Road
US 90
US 90 Business West Bank Expressway (Crescent City Connection)

The LDOTD recorded a 1992 Average Daily Traffic Counts (ADT) at the following locations:

- 12,280 vehicles on La 18 west of LA 541
- 142,000 vehicles on LA 18 east of LA 541, west of US 90 intersection
- 52,570 vehicles on US 90 Business east of the west beginning
- 68,000 vehicles for US 90 at the Orleans Parish Line.

The critical link in this routing would be the intersection of LA 18 and US 90. This is a signalized intersection, however the movement from the west approach of LA 18 to east bound on US 90 is not a signalized movement. Traffic must merge, rather than stop, which would allow for a greater peak volume to pass through. Once elevated, US 90 is an expressway, controlled access facility, which handles peak traffic. According to LDOTD, there are no short term or long term plans for roadway improvements in the vicinity of the Bunge alternative site.

TABLE 3.5

SCHOOL CAPACITIES

Site	School	Grades	Enrollment	Capacity	Excess
Jefferson Parish Sites	Congetta Janet Elementary	K - 5	853	951	98
	Allen Ellender Middle	6 - 8	1179	1518	339
	John Ehret High	9 - 12	2762	2781	19
PP1	Belle Chasse Primary	PK - 3	708	1000	292
	Belle Chasse Elementary	4 - 5	328	500	172
	Belle Chasse Middle	6 - 8	569	1000	431
	Belle Chasse High	9 - 12	541	1000	459
Bunge	Luling Elementary	K - 2	433	640	207
	Carver Elementary	3 - 5	430	550	120
	E.J. Landry Middle	6 - 8	424	575	151
	Hahnville High	9 - 12	1348	1730	382

3.6.4.6 Schools

The capacity and current enrollment of all the schools in the study area are included in Table 3.5.

3.6.4.6.a Jefferson Parish

There are three elementary schools, two middle schools and one high school in the Estelle V-levee area. The three elementary schools are Congetta Janet, Lilly Ruppel, and Miller Wall. The two middle schools are Allen Ellender and Truman Junior High School. The high school is John Ehret High School.

The three schools that would service EPP, EG, MLC1, and Landco sites are Congetta Janet Elementary, Allen Ellender Middle and John Ehret High School. Congetta Janet Elementary has 853 students with a maximum capacity of 951; Allen Ellender Middle has 1179 students with a capacity of 1518; and Ehret High School has 2762 students with a capacity of 2781. The Jefferson Parish Public School Planning Department plans to build a new high school in the Marrero/Gretna area. The Jefferson Parish Superintendent of Schools recommended that the high school be built east of the Harvey Canal and south of Lapalco Boulevard (Times-Picayune, 1995). The Planning Department anticipates the new school would service an area from the Orleans Parish line to the Harvey Canal between the West Bank Expressway and Lapalco Boulevard. West Jefferson High School would service from Gretna to the Harvey Canal above the new school's dividing line. Ehret High School would service from the Harvey Canal to Ames Boulevard. Since Ehret High School now services from the Harvey Canal to Ames Boulevard plus a small part of Gretna, the population of the school should greatly decrease. This would provide additional space needed for the children of any future housing development in the area.

3.6.4.6.b Plaquemines Parish

For the alternative site in Plaquemines Parish, PP1, the children of the subdivision would attend three different schools from pre-kindergarten through high school. The three schools would be Belle Chasse Primary, Belle Chasse Middle, and Belle Chasse High School.

None of the three schools, Belle Chasse Primary, Belle Chasse Middle, or Belle Chasse High, are close to their maximum capacities. From pre-kindergarten through third the children would attend Belle Chasse Primary, which has 708 students with a maximum capacity of 1000. For fourth and fifth grade the children would attend Belle Chasse Elementary School, which has 328 students with a maximum capacity of 500. For sixth through eighth the children would attend Belle Chasse Middle, which has 569 students with a maximum capacity of 1000. From ninth to twelfth the children would attend Belle Chase High School, which has 541 students with a maximum capacity of 1000.

3.6.4.6.c St. Charles Parish

For the alternative site in St. Charles Parish, Bunge, there are four schools the children would attend from pre-kindergarten through high school. If Bunge were developed, the children of the community would attend Luling Elementary, Carver Elementary, E.J. Landry Middle, and Hahnville High School.

Neither Luling Elementary, Carver Elementary, E.J. Landry Middle, nor Hahnville High School are close to their maximum capacities. Luling Elementary, which services pre-kindergarten through the second grade, has 433 students with a maximum capacity of 640; Carver Elementary, which services third through fifth grade, has 430 students with a maximum capacity of 550; E.J. Landry Middle, which services sixth through eighth grade, has 424 students with a maximum capacity of 575; and Hahnville High School, which services ninth through twelfth, has 1348 students with a maximum capacity of 1730.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

Executive Order 12898 requires all Federal Agencies to seek to achieve environmental justice by " . . . identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low income populations". The impacts for the applicants' proposed action and alternatives are not anticipated to disproportionately affect the health or environment, or activities of minority and low income populations.

This chapter addresses the potential environmental consequences associated with the applicants' proposed action and the alternatives and potential mitigation measures to compensate for unavoidable impacts as a result of implementing the proposed action or one of the alternatives. The proposed action and alternatives are discussed in detail in relation to the affected environment, which was presented in Chapter 3. Impacts to geological features and biological and aquatic resources from each alternative are presented. Other natural environmental features such as cultural resources are also discussed. Human impact factors such as land use and economic and social resources are presented in detail. One beneficial impact that may be considered applicable to all of the discussed consequences is as follows. The 1986 Feasibility Report and Final Environmental Impact Statement, *West Bank of the Mississippi River in the Vicinity of New Orleans, LA.*, concerning the loss of habitat associated with the hurricane protection levee, states: "...; however, a beneficial impact of the levee would be that it would set the limits of growth on the West Bank and very little development would occur outside of the levee." This statement reflects that the Hurricane Protection Levee would confine growth to within the levee system, which is where the applicant's proposed project lies. Thus, the Corps assumed that there would be development within the new levee system.

Some impacts are not discussed in detail in this chapter, those impacts include air quality, noise, and area land features. Air quality will not be discussed in detail for each of the alternatives. The proposed action and alternatives are not expected to significantly affect air quality in their respective locations and if a development is permitted, dust control measures would be implemented during construction. The primary source of long term air emissions would be from increased automobile traffic. The amount of automobile traffic from golf course operations and the 748 unit housing development should be minimal and should not affect the air pollution attainment status for any of the three parishes involved. Dust would be controlled during construction by wetting construction areas as needed. Impacts to area land features would also be eliminated from in-depth discussion. The major land features, the Mississippi River and its natural ridges, navigational routes; Harvey and Algiers Canals, Bayou des Familles, Bayou Barataria, and levee systems, would not be impacted by any of the alternatives proposed. Noise impacts are anticipated to be minimal.

The area has a minor amount of man-made noise at this time. Some noise is generated in the Estelle V-levee area from limited traffic on Highway 3134, with 5,500 vehicles per day north of Crown Point. Noise in the vicinity of the Bunge site is anticipated from traffic on LA 18, with 12,280 vehicles per day, and from nearby barge and grain elevator operations. Noise in the vicinity of PP1 is anticipated due to limited vehicle traffic and intermittent high noise levels from U.S. Naval Air Station operations. Increased traffic, 1640 vehicles per day, resulting from the proposed action would create minimal increased noise in the vicinity of all the alternative sites. Noise impacts resulting from construction of the proposed action would be temporary and, since there are no residential developments in the immediate vicinity of the proposed action or alternatives, should not affect the general population.

The cumulative impacts of the proposed action and the alternatives are also presented. Cumulative impacts are those impacts that result from the "incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" (40 CFR 1508.7). Such cumulative impacts could be many actions taking place over a period of time, or secondary impacts of a proposed project.

4.2 GEOLOGICAL RESOURCES

4.2.1 SOILS

4.2.1.1 No Action

If no action is taken, the organic soils in the Estelle V-levee area would not be additionally disturbed and/or replaced by new fill material required to prepare the site for development as a result of the proposed action. The soils within the Estelle V-levee would continue to subside and compact as a result of drainage provided in the Jefferson Parish Master Drainage Plan. Plans have been permitted to expand the pumping capacity of the Estelle pump station, which would provide increased pumping capacity.

The soils in the Estelle V-levee area primarily consist of Allemands drained muck (SCS, 1983). The total subsidence rate for this soil is 16 to 51 inches (SCS, 1983). An approximate average of two feet of subsidence has occurred throughout this area with a maximum possible additional subsidence of 0 to 27 inches. Under these conditions, the soils would eventually no longer exhibit all the properties of organic muck.

4.2.1.2 Alternative Number 1 - Applicants' Proposed Action

Construction of the proposed project would have a profound effect on the soils. Although houses would be built on piles, approximately 1.1 million cubic yards of fill material would be required to bring the site to +1 to +2 feet NGVD, a suitable elevation for construction. The native soils would be buried and further compacted more than the 0-27 inches under this material. Much of the vegetation that provides nutrients to these soils would be removed to allow for the construction of the proposed project. The Allemands

muck, Barbary muck, and Sharkey clay soils would be overlaid by Mississippi River sediments dredged and pumped from the river to the project location.

4.2.1.3 Alternative Number 2 - East Group

Construction of the proposed project on the EG site would have a profound effect on the soils. Although houses would be built on piles, approximately 2.1 million cubic yards of fill material would be required to bring the site to +1 to +2 feet NGVD, a suitable elevation for construction. The native soils would be buried and further compacted under this material. Much of the vegetation that provides nutrients to these soils would be removed to allow for the construction of the proposed project. The Allemands muck, Barbary muck and Sharkey clay soils would be overlaid by Mississippi River sediments dredged and pumped from the river to the project location.

4.2.1.4 Alternative Number 3 - Marrero Land Company

Construction of the proposed project on the MLC1 site would have a profound effect on the soils. Although houses would be built on piles, approximately 0.8 million cubic yards of fill material would be required to bring the site to +1 to +2 feet NGVD, a suitable elevation for construction. The native soils would be buried and further compacted under this material. Much of the vegetation that provides nutrients to these soils would be removed to allow for the construction of the proposed project. The Allemands muck and Barbary muck would be overlaid by Mississippi River sediments dredged and pumped from the river to the project location.

4.2.1.5 Alternative Number 4 - Landco

Utilizing the Landco site for construction of the proposed project would have a profound effect on the soils. Although houses would be built on piles, approximately 1.4 million cubic yards of fill material would be required to bring the site to +1 to +2 feet NGVD, a suitable elevation for construction. The native soils would be buried and further compacted under this material. Much of the vegetation that provides nutrients to these soils would be removed to allow for the construction of the proposed project. The Allemands muck and Barbary muck would be overlaid by Mississippi River sediments dredged and pumped from the river to the project location.

4.2.1.6 Alternative Number 5 - Plaquemines Parish 1

Construction of the proposed development on this site, when combined with the soil subsidence rate of the drainage system of Plaquemines Parish, would greatly affect the soil of the PP1 site. Construction of the proposed project at this location would result in the placement of approximately 1.1 million cubic yards of Mississippi River sediments dredged and pumped to the site. The native soils would be buried and further compacted under this material. Much of the vegetation that provides nutrients to these soils would be removed to allow for the construction of the proposed project.

4.2.1.7 Alternative Number 6 - Bunge Corporation

Less site filling would be required for the Bunge site than the other alternative locations; the Bunge site is 400 acres and only 50% of the site would require fill. The construction of the proposed development on this site would not drastically change the qualities of the site soils; the Bunge site soils are typical of the natural levee of the Mississippi River. Approximately two hundred acres would be affected by fill material, which would be Mississippi River sediments. Approximately, 0.8 million cubic yards of fill would be required to raise the southern portion of the site to 5.0 feet NGVD. The fill material would be pumped directly from the river or off of a barge in the river.

4.2.2 MINERAL AND DEPLETABLE RESOURCES

4.2.2.1 No Action

The no action alternative would not have an impact on mineral resources in the Estelle V-levee region of Jefferson Parish.

4.2.2.2 Alternative Numbers 1 - 6

Neither the applicants' proposed action or any of the alternatives would have an impact on mineral resources. The only identified mineral resources in the area are petroleum and natural gas and there are no petroleum or natural gas wells on the EPP, EG, Landco, MLC1, PP1, or Bunge sites. If petroleum or natural gas is discovered beneath any of the sites in the future, the resources may be attained by directional drilling. There are no major oil and/or gas fields within two miles of any of the alternative sites. The only resource utilized would be 0.8 to 2.1 million cubic yards of Mississippi River sediments, which is renewable.

4.2.3 SURFACE WATER

4.2.3.1 No Action

The No Action alternative would result in no impacts to the surface water quality of the V-levee area. The sheet flow of stormwater across the V-levee area would continue during periods of heavy or consistent rains. The V-levee area would continue to serve as a holding basin for stormwater run-off during 10-year and 100-year storm events and water quality conditions would not be affected.

4.2.3.2 Alternative Number 1 - Applicants' Proposed Action

Surface water run-off from the EPP site is expected to increase due to the proposed golf course and housing development. This increase has been calculated as an additional 952 CFS of peak flow during a ten year storm. This increase in run-off should be addressed by 38.3 acres or 154 acre-feet of retention ponds planned for the development (Figure

2.6). The water quality of the surface waters in the Estelle Drainage Basin is expected to be impacted in two ways, by contaminated run-off from the project site and removal of wetlands which currently filter run-off from other areas.

The surrounding drainage canals would not be filled in by the development, but utilized for drainage of the development. The current effluent quality of the drainage canals is considered good, based on data provided in Chapter 3. The run-off from the housing development portion of the project is not anticipated to impact surface water quality to a great extent. A comparison of run-off quality from two residential areas in Jefferson Parish (Montgomery Watson, 1993) to the Estelle Drainage Basin and upper Bayou Barataria water quality is provided in Table 4.1. The contaminant concentrations are quite similar. From this comparison the new housing development may be anticipated to contribute additional BOD_5, Fecal Coliform, and nutrient loadings (organic nitrogen and phosphorus) to both these water bodies. However, these loadings are not anticipated to significantly increase the concentrations of these pollutants in these water bodies or cause further degradation of existing water quality in surrounding drainage canals or Bayou Barataria. It should be noted that the Fecal Coliform and BOD_5 concentrations of the Estelle housing development should be much lower than the values reported by Montgomery Watson due to the placement of new sewage lines, which would not be suffering from the effects of age, oxidation, and subsidence. The sewage collection system would be new and built according to improved construction standards. This would minimize sewage overflows which occur in some existing residential areas.

Run-off from the golf facility could impact surface water quality. The golf facility has been designed so that run-off would be held in the retention ponds prior to discharge into drainage canals (Figure 2.6). Run-off from the golf course is expected to include minimal amounts of insecticides, herbicides, and fertilizer. The planned retention ponds should help reduce the suspended solids concentration and the concentrations of insecticides, herbicides, and fertilizer in surface water which leaves the EPP site. The retention achieve this by functioning as settling basins, potentially settling as much as 30% of the suspended solids from the runoff and the pesticides, herbicides, and fertilizers attached to these solids. Additionally, all pesticide and herbicide application to be conducted on the EPP site would be in accordance with the regulations listed in the Louisiana Administrative Code Volume 7, Section 23 (XXIII), Parts 13119 through 13127. Only EPA and Louisiana registered and approved chemicals will be permitted for use on the property. Also, the golf course would be operated according to the guidelines established by the *Environmental Principles for Golf Courses in the United States*, a publication developed by sixteen organizations, including the U.S. Golf Association, the Golf Course Superintendents of America, the Center for Resource Management, the Sierra Club, and Audubon International. Surface run-off from this site would be eventually pumped via the Estelle Pump Station to a drainage canal just north of the Bayou aux Carpes 404(c) area (Figure 3.10) which enters Bayou Barataria near the Hero Cutoff. Bayou Barataria forms the eastern boundary of the 404(c) area. Stormwater run-off from the EPP site would not flow over or into the 404(c) area, and thus should not impact this area.

By removing the wetlands on the project site, filtering of the periodic overflow of area subdivisions would not occur. However, the drainage canals in the vicinity of the project are typically designed to handle ten year storms. Prior to development, approximately one third of the site (Figure 3.13) would be anticipated to be flooded during 10-year storm events. Thus, overflow of drainage canal waters onto the wetland area is not frequent enough to substantially improve water quality (through filtration). Only runoff from the Woodmere and Woodmere South Subdivisions would be filtered. Fill material to raise the site above flood levels would be obtained from a permitted dredge facility on the Mississippi River which has been operated for thirty to forty years. This fill material is not anticipated to contain any contamination levels which would impact the site.

4.2.3.3 Alternative Number 2 - East Group

Surface water run-off from the EG site is expected to increase due to the proposed golf course and housing development. This increase is estimated as an additional 952 CFS of peak flow during a ten year storm. A system of retention ponds similar to that shown in Figure 2.6 would be utilized to control run-off. The increase in run-off should be addressed by the retention ponds planned for the development. The stormwater run-off would be diverted to the retention ponds and additional run-off diverted to the Pipeline Canal. This would hold and slowly release storm water to minimize negative water quality impacts to Bayou Barataria. The impact of the run-off should be similar to the applicants' proposed action. The water quality of the surface waters in the Estelle drainage subbasin is expected to be impacted in two ways by this project, contaminated run-off from the project site and removal of wetlands which currently filter run-off from other areas. Impacts to this location are expected to be similar to those in Section 4.2.3.2.

4.2.3.4 Alternative Number 3 - Marrero Land Company

Surface water run-off from the MLC1 site is expected to increase due to the proposed golf course and housing development. This increase is estimated as an additional 952 CFS of peak flow during a ten year storm. A system of retention ponds similar to that shown in Figure 2.6 would be utilized to control run-off. The increase in run-off should be addressed by the retention ponds planned for the development. The stormwater run-off would be diverted to the retention ponds and additional run-off diverted to the Pipeline Canal. This would hold and slowly release storm water to minimize negative water quality impacts to Bayou Barataria. The impact of the run-off should be similar to the applicants' proposed action. The water quality of the surface waters in the Estelle drainage subbasin is expected to be impacted in two ways by this project, contaminated run-off from the project site and removal of wetlands which currently filter run-off from other areas. Impacts to this location are expected to be similar to those in Section 4.2.3.2.

4.2.3.5 Alternative Number 4 - Landco

Surface water run-off from the Landco site is expected to increase due to the proposed golf course and housing development. This increase is estimated as an additional 952

CFS of peak flow during a ten year storm. A system of retention ponds similar to that shown in Figure 2.6 would be utilized to control run-off. The increase in run-off should be addressed by the retention ponds planned for the development. The stormwater run-off would be diverted to the retention ponds and additional run-off diverted to the Pipeline Canal. This would hold and slowly release storm water to minimize negative water quality impacts to Bayou Barataria. The impact of the run-off should be similar to the applicants' proposed action. The water quality of the surface waters in the Estelle drainage subbasin is expected to be impacted in two ways by this project, contaminated run-off from the project site and removal of wetlands which currently filter run-off from other areas. Impacts to this location are expected to be similar to those in Section 4.2.3.2.

4.2.3.6 Alternative Number 5 - Plaquemines Parish 1

Surface water on the PP1 site drains into Planters Canal and is pumped into the Algiers Canal by the Belle Chasse No. 2 pumping station. Planters Canal would be utilized for drainage of the development. Surface water run-off from the PP1 site is expected to increase due to the proposed golf course and housing development. This increase is estimated as an additional 952 CFS of peak flow during a ten year storm. A system of retention ponds similar to that shown in Figure 2.6 would be utilized to control run-off. The increase in run-off should be addressed by the retention ponds planned for the development. The stormwater run-off would be diverted to the retention ponds and additional run-off diverted to the Planters Canal. This would hold and slowly release storm water to minimize negative water quality impacts to Bayou Barataria. The impact of the run-off should be similar to the applicants' proposed action. The water quality of the surface waters in the area of this alternative are expected to be impacted in two ways, contaminated run-off from the project site and removal of wetlands which currently filter run-off from other areas. Impacts to this location are expected to be similar to those in Section 4.2.3.2.

4.2.3.7 Alternative Number 6 - Bunge Corporation

The Bunge alternative is anticipated to increase stormwater run-off, however, the increase in run-off should be less than the other alternatives considered in this document. This is due to the smaller project site proposed and the fact that the majority of the site is currently utilized as pasture. The quality of stormwater run-off is also anticipated to be better than other alternatives considered, since the golf course would not be constructed for this alternative. The absence of the proposed golf course on this site would eliminate the impact of insecticides, herbicides, and fertilizers. Run-off from the residential area should have a minimal impact on surface water since wetlands exist to the south of the site. Wetlands are a natural filter for pollutants and would filter run-off prior to contact with other water bodies. The only other surface water in the area is that of the Mississippi River. The river would not be impacted by development at this location.

4.2.4 GROUNDWATER

4.2.4.1 No Action

With the no action alternative, the groundwater resources of Jefferson Parish in the vicinity of the V-levee should not be impacted. Current usage of the existing primary aquifer of the region is minimal and is not expected to increase in the future. There are no current threats of groundwater contamination in this region and none are expected in the near future.

4.2.4.2 Alternative Numbers 1 - 5

It is not anticipated that the construction of this proposed project would have an effect on the aquifer system of South Louisiana. This project would not utilize any groundwater resources. The only potential impact from the proposed project on groundwater could be from excessive pesticide and fertilizer use and possible fuel storage and maintenance facilities. These activities, if not properly managed, would only affect shallow groundwater sources, which are not utilized in the area. Use of pesticides and fertilizers on the golf course would be controlled so that the minimum amount needed would be used.

4.2.4.3 Alternative Number 6 - Bunge Corporation

It is not anticipated that the construction of the proposed project on this alternative site would have an effect on the aquifer system of South Louisiana. This project would not utilize any groundwater resources. Potential impacts from operations of the golf course facility would not occur on this alternative site.

4.3 BIOLOGICAL RESOURCES

4.3.1 VEGETATION

4.3.1.1 No Action

The No Action alternative would not permanently impact the vegetation in the near future; however, there would be adverse effects on the vegetation due to continued pumping within the V-levee. Some of the species would eventually be replaced by less water dependent species. An example of this is the presence of oak trees in the midstory of the previously cypress/tupelo swamp, but no new cypress are being recruited to the population. It is anticipated that even without the proposed action, the cypress/tupelo vegetation within the V-levee would be replaced by other wetland species. The site is expected to convert to a bottomland hardwood forest over the fifty year analysis period and it is anticipated that the cypress and tupelo trees would be non-existent within twenty years.

4.3.1.2 Alternative Number 1 - Applicants' Proposed Action

Construction of the proposed project would displace the majority of the native vegetation. Clearing of the site, followed by filling would destroy existing vegetation. Dredging to increase depths of proposed retention ponds would also destroy existing vegetation. Alternative construction techniques could mitigate the impact of these construction measures and are mentioned in Section 4.8 of this EIS. It is currently anticipated that approximately 292 acres of bottomland hardwoods and 362 acres of marsh would be permanently destroyed by the proposed action. Marsh grasses would most likely be completely eliminated, except for those that are present in golf course ponds. Native trees would be spared in patches but understory would be virtually eliminated. Many of the existing trees are severely stressed due to high levels of subsidence, as great as three feet in some areas. Some of these trees would likely be removed to prevent toppling, however, it is anticipated that many of the bald cypress would benefit from the placement of some fill material. These trees would remain on site wherever possible. The remaining native trees would be utilized, if possible, as relief on the golf course, in ponded areas on the golf course, and in the stormwater retention ponds to increase the aesthetics of the lots to be sold for housing.

4.3.1.3 Alternative Number 2 - East Group

The results of the EG alternative mimic those of Alternative Number 1. Since this alternative location is within the same levee system, occupies the same soil associations, and currently has the similar vegetative species as the applicants' proposed location, it is anticipated to create the same impacts. Essentially, if the EG alternative were selected, the native vegetation would be removed. Approximately 450 acres of bottomland hardwoods and 191 acres of marsh would be permanently destroyed by the development. The remaining species would serve as part of the golf course or to increase the aesthetics of the lots. Due to the volume of fill material to be placed at the site, the ability of the native organic soils to sustain wetland vegetation would be greatly decreased, if not eliminated.

4.3.1.4 Alternative Number 3 - Marrero Land Company

The results of the MLC1 alternative are similar to those for Alternative Numbers 1 and 2. Since this alternative location is within the same levee system, occupies the same soil associations, and currently has similar vegetative species as the applicants' proposed location, it is anticipated the same impacts would occur. Essentially, if the MLC1 alternative were selected, the native vegetation would be removed. Approximately 320 acres of bottomland hardwoods and 115 acres of marsh would be permanently destroyed by the development. The remaining species would serve as part of the golf course or to increase the aesthetics of the lots. Due to the volume of fill material to be placed at the site, the ability of the native organic soils to sustain wetland vegetation would be greatly decreased, if not eliminated. It is anticipated that 75% of the vegetation occupying the site would be eliminated if this alternative is selected.

TABLE 4.1
COMPARISON OF IMPACTS ON SURFACE WATER QUALITY

CONTAMINANTS	KENNER RESIDENTIAL AREA	JEFFERSON PARISH RESIDENTIAL AREA	ESTELLE SUBBASIN WATER QUALITY	UPPER BAYOU BARATARIA
Oil & Grease	5.6 mg/l	6.46 mg/l	Not Tested	Not Tested
Fecal Coliform	36180 counts per 100 ml	1042 counts per 100 ml	200-400 counts per 100 ml	300-600 counts per 100 ml
Cyanide	0.3 mg/l	0.13 mg/l	Not Tested	Not Tested
Phenol	0.002 mg/l	0.005 mg/l	Not Tested	Not Tested
Total Suspended Solids	31.3 mg/l	33.9 mg/l	15 mg/l	40-60 mg/l
BOD_5	14.6 mg/l	12.3 mg/l	50-60 mg/l	2 mg/l
Ammonia	2.9 mg/l	0.24 mg/l	Not Tested	Not Tested
Organic Nitrogen	0.90 mg/l	0.77 mg/l	Not Tested	Not Tested
Total Phosphorus	0.31 mg/l	0.54 mg/l	Not Tested	Not Tested
Antimony	BDL	BDL	Not Tested	Not Tested
Arsenic	BDL	BDL	Not Tested	Not Tested
Beryllium	BDL	BDL	Not Tested	Not Tested
Cadmium	BDL	BDL	0.5-0.6 ug/l	Not Tested
Chromium	BDL	BDL	1.0-4.0 ug/l	Not Tested
Copper	24 ug/l	BDL	6.0-8.0 ug/l	Not Tested
Lead	BDL	BDL	3.0 ug/l	Not Tested
Mercury	BDL	BDL	detectable in six of twenty samples	Not Tested
Nickel	BDL	BDL	Not Tested	Not Tested
Selenium	BDL	BDL	Not Tested	Not Tested
Silver	BDL	BDL	Not Tested	Not Tested
Thallium	BDL	BDL	Not Tested	Not Tested
Zinc	0.20 mg/l	0.110 mg/l	Not Tested	Not Tested
Pesticides and PCBs	BDL	BDL	Not Tested	Not Tested
Volatile and Base/Neutral Organics	BDL	BDL	Not Tested	Not Tested

* BDL - Below Detection Limits
(Montogemry Watson, 1993) (Raw Data in Appendix O)

4.3.1.5 Alternative Number 4 - Landco

Construction of the proposed development on the Landco site would eliminate approximately 808 acres of bottomland hardwoods and less than 61 acres of marsh currently existing on the property. Remaining vegetative species would be incorporated into the golf development and some would remain for the housing lots. Due to the volume of fill material to be placed at the site, the ability of the native organic soils to sustain wetland vegetation would be greatly decreased, if not eliminated.

4.3.1.6 Alternative Number 5 - Plaquemines Parish 1

The PP1 is a site that is approximately 655 acres, five acres larger than the proposed action, with 609 acres assumed to be bottomland hardwoods and 46 assumed to be pasture. The entire 655 acres would be utilized for the development, therefore, all but 20% of the vegetation would be removed in order to construct the golf course and housing facilities. Primarily, only woody vegetation would remain to be incorporated into the golf course and into the housing lots. Most of the other vegetation would be permanently destroyed by the development. Due to the volume of fill material to be placed at the site, the ability of the native soils to sustain wetland vegetation would be greatly decreased, if not eliminated.

4.3.1.7 Alternative Number 6 - Bunge Corporation

The Bunge site is proposed as a housing alternative only. This site would be completely developed in order to provide the quantity of housing proposed by this EIS. Since the Bunge site is 70% pasture, the pasture grasses would be eliminated. Fill material placed over these grasses to level the site would starve the pasture vegetation. The approximately 123 acres of forested bottomland hardwood vegetation on the site would also be destroyed; the other alternative sites would lose more acres of wetlands. Some wetland trees may be relocated or those that can withstand the filling would remain to enhance lots. Currently, there are few mature trees on the site so many lots would not have the aesthetic value of older trees. In addition, fill material to be placed at the site would decrease and possibly eliminate the ability of the native organic soils to sustain wetland vegetation. Construction of a housing development on this site may actually increase the number of trees on site due to landscaping of individual home lots.

4.3.2 WILDLIFE POPULATIONS AND HABITAT

4.3.2.1 No Action

The no action alternative would spare the habitat and the wildlife currently utilizing the site or alternative sites, thus having minimal impact on their populations. Although the no action alternative would eventually alter the vegetative community from the swamp environment to a bottomland hardwood community, the animal populations would not be adversely affected. With the introduction of more hard mast producing trees (oaks) to the

forest canopy, wildlife utilization of the site would likely increase. Populations of deer and waterfowl would be likely to increase with the advent of mature water, willow, and Nuttall oaks in the forested community.

4.3.2.2 Alternative Number 1 - Applicants' Proposed Action

Implementation of the proposed action would displace much of the wildlife currently utilizing the site. According to the WVA analysis for this property, the AAHUs lost as a result of the implementation of the proposed development would be 145 AAHUs of bottomland hardwood habitat and 158 AAHUs of marsh habitat. Those animals that do not adjust to human inhabited environments would be forced to migrate to nearby locations that support their preferred environment. As stated in Section 2.3.2 a compartmentalized fill method would be utilized to limit impacts to areas to be used as the retention ponds, etc. This should preserve some habitat for birds, mammals, reptiles, and amphibians. However, the water quality within the retention ponds due to stormwater run-off may decrease the abundance and diversity of reptiles and amphibians. Limited recolonization by these species would be expected at the remainder of the proposed development since they can adjust to human inhabited environments. However, the majority of wildlife habitat would be eliminated by the deposition of fill for the project. The existing population of reptiles and amphibians and the diversity of their population would not be anticipated to return to pre-project levels.

Most of the mammals would migrate to adjacent properties such as MLC1, EG, and the JLNHPP. Squirrels, raccoons, and rabbits tend to adjust to altered environments easier than deer and river otters; however, none of the mammalian species would exist in pre-project numbers on the EPP site. Additionally, the populations of most of the displaced mammals would decrease due to lack of surrounding habitat to sustain larger populations. As with the other wildlife, some of the avian inhabitants of the site would adjust to the altered conditions, but populations would likely decrease. Predatory birds such as hawks and owls and birds which require large contiguous forested areas for nesting or foraging would likely leave the property as a result of the loss of habitat and place pressure on other areas to support them. It is also anticipated that the adjacent forested areas may not have enough habitat to support the population increase created by the species migrating from the EPP site.

4.3.2.3 Alternative Number 2 - East Group

Moving the proposed action to the EG site would also displace much of the wildlife currently utilizing the site. According to the WVA analysis for this property, the AAHUs lost as a result of the implementation of the proposed development would be 244 AAHUs of bottomland hardwood habitat and 75 AAHUs of marsh habitat. Those animals that do not adjust to human inhabited environments would be forced to migrate to nearby locations that support their preferred environment. As stated in Section 2.3.3, a compartmentalized fill method would be utilized to limit impacts to areas to be preserved such as the 38 acres of retention ponds. This may preserve some habitat for birds,

mammals, reptiles, and amphibians. However, the water quality within the retention ponds due to stormwater run-off would decrease the abundance and diversity of reptiles and amphibians. Limited recolonization by these species would be expected at the remainder of the proposed development since they can adjust to human inhabited environments. However, the majority of wildlife habitat would be eliminated by the deposition of fill for the project. The existing population of reptiles and amphibians and the diversity of their population would not be anticipated to return to pre-project levels. Most of the mammals would migrate to adjacent properties such as MLC1, EPP, and the JLNHPP. Squirrels, raccoons, and rabbits tend to adjust to altered environments easier than deer and river otters, however, none of the mammalian species would exist in pre-project numbers on the EG site. Additionally, the populations of most of the displaced mammals would decrease due to lack of surrounding habitat to sustain larger populations. As with the other wildlife, some of the avian inhabitants of the site would adjust to the altered conditions, but populations would likely decrease. Predatory birds such as hawks and owls and birds which require large contiguous forested areas for nesting or foraging would likely leave the property as a result of the loss of habitat. It is also anticipated that the adjacent forested areas may not have enough habitat to support the population increase created by the species migrating from the EG site.

4.3.2.4 Alternative Number 3 - Marrero Land Company

Utilizing the MLC1 site for the proposed development would have consequences similar to those of the EPP and EG sites. According to the WVA analysis for this property, the AAHUs lost as a result of the implementation of the proposed development would be 144 AAHUs of bottomland hardwood habitat and 42 AAHUs of marsh habitat. Those animals that do not adjust to human inhabited environments would be forced to migrate to nearby locations that support their preferred environment. As stated in Section 2.3.4, a compartmentalized fill method would be utilized to limit impacts to areas to be preserved such as the 38 acres of retention ponds. This may preserve some habitat for birds, mammals, reptiles, and amphibians. However, the water quality within the retention ponds due to stormwater run-off would decrease the abundance and diversity of reptiles and amphibians. Limited recolonization by these species would be expected at the remainder of the proposed development since they can adjust to human inhabited environments. However, the majority of wildlife habitat would be eliminated by the deposition of fill for the project. The existing population of reptiles and amphibians and the diversity of their population would not be anticipated to return to pre-project levels.

Most of the mammals would migrate to adjacent properties such as EPP, EG, and the JLNHPP. Squirrels, raccoons, and rabbits tend to adjust to altered environments easier than deer and river otters, however, none of the mammalian species would exist in pre-project numbers on the MLC1 site. Additionally, the populations of most of the displaced mammals would decrease due to lack of surrounding habitat to sustain larger populations. As with the other wildlife, some of the avian inhabitants of the site would adjust to the altered conditions, but populations would likely decrease. Predatory birds such as hawks

and owls and birds which require large contiguous forested areas for nesting or foraging would likely leave the property as a result of the loss of habitat. It is also anticipated that the adjacent forested areas may not have enough habitat to support the population increase created by the species migrating from the MLC1 site.

4.3.2.5 Alternative Number 4 - Landco

If the proposed development were to be constructed on the Landco site, consequences similar to those of the EPP, MLC1 and EG sites would result. According to the WVA analysis for this property, the AAHUs lost as a result of the implementation of the proposed development would be 435 AAHUs of bottomland hardwood habitat and 27 AAHUs of marsh habitat. Wildlife populations currently utilizing the site would decrease in size due to migration to more suitable areas. Squirrels, raccoons, and rabbits would remain in smaller numbers and most deer would move to less impacted habitats available within one mile of the site.

Most of the mammals would migrate to adjacent properties such as MLC1, EPP, and the JLNHPP. Squirrels, raccoons, and rabbits tend to adjust to altered environments easier than deer and river otters. However, the populations of most of the displaced mammals would decrease due to lack of surrounding habitat to sustain larger populations. Most water dwelling mammals, nutria and river otter, would be displaced or sustain minimal numbers utilizing retention ponds on the golf course for habitat. Some of the avian inhabitants of the site would adjust to the altered conditions. Predatory birds such as hawks and owls and birds which require large contiguous areas for nesting or foraging would likely leave the property as a result of the loss of habitat. It is also anticipated that the adjacent forested areas may not have enough habitat to support the population increase created by the species migrating from the Landco site. As stated in Section 2.3.5 a compartmentalized fill method would be utilized to limit impacts to areas to be preserved such as the 38 acres of retention ponds. This may preserve some habitat for reptiles and amphibians. However, the water quality within the retention ponds due to stormwater run-off would decrease the abundance and diversity of these species. Limited recolonization by reptiles and amphibians would be expected at the remainder of the proposed development since they can adjust to human inhabited environments. Existing population of reptiles and amphibians and the diversity of their population would not be anticipated to return to pre-project levels.

4.3.2.6 Alternative Number 5 - Plaquemines Parish 1

According to the WVA analysis for this property, the AAHUs lost as a result of the implementation of the proposed development would be 429 AAHUs of bottomland hardwood habitat. This loss of habitat would result in the migration of wildlife from the site. Squirrels, raccoons, and rabbits would remain in smaller numbers and most deer would move to less impacted habitats available near the site. Squirrels, raccoons, and rabbits tend to adjust to altered environments easier than deer and river otters. However, the populations of most of the displaced mammals would decrease due to lack of

surrounding habitat to sustain larger populations. The PP1 site is likely to currently support a larger variety of avian and mammal species than the other five alternative sites due to its location adjacent to the Mississippi River. Although some inhabitants may be seasonal, loss of habitat would result in the loss of these migratory populations. Song birds would be the least affected of the avian community. Wading birds and raptors would loss their food base and have to relocate in order to sustain healthy populations. Mammals would also decrease in numbers due to habitat loss. As stated in section 2.3.6 a compartmentalized fill method would be utilized to limit impacts to areas to be preserved such as the 38 acres of retention ponds. This may preserves some habitat for reptiles and amphibians. However, the water quality within the retention ponds due to stormwater run-off would decrease the abundance and diversity of these species. Limited recolonization by reptiles and amphibians would be expected at the remainder of the proposed development since they can adjust to human inhabited environments. However, the majority of habitat would be eliminated by the deposition of fill for the project. Existing population of reptiles and amphibians and the diversity of their population would not be anticipated to return to pre-project levels.

4.3.2.7 Alternative Number 6 - Bunge Corporation

Although the Bunge alternative site is primarily pasture, wildlife populations would be affected by situating a housing development on the site. According to the WVA analysis for this property, the AAHUs lost as a result of the implementation of the proposed development would be 84 AAHUs of bottomland hardwood habitat. This loss of habitat would result in the migration of wildlife from the site. In addition, other species utilizing the bottomland hardwood area and those migrating in from the swamp to the south of the site would likely discontinue use of the property. There would be no retention ponds for hydrophilic mammals such as the nutria or river otter to utilize for food and shelter. The existing forested acreage is young and would not support large populations of mammals or birds if removed.

Squirrels, raccoons and rabbits would remain in smaller numbers and most deer would move to less impacted habitats available near the site. Squirrels, raccoons, and rabbits tend to adjust to altered environments easier than deer. However, the populations of most of the displaced mammals would decrease due to lack of surrounding habitat to sustain larger populations. The Bunge site would continue to support populations of reptiles and amphibians due to the ability of these species to adjust to human altered environments. However, existing populations within the bottomland hardwood habitat would be anticipated to suffer decreases in population and diversity.

4.3.3 AQUATIC RESOURCES

4.3.3.1 No Action

The No Action alternative would not improve the aquatic resources of the applicant's proposed site or any of the alternative sites. Due to the continued pumping of the site and

the maintenance of water levels below the ground surface, the value of the site to aquatic organisms would continue to decrease with time. To change this scenario, current drainage operations would have to be altered and the V-levee area would have to be maintained in a more flooded condition. Since surface water is not expected to be impacted by the no action alternative, aquatic organisms in the marshes and drainage canals should not be impacted.

4.3.3.2 Alternative Number 1 - Applicants' Proposed Action

Impacts to aquatic resources would be minimal from the proposed project. Limited standing water on the site has decreased the value of the property to aquatic organisms. Standing water is only estimated to be present for short periods of time after rainfall events. If the V-levee area was maintained flooded, a healthy benthic community, crustaceans, and fish could utilize the site. Since water levels at the site are maintained below the surface, these species are not present over the site. Some aquatic species can be found in the drainage canals that serve the site. These canals have low to no flow and support aquatic vegetation such as duckweed and water hyacinth. Surface water quality would not be affected enough to impact these species. Due to the low flow conditions, the canals do not support a thriving fishery. Construction of the proposed development may actually increase the flow in some of the drainage canals, creating a community of aquatic organisms less tolerant of low flow conditions. Under such conditions, the population of fish and shellfish may increase, while a decrease in the amount of aquatic vegetation may occur. Additionally, during periods of low to no flow, the introduction of these species may cause less than favorable water quality impacts such as lowering the dissolved oxygen level.

Impacts to the water quality of the Mississippi River as a result of dredging for fill material have been addressed in the permit issued for the proposed source. Impacts to the pallid sturgeon are unlikely since the nearest sighting of these sturgeon is recorded between River Mile 95 and 100 and the potential dredge source is located in the vicinity of River Mile 70.

4.3.3.3 Alternative Number 2 - East Group

Alternative Number 2 would have a minimal effect on the aquatic resources of the area. As with Alternative Number 1, lack of standing water on the site has decreased the value of the property to aquatic organisms. Since water levels at the site are maintained below the surface, common aquatic species for this area (crawfish, larval fish and fingerlings, algae) are not present over the site. Some aquatic species can be found in the drainage canals that serve the site. These canals have low to no flow and support aquatic vegetation such as duckweed and water hyacinth. Surface water quality would not be affected enough to impact these species. Due to the low flow conditions, the canals do not support a thriving fishery. Construction of the proposed development may actually increase the flow in some of the drainage canals, creating a community of aquatic

organisms less tolerant of low flow conditions. Under such conditions, the population of fish and shellfish may increase, while a decrease in the amount of aquatic vegetation may occur. Additionally, during periods of low to no flow, the introduction of these species may cause less than favorable water quality impacts such as lowering the dissolved oxygen level. Impacts to the Mississippi River and pallid sturgeon as a result of dredging for fill material should be similar to those discussed in Section 4.3.3.2.

4.3.3.4 Alternative Number 3 - Marrero Land Company

Alternative Number 3 would have a minimal effect on the aquatic resources of the area. As with Alternative Number 1 (EPP), lack of standing water on the site has decreased the value of the property to aquatic organisms. Since water levels at the site are maintained below the surface, common aquatic species for this area (crawfish, larval fish and fingerlings, algae) are not present over the site. Some aquatic species can be found in the drainage canals that serve the site. These canals have low to no flow and support aquatic vegetation such as duckweed and water hyacinth. Surface water quality would not be affected enough to impact these species. Due to the low flow conditions, the canals do not support a thriving fishery. Construction of the proposed development may actually increase the flow in some of the drainage canals, creating a community of aquatic organisms less tolerant of low flow conditions. Under such conditions, the population of fish and shellfish may increase, while a decrease in the amount of aquatic vegetation may occur. Additionally, during periods of low to no flow, the introduction of these species may cause less than favorable water quality impacts such as lowering the dissolved oxygen level. Impacts to the Mississippi River and pallid sturgeon as a result of dredging for fill material should be similar to those discussed in Section 4.3.3.2.

4.3.3.5 Alternative Number 4 - Landco

The Landco alternative would have a minimal effect on the aquatic resources of the area. As with Alternative Number 1 (EPP), lack of standing water on the site has decreased the value of the property to aquatic organisms. Water levels at this site are maintained below the surface, thus, common aquatic species for this area (crawfish, larval fish and fingerlings, algae) are not present over the site. Some aquatic species can be found in the drainage canals that serve the site. These canals have low to no flow and support aquatic vegetation such as duckweed and water hyacinth. Surface water quality would not be affected enough to impact these species. Due to the low flow conditions, the canals do not support a thriving fishery. Construction of the proposed development may actually increase the flow in some of the drainage canals, creating a community of aquatic organisms less tolerant of low flow conditions. Under such conditions, the population of fish and shellfish may increase, while a decrease in the amount of aquatic vegetation may occur. Additionally, during periods of low to no flow, the introduction of these species may cause less than favorable water quality impacts such as lowering the dissolved oxygen level. Impacts to the Mississippi River and pallid sturgeon as a result of dredging for fill material should be similar to those discussed in Section 4.3.3.2.

4.3.3.6 Alternative Number 5 - Plaquemines Parish 1

The aquatic resources in Plaquemines Parish consist of the Mississippi River, local navigation canals and drainage canals. Construction of the proposed development on this property would have a minimal effect on the aquatic resources. Some aquatic species can be found in the drainage canal that serves the site. Planters Canal has low to no flow during the summer months and supports aquatic vegetation such as duckweed and water hyacinth. Low flow conditions and overabundant aquatic vegetation in the canal create a water quality situation that does not favor a thriving fishery. Surface water quality would not be affected enough to impact these species. Construction of the proposed development may actually increase the flow in Planters Canal, creating a community of aquatic organisms less tolerant of low flow conditions. Under such conditions, the population of fish and shellfish may increase, while a decrease in the amount of aquatic vegetation may occur. Additionally, during periods of low to no flow, the introduction of these species may cause less than favorable water quality impacts such as lowering the dissolved oxygen level. The Mississippi River and navigation canals would not be affected by implementing this alternative, thus, aquatic species utilizing these waterways would not be affected. Impacts to the Mississippi River and pallid sturgeon as a result of dredging for fill material should be similar to those discussed in Section 4.3.3.2.

4.3.3.7 Alternative Number 6 - Bunge Corporation

The Mississippi River constitutes the primary aquatic habitat near the Bunge site. The site does support some wetlands, however, surface water in the wetland area is rare. It is anticipated that the construction of the proposed development on this location would impact the aquatic resource value of the wetland area. All of the wetland area would be utilized for the development, thus removing any future potential for aquatic life to reestablish on the site. The marsh that exists south of the Bunge site would not be adversely impacted by the project if proper management practices are implemented by the development. Impacts to the Mississippi River and pallid sturgeon as a result of dredging for fill material should be similar to those discussed in Section 4.3.3.2, if the same source of material is utilized.

4.3.4 THREATENED AND ENDANGERED SPECIES

4.3.4.1 No Action

No action would result in no impacts to threatened and endangered species. Since no species with this designation are present within one mile of the applicants' proposed action, no action would have the same effect as the proposed action.

4.3.4.2 Alternative Number 1 - Applicants' Proposed Action

No threatened or endangered species have been identified within a mile of the EPP site. The nearest endangered species are bald eagles. The bald eagles are nesting over one and

one half miles from the site. At this distance, no restrictions would be placed on the construction of the proposed action due to the presence of the eagles.

Dredge material for fill is proposed to be obtained from the Mississippi River and pumped to the project location. Impacts of these operations have been addressed within the permit process for the proposed contractor. However, the contractor considered for this project does not operate a dredge location in the vicinity of any areas suspected to contain the pallid sturgeon.

4.3.4.3 Alternative Number 2 - East Group

A bald eagle's nest has been identified within one mile of the EG site. Due to the proximity of the nest to the site, activities occurring on the site during breeding season would have to be regulated. It is likely that restrictions on construction activities would be implemented to prevent disturbance of the eagles. The use of all heavy equipment would be prohibited within a one mile radius during breeding season. The use of any other equipment anticipated to generate high levels of noise would also be prohibited. Construction of permanent residences or buildings for the golf course may be prohibited within a one mile radius.

Dredge material for fill is proposed to be obtained from the Mississippi River and pumped to the project location. Impacts of these operations have been addressed within the permit process for the proposed contractor. However, the contractor considered for this project does not operate a dredge location in the vicinity of any areas suspected to contain the pallid sturgeon.

4.3.4.4 Alternative Number 3 - Marrero Land Company

No threatened or endangered species have been identified within a mile of the MLC1 site. The nearest endangered species are bald eagles. The bald eagles are nesting over one and one half miles from the site. At this distance, there would be no restrictions placed on the construction of the proposed action due to the presence of the eagles.

Dredge material for fill is proposed to be obtained from the Mississippi River and pumped to the project location. Impacts of these operations have been addressed within the permit process for the proposed contractor. However, the contractor considered for this project does not operate a dredge location in the vicinity of any areas suspected to contain the pallid sturgeon.

4.3.4.5 Alternative Number 4 - Landco

No threatened or endangered species have been identified within a mile of the Landco site. The nearest endangered species are bald eagles. The bald eagles are nesting over two miles from the site. At this distance, there would be no restrictions placed on the construction of the proposed action due to the presence of the eagles.

Dredge material for fill is proposed to be obtained from the Mississippi River and pumped to the project location. Impacts of these operations have been addressed within the permit process for the proposed contractor. However, the contractor considered for this project does not operate a dredge location in the vicinity of any areas suspected to contain the pallid sturgeon.

4.3.4.6 Alternative Number 5 - Plaquemines Parish 1

No threatened or endangered species have been identified within a mile of the PP1 site. The nearest endangered species is the pallid sturgeon, which resides in the Mississippi River. The fish is known to exist in the river, however, it is not likely to be found this far downriver. Impacts of these operations have been addressed within the permit process for the proposed contractor. However, the contractor considered for this project does not operate a dredge location in the vicinity of any areas suspected to contain the pallid sturgeon.

4.3.4.7 Alternative Number 6 - Bunge Corporation

No threatened or endangered species have been identified within a mile of the Bunge site. The nearest endangered species are bald eagles. The bald eagles are nesting west northwest of Bunge, over four miles from the site. At this distance, there are no restrictions placed on the construction of the proposed action due to the presence of the eagles.

4.4 CULTURAL RESOURCES

4.4.1 HISTORIC AND ARCHEOLOGICAL SITES

4.4.1.1 No Action

The no action alternative would have no impact on cultural resources because there are none. No sites or properties either listed on or which have been determined eligible for listing on the National Register of Historic Places or in the vicinity of the EPP site or the surrounding area (letter contact with State Historic Preservation Officer (SHPO), Appendix E) . In addition, there are no known archeological resources on or in the immediate area.

4.4.1.2 Alternative Number 1 - Applicants' Proposed Action

There are no sites or properties either listed on or which have been determined eligible for listing on the National Register of Historic Places in the vicinity of the EPP site or the surrounding area (letter contact with SHPO, Appendix E), and there are no known archeological resources on or in the surrounding area. Utilizing the EPP site should not affect historical or archeological resources. If an archeological site would be uncovered

during site construction, the SHPO would be contacted immediately. Construction activities would cease until a survey of the site could be performed. Continuation of construction activities would proceed under SHPO direction. Unearthing of any sites is not expected since the majority of site activities would involve filling operations and not excavation.

4.4.1.3 Alternative Number 2 - East Group

There are no sites or properties either listed on or which have been determined eligible for listing on the National Register of Historic Places in the vicinity of the EG site or the surrounding area (letter contact with SHPO, Appendix E). Constructing the proposed action on the EG site is not expected to have a great effect on potential archeological resources since the only known site is believed to be destroyed. If an archeological site would be uncovered during site construction, the SHPO would be contacted immediately. Construction activities would cease until a survey of the site could be performed. Continuation of construction activities would proceed under SHPO direction. Unearthing of any sites is not expected since the majority of site activities would involve filling operations and not excavation.

4.4.1.4 Alternative Number 3 - Marrero Land Company

There are no sites or properties either listed on or which have been determined eligible for listing on the National Register of Historic Places in the vicinity of the MLC1 site or the surrounding area (letter contact with SHPO, Appendix E), and there are no known archeological resources on or in the surrounding area. Utilizing the MLC1 site should not affect historical or archeological resources. If an archeological site would be uncovered during site construction, the SHPO would be contacted immediately. Construction activities would cease until a survey of the site could be performed. Continuation of construction activities would proceed under SHPO direction. Unearthing of any sites is not expected since the majority of site activities would involve filling operations and not excavation.

4.4.1.5 Alternative Number 4 - Landco

There are no sites or properties either listed on or which have been determined eligible for listing on the National Register of Historic Places in the vicinity of the Landco site or the surrounding area (letter contact with SHPO, Appendix E), and there are no known archeological resources on or in the surrounding area. Utilizing the Landco site should not affect historical or archeological resources. If an archeological site would be uncovered during site construction, the SHPO would be contacted immediately. Construction activities would cease until a survey of the site could be performed. Continuation of construction activities would proceed under SHPO direction. Unearthing of any sites is not expected since the majority of site activities would involve filling operations and not excavation.

4.4.1.6 Alternative Number 5 - Plaquemines Parish 1

There are no sites or properties either listed on or which have been determined eligible for listing on the National Register of Historic Places in the vicinity of the PP1 site or the surrounding area (letter contact with SHPO, Appendix E), and there are no known archeological resources on or in the surrounding area. Utilizing the PP1 site should not affect historical or archeological resources. If an archeological site would be uncovered during site construction, the SHPO would be contacted immediately. Construction activities would cease until a survey of the site could be performed. Continuation of construction activities would proceed under SHPO direction. Unearthing of any sites is not expected since the majority of site activities would involve filling operations and not excavation.

4.4.1.7 Alternative Number 6 - Bunge Corporation

There are no sites or properties either listed on or which have been determined eligible for listing on the National Register of Historic Places in the vicinity of the Bunge site or the surrounding area (letter contact with SHPO, Appendix E), and there are no known archeological resources on or in the surrounding area. Utilizing the Bunge site should not affect historical or archeological resources. If an archeological site would be uncovered during site construction, the SHPO would be contacted immediately. Construction activities would cease until a survey of the site could be performed. Continuation of construction activities would proceed under SHPO direction. Unearthing of any sites is not expected since the majority of site activities would involve filling operations and not excavation.

4.4.2 NATIVE AMERICAN RESOURCES

4.4.2.1 No Action

The no action alternative would not affect any Native American resources since none are known to exist on the EPP site or any of the other alternative locations. Without project construction, there would be no more or less Native American resources in the area of EPP or the other alternative locations.

4.4.2.2 Alternative Numbers 1, 3, 4, 5, and 6

There are no known Native American resources within the project area. The nearest location of such resources are on the ridge of Bayou des Familles; west of the EPP site.

4.4.2.3 Alternative Number 2 - East Group

There is one known archeological resource that may also be a Native American or cultural resource within the project area. As previously stated, this site was most likely destroyed as a result of the construction of Highway 3134. It is not anticipated that this alternative

would create additional damage.

4.5 LAND USE

4.5.1 GENERAL LAND USE

4.5.1.1 No Action

Without the project, there would be no effect on the general land use of the study area. Based on the growth trends of Jefferson Parish pressure would continue to develop the undeveloped land within the study area.

4.5.1.2 Alternatives

If the proposed golf course and housing development were to be constructed on any of the six proposed alternative site locations, it would be in conformance with the land use of surrounding areas but would alter existing land uses at the sites. Primarily they are wetlands and not actively utilized. The uses of EPP, EG, and MLC sites would fit the long term development plans for the area with the levee system. The Bunge site is not located in a residentially zoned area, however, a proposal could be submitted to convert the site to residential use.

4.5.2 AGRICULTURE

4.5.2.1 No Action

There would be no direct effects on the agricultural potential of the proposed project location. The EPP location does not currently support any commercial agriculture and would be unlikely to support agriculture in the future except perhaps has pasture because of the soil type and moisture conditions. Only alternative 6 location would definitely support agriculture in the future, while the alternative 5 location may support agriculture at some time.

4.5.2.2 Alternative Number 1 - Applicants' Proposed Action

Construction of the proposed housing and golf development would eliminate any future potential of this site for agricultural use. The primary soil associations of the EPP site are not suited to pasture and croplands. Primarily they are suitable for wetlands. Sharkey clay, which occupies approximately 3% of the site, is the only association capable of supporting pasture or cropland. This soil is also suitable for the production of bottomland hardwoods and other woodland species. However, since the site is currently under forced drainage, agricultural production (pasture/cattle) in the future may be possible. The continued draw down of the water table may produce more suitable conditions for agricultural production. The wetland soils are eroding and compacting as a result of the

draw down of the water table. This continued action may lead to more suitable crop producing conditions in the future as the wetland habitat is replaced. If the applicants' proposed action is constructed, this future potential, though small, would not be realized.

4.5.2.3 Alternative Number 2 - East Group

Construction of the proposed housing and golf development on the EG site would eliminate any future potential of this site for agricultural use. The EG location does not currently support any commercial agriculture. However, since the site is currently under forced drainage, agricultural production (pasture/cattle) in the future may be possible. The continued draw down of the water table may produce more suitable conditions for agricultural production in the future. The wetland soils are subsiding and compacting as a result of the draw down of the water table. This continued action may lead to more suitable crop producing conditions in the future as the wetland habitat is replaced. If the development is constructed on the EG site, this future potential, though considered small, would not be realized.

4.5.2.4 Alternative Number 3 - Marrero Land Company

Construction of the proposed housing and golf development on the MLC1 site would eliminate any future potential of this site for agricultural use. The MLC1 location does not currently support any cultivated crop agriculture. There is some pasture on the site that is utilized for cattle production. This pasture would most likely be displaced as a result of utilizing this alternative site for the development. The primary soil associations of this site are not well suited to pasture and croplands. Primarily they are suitable for wetlands. Neither Allemands or Barbary muck are capable of supporting pasture or cropland. Since the site is currently under forced drainage, agricultural production in the form of additional cattle farming or cultivated crops in the future is a possibility. The continued draw down of the water table may produce more suitable conditions for agricultural production in the future. If the development is constructed on the MLC1 site, this future potential, although slight, would not be realized.

4.5.2.5 Alternative Number 4 - Landco

Construction of the proposed housing and golf development on the Landco site would eliminate any future potential of this site for agricultural use. The Landco site does not currently support any cultivated crop or pasture supported agriculture. The primary soil associations of this site are not well suited to pasture and croplands. Primarily they are suitable for wetlands. The organic mucks are not capable of supporting pasture or cropland. There is a potential for future agriculture production if this site is incorporated into a forced drainage system. If the development is constructed on the Landco site in its current condition, this future potential would most likely not exist and thus, not be impacted.

4.5.2.6 Alternative Number 5 - Plaquemines Parish 1

Construction of the proposed housing and golf development on the PP1 site would eliminate any future potential of this site for agricultural use. This site does not currently support any cultivated crop or pasture supported agriculture. The Belle Chasse area of Plaquemines Parish does not have land dedicated to agricultural use. The first sign of agricultural development in the parish consists of citrus groves, which are south of Belle Chasse, near Oakville. It is not anticipated that this alternative site would be utilized for agriculture. However, the soil composition of the site, Westwego clay, Sharkey clay and Harahan clay can support pasture based agricultural activities. Development of this site would most likely eliminate the potential for this site to support future agricultural activities.

4.5.2.7 Alternative Number 6 - Bunge Corporation

Construction of the proposed housing development on the Bunge site would eliminate any future potential of this site for agricultural use. Approximately 70% of the Bunge location currently supports pasture oriented agriculture. The primary soils associations for this site, Commerce silt loam, Sharkey clay, and Sharkey silty clay loam, are well suited to cultivated crops, pasture and variety of other uses. Utilizing the Bunge site for the proposed development would eliminate any present and future potential agricultural production.

4.5.3 NATIONAL/STATE PROTECTED AREAS

4.5.3.1 No Action

The no action alternative would not have any direct effects on National and state protected areas. The visitation of JLNHPP has been increasing, as has the population of the communities of Jean Lafitte and Estelle on the West Bank of Jefferson Parish. In 1994, JLNHPP listed 1,315,274 visitors and in 1995, the park recorded 1,398,324 visitors. Visitation numbers at Jean Lafitte National Park would be expected to increase.

4.5.3.2 Alternative Number 1 - Applicants' Proposed Action

The applicants' proposed action may affect the National and state protected areas. The construction of a quality housing development with quick access to these areas would likely increase visitation and use of these areas above the increases expected under no action conditions.

4.5.3.3 Alternative Number 2 - East Group

The EG alternative may affect National and state protected areas the same as alternative 1. The construction of a quality housing development with quick access to these areas may increase visitation and use of these areas.

4.5.3.4 Alternative Number 3 - Marrero Land Company

The MLC1 alternative may affect the National and state protected areas the same as alternatives 1 and 2. The construction of a quality housing development with quick access to these areas may increase visitation and use of these areas.

4.5.3.5 Alternative Number 4 - Landco

The Landco alternative may affect the National and state protected areas the same as alternatives 1-3. The construction of a quality housing development with readily available access to these areas may increase visitation and use of these areas.

4.5.3.6 Alternative Number 5 - Plaquemines Parish 1

Utilizing this alternative for the proposed development would neither benefit or greatly adversely impact National and state protected areas. Additional visitors to the parks and recreation areas as a result of new neighborhoods in the vicinity of the parks would not occur. Therefore, additional support to the park system would be expected to continue at current levels.

4.5.3.7 Alternative Number 6 - Bunge Corporation

Constructing the proposed development on the Bunge alternative site would neither benefit or adversely impact National and state protected areas. Additional visitors to the parks and recreation areas as a result of new neighborhoods in the vicinity of the parks would not occur. It is anticipated that Bunge residents would be less likely to visit the parks due to the distance of the parks from the development. Therefore, additional support to the park system would be expected to continue at current levels.

4.5.4 RECREATIONAL RESOURCES

4.5.4.1 No Action

The no action alternative would not have any direct effects on local recreational resources. Jefferson Parish would likely attempt to pursue construction of some type of public golf course, but it is not possible to predict that outcome.

4.5.4.2 Alternative Numbers 1, 2, 3, and 4

The applicants' proposed action and three other Jefferson Parish alternatives should have an effect on local recreational resources. The construction of a quality housing development with quick access to recreational areas would increase utilization of these areas. Local recreational resources, such as canoeing and fishing are plentiful in the Lafitte area and use of these resources would be expected to increase. The provision of the PGA caliber golf course would help meet the golfing demand of Jefferson Parish, and

the West Bank CMA.

4.5.4.3 Alternative Number 5 - Plaquemines Parish 1

Utilizing this alternative for the proposed development would neither benefit or adversely impact recreational areas. Additional visitors to recreation areas in Jefferson Parish as a result of new neighborhoods in the vicinity of the parks would not occur. However, there might be additional visitors to the highly overcrowded Plaquemines Parish facilities. Development of a PGA caliber golf course at this location is not anticipated to relieve much of the burden on local parks. Golf facilities are not currently offered by any of the parks and a public golf course in Belle Chasse, Bayou Barriere, is under-utilized. The golf facility would, however, supply a portion of the New Orleans MSA golf demand that is currently not met by existing facilities.

4.5.4.4 Alternative Number 6 - Bunge Corporation

Constructing the proposed development on the Bunge alternative site would neither benefit or adversely impact recreational areas. Additional visitors to the parks and recreation areas in Jefferson Parish as a result of new neighborhoods in the vicinity of the parks would likely not occur. The increase in travel distance from the Bunge site to the National and state parks would create a less convenient situation than that of the Jefferson Parish alternatives for increased park visitation. However, there would likely be increased visitation to existing recreation areas in St. Charles Parish. There would be no golf facility constructed on this site, thus, the projected demand for golf in the West Bank CMA would not be met.

4.6 ECONOMIC AND SOCIAL RESOURCES

4.6.1 DEMOGRAPHICS AND HOUSING DEMAND

4.6.1.1 No Action

The no action alternative would have some impact on the current demographics of the region. The Estelle and Lafitte areas of Jefferson Parish are experiencing high rates of growth in population and housing starts. Neither community is large enough to support large, continued increases in population. Additional housing for the increasing population on the West Bank would be necessary. Selecting the no action alternative would result in no large scale quality housing developments on the West Bank. Scattered open parcels of land throughout the West Bank would be utilized for housing and older housing would need to be renovated. West Bank residents with a preference to remain on the West Bank may have to select alternative locations in which to find quality housing.

4.6.1.2 Alternative Number 1 - Applicants' Proposed Action

The applicants' proposed action is to develop a housing and golf development between

the two fastest growing regions in Jefferson Parish; Estelle and Lafitte (GCR,1991). The development would fulfill the increasing demand for housing in this area and supply most of the housing needs of the upper middle to high income West Bank population. The larger lot sizes and natural setting of EPP, along with the golf facilities, would attract people, primarily under the age of 65, who desire a high quality of life. It would help meet the demand for this type of housing in the West Bank CMA (Lessor, 1994). These people would continue the growth trend of the Estelle region and Jefferson Parish.

The EPP property would increase the total number of households on the West Bank of Jefferson Parish by 748. The total number of housing units would increase as well as the number of owner occupied units of Jefferson Parish. According to the 1994 Robert Charles Lessor and Company Report, the estimated annual potential demand for homes in the price range of EPP in the West Bank CMA is 350 units. While the Corps believes this figure may be high, the EPP development would have the potential to capture 76 units of the demand per year.

The applicants' sales projections reflect a relatively uniform rate of absorption. Recent similar developments have generally demonstrated a pattern characterized by very substantial sales in the first several years of development, followed by a gradual absorption of remaining lots. This pattern raises the difficulty for other builders to initiate a large competitive property in the immediate vicinity of a nascent development of this type. This effect would likely be exacerbated by the permit process, as any other wetland owners would need to demonstrate an even higher level of need to justify issuance of a permit to build a competitor to EPP.

There is a possible adverse public impact in terms of market prices from the emergence of a dominant local market seller. However, the potential effect on lot prices of a dominant local seller would likely be somewhat tempered by the emergence of alternatives elsewhere in the metropolitan area. Buyers in the New Orleans market have in the past demonstrated a willingness to travel considerable distances to purchase golf-course housing. Consequently market pressures would likely keep EPP from raising prices excessively.

4.6.1.3 Alternative Number 2 - East Group

If the development relocated to the EG site, it would still be located between the two fastest growing regions in Jefferson Parish; Estelle and Lafitte. Thus, Section 4.6.1.2 describes the impacts.

4.6.1.4 Alternative Number 3 - Marrero Land Company

If the proposed action occurred on the MLC1 site it would be close to the city of Marrero. In this area, impacts would be the same as those listed in Section 4.6.1.2.

4.6.1.5 Alternative Number 4 - Landco

Placing the proposed action on the Landco site would create a new subdivision near the city of Marrero. Thus, the impacts would be the same as those in Section 4.6.1.2.

4.6.1.6 Alternative Number 5 - Plaquemines Parish 1

Relocating the proposed action to the PP1 site would increase the total number of households in Plaquemines Parish. The total number of housing units would increase as well as the number of owner occupied units of Plaquemines Parish. This site may help meet the demand for this type of housing for the West Bank CMA. However, the quality of life achievable at this location is anticipated to be less than that of the Jefferson Parish alternatives. This is due to relocating the proposed action to a parish that does not have the infrastructure to support it and the lack of National and state park facilities in the vicinity of the development.

4.6.1.7 Alternative Number 6 - Bunge Corporation

Relocating the proposed action to the Bunge site would increase the total number of households in St. Charles Parish. The total number of housing units would increase as well as the number of owner occupied units of St. Charles Parish. This site may help meet the demand for this type of housing for the West Bank CMA. However, St. Charles Parish does not have the available infrastructure to support a large development at this time. In order to supply the demand for housing for the New Orleans MSA, St. Charles Parish would have to provide extensive drainage and levee systems, water and sewerage treatment, health services, and other facilities. Also, the quality of life achievable at this location is anticipated to be less than that of the Jefferson Parish alternatives. This is due to relocating the proposed action to a parish that does not have National and state park facilities in the vicinity of the development.

4.6.2 ECONOMICS

4.6.2.1 EMPLOYMENT

4.6.2.1.1 No Action

The trend of 40 percent of all population growth in the New Orleans MSA occurring on the West Bank of Jefferson Parish (Lessor, 1994) is expected to continue through 1998, primarily due to the lack of land for new housing in other areas. Without a large development, the rise in employment may not yield the projected number of additional residents for the parish, and may reduce the potential for increases in sales, ad valorem, and property taxes. No action would not provide the jobs anticipated to be generated by the housing and golf development.

4.6.2.1.2 Alternative Number 1 - Applicants' Proposed Action

By establishing the applicants' proposed action on the EPP site, additional jobs would be provided for new residents, and residents coming into the parish to take new jobs would have housing available. The development would be anticipated to yield property taxes in the neighborhood of $125,000 in its first year and increasing to $1,231,000 annually within ten years. It would increase short term employment and provide permanent jobs at the golf facility. Direct short term (two years) and long term jobs provided by the facility might be estimated at 75 to 80 and 35 to 40, respectively.

The overall economy of Jefferson Parish would benefit from the applicants' proposed action. Additional housing is needed in Jefferson Parish to support increases in population and new job opportunities. The infrastructure is present to support additional growth, which increases the benefits to Jefferson Parish. The parish would increase their property, sales, and ad valorem tax base with the new subdivision. Revenues from the golf facility may fuel new growth and create new opportunities in the parish. Revenues generated by the project minus increased infrastructure costs is projected to be $11,000,000 over its first ten years, and $2,000,000 per year thereafter. The golf course would also provide jobs for the West Bank community. Location of the golf facility at this location may assure operation of a course which can generate revenue for Jefferson Parish. This would generate revenue to be expended on other recreational activities. The area north of Lafitte on the West Bank of Jefferson Parish provides the potential for heavy residential and some commercial development. The EPP proposed development lies within this area. The development of a housing and golf facility at EPP may spur additional secondary growth to provide services for the communities in this region.

4.6.2.1.3 Alternative Number 2 - East Group

By establishing the development on the EG site, the benefits achieved under Section 4.6.2.1.2 would also be received. However, the location of a golf facility at this alternative site could generate less revenue due to property acquisition costs. It would take nine years for the golf course to generate revenues for Jefferson Parish. This alternative would generate approximately $3,300,000 less revenue than the EPP site for Jefferson Parish in its first ten years of operation and $350,000 less revenue every year thereafter (Table 2.3). These reductions could be eased if EPP could less its property and donate land for the golf course to Jefferson Parish as planned under the proposed action.

4.6.2.1.4 Alternative Number 3 - Marrero Land Company

By constructing the proposed development on the MLC1 site, the benefits would be the same as those stated under Section 4.6.2.1.2. However, the location of a golf facility at this alternative site could generate less revenue due to property acquisition costs. It would take nine to ten years for the golf course to generate revenues for Jefferson Parish. This alternative would generate approximately $3,300,000 less revenue than the EPP site for Jefferson Parish in its first ten years of operation and $350,000 less revenue every year

thereafter (Table 2.3). These reductions could be eased if EPP could less its property and donate land for the golf course to Jefferson Parish as planned under the proposed action.

4.6.2.1.5 Alternative Number 4 - Landco

By constructing the proposed development on the Landco site, the benefits would be the same as those stated under Section 4.6.2.1.2. However, the location of a golf facility at this alternative site may generate less revenue due to property acquisition costs. It would take nine to ten years for the golf course to generate revenues for Jefferson Parish. This alternative would generate approximately $3,300,000 less revenue than the EPP site for Jefferson Parish in its first ten years of operation and $350,000 less revenue every year thereafter (Table 2.3). These reductions could be eased if EPP could less its property and donate land for the golf course to Jefferson Parish as planned under the proposed action.

4.6.2.1.6 Alternative Number 5 - Plaquemines Parish 1

Plaquemines Parish, in the vicinity of Belle Chasse, has available land on which to expand to serve a portion of the growing needs of the New Orleans MSA. Due to the natural orientation of the parish, development south of Belle Chasse would be linear and at a maximum, have one mile on either side of the Mississippi River to utilize. Linear development can not be supported by the existing and/or planned infrastructure. Employment in Plaquemines Parish would benefit from constructing the proposed action on the PP1 site. The development moratorium in Plaquemines Parish was lifted on March 28, 1996 for all development except industrial development. Revenue for Plaquemines parish would increase, as would property, sales and ad valorem taxes (estimated at $6,860,000 within the first ten years). Relocating the proposed action to this location would not meet the need established by the applicants. As a co-applicant, Jefferson Parish would not receive the full tax and employment benefits from a facility constructed in another parish. Instead, Plaquemines Parish would receive many of these benefits. The long term employment opportunities to be generated by the golf facility would most likely be given to residents of Plaquemines Parish rather than Jefferson Parish. In addition, the location of golf facility at this alternative site may produce a facility which generates substantially lesser revenue for Jefferson Parish due to property acquisition costs and revenue sharing with Plaquemines Parish. It would take ten years for the golf course to generate revenues for Jefferson Parish. This alternative would generate $4,000,000 less revenue than the EPP site in its first ten years of operation and $390,000 less revenue every year thereafter (Table 2.3). $1,231,000 of the estimated revenue generated would not go to Jefferson Parish. These reductions could be eased if EPP could less its property and donate land for the golf course to Jefferson Parish as planned under the proposed action.

4.6.2.1.7 Alternative Number 6 - Bunge Corporation

If the proposed action were relocated to the Bunge site, St. Charles Parish would receive most of the employment benefits shown for the EPP site, if the development occurred

there.
Revenue for the Parish would increase, as would property, sales and ad valorem taxes. Relocating the proposed action to this location would not meet the need established by the applicants. As a co-applicant, Jefferson Parish would not achieve their goal and need for public golf course recreation, since the Bunge site is not of sufficient size to support both a housing and golf development. This alternative would generate $4,700,000 less revenue in its first ten years of operation than the EPP site and $770,000 less revenue every year thereafter (Table 2.3) with Jefferson Parish receiving none of the revenues generated.

4.6.3 VISUAL AND AESTHETIC RESOURCES

4.6.3.1 No Action

The no action alternative would not affect the visual and aesthetic resources of the region. Taking no action would prevent the loss of forested and marshland wetland habitat present in the study area due to construction. The habitat is expected to continue to degrade; decreasing its aesthetic value. No action would not affect the Bayou aux Carpes natural area (this area is under Federal protection and can not be affected by dredge or fill activities) or the aesthetic resources of JLNHPP.

4.6.3.2 Alternative Numbers 1, 2, 3, and 4

The applicants' proposed action and the other Jefferson Parish alternatives would not affect the visual or aesthetic qualities of the JLNHPP or the Bayou aux Carpes area. The Bayou aux Carpes area is under Federal protection and can not be affected by dredge or fill activities. Construction of the project on the EPP, EG, MLC1, and Landco sites would not impact any state scenic streams. Construction activities would be of sufficient distance from these areas to have no effect on their resources. The visual and aesthetic resources of the EG, EPP, MLC1, and Landco sites would be diminished by their development. Some natural areas would remain within proposed retention ponds (Figure 2.6) and be incorporated into the golf course and many of the trees would remain on individual lots. However, much of the wetland habitat would be broken up or eliminated and would not retain its current aesthetic value.

4.6.3.3 Alternative Number 5 - Plaquemines Parish 1

The visual and aesthetic resources of this bottomland hardwood and wooded environment would be diminished by the selection of this alternative. PP1 currently supports a drained bottomland hardwood wooded habitat, the aesthetic value of which can only be completely appreciated by the landowners. Construction of the proposed development would eliminate most of the aesthetic value of this location. The PP1 site is miles away from the project area scenic streams and the Bayou aux Carpes 404(c) area. Thus, there would be no impact on the value of those areas if this alternative site were selected.

4.6.3.4 Alternative Number 6 - Bunge Corporation

Selection of the Bunge site would not affect any of the visual and aesthetic resources of the study area. This alternative is not located in the vicinity of either state scenic stream (Bayou LaBranche and Bayou Trepagnier) or the Bayou aux Carpes 404(c) area. The Bunge site currently supports active pasture and some wetlands. The wetland area is on the southern property line and barely visible from the highway. Little visual or aesthetic value is currently derived from this site. Construction of the proposed development would not enhance or remove aesthetic value.

4.6.4 INFRASTRUCTURE

4.6.4.1 PUBLIC HEALTH

4.6.4.1.1 No Action

The public health resources of Jefferson Parish would not be affected with or without the applicants' proposed action. The medical, sewage treatment, and other public health related facilities are capable of sustaining additional parish growth.

4.6.4.1.2 Alternative Numbers 1, 2, 3, and 4

The public health resources of Jefferson Parish would not be affected by the construction and operation of the applicants' proposed action or the relocation of the proposed action to any of the other three alternative sites in Jefferson Parish. The medical, mosquito and rodent control programs, and sewage treatment facilities are capable of sustaining projected parish growth.

4.6.4.1.3 Alternative Number 5 - Plaquemines Parish 1

Some of the public health resources of Plaquemines Parish would be impacted by moving the proposed development to the PP1 site. Water treatment and mosquito and rodent control programs are prepared to handle additional parish growth. However, Plaquemines Parish does not have a primary care facility. There are no public hospitals to serve the residents of Plaquemines Parish. Injured residents have limited options. They may see a local doctor with a staff of nurses located in Point a la Hache, almost an hour's drive from Belle Chasse. These people generally recommend and authorize that patients be sent to Jefferson Parish hospitals for treatment. Extreme cases are routed by helicopter, all others must make the drive. The additional growth expected with the construction of the proposed development would strain the limited health care resources of the parish.

4.6.4.1.4 Alternative Number 6 - Bunge Corporation

Some of the public health resources of St. Charles Parish would be greatly impacted by relocating the proposed development to the Bunge site. Mosquito and rodent control

programs are prepared to handle additional parish growth. However, the estimated 2,000 people of the proposed development would affect the 50 bed parish hospital, which is located in Luling. The St. Charles General Hospital, a small non-full service hospital, would not be able to service the people of the proposed alternative site. The people of the community would have to look else where for complete medical treatment, and the closest full service hospital is West Jefferson General Hospital, which is located in Jefferson Parish, approximately 30 minutes east of the Bunge site.

4.6.4.2 DRAINAGE, SEWAGE, WATER AVAILABILITY, TRAFFIC, SCHOOLS

4.6.4.2.1 No Action

With the no action alternative in Jefferson Parish, drainage would be improved with the implementation of planned drainage projects, which include improving the existing canals in the Estelle Drainage Basin, the old Estelle Pump Station, and building a new Estelle Pump Station. These improvements would provide drainage for existing developments, regardless of any new development. Existing sewerage systems would not be affected. There would be no impact on the water availability in the West Bank of Jefferson Parish if the housing development is not built. Not providing the proposed action would not affect existing school capacities on the West Bank of Jefferson Parish, which currently have excess capacity. Traffic situations on the West Bank of Jefferson Parish would remain as they are without the subdivision and golf development. Planned roadway improvements may improve traffic conditions in several areas surrounding the site of the proposed action.

4.6.4.2.2 Alternative Number 1 - Applicants' Proposed Action

The EPP site should have adequate drainage due to planned, funded drainage improvements in the immediate vicinity of the property. An increase in stormwater run-off during a ten year storm event has been calculated at a peak flow of 952 cubic feet per second CFS. However, the conceptual plan for the proposed action contains several stormwater retention ponds, which would be designed to minimize any increases in stormwater run-off due to construction of this project. The removal of project area as a stormwater retention basin for the Estelle Drainage Basin, should be partially compensated by the additional capacity of the new Estelle Pump Station (a total of 1650 CFS would be available when the new station is complete) with additional upgrades in capacity readily attainable if necessary. It can be conservatively assumed that the 1.1 million cubic yards of fill to be placed over the EPP site would eliminate the same volume of 100 year flood storage capacity. Based upon the flooded area (3,200 acres) shown in Figure 3.13, this could cause an increase in flood elevations roughly of 2.5 inches over the entire area with the primary impact being on the Woodmere and Woodmere South Subdivisions. All other properties which would be flooded are currently undeveloped. Again this is a conservative assumption since the new Estelle Pump Station should reduce the flooding shown in these subdivisions from levels indicated on Figure 3.13.

If the proposed action occurred on the West Bank of Jefferson Parish, the existing sewage facility would not be affected. There would be an increase in sewage production of approximately 0.2 mgd. The current available sewage system should be available to handle the increase due to capacity upgrades currently being provided to the Marrero Wastewater Treatment Plant. These increases should be completed within two years. Some alterations of the existing sewage collection system may be necessary. The distance from the site boundary to the nearest major lift station (Pritchard at Lafitte/Larose) is approximately one mile. A force main to this lift station is estimated to cost approximately $40/foot or $208,000. The cost for the associated lift station for the force main may be estimated at a cost of $52,000. A water main to the site would also be necessary at a length of 200 feet and cost of approximately $35.50/foot or $7,000. EPP would be requested by Jefferson Parish to provide funds for these costs. Increases in infrastructure maintenance may also occur due to this project. Normal sewer line and water line maintenance costs are covered by the user fees charged for these services. Anticipated increases in maintenance costs may be due to road repairs and rehabilitation of sewer lines due to settlement. A conservative assumption that all roads within the development must be overlaid with new asphalt within ten years would generate a ten year maintenance cost of $363,000. Likewise rehabilitation of sewer lines based on the current Parish average expenditure of $330 per mile of sewer line ($3,000,000 per year for 900 miles of sewer line) would generate $280,000 of infrastructure costs within the first ten years. This conservatively assumes that the new sewer lines need rehabilitation within their first year of construction. As shown in Table 2.3, revenue generated should far exceed anticipated increases in infrastructure costs.

Construction of the proposed action on the EPP site should not affect the availability of water. The approximate 0.2 mgd increase in water demand would not affect the current 20 mgd excess water production capacity on West Bank of Jefferson Parish. The distance required to hook up to the existing water lines for the EPP alternative is approximately 200 feet across Highway 3134.

Traffic increases in the amount of 1646 daily car trips in and out of the development, (four trips per household and two trips for 150 golfers) would occur if the proposed action was constructed on the EPP site. The main areas of roadway impacts would be the Mississippi River bridges and Barataria Boulevard. Highway 3134 would be able to handle the increased traffic due to its current low level of utilization. Traffic crossing the Mississippi River would be little affected by a new housing development on the EPP property, since the new bridge improvements have greatly increased the vehicular capacity per day. The traffic on the bridge would be increased by 1.2%, which is a small amount in terms of traffic projections.

The other major roadway affected is Barataria Boulevard. Barataria's projected traffic count for 1997 is 55,700 vehicles per day by the DOTD's Planning Division. If a housing development was established in Jefferson Parish, there would be a vehicular increase of 3% on Barataria Boulevard. Since this is such a low percentage, no additional traffic problems are predicted for the area. However, this traffic may further degrade the

current low level of service at the Barataria Boulevard and West Bank Expressway Interchange. Planned upgrades listed in Section 3.6.5.5.a of Chapter 3 of this document may relieve some of the potential traffic problems expected.

If the proposed action is developed on EPP, the children of the community would attend Congetta Janet Elementary, Allen Ellender Middle, and Ehret High School. Only one of these three EPP Schools is close to its maximum capacity. The completion of the proposed action would produce 748 housing units with an expected population of approximately 2000 (2.67 persons per household, New Orleans MSA, 1990 Census information). From these statistics, the estimated number of elementary school children would be 160; the estimated number of middle school children would be 154; and the estimated number of high school children would be 150. Since there are 98 extra openings in Congetta Janet Elementary School and 160 new elementary students expected from EPP, there would be an enrollment problem. The middle school, Allen Ellender, has 339 openings for new students, so EPP's 154 middle school children would not cause an enrollment problem. John Ehret High School has 19 openings, but a new school is to be built. Once the new school is open, the 150 high school children of EPP would not have an enrollment problem at Ehret High School.

4.6.4.2.3 Alternative Number 2 - East Group

The EG site would have adequate drainage due to planned, funded drainage improvements in the immediate vicinity of the property. An increase in stormwater run-off during a ten year storm event at peak flow should be similar to the EPP site at 952 CFS. The project at this site should have several stormwater retention ponds, which would be designed to minimize any increases in stormwater run-off due to construction of this project. The removal of project area as a stormwater retention basin for the Estelle Drainage Basin, should be compensated partially by the addition of 1200 CFS of additional capacity at the New Estelle Pump Station (total of 1650 CFS) with additional upgrades in capacity readily attainable if necessary. As with the EPP site it can be conservatively assumed the fill provided at this site may increase 100 year flood elevations. Since the EG site would utilize approximately twice as much fill as the EPP site an increase in 100 year flood elevations may be roughly approximated as 5 inches with the Woodmere and Woodmere South Subdivisions being primarily affected.

Some alterations of the existing sewage collection system may be necessary. The distance from the site boundary to the nearest major lift station (Pritchard at Lafitte/Larose) is approximately two miles. A force main to this lift station would be estimated to cost approximately $40/foot or $424,000. The distance required to hook up to the existing water lines for the EG alternative is approximately 200 feet across Lafitte/Larose Highway. The cost for the associated lift station for the force main may be estimated at a cost of $52,000. A water main to the site would also be necessary at a length of 200 feet and cost of approximately $35.50/foot or $7,000. The EPP would be requested by Jefferson Parish to provide funds for these costs. Increases in infrastructure maintenance may also occur due to this project. Anticipated increases in maintenance costs may be

due to road repairs and rehabilitation of sewer lines due to settlement. Similar to calculations for the EPP site, road maintenance and sewer line rehabilitation costs are estimated at $363,000 and $280,000 respectively for the first ten years. As shown in Table 2.3, revenue generated should far exceed anticipated increases in infrastructure costs. All other effects resulting from the EG location are similar to those listed for the applicants' proposed action in Section 4.6.4.2.2.

4.6.4.2.4 Alternative Number 3 - Marrero Land Company

The MLC1 site would have the same impacts as the applicants' proposed action as listed in Section 4.6.4.2.2., save the following: As with the EPP site it can be conservatively assumed the fill provided at this site may increase 100 year flood elevations. Since the MCL1 site would utilize slightly less fill than the EPP site an increase in 100 year flood elevations may be roughly approximated as 2 inches with the Woodmere and Woodmere South Subdivisions being primarily affected. Some alterations of the existing sewage collection system may be necessary. The distance from the site boundary to the nearest major lift station (Pritchard at Lafitte/Larose) is approximately one half mile. A force main to this lift station would be estimated to cost approximately $40/foot or $110,000. A 2500 foot roadway would have to be provided for site access at an approximate cost of $253,000. The distance required to hook up to the existing water lines for the MLC1 alternative is approximately 1300 feet across the Pipeline Canal to Woodmere North Subdivision. The cost for the associated lift station for the force main may be estimated at a cost of $52,000. The water main to the site is approximated to cost $46,000. EPP would be requested by Jefferson Parish to provide funds for these costs. Increases in infrastructure maintenance may also occur due to this project. Anticipated increases in maintenance costs may be due to road repairs and rehabilitation of sewer lines due to settlement. Similar to calculations for the EPP site road maintenance and sewer line rehabilitation costs are estimated at $363,000 and $280,000 respectively for the first ten years. As shown in Table 2.3, revenue generated should far exceed anticipated increases in infrastructure costs. All other effects resulting from the MLC1 location are similar to those listed for the applicants' proposed action in Section 4.6.4.2.2.

4.6.4.2.5 Alternative Number 4 - Landco

The Landco site would have the same impacts as the applicants' proposed action as listed in Section 4.6.4.2.2., save the following: As with the EPP site it can be conservatively assumed the fill provided at this site may increase 100 year flood elevations. Since the Landco site would utilize slightly more fill than the EPP site an increase in 100 year flood elevations may be roughly approximated as 3 inches with the Woodmere and Woodmere South Subdivisions being primarily affected. Some alterations of the existing sewage collection system may be necessary. The distance from the site boundary to the nearest major lift station (Woodmere) is approximately several hundred feet. A force main to this lift station would be estimated to cost approximately $40/foot or $10,000. A 200 foot roadway would have to be provided to gain site access at an approximate cost of $21,000. The distance required to hook up to the existing water lines for the Landco alternative is

approximately 200 feet across the Cousins Canal to Woodmere North Subdivision. The drainage project for Canal G should provide improved drainage for the Landco area, and other major roadways may be affected (Peters Road and Destrehan Avenue). The cost for the associated lift station for the force main may be estimated at a cost of $52,000. The water main to the site is estimated to cost $7,000. EPP would be requested by Jefferson Parish to provide funds for these costs. Increases in infrastructure maintenance may also occur due to this project. Anticipated increases in maintenance costs may be due to road repairs and rehabilitation of sewer lines due to settlement. Similar to calculations for the EPP site road maintenance and sewer line rehabilitation costs are estimated at $363,000 and $280,000 respectively for the first ten years. As shown in Table 2.3, revenue generated should far exceed anticipated increases in infrastructure costs. All other effects resulting from the Landco location are similar to those listed for the applicants' proposed action in Section 4.6.4.2.2.

4.6.4.2.6 Alternative Number 5 - Plaquemines Parish 1

Although there are drainage improvements occurring in the area of this proposed alternative, it would not satisfy the development's drainage needs. The drainage improvements did not consider future development for the area according to the Director of Drainage for Plaquemines Parish, Mr. Don Kinnear. The south side of Woodland Highway, where the proposed site is located, serves as a ponding area for the parish. If this area is developed, an estimated additional 4000 CFS of pumping capacity is needed for proper drainage to occur.

If the proposed action occurred in Plaquemines Parish, there are no sewage facilities available to serve the PP1 site. A system would have to be designed and constructed for the development or septic tanks for each of the homes would have to be utilized. Provision of this system would be costly (estimated at $500,000) compared to connecting to an existing treatment system. In addition, the discharge from this system, dependent on its location, may have an impact on local surface water bodies such as Planters Canal. Since the water lines run along the proposed property line (at Woodland Highway), water availability would not be a problem. No water lines would have to be added to the proposed area.

The need for drainage improvements and sewage infrastructure is expected to generate a large increase in infrastructure costs which may exceed the revenues generated as shown in Table 2.3. Increases in infrastructure maintenance may also occur due to this project. Anticipated increases in maintenance costs may be due to road repairs and rehabilitation of sewer lines due to settlement. Similar to calculations for the EPP site road maintenance and sewer line rehabilitation costs are estimated at $363,000 and $280,000 respectively for the first ten years. If additional drainage capacity is necessary, the cost to provide this capacity may exceed revenues anticipated to be generated by this project.

The only traffic improvement project in the PP1 area involves upgrading Woodland Highway (LA 406) from 2 to 4 lanes. Since this project is in the long term plans of the

RPC and the DOTD, there are no plans for construction to begin. If the proposed site is developed in Plaquemines Parish, the 1646 estimated traffic trips in and out of the development, would not greatly affect the major surrounding streets. The two major streets, Woodland Highway and Belle Chasse Highway, are well equipped to handle the traffic increase from the proposed development. The 1994 traffic count by the LDOTD was 30,015 vehicles per day close to the Woodland Highway-Belle Chasse Highway intersection. If a housing development was established at the proposed site, there would be a vehicular increase of 5%. Since this is such a low percentage, the traffic generated from the development would not cause traffic problems in the area.

The completion of the proposed action on the PP1 site would produce 748 housing units with an expected population of approximately 2000. From the New Orleans MSA, 1990 Census information the estimated number of elementary school children would be 160; the estimated number of middle school children would be 154; and the estimated number of high school children would be 150. Since there are 292 extra openings at Belle Chasse Primary School (PK-3) and Belle Chasse Elementary (4-5) has 172 openings, there would not be an enrollment problem for the elementary aged children of the proposed community. The middle school, Belle Chasse Middle, has 431 openings for new students, so PP1's estimated 154 middle school children would not have an enrollment problem. Since Belle Chasse High School has 459 openings, the high school aged children of PP1 would also be well served.

4.6.4.2.7 Alternative Number 6 - Bunge Corporation

Since the area in question is elevated compared to its surrounding areas, drainage would not be adversely affected. Sewage treatment facilities would be adversely affected with the selection of this alternative. Sewage generated by a development at the Bunge location would gravity flow to the nearest major lift station, approximately 2500 feet from the property, and be pumped to the Ama WWTP. The five-horse-power lift station would not be able to handle the projected 0.2 mgd increase in sewage production. Likewise, the Ama WWTP is at capacity and would require an increase in capacity in order to treat wastewater generated by a housing development on the Bunge site. Provision of a new sewage treatment plant is estimated to cost $500,000.

Since the West Bank of St. Charles Parish has about a 5 million gallon a day difference between the capacity and water usage, the water demands of the St. Charles Parish alternative site, Bunge, could be satisfied. The nearest available water line is 2500 feet. The cost to connect to this water line is estimated at $89,000.

Increases in infrastructure maintenance may also occur due to this project. Anticipated increases in maintenance costs may be due to road repairs and rehabilitation of sewer lines due to settlement. Similar to calculations for the EPP site, road maintenance and sewer line rehabilitation costs are estimated at $363,000 and $280,000 respectively for the first ten years. As shown in Table 2.3, revenue generated from taxes should exceed anticipated increases in infrastructure costs. All other effects resulting from the Bunge location are

similar to those listed for the applicants' proposed action in Section 4.6.4.2.2.

The closest major street to the Bunge property is Highway 90, and it is approximately 14,500 feet or 2.8 miles away. Access to Highway 90 would be provided by LA 18, which currently has no capacity problems. Since the traffic count for Highway 90 is low in this area, the estimated 1646 trips in and out of the development would have a minimal impact on traffic flow on Highway 90. Since neither the RPC or the state foresees an increase in population surrounding the proposed development site, no roadway improvements in the vicinity of the alternative project site are expected.

There would be four public schools in St. Charles Parish necessary to handle the children that would move into the proposed development if it is constructed on the Bunge site. The 160 elementary school students from the development would be well accommodated at Luling Elementary and Carver Elementary. Between the two schools there are 327 openings for children between the ages of 5 and 9. The estimated number of middle school children is 154, while there are 151 openings this year at E.J. Landry Middle. Since the population of St. Charles grew by 5,187 persons or 12% (the St. Charles Parish Selected Population and Housing Characteristics: 1990 and 1980 document), the middle school may have a slight capacity problem. Since Hahnville High School has 382 openings, the 150 estimated high school children of the new development would not encounter an enrollment problem.

4.7 CUMULATIVE IMPACTS

Cumulative impacts are those impacts that result from the "incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" (40 CFR 1508.7). Such cumulative impacts could be small actions taking place over a period of time, or immediate secondary impacts of a proposed project. The cumulative impacts from the proposed development are presented in this section for all the alternatives.

4.7.1 No Action

Under the no action alternative, Jefferson Parish may not get a golf course or projected revenues from the proposed golf facility. Projected revenues might be anticipated at 20 to 21 million dollars over thirty years. This represents 2 to 3 percent of current property tax revenues. The inability to provide the quality housing to attract and retain Parish residents could affect the economy of the Parish by reducing its property tax, ad valorem tax, and sales tax base. This may be offset to some extent by development in scattered parcels of land, some of which could be wetland.

Within the V-levee, the natural processes of subsidence and compaction, accelerated by drainage have created a situation where former swamp habitat exhibits few characteristics indicative of swamp environments. Thirty years of forced drainage within the levee system has played a large role in degrading the existing quality of habitat. The forested swamp habitat within the levee system is converting and would be expected to convert

to bottomland hardwoods within twenty years due to continued forced drainage. Subsidence, oxidation, and compaction, and reduced periods of standing water have stressed the cypress-tupelo areas in the former swamp. The trees may not survive longer than 20 additional years and are not reproducing in the area. The understory contains bottomland hardwood species such as water oak. The site is expected to continue converting to bottomland hardwood species due to continued pumping. Pumping has resulted in this area having a decreased value to aquatic organisms. Aquatic species primarily exist in drainage canals. Conversion of the area to bottomland hardwoods would still provide valuable habitat to semi-aquatic species.

Construction of the hurricane protection levees, and continued drainage of lands within the levee system has resulted in increased pressure to develop those areas. The Jefferson Parish Sanitary Landfill was recently permitted and would degrade or remove 270 acres of marginal wetlands within the levee system. The EG site previously filed a Section 404 permit to develop this wetland area within the V-levee and although that permit was denied, it indicates the interest to develop the area. With few extensive tracts of non-wetland existing within the levee system and most vacant land outside the levee system (which is high quality wetlands) with no hurricane protection, the pressure to develop the applicants' proposed site and alternative sites would continue. Jefferson Parish predicted the wetland areas within the Estelle V-levee to be low density residential areas in its "Development 2000" Plan.

4.7.2 Alternative 1 Applicants' Proposed Action

Development of the project at the EPP site is projected to generate up to 21 million dollars for Jefferson Parish due to golf course operations over thirty years. This represents a 2 to 3 percent increase in current property tax revenues. The housing development is projected to generate 1.23 million dollars (Table 4.2) of additional property tax revenues within ten years and $31 million over thirty years. Utilization of these funds in addition to $840,000 annually to be spent on salaries at the golf course should generate additional jobs in the parish.

Development on the EPP site would result in a permanent loss of natural resources within the Estelle-V levee area and the loss of a flood retention area that if not offset by addition pumping, could result in higher flood levels in surrounding retention areas. The site would represent approximately 12% of the undeveloped land in this area. Development of the EPP site may diminish the habitat value of wetlands to the north, south, and east of the site by disrupting the contiguous forested habitat available for nesting and foraging. Wildlife would be permanently displaced from the site, possibly stressing adjacent habitats by overpopulation. Overpopulation often results in less healthy wildlife populations and encroachment of human inhabited areas. It is possible that the populations of some wildlife species may reach and exceed the carrying capacity of the JLNHPP's resources.

Development of the EPP site would increase the potential for secondary service industry development and increase pressure to develop wetland tracts surrounding the EPP site.

This would be the largest cumulative impact, due to value of the surrounding wetlands. These habitats would be absorbing the migrating wildlife from the EPP site as well as providing stormwater retention. The development of these properties would remove them from the ability to maintain stormwater retention capacity and to support displaced wildlife populations.

The applicants' sales projections reflect a relatively uniform rate of absorption. Recent similar developments have generally demonstrated a pattern characterized by very substantial sales in the first several years of development, followed by a gradual absorption of remaining lots. This pattern raises the difficulty for other builders to initiate a large competitive property in the immediate vicinity of a nascent development of this type. This effect would likely be exacerbated by the permit process, as any other wetland owners would need to demonstrate an even higher level of need to justify issuance of a permit to build a competitor to Estelle.

There is a possible adverse public impact in terms of market prices from the emergence of a dominant local market seller. However, the potential effect on lot prices of a dominant local seller would likely be somewhat tempered by the emergence of alternatives elsewhere in the metropolitan area. Buyers in the New Orleans market have in the past demonstrated a willingness to travel considerable distances to purchase golf-course housing. Consequently market pressures would likely keep EPP from raising prices excessively.

Planned drainage improvements, including the new Estelle Pump Station have been designed to reduce flood levels for developed areas surrounding the proposed project. Development of the EPP site would represent a small percentage of increased drainage flows to the new pump station. This station should at least partially compensate for the loss of the stormwater retention capabilities of the EPP site and adjacent properties. As indicated under section 4.6.4.2 a conservative estimate of increased 100 year flood elevations of 2.5 inches may be assumed due to this project with the primary impact being on the only surrounding developed properties or the Woodmere and Woodmere South Subdivisions. Further development of areas surrounding the EPP site may require the implementation of the planned future upgrades to the Estelle Pump Station.

Cumulative impacts on surface water quality should be minimal. The 748 homes to be built represent a small percentage of the total homes on the West Bank of Jefferson (2%). Currently, industrial development on the Harvey and Algiers Canals impact water quality conditions in those canals and upper Bayou Barataria. Housing developments contribute urban run-off and the potential for elevated fecal coliform levels. The EPP development is not expected to create the same level of impact as existing residential developments due to the construction of new sewer lines that would not be impacted by inflow and infiltration which results in sewer system overflows. Impacts from run-off from the golf course are also expected to be minimal due to the implementation of best management practices, use of marsh retention ponds, and strict adherence to the State pesticide regulations. Surface water from the EPP site would be pumped to the upper Bayou

TABLE 4.2

ANNUAL PROPERTY TAXES FOR
ESTELLE PLANTATION

Total Home and Lot Price	Homes and Lots Sold Thru 1st Year	Taxes	Homes and Lots Sold Thru 2nd Year	Taxes	Homes and Lots Sold Thru 3rd Year	Taxes	Homes and Lots Sold Thru 4th Year	Taxes
$178,500.00	32	$38,001.89	64	$76,003.78	96	$114,005.66	128	$152,007.55
$216,000.00	24	$38,828.02	48	$77,656.03	72	$116,484.05	96	$155,312.06
$268,500.00	14	$31,083.07	28	$62,166.13	42	$93,249.20	56	$124,332.26
$316,500.00	5	$13,854.86	10	$27,709.71	15	$41,564.57	20	$55,419.42
$363,000.00	1	$3,304.51	2	$6,609.02	3	$317,233.15	4	$13,218.05
TOTAL	76	$125,072.35	152	$250,144.67	228	$682,536.63	304	$500,289.34

Total Home and Lot Price	Homes and Lots Sold Thru 5th Year	Taxes	Homes and Lots Sold Thru 6th Year	Taxes	Homes and Lots Sold Thru 7th Year	Taxes	Homes and Lots Sold Thru 8th Year	Taxes
$178,500.00	160	$190,009.44	192	$228,011.33	224	$266,013.22	256	$304,015.10
$216,000.00	120	$194,140.08	144	$232,968.10	168	$271,796.11	192	$310,624.13
$268,500.00	70	$155,415.33	84	$186,498.40	98	$217,581.46	112	$248,664.53
$316,500.00	25	$69,274.28	30	$83,129.13	35	$96,983.99	40	$110,838.84
$363,000.00	5	$16,522.56	6	$19,827.07	7	$23,131.58	8	$26,436.10
TOTAL	380	$625,361.69	456	$750,434.03	532	$875,506.36	608	$1,000,578.70

Total Home and Lot Price	Homes and Lots Sold Thru 9th Year	Taxes	Homes and Lots Sold Thru 10th Year	Taxes
$178,500.00	288	$342,016.99	315	$374,081.08
$216,000.00	216	$349,452.14	236	$381,808.82
$268,500.00	126	$279,747.59	136	$306,390.22
$316,500.00	45	$124,693.70	49	$135,777.58
$363,000.00	9	$29,740.61	10	$33,045.12
TOTAL	684	$1,125,651.03	746	$1,231,102.82

Total Annual Tax based on $75,000 homestead tax exemption and a millage of $114.74/$1,000 for every $1,000 of appraised value above $75,000

Barataria which is not anticipated to further degrade its current water quality. Secondary development which might be generated due to the EPP site is anticipated to be low density residential development. This development would further increase stormwater runoff and pollutant loadings to Upper Bayou Barataria. However, the total homes anticipated in the area (10 percent of the entire West Bank) are not anticipated to further degrade Bayou Barataria's current water quality.

Impact on infrastructure should be minimal. Currently, the Parish has planned for the eventual development of the V-levee area and the infrastructure should be capable of supporting additional development, beyond that of the EPP site. The EPP alternative only represents 3% of the upgraded available wastewater treatment plant capacity in the area, and 1% of the current excess water supply capacity. The low density residential secondary anticipated for this area should not exceed these capacities. The EPP alternative may push surrounding schools nearer to capacity. Thus, secondary development may result in the need for additional educational facilities. The EPP site is only anticipated to increase traffic flows by 1.2% on current Mississippi River bridges. Additional development and increased traffic would adversely impact traffic flow on bridges and streets in the immediate area, many of which are currently at capacity. The interchange between Barataria Boulevard and the West Bank Expressway would most likely see a further degradation in level of service. Implementation of planned street upgrades should reduce the adverse impacts to traffic flow.

4.7.3 Alternative Numbers 2, 3, and 4

Utilizing the EG, MLC1, or Landco property for the proposed development would result in cumulative impacts similar to those of the applicants' proposed action listed in Section 4.7.2. The primary difference is that the Parish may generate only 14 million dollars of revenue over thirty years from golf facility operations, due to land acquisition costs. In addition, the golf course would not generate revenues for its first nine years of operation making it a highly speculative venture. Also, the EG, MLC1, and Landco properties would have different estimated impacts on 100 year flood elevations, potentially causing increases of 5, 2, and 3 inches, respectively.

4.7.4 Alternative Number 5 - Plaquemines Parish 1

In terms of impact to Jefferson Parish, the co-Applicant, utilizing the PP1 property for the proposed development would not fully supply Jefferson Parish's recreational and economic needs since the property is in Plaquemines Parish. Concessions to Plaquemines Parish would increase the cost or reduce the return on a golf course development at PP1. The net result could be the development of a recreational facility at a cost to Jefferson Parish tax payers that would be less convenient for them to use. Jefferson Parish would lose the ability to retain and expand its existing sales, ad valorem, and property tax base by providing a high quality subdivision on the West Bank of Jefferson Parish. However, the site may fulfill a middle to high income housing demand for the New Orleans MSA.

Employment generated from the construction of the development and the future operation of the golf course in addition to the revenues produced would be an economic boost to Plaquemines Parish. Economic benefits similar to those described in Section 4.7.2 would be obtained, which is not the purpose or intended goal of the applicants' proposed action. However, existing infrastructure of Plaquemines Parish would be taxed if the development occurred on this site. The Parish issued a moratorium against residential development in the Belle Chasse area (the PP1 site is located in Belle Chasse) due to the lack of Parish funds to provide infrastructure to other portions of the Parish. Even after the moratorium is lifted, Plaquemines Parish may not have the funds available to connect the PP1 site with the necessary resources to support development. The results of which could be lack of police protection, health services, and possible improper treatment and discharge of sewage, which would then impact local water quality.

The area of wetlands to be impacted at the PP1 are considered to be of higher quality than those of the EPP site, due to the lack of high volume forced drainage and an all encompassing levee system. The habitat value of this property would be impacted by the removal of wetland habitat. The loss of contiguous habitat would cause the permanent displacement of some species while other may stress the adjacent habitats by migrating causing overpopulation. Development of the PP1 site would increase the potential for secondary development and increase pressure to develop wetlands tracts near the PP1 site. However, secondary development in this area is likely to be limited due to the lack of infrastructure to support the proposed development, much less additional development.

The development would impact local water quality. Urban run-off characteristics and impacts can be expected to be similar to those of the Jefferson Parish alternatives, save the potential for inadequately treated sewage from lack of existing treatment facilities. Additionally, the loss of the stormwater retention capacity of this property could cause adjacent developed areas to flood. The PP1 site is utilized by the Parish to hold stormwater that is in excess of what the drainage system is designed to handle. In order to provide adequate drainage, the Parish estimates that an additional 4000 CFS of pumping capacity would have to be added to the area. The cost of providing this volume of additional capacity would impact Parish operating revenues. Such a situation may cause not only the residents of the development to flood, but also the golf course and surrounding developments. If the golf course, being the lowest elevation, becomes the temporary retention basin for flood waters, the Parish would have to spend additional funds to maintain the course and would lose revenues due to the loss of play-time when the course is flooded.

4.7.5 Alternative Number 6 - Bunge Corporation

In terms of impact to Jefferson Parish, utilizing the Bunge property for the proposed development would not supply Jefferson Parish's recreational and economic needs since the property is in St. Charles Parish. The Bunge site is not of sufficient size to support a golf facility and the full housing development, thus, no recreational opportunities for Jefferson Parish residents would be developed by selecting this site and it would not

provide the anticipated number and quality of new residences. It would not cause Jefferson Parish to retain and expand its existing sales, ad valorem, and property tax base by providing a high quality subdivision on the West Bank of Jefferson Parish. Revenues, from the golf facility would not be obtained. However, the site could fulfill a middle to high income housing demand for the New Orleans MSA.

Long term employment generated by golf course operations would not be obtained. Employment generated from the construction of the development and the anticipated property tax revenues would occur in St. Charles Parish, which is not the purpose or intended goal of the applicants' proposed action.

This area of St. Charles Parish does not have all the necessary infrastructure to support the proposed action, therefore creating a situation where residents may have difficulty obtaining Parish services. Lack of adequate sewerage facilities may be difficult and/or expensive to obtain. Discharge of treated sewage from a new location would impact surrounding surface water quality. About 100,000 gallons a day of sewerage would be anticipated to be discharged, presumably to the Mississippi River. There would be little cumulative impact on stormwater retention as a result of this alternative because the majority of the site is above sea level and does not currently retain stormwater. With proper drainage improvements, development of this site should not cause adjacent areas to flood.

As previously stated, the natural resources of this site would be impacted by constructing housing on the property. The loss of wetland habitat would cause the migration of wildlife southward to other wetlands. These wetlands may become stressed by the increased wildlife populations. These populations may exceed the carrying capacity of the wetlands over time, resulting in lower quality habitat and less healthy animals.

Pressure to develop land in this area is minimal and may be hindered by lack of infrastructure. However, secondary development could still occur as a result of a new housing development. It is unlikely that adjacent wetland habitats would be utilized for such development, as there is vacant agricultural property in the vicinity of this site that could absorb secondary development.

4.8 POTENTIAL MITIGATION MEASURES

Construction of the proposed action on the EPP site, as well as all the alternative sites, would result in the loss of wetland habitat; bottomland hardwoods and fresh marsh. Due to the unavoidable loss of habitat, mitigation would be required. Essentially, mitigation is achieved first by avoiding the impact; second, by minimizing or rectifying the impact; and third, by compensating for the impact. Compensation for unavoidable impacts requires replacing or providing substitute resources or habitats for the lost/impacted resources or habitats. The applicants are required to provide for this compensation. A detailed mitigation plan would be developed during the 404(b)(1) and public interest reviews. It would not be proper for the Corps the require the applicant to develop a

detailed mitigation plan for the site if another site or no site would be permitted.

To determine the value of the habitat to be impacted, the WVA mathematical modelling was utilized to determine the AAHUs of each habitat that would be lost due to the construction of the proposed action. Appendix I contains the output of the analysis and explains the methodology behind the assessment.

According to the WVA for the EPP property, 292 acres of bottomland hardwood habitat and 362 acres of marsh habitat would be permanently destroyed as a result of the construction of the proposed action. This translates into a loss of 145 AAHUs of bottomland hardwoods and 158 AAHUs of marsh.

Mitigation options would have to replace this number of AAHUs to achieve full mitigation. This can be accomplished through replacing the impacted habitat with habitat in another location, enhancing or improving the quality or health of a habitat at another location, minimizing expected impacts of the proposed action, and other options.

Following, are potential opportunities that may be utilized by the EPP to mitigate for unavoidable impacts. The listed mitigation options could be used in combination with one another and are not limited to those presented below. A formal mitigation plan would be developed in coordination with the public interest review to be performed by the Corps's Regulatory Division to address all impacts resulting from the construction of this proposed project. The purpose for addressing mitigation in this NEPA document is to demonstrate that mitigation is an important aspect of the proposed development and is being considered prior to the public interest review.

1. The design and construction methods for the proposed golf course and housing development would be altered to minimize impact at the EPP site and to preserve and enhance as much of the existing marsh and BLH as possible. Existing habitat could be incorporated into the planned golf course. The planned use of existing habitat within the golf course could be expanded, particularly for marsh. Impact analysis showed all 362 acres of marsh would be destroyed by the project, but at least 40 acres could be incorporated into the design of the golf course. Most of this acreage could consist of existing maidencane marsh on the east side of the property. Construction techniques could be altered to prevent filling or dredging (for retention ponds) in areas to be preserved. Planting of bottomland hardwoods and/or cypress could be performed in and around retention pond areas to increase the value and function of the habitat. Additional water hazards may be converted to marsh habitat if feasible and constructable. Preservation of any more than parcels of bottomland hardwoods in the ridge along the highway, totaling 50 acres according to the impact analysis, would be problematic because of the subsided condition of most of the site. However, it may be possible to replant additional acreage.

2. The purchase and improvement of habitat on other properties within the Estelle

V-levee. Habitat on these properties could be improved by restoring surface water coverage throughout the growing season and by stand improvement. Surface water coverage could be provided by utilizing the area as a stormwater retention area for the EPP site. Bottomland hardwood species could be planted where dead and dying trees occur.

3. The purchase and "set aside" of other similar habitats for preservation, restoration, or enhancement. Other bottomland hardwood and marsh habitats could be "set aside" for preservation and enhancement to avoid the potential development of these sites in the future. Enhancement could consist of plantings or nuisance tree removal. Restoration could consist of planting pastures with bottomland trees.

4. Replacement of habitat damaged by the creation of borrow areas for the construction of the Westwego to Harvey Hurricane Protection Levee. Upon completion of this Hurricane Protection Levee, wetland habitats damaged to allow for the construction of the levee could be restored. Restoration would include filling of borrow areas with dredge material to elevations acceptable to the Corps, and planting of wetland vegetation.

5. Restoration, enhancement and/or preservation of fresh marsh within and adjacent to the JLNHPP. The National Park Service has identified habitats in the park and in the park protection zone that would benefit from restoration and enhancement. Some of these habitat locations could be restored, enhanced or preserved to provide the required mitigation. This mitigation projects would exceed current management activities at the JLNHPP.

6. Timber stand improvement in Ascension and Lafourche Parishes. This would be the least favorable option since it is not in the study area and would include contributing to an existing location in Ascension Parish selected to provide mitigation for damages at sites such as EPP. Mitigation in this location consists of providing reforestation of previously impacted areas. This potential mitigation scenario would be the least favorable, as it is not within the Barataria Basin and does not consist of similar habitat.

CHAPTER 5

CONSULTATION AND COORDINATION

5.1 PUBLIC INVOLVEMENT AND COMMENTS

Since the completion of EPP's Section 404 permit application on December 29, 1992, consultation and coordination with Federal, state and local agencies and the general public has been ongoing. The Corps issued the public notice announcing the project and requesting public comment on February 1, 1993. Several agencies including the EPA and the USWFS requested the performance of an EIS. Upon review of public comment and the agency requests, the Corps concluded the project could have significant environmental impacts. EPP was informed in July of 1993 of the need to prepare an EIS before the Corps could render a decision on the requested permit.

The Notice of Intent (NOI) to prepare an EIS for the Estelle Plantation Golf Course and Housing Development was published in the Federal Register on December 7, 1993. Notification of a public scoping meeting was also made through letters to Federal, state, and local agencies and officials, and interested groups and individuals. The announcement of the scoping meeting for the Estelle Plantation Golf Course and Housing Development was distributed to interested parties on December 13, 1993. Verbal and written comments were received through the end of the scoping period, January 24, 1994. A public meeting was held on January 13, 1994 at the Jefferson Parish Public School System Administration Building, 501 Manhattan Boulevard, Harvey, Louisiana, to solicit comments and concerns from the general public on the proposed action. There were 38 people registered at the meeting and approximately 75 people attended the meeting. The Corps presented an overview of the meeting's objectives, agenda, and procedures. Mr. R.H. Bosenberg described the scoping and EIS processes in his opening remarks. Mr. Thomas A. "Tac" Carrere of EPP described the proposed project and answered questions. In addition, to verbal comments, written comments were received during the scoping process. These comments in addition with Corps experience in preparing EIS's were used to determine the scope and direction of studies/analyses to accomplish this FEIS.

Eighty three comments and concerns were gathered during the scoping meeting for the DEIS. In addition, seven letters were received during the scoping comment period. The comments were prioritized during the scoping meeting into categories of high, medium, and low concern and by the EIS sections of Purpose and Need, Alternatives, Affected Environment, and Environmental Consequences. The scoping document prepared by the Corps on March 11, 1994 summarizes these concerns. The major concerns and comments found by the Corps during the scoping process are as following:

* The commenting public is most concerned about the proposed project's direct, secondary, and cumulative impacts on cultural, social, economic, and environmental resources at and in the vicinity of the proposed project site. A comprehensive assessment of several

economic issues, a discussion of the capacity of the existing infrastructure to accommodate the proposed project, and concerns that impacts be mitigated is a matter that has not been fully addressed, but will be before a permit decision is reached.

* The public expects to see a detailed, comprehensive analysis of alternative locations and designs from the perspective that there may be less damaging locations where the project can be constructed with less impact. To meet this expectation the Corps must prepare comprehensive characterizations of alternative sites.

* Regarding purpose and need, the commenting public is more interested in knowing that the Corps used credible information and procedures to verify and document the applicant's assertions about the need for housing and a municipally-operated golf course than they are in economic benefits of the project or the engineering constraints at the proposed site.

Major comments received from the USFWS, EPA, and National Park Service were as follows:

* Several of these agencies indicated the need for an EIS.

* The need for an endangered species survey was expressed for the proposed project site.

* Concern was raised about the proposed project site's impact on JLHNPP and the nearby 404(c) area.

* Several agencies expressed the need for mitigation for the proposed project and possibly for the location of the source of fill for the project.

All of the public and agency comments and concerns from the scoping meeting were addressed in the appropriate sections of the DEIS except full verification of the need for the housing component of the proposed project and a complete description of mitigation. The DEIS was released for public comment on January 11, 1996. A public meeting was held to receive additional comments on February 22, 1996 at the Jefferson Parish Public School System Administration Building. There were 57 comments received during the February 22, 1996 public meeting and 15 letters were received during the comment period. The DEIS was revised according to these comments. A listing of these comments and responses are provided in Section 5.4 of this FEIS.

5.2 ENVIRONMENTAL COMPLIANCE

Table 5.1 identifies all federal, state and local agencies consulted and coordinated with for the successful completion of this EIS. Table 5.2 demonstrates the compliance of the proposed action with applicable federal and state environmental laws.

TABLE 5.1

AGENCY COORDINATION

FEDERAL	STATE	LOCAL
Bureau of Census Environmental Protection Agency Fish and Wildlife Service Geologic Survey Minerals Management Service Natural Resource Conservation Service	Center for Coastal Energy and Environmental Resources Department of Agriculture Cooperative Extension Service Department of Culture, Recreation and Tourism Department of Environmental Quality Water Quality Management Division Water Pollution Control Division Groundwater Protection Division Inactive and Abandon Sites Division Air Quality Compliance Division Department of Natural Resources Coastal Management Division Office of Conservation Department of Transportation and Development Water Resources Section Traffic Division Department of Wildlife and Fisheries Habitat Conservation Division Natural Heritage Program	Jefferson Parish Assessor's Office Department of Drainage Department of Recreation Department of Sewerage Department of Streets Environmental and Development Control Department GIS Department Health Unit Planning Department Public Reference Department Jefferson Parish School Board West Jefferson Levee District Plaquemines Parish Assessor's Office Department of Drainage Department of Planning Department of Recreation Department of Water/PSG Land Office Permits Section Plaquemines Parish School Board St. Charles Parish Assessor's Office Department of Drainage Department of Recreation Department of Sewerage Department of Water Economic and Development Department Health Unit Planning Department St. Charles Parish School Board New Orleans Chamber of Commerce Regional Planning Commission

TABLE 5.2
ENVIRONMENTAL COMPLIANCE/COORDINATION

LEGISLATION	DOCUMENT	LOCATION	STATUS
Archeological and Historic Preservation Act of 1974	EIS		Full Compliance
Bald Eagle Protection Act	USFWS response	Appendix K	Full Compliance
Clean Air Act	EIS		Full Compliance
Clean Water Act 404 (b) Evaluation	State Water Quality Certification	Appendix F	Full Compliance Partial Compliance
Coastal Barrier Resources Act of 1982	EIS		Full Compliance
Coastal Zone Management Act	Consistency Determination	Appendix P	Full Compliance
Endangered Species Act, Section 7 Consultation	USFWS response	Appendix K	Full Compliance
Estuary Protection Act	EIS		Full Compliance
Farmland Protection Policy Act	EIS		Full Compliance
Federal Insecticide, Fungicide and Rodenticide Act	EIS		Full Compliance
Federal Water Project Recreation Act	EIS		Full Compliance
Fish and Wildlife Coordination Act	EIS		Full Compliance
Floodplain Management (Executive Order 11988)			Full Compliance
Food Securities Act of 1985	EIS		Full Compliance
Land and Water Conservation Fund Act	EIS		Full Compliance
Marine Protection, Research and Sanctuaries Act	EIS		Full Compliance
National Environmental Policy Act	EIS		Full Compliance
National Historic Preservation Act	EIS		Full Compliance
Prime and Unique Farmlands, 1980 CEQ Memorandum	EIS		Full Compliance
Protection & Enhancement of the Cultural Environment (Executive Order 11593)	EIS		Full Compliance Full Compliance
Protection of Wetlands (Executive Order 11990)	EIS		Full Compliance
Resource Conservation and Recovery Act	EIS		Full Compliance
Rivers and Harbors Act	EIS		Full Compliance
Water Resource Development Acts of 1976, 1986 & 1990	EIS		Full Compliance
Wild and Scenic Rivers Act	EIS		Full Compliance
LA Air Control Act	EIS		Full Compliance
LA Archeological Treasury Act of 1974	EIS		Full Compliance
LA State & Local Coastal Resources Management Act,1978	EIS		Full Compliance
LA Scenic Rivers Act	EIS		Full Compliance
LA Protection of Cypress Trees	EIS		Full Compliance
LA Water Control Act	EIS		Full Compliance

5.3 FINAL STATEMENT RECIPIENTS

Copies of the FEIS were mailed to all U. S. Senators and Congressmen representing Louisiana, Federal and state agencies, state and local officials, and interested groups and individuals for their review and comment. Copies were also furnished to some local libraries. A complete listing of all those mailed a copy of the FEIS are as follows:

LIST OF FINAL STATEMENT AND NOTICE OF AVAILABILITY RECIPIENTS

AGENCIES

U. S. Advisory Council on Historic Preservation/Executive Director

U. S. Advisory Council on Historic Preservation/Golden Colorado

U. S. Coast Guard/8th District

U. S. Department of Agriculture/Natural Resource Conservation Service/National Environmental Coordinator

U. S. Department of Agriculture/Natural Resource Conservation Service
State Conservationist

U. S. Department of Agriculture/Natural Resource Conservation Service
Crescent Region

U. S. Department of Commerce/Washington, D.C.

U. S. Department of Housing and Urban Development

U. S. Department of the Interior/National Park Service
Jean Lafitte National and Historic Park and Preserve

U. S. Department of the Interior/Office of Environmental Policy and Compliance

U. S. Environmental Protection Agency/Office of Federal Activities, Washington, D.C.

U. S. Environmental Protection Agency/Federal Activities Branch Region VI, Dallas, Texas

U. S. Minerals Management Service/Gulf of Mexico OCS Region

Federal Emergency Management Administration/Dentan, Texas

U. S. Fish and Wildlife Service/Lafayette, Louisiana

U. S. Department of Energy/Office of Environmental Compliance

U. S. Bureau of Mines/Denver, Colorado

U. S. Department of Health and Human Services/Center for Disease Control

Federal Highway Administration/Division Administration

National Marine Fisheries Service/Habitat Conservation Division, Baton Rouge, Louisiana and St. Petersburg, Florida

Louisiana Department of Agriculture and Forestry
Office of Agriculture and Environmental Science

Louisiana Department of Culture, Recreation and Tourism
Office of State Parks

Louisiana Department of Culture, Recreation and Tourism
State Historic Preservation Office

Louisiana Department of Environmental Quality
Office of the Secretary

Louisiana Department of Environmental Quality
Inactive and Abandoned Sites

Louisiana Department of Environmental Quality
Office and Solid and Hazardous Waste

Louisiana Department of Environmental Quality
Office of Water Resources

Louisiana Department of Health and Hospitals
Office of Health Services and Environmental Quality

Louisiana Department of Natural Resources
Coastal Management Division

Louisiana Department of Natural Resources
Louisiana Geological Survey

Louisiana Department of Transportation and Development
Flood Control and Water Management Division

Louisiana Department of Wildlife and Fisheries
Habitat Conservation Division

Louisiana Department of Wildlife and Fisheries
Natural Heritage Division

Louisiana Department of Wildlife and Fisheries
Office of the Secretary

Louisiana Division of Administration
State Land Office and State Planning Office

Louisiana Governor's Office
Coordinator for Coastal Activities

Louisiana State Attorney General's Office
State Lands and Natural Resources Division

Louisiana Mosquito Control Board

Louisiana Board of Commerce & Industry/Research Division

CONGRESSMEN AND ELECTED OFFICIALS
Honorable John B. Breaux

Honorable J. Bennett Johnston

Honorable Cleo Fields

Honorable Jimmy Hayes

Honorable William Jefferson

Honorable Robert L. Livingston

Honorable Jim McCrery

Honorable Billy Tauzin

Honorable M.J. Foster, Jr./Governor

Honorable W. Fox McKeithen/Secretary of State

Honorable Richard Ieyoub/Attorney General

Honorable Bob Odom/Commissioner of Agriculture and Forestry

Senators (State)
Honorable Arthur J. Lentini

Honorable Ken Hollis

Honorable Francis Heitmeier

Honorable Lynn Dean

Honorable Chris J. Ullo

Honorable John Hainkel

Representatives (State)
Honorable Joseph Accardo, Jr.

Honorable John A. Alario, Jr.

Honorable Glen Ansardi

Honorable Shirley Bowler

Honorable Joel Thomas Chaisson, II

Honorable N.J. Damico

Honorable James Donelon, III

Honorable Kyle Mark Green

Honorable Charles Lancaster, Jr.

Honorable Danny Martiny

Honorable Frank J. Patti

Honorable Benny Rousselle

Honorable Steve Scalise

Honorable Joseph F. Toomey

Honorable David Vitter

Honorable Steve J. Windhorst

Jefferson Parish
Honorable Tim Coulon/Parish President

Honorable Aaron Broussard/Council Chairman

Honorable Lloyd Giardina

Jefferson Parish Mayors
Honorable Robert Billiot/Westwego

Honorable Ronnie Harris/Gretna

Honorable Timothy Kerner/Jean Lafitte

Honorable Provino Mosca/Harahan

Honorable Louis Congemi/Kenner

Plaquemines Parish Council
Honorable Clyde Giordana/Parish President

St. Charles Parish Council
Honorable Chris A. Tregre/Parish President

JEFFERSON PARISH DEPARTMENTS
Dr. Mary Curry/Public Works

Ms. Marnie Winter/Department of Environmental and Development Control

Mr. Ed Durabb/Jefferson Parish Planning Department

Mr. John Uhl/Jefferson Parish Coastal Zone Administrator

Mr. Herb Miller/Director of Public Works

Mr. Gerald Sporher/West Jefferson Levee District

UNIVERSITY PERSONS
Tulane University/Tulane Law School

Dr. Oliver Houck

Tulane Environmental Law Clinic/Melanie Reed, Will Ferguson, and Daria Diaz

Louisiana State University/ Dr. Jack R. Van Lopik

LIBRARIES
Coastal Studies Institute

Jefferson Parish Public Library

Louisiana State University

Loyola University Library

New Orleans Public Library

Plaquemines Parish Public Library

St. Charles Parish Public Library

Tulane University

University of New Orleans

BUSINESSES
A1A Engineering

Churchill Farms/Marsh Investment Corporation

East Group Properties

Hattier, Sanford, and Reynoir

Louisiana Land and Exploration Company

Marrero Land Company

Metrovision

The Chamber

West Bank Times Picayune

CONSERVATION AND OTHER GROUPS
Audubon Society - Orleans

Audubon Society - National
Southwestern Regional Office

CLIO Sportsman League

Coalition of Coastal Parishes

Coalition to Restore Coastal Louisiana

Ducks Unlimited Inc.

Environmental Company

Estelle Civic Association

Environmental Defense Fund

League of Women Voters of Louisiana

Louisiana Nature and Science Center

Louisiana Nature Conservancy

Louisiana Wildlife Federation

Lower Mississippi Valley Joint Venture
U. S. Fish and Wildlife Service

National Wildlife Federation

Natural Resources Defence Council

Organization of Louisiana Fishermen

Sierra Club/Delta Chapter/Ms. Linda Delaney and Mr. Harvey Stern
South Louisiana Environment Council

Westbank Sportsmen and Conservation Club

INDIVIDUALS
Mr. Kevin Alfortish

Mr. James Barse

Mr. Peter Guynn

Mr. John Harrington

Mr. W.H. Herke

Mr. Scott Herke

Mr. Arthur Jung

Mr. David Loeb

Mr. Chris LeRouge

Mr. Rene Maggio

Ms. Maureen Mulino

Ms. Kay Radlareer

Mr. Roy Rogge

Mr. Roger Stack

Mr. Steve Steimle

Mr. Craig Taylor

Mr. Joseph Vincent

Ms. Barabara Vincent

Mr. Lawrence Zasler

Ms. Martha Walters

5.4 PUBLIC COMMENTS AND RESPONSES

The following two sections provide a listing of public comments received on the DEIS during the public meeting and during the public comment period, respectively. All comments are provided on the left hand page of this document. Each comment is bracketed and numbered. Comments preceded by "M" indicate meeting comments and "L" indicate comments received by letter. The response to each comment is provided on the right hand pages of this document immediately adjacent to all comments where possible. All responses utilize the same number designation provided for each comment preceded by the letter "R" for response. Blank right hand pages occur when comments occupy more than one left hand page, or left hand pages contain materials such as Appendices provided with written comments. All materials received during the written comment period are provided in this document.

5.4.1 FEBRUARY 22, 1996 PUBLIC HEARING COMMENTS

GOOD EVENING.

I AM KIM SPORT, CHAIRMAN OF THE WESTBANK COUNCIL OF THE CHAMBER, NEW ORLEANS AND THE RIVER REGION. THE WESTBANK COUNCIL REPRESENTS A LARGE GROUP OF DIVERSE BUSINESS INTEREST, BOTH LARGE AND SMALL LOCATED IN WEST JEFFERSON.

M1-1.

MY PURPOSE FOR APPEARING BEFORE YOU IS TO ASK THAT YOU MOVE QUICKLY TO CONCLUDE THE 404 REVIEW PROCESS AND ISSUE A PERMIT ALLOWING THE PROPOSED MUNICIPAL GOLF FACILITY AND RELATED RESIDENTIAL DEVELOPMENT TO FAVORABLY PROCEED TOWARD BECOMING A REALITY.

IT IS OUR UNDERSTANDING THAT THIS PROPOSED DEVELOPMENT IN THE LOWER ESTELLE AREA FALLS WITHIN THE OVERALL JEFFERSON PARISH LAND USE PLAN KNOWN AS "DEVELOPMENT 2000" AND IS FULLY SUPPORTED BY THE PARISH.

M1-2.

WEST JEFFERSON IS THE LAST HORIZON FOR RESIDENTIAL DEVELOPMENT AND ECONOMIC GROWTH IN JEFFERSON PARISH. HOUSING DEMAND AND THE DEMAND FOR PUBLIC RECREATIONAL FAILITIES ARE CONCERNS SHARED BY CHAMBER MEMBERS, CITIZENS AND ELECTED OFFICIALS ALIKE. THIS RARE PUBLIC/PRIVATE PARTNERSHIP WILL YIELD A WIN/WIN SITUATION FOR JEFFERSON PARISH. ENHANCED RECREATIONAL

RM1-1. Comment noted.

RM1-2. Comment noted.

OPPORTUNITIES - INCREASED HOUSING AVAILABILITY - INCREASED TAX REVENUES - ALL POSITIVE OUTCOMES EXPECTED FROM THE COMPLETION OF THIS DEVELOPMENT.

THE WESTBANK COUNCIL OF THE CHAMBER ASKS THAT YOU ISSUE A PERMIT AS EXPEDITIOUSLY AS POSSIBLE ALLOWING THE PROJECT TO PROCEED.

THANK YOU.

GOOD EVENING.

MY NAME IS JOHN J. UHL.

I AM APPEARING HERE IN RESPONSE TO THE NOTICE OF THIS PUBLIC HEARING WHICH SOLICITS COMMENTS ON A PROPOSED GOLF COURSE AND SINGLE FAMILY RESIDENTIAL DEVELOPMENT ON THE WESTBANK OF JEFFERSON PARISH SOUTH OF MARRERO.

I AM THE CURRENT, AND FOR THE LAST 12 YEARS, HAVE BEEN THE ADMINISTRATOR OF THE JEFFERSON PARISH COASTAL ZONE MANAGEMENT PROGRAM.

I AM ALSO THE FORMER CHAIRMAN OF THE JEFFERSON PARISH CITIZENS COASTAL ZONE MANAGEMENT ADVISORY COMMITTEE, A TWENTY-TWO (22) MEMBER GROUP OF INDIVIDUALS FROM VARYING BACKGROUNDS, DISCIPLINES AND INTEREST, INCLUDING ENVIRONMENTAL PROTECTION; NATURE PRESERVATION; BUSINESS AND INDUSTRY; MUNICIPALITIES AND PARISH GOVERNMENT; ELECTED OFFICIALS; SPORT AND COMMERCIAL FISHING; FISH AND SHELLFISH PROCESSORS; AND AGRICULTURE AND FORESTRY.

M2-1.

THIS COMMITTEE, ESTABLISHED BY THE JEFFERSON PARISH COUNCIL IN 1977, WORKED FOR APPROXIMATELY FOUR (4) YEARS IN CRAFTING THE PARISH'S CZM PROGRAM WHICH WAS ADOPTED BY THE COUNCIL AND WAS

SUBSEQUENTLY SUBMITTED TO AND APPROVED BY BOTH THE STATE OF LOUISIANA AND THE FEDERAL GOVERNMENT.

IN ITS DEVELOPMENT OF THE LOCAL PROGRAM TO ADDRESS THE ISSUE OF USES OF AND ACTIVITIES WITHIN THE PARISH, THE COMMITTEE CREATED TWELVE (12) GEOGRAPHIC "MANAGEMENT UNITS", INVENTORIED THE RESOURCES OF EACH UNIT, AND ESTABLISHED MAJOR GOALS FOR THE USES AND MANAGEMENT OF THESE RESOURCES.

THE PROJECT SITE, WHICH IS THE SUBJECT OF THIS PUBLIC HEARING, LIES ENTIRELY WITHIN THE BOUNDARIES OF THE "WESTBANK MANAGEMENT UNIT". THE PROJECT SITE AS WELL AS THE "WESTBANK MANAGEMENT UNIT" ARE AND FOR MANY YEARS HAVE BEEN SITUATED BEHIND EXISTING LEVEES, WITHIN DRAINAGE DISTRICTS ESTABLISHED BY JEFFERSON PARISH, AND UNDER FORCED DRAINAGE BY PUBLIC PUMPING STATIONS.

IN THIS REGARD, THE CONCLUSIONS DRAWN BY THE CITIZENS ADVISORY COMMITTEE, AND INCORPORATED IN JEFFERSON PARISH'S APPROVED COASTAL ZONE MANAGEMENT PROGRAM, WERE THAT, AND I QUOTE:

"MOST OF THIS MANAGEMENT UNIT IS USED FOR RESIDENTIAL, COMMERCIAL AND INDUSTRIAL USES."

RM2-1. This information was added into Chapter 3, Section 3.5.

AND THAT, QUOTE:

"MAJOR GOALS FOR MANAGING THE COASTAL RESOURCES IN THE WESTBANK MANAGEMENT UNIT INCLUDE BUT ARE NOT LIMITED TO, PLANNED RESIDENTIAL, COMMERCIAL AND INDUSTRIAL DEVELOPMENT; IMPROVED TRANSPORTATION CORRIDORS; IMPROVED DRAINAGE AND FLOOD PROTECTION; IMPROVED SEWERAGE TREATMENT FACILITIES AND POLLUTION ABATEMENT..." ETC.

M2-2.

IT IS CLEAR, THEREFORE, THAT THIS PROJECT IS NOT ONLY ENTIRELY CONSISTENT WITH JEFFERSON PARISH'S CZM PROGRAM, BUT SEEKS TO ACCOMPLISH THE STATED MAJOR GOALS WHICH THE PROGRAM SEEKS TO ACCOMPLISH FOR AND IN THE WESTBANK MANAGEMENT UNIT.

FURTHER, THE PROJECT SITE LIES WITHIN A "FASTLAND", AS STATUTORILY DEFINED BY THE STATE'S CZM PROGRAM, AND, AS SUCH, IS ESSENTIALLY EXEMPT FROM REGULATORY PERMITTING UNDER THE STATE'S, AS WELL AS JEFFERSON PARISH'S PROGRAMS.

M2-3.

IN CONCLUSION, AS THE PROPOSED PROJECT IS ENTIRELY CONSISTENT AND IN COMPLIANCE WITH THE STATE AND LOCAL PROGRAMS AND WILL BE OF SIGNIFICANT BENEFIT TO THE CITIZENS OF JEFFERSON

RM2-2. This information was added into Chapter 3, Section 3.5.

RM2-3. Comment noted.

PARISH, THE REQUESTED PERMIT SHOULD BE ISSUED AND I URGE YOU TO DO SO.

THANK YOU.

M3. Barry Kohl - Orleans Audubon Society

M3-1. Mr. Kohl was surprised that copies of Volume II of the DEIS were not available for all members of the Society. Mr. Kohl asks that the applicant pay for printing and suggests that a fee to cover permit costs be part of the application.

M3-2. It appears that the parish and taxpayers will pay $6.3 million for the golf course, $1.5 million for the upgrade of the Estelle pumping station, and $45.6 million for a new pumping station for this and future developments of the remaining 5,232 acre marsh and swamp. Marrero sewage treatment upgrade will cost $3.2 million, and there will be roads utilities and other infrastructure. The developer should not be subsidized by the taxpayers' $56.6 million.

RM3-1. Comment noted.

RM3-2. The following response will demonstrate that the taxpayers of Jefferson Parish are not subsidizing the developer of the proposed EPP project. The quoted figures on infrastructure improvements were from Parish projects recommended in planning documents, some dating back over 14 years ago. These funds were dedicated to each of the quoted projects and would have been expended with or without the currently proposed golf and housing development. Jefferson Parish will be funding the construction of the golf course through the floating of a bond. The type of bond selected is a decision to be made by the Jefferson Parish Council. The 175 acres to be donated for the construction of the golf course will be held as security for the bond. Based on the unserved golf demand in the New Orleans metropolitan area, the Parish would be assuming little risk by creating the golf facility. In addition, Table 2.1 in Chapter 2 of the EIS demonstrates that over ten years the Parish can generate revenues from the golf course in excess of 4.8 million dollars, which is after covering the costs of operation and maintenance.

The 1981 West Bank Master Drainage Study, composed by URS Company for Jefferson Parish, recommended drainage improvements for the West Bank community. An additional pump station for the Estelle drainage basin was recommended in the plan to prepare the area for future development. The upgrade to the Estelle pump station was not recommended in this plan, but was recommended by the Parish Council after acceptance of the Master Drainage Plan. Thus, the 1.5 million dollars spent for the upgrade of the Estelle pump station and the installation of a new pump station (currently under construction) were projects planned as early as 1981, and therefore, the funds for these projects would have been expended by the Parish regardless of current development proposals. This section of the EIS, 3.6.4.2.a, has been amended to reflect current drainage improvements (since the information in the draft is approximately one year old). A major update to note is that the new Estelle pump station, stated in the document as potentially costing 45.5 million dollars, is under construction and has been contracted at 5.5 million dollars.

The upgrades to the Marrero Sewage Treatment Plant have been included in the Jefferson Parish Sewage Capital Improvements Program since 1988, when the Parish closed eleven sewage treatment facilities on the West Bank. At that time, the Parish upgraded the three remaining plants, Marrero, Harvey, and Bridge City. During 1993 and 1994, the Parish expended 3.2 million dollars for upgrades to the Marrero plant in preparation for a 6 mgd upgrade. These dollars were dedicated to the upgrade of the Marrero plant prior to the initial application of the EPP proposed development and as stated in the EIS, this upgrade is more than necessary to handle additional development in the Estelle region.
Anticipated infrastructure costs for project development and infrastructure maintenance and operation costs have been added to Chapter 2 and Section 4.6.4.2 of the EIS and have been summarized in Tables 2.1 and 2.3.

M3-3. The EIS needs additional information on subsidence. Des Allemands soils are poor for development. How much additional subsidence will occur with the weight of the fill on top of the area? What will be the maintenance costs from the subsidence to homeowners and the parish?

RM3-3. The EPP site is located on primarily Allemands Drained Muck. The initial subsidence rate for this soil is 8-25 inches and the total subsidence rate is 16-51 inches, as per the Soil Survey of Jefferson Parish. The EPP site has been pumped for over thirty years resulting in the majority of natural subsidence to have already occurred for this area. Subsidence observed on site was 12 to 36 inches, with an average subsidence of approximately 24 inches experienced or a subsidence rate of roughly 0.5 inches per year since the area has been under pump. Initial subsidence for this site has most likely already occurred (Initial subsidence typically occurs 3 three years after lowering of the water table). Continued subsidence is anticipated to be minimal and gradual with a maximum possible additional subsidence of 0-27 inches. The initial placement of fill may cause additional subsidence due to increased loading of the soil. However, beyond this initial subsidence, the current subsidence rate is not anticipated to increase unless the groundwater table is lowered. Since Jefferson Parish maintains the water level at the nearby Estelle Pump Station at -4.4 to -5.4 NGVD, the groundwater table should be less than 3 feet below the existing ground surface. This should minimize continued subsidence at the site. Jefferson Parish does not plan to operate the Estelle Pump Station at lower water levels.

Any post construction subsidence which does occur will be minimized by construction methods. All roadways within the project boundaries will be preloaded to maximize subsidence prior to construction. Sewer, water, and drain lines will be placed within roadway right-of ways. Proper preloading should reduce roadway and utility maintenance below the normal costs experienced throughout the Jefferson Parish. Construction of homes will utilize piles and pier supported structures or elevated slabs to eliminate settling. Subsidence due to oxidation of underlying soils will be reduced by covering the surface with mineral soils (i.e. sand). Maintenance of groundwater levels near the ground surface will also minimize settling. Under such conditions, the yards of these homes might be anticipated to subside at a rate of 0.5 inches per year or at the site's current rate of subsidence. Based on an average lot size of 0.6 acres, this could cause each homeowner at the development to spend $200 annually to maintain the elevation of their lawns. It should be noted that quality subdivisions such as Chateau Estates in Kenner have been successfully constructed on high subsidence soils.

M3-4. Pesticides from the golf course and heavy metals from urban developments making their may to the Harvey Canal, Bayou Barataria, and Jean Lafitte National Park are a concern and are not addressed adequately. Mr. Kohl discusses mercury that the Department of Environmental Quality found in fish and sediments in City Park lagoons near the golf course.

M3-5. The Audubon Society believes the project as planned is improper for this location and it may be an improper allocation of parish funds. These funds could be used to help existing developed areas.

RM3-4. Pesticide impacts on the retention ponds, water hazards, drainage canals, and JLNHPP are expected to be minimal. Pesticides containing the constituents mentioned in this comment (mercury, heavy metals) have been outlawed for years. In 1972, the first pesticide ban was implemented on DDT and its derivatives. Over the next 16 years, metal based and mercury based pesticides, fungicides and herbicides were banned by the EPA for use in the United States. Therefore, there will be no use of mercury or heavy metal based pesticide products on the EPP development.

In Louisiana, all appliers of pesticides, herbicides, etc. are required to obtain an appliers certification from the Louisiana Department of Agriculture and Forestry. The requirements for obtaining certification, restrictions on pesticide application, and pesticide registration information for the State of Louisiana are contained in the Louisiana Administrative Code Volume 7, Section 23 (XXIII), Parts 13119 through 13127. All pesticide and herbicide application to be conducted on the EPP site will be in accordance with these regulations. Only EPA and Louisiana registered and approved chemicals will be permitted for use on the property. In addition, the golf course to be constructed on the EPP site will be operated according to the guidelines established by the *Environmental Principles for Golf Courses in the United States*, a publication developed by sixteen organizations, including the U.S. Golf Association, the Golf Course Superintendents of America, the Center for Resource Management, the Sierra Club, and Audubon International. The publication was released in March 1996 and is available through the Center for Resource Management and the Golf Superintendents of America.

RM3-5. Comment noted.

M4. Joseph Vincent - New Orleans Delta Chapter of the Sierra Club

M4-1. The Sierra Club previously supplied comments when the public notice was issued and endorsed the comments of March 4, 1993 by the Tulane Environmental Law Clinic. The Sierra Club is against the project on environmental grounds and as taxpayers.

M4-2. Page 72, Table 3.1 The lost 329 habitat units of marsh and bottomland hardwoods are questioned. Looking at Volume II, it appears that 16,450 should be the figure. Figures in Volume II are slightly different and figures for bottomland hardwoods are absent.

M4-3. Page 76, Threatened and Endangered Species. Brown pelicans have been sighted regularly on the Harvey Canal since mid-1995 and they roost every day near the Harvey Locks. American box turtle has been listed as an animal of special concern by the World Wildlife Fund in the past year. Those turtles are present on site and will be lost with the project. Alligator snapping turtle is now listed with the Fish and Wildlife Service as a species of special concern. Threatened Mississippi kites use the site seasonally every year.

M4-4. Page 82. A figure of 82,000 acres is given for the Salvador Wildlife Management area and they believe the figure should be 26,000 acres.

M4-5. Page 151. There are false figures given for the total number of habitat units, perhaps annually is needed.

M4-6. Appendix K. There is disagreement on where bald eagle nesting sites are located.

M4-7. The Louisiana National Heritage Program is cited in the document as stating "no state or Federal parks, wildlife refuges, or wildlife management areas are known within the Louisiana boundaries", which needs to be checked.

M4-8. The Sierra Club wants to see comments on the DEIS in the FEIS.

M5. Barbara Vincent - Sierra Club

M5-1. Ms. Vincent has a problem with the proposed project as a taxpayer because the project will still be in the red after 10 years.

RM4-1. Comment Noted.

RM4-2. A sentence has been added to Chapter 3, Section 3.3.2 to clarify that the 329 refers to average annual habitat units lost, not total habitat units lost over a fifty year time period. There is no error in the Table 3.1, it is identifying average annual units and Appendix I, Wetland Value Assessment Habitat Evaluation Analysis does contain WVA analysis and methodology on both marsh and bottomland hardwood habitats.

RM4-3. Additional information on the use of the Harvey Canal by Brown Pelicans has been added to Chapter 3. The USFWS was contacted to confirm any threatened or endangered species that may have moved onto any of the alternative sites since the original evaluation in 1995. The USFWS indicated that no additional threatened or endangered species have immigrated to any of the six alternative sites since 1995. They also indicated that the American box turtle, alligator snapping turtle and Mississippi kite are not federally listed as threatened or endangered, or as species of special concern in Louisiana.

RM4-4. This figure was a typographical error, the correct figure is 32,000 acres. The acreage figure was confirmed with the LDWF.

RM4-5. The total number of habitat units is indicated appropriately with each figure followed by the term "AAHUs".

RM4-6. Appendix K contains letters related to the project from the Louisiana Department of Wildlife and Fisheries (LDWF), Fur and Refuge Division. This department is in charge of locating and mapping bald eagle nest sites on an annual basis. Exact locations of nest sites are not public information and would not be provided for inclusion in the Final EIS. We contacted the USFWS, which contact LDWF, to confirm that nest #57 has not moved since the printing of the DEIS. Confirmation that the nest had not moved and remains active was received on April 19, 1996.

RM4-7. The comment refers to a letter from the LDWF's Natural Heritage Division, also in Appendix K. The Corps agrees that the letter is poorly worded, however, it is not cited in the EIS and the letter was in response to a solicitation of views on "Threatened, Endangered and Rare Species", not parks, management areas, and refuges in the proposed project area.

RM4-8. Comment Noted.

RM5-1. Comment Noted.

M5-2. The existing pump station has a capacity of only 450 cfs and additional 952 cfs will be needed for a 10-year design storm with the project in place. According to the DEIS, 1/3 of the property is expected to flood in such a storm. We have had 4-5 100-year events in the last 25 years and our tax dollars will be called to bail people out when this happens again. The estimate is $45 million for new pumping facilities. Tax money spent on this project will exclude most of the people in the parish.

RM5-2. Refer to RM3-2. As noted in Section 3.6.4.2.a of the EIS, the Estelle pump station's current capacity is 540 cfs, which is a result of the installation of a new 90 cfs pump in 1995. Also, as referenced in RM3-2, the new pump station is under construction (as of 1996) for a cost of 5.5 million dollars, rather than the 45.5 million dollars stated in the draft EIS. Therefore, the Estelle area should have enough drainage pumping capacity to handle a 10-year storm event. In addition, the response indicates that the new pump station has been planned in this area by the Parish for over 14 years, thus the taxpayers will not be subsidizing the construction of the development. The figure of 1/3 of the property flooding during a 10-year storm event is based on the EPP sites current elevations. Given the additional capacity of the old pump station (540 cfs), the construction of the new pump station (1200 cfs) and the construction of the housing development and roadways above existing 100 hundred year flood elevations of 1.5 feet NGVD (according to March 1995 FEMA maps), this condition will no longer exist.

GOOD EVENING.

I AM MIKE LEONARD, PRESIDENT OF THE HARVEY CANAL INDUSTRIAL ASSOCIATION.

HCIA - AS WE ARE KNOWN - IS COMPRISED OF 247 MEMBER FIRMS ACTIVELY ENGAGED IN BUSINESS, INDUSTRY, AND GOVERNMENTAL AFFAIRS THROUGHOUT WEST JEFFERSON.

M6-1. MY MEMBERSHIP HAS REQUESTED THAT I APPEAR BEFORE YOU TO URGE APPROVAL OF A PERMIT APPLICATION THAT WOULD ALLOW THE DEVELOPMENT OF A PROPOSED GOLF FACILITY AND RESIDENTIAL DEVELOPMENT ON THE WESTBANK OF JEFFERSON PARISH - THE SUBJECT OF TONIGHT'S HEARING.

RM6-1. Comment Noted.

M6-2. THE WESTBANK'S ONGOING ECONOMIC RECOVERY WILL GAIN A STRONG IMPETUS FROM THIS PROPOSED DEVELOPMENT. THE NEED FOR SUCH RESIDENTIAL DEVELOPMENTS AND RECREATIONAL FACILITIES ON THE WESTBANK IS WELL DOCUMENTED.

RM6-2. Comment Noted.

M6-3. IT IS OUR BELIEF THAT THE PROPOSED DEVELOPMENT IS IN COMPLIANCE WITH JEFFERSON PARISH'S COASTAL ZONE MANAGEMENT PROGRAM, AND CONFORMS TO THE PARISH'S SHORT AND LONG TERM PLANS FOR THE AREA.

RM6-3. Refer to RM2-2.

THE PROJECT IN QUESTION - IN OUR JUDGMENT - MEETS THE CRITERIA FOR CONVENTIONAL DEVELOPMENT. WE SEE NO REASON WHY THE

PROJECT SHOULD NOT MOVE FORWARD.

DEVELOPMENTS OF THIS TYPE WILL GO A LONG WAY TOWARD IMPROVING THE QUALITY OF LIFE ON THE WESTBANK.

THE HCIA ENCOURAGES YOU TO MOVE QUICKLY - ISSUE THE PERMIT - ALLOWING THE PROJECT TO BE COMPLETED.

M7. Will Ferguson - Tulane Environmental Law Clinic representing the Orleans Audobon Society, Louisiana Environmental Action Network, and the Delta Chapter of the Sierra Club.

M7-1. Clients oppose issuance of the section 404 permit because of environmental damage and because of inaccuracy of the DEIS. There are five general objections.

M7-2. Notice to provide the DEIS is insufficient to allow the public to comment. States only Volume I is available in most of the places listed to have the document. Few of the interested parties listed received both volumes of the DEIS. The Corps' regulations on public notices require that such notice "include sufficient information to give clear understanding of the activity to generate meaningful comment". There are not enough complete copies of the document available.

M7-3. The DEIS contradicts itself on the need for the project. There is disagreement between the summary and the main document on the need for the project.

M7-4. The DEIS does not consider reasonable alternatives to the proposed project. The alternatives do not offer environmental advantages over the project site. The DEIS only analyzes alternatives that have environmental damages similar to the proposed project. There is no need for the project to be on or near the water. It is not a water dependent project. All alternatives contain wetlands that will require fill. In essence, the DEIS has merely analyzed a collection of superficial alternatives that allow the proposed project to appear to be the best among them.

M7-5. The Corps' regulations require consideration of mitigation. This DEIS does not contain any concrete proposal or analysis of mitigation measures.

RM7-1. Comment Noted.

RM7-2. The Corps does not agree. The notice for the DEIS was a Notice of Availability. The "Public Notice" for the project came out on February 1, 1993. Both volumes of the DEIS were sent to the Corps library, public libraries, and several university libraries in the area for public review. A total of 138 copies of Volume 1 and 28 copies of Volume 2 were sent out for public review. Also, the Corps offered to have additional copies of Volume 2 printed at a requester's expense.

RM7-3. The purpose and need section has been revised due to comments for the FEIS. We are not sure what contradictions or disagreements the commenter is referring to, as none were specified.

RM7-4 The Corps disagrees. The screening process described in Chapter 2 provided an appropriate method for reducing the number of initial alternatives for detailed analyses in the EIS. The Corps has certainly not devised any analysis to allow the applicants' proposed project to appear to be the best alternative.

RM7-5 Mitigation concepts were developed for the DEIS and have been further refined in the FEIS. However, the details of a mitigation plan will be considered in the 404(b)(1) analysis and public interest review process if needed. Coordination and disclosure of details will occur as part of the decision process. The Supreme Court has ruled that there is no substantive requirement under NEPA that a complete mitigation plan be formulated and adopted in an EIS.

GOOD EVENING.

I'M JIM MONROE, PRESIDENT OF THE CHAMBER METRO/VISION NEW ORLEANS AND THE RIVER REGION.

THE PROPOSED GOLF COURSE AND ADJOINING RESIDENTIAL DEVELOPMENT - THE SUBJECT OF THIS EVENING'S HEARING - ARE ISSUES OF VITAL IMPORTANCE TO OUR MEMBERSHIP.

M8-1. JEFFERSON PARISH FACES SERIOUS CHALLENGES - THE EASTBANK FOR ALL PRACTICAL PURPOSES IS AT CAPACITY LEAVING A FEW SELECTED AREAS OF THE WESTBANK AVAILABLE FOR CONVENTIONAL DEVELOPMENT. OUR RESEARCH INDICATES THAT THE JEFFERSON PARISH'S "DEVELOPMENT 2000" LAND PLAN AS WELL AS ITS COASTAL ZONE MANAGEMENT PLAN HAVE DESIGNATED THE AREA IN WHICH THE PROPOSED PROJECT IS LOCATED TO BE COMMITTED TO CONVENTIONAL DEVELOPMENT. IT IS OUR UNDERSTANDING

M8-2. THAT STATE AND FEDERAL AUTHORITIES ARE IN AGREEMENT WITH THE PARISH'S COASTAL ZONE MANAGEMENT PLAN. WE ALSO UNDERSTAND THAT THE PLAN WAS A BALANCED PRODUCT ADDRESSING BOTH ENVIRONMENTAL AND PUBLIC CONCERNS AND NEEDS.

THE CHAMBER RECOGNIZES THIS PROJECT AS A UNIQUE PUBLIC/PRIVATE PARTNERSHIP EFFORT FOR JEFFERSON PARISH. PUBLIC/PRIVATE PARTNERSHIPS CREATE NEW OPPORTUNITIES FOR ECONOMIC

RM8-1. Comment noted. A similar statement is located in Chapter 1, Section 1.4.B.

RM8-2. Comment noted. The direct economic impacts of the project have been determined throughout the document. Although the numbers presented by Mr. Monroe have not been confirmed the indirect economic impacts of the project have been noted throughout the FEIS.

DEVELOPMENT. IN OUR OPINION, THIS PROJECT MEETS THIS CRITERIA PROVIDING FOR HOUSING AND RECREATIONAL NEEDS.

THIS PROJECT IS PROJECTED TO PRODUCE A TOTAL ECONOMIC IMPACT TO THE COMMUNITY OF $398 MILLION, WITH AN ONGOING IMPACT OF $29 MILLION AND AN ANNUAL TAX RETURN OF $2.4 MILLION.

ON BEHALF OF THE CHAMBER/METRO VISION, I URGE YOU TO EXPEDITE THIS 404 PROCESS AND ISSUE THE PERMIT UNDER CONSIDERATION.

THANK YOU FOR GIVING ME THIS OPPORTUNITY TO PRESENT OUR VIEWPOINT.

M9. Wade Perrin - President of the Estelle Civic Association

M9-1. There is concern about infrastructure and they do not believe the present infrastructure can handle the development. North-south access is critical. Traffic in the area of Lapalco and Barataria Blvd. is already overburdened.

RM9-1. The Corps agrees that traffic in the area of Barataria and Lapalco is overburdened. However, in Chapter 3, Section 3.6.5.a, several projects are discussed that will improve the traffic flow in this area. The exact time table on these projects depends on funding available. One of the projects, involving Ames Boulevard from Lapalco to Ehret was bid on April 4, 1996. This project involves adding two lanes to the existing roadway, subsurface drainage, and a sidewalk on the east side. Two projects currently (April, 1996) under design are: 1) the addition of a third lane to Barataria Boulevard between Cousins and Patriot, which is anticipated to be extended to the West Bank Expressway when additional funding becomes available and; 2) the design of modifications to the Barataria Boulevard on/off-ramps, which may include adding new ramps.

GOOD EVENING.

MY NAME IS LLOYD GIARDINA.

I AM A MEMBER OF THE JEFFERSON PARISH COUNCIL AND I REPRESENT DISTRICT 2, THE DISTRICT IN WHICH THE PROPOSED PROJECT IS TO BE DEVELOPED.

MY PURPOSE IN APPEARING BEFORE YOU THIS EVENING IS TO VOICE MY SUPPORT FOR THE MUNICIPAL GOLF FACILITY AND UPSCALE RESIDENTIAL COMMUNITY DEVELOPMENT IN THE LOWER ESTELLE AREA OF MARRERO AND TO REQUEST THAT A PERMIT BE ISSUED AS SOON AS POSSIBLE.

M10-1. THE GOLF COURSE DEVELOPMENT WILL ADDRESS A LONG TERM NEED FOR PUBLIC GOLFING FACILITIES IN JEFFERSON PARISH WHILE POSITIVELY IMPACTING THE ECONOMIC AND RECREATIONAL NEEDS OF THE PARISH'S CITIZENS.

FURTHER, COMBINING A PUBLIC GOLF FACILITY WITH A PROPOSED QUALITY RESIDENTIAL DEVELOPMENT WILL CONTRIBUTE TO THE CONTINUING RECOVERY OF THE ECONOMY OF THE WESTBANK AND ENHANCE THE QUALITY OF LIFE OF ITS CITIZENS.

IN ADDITION TO EXPANDING THE TAX BASE AND TAX REVENUES OF THE PARISH, THE PROJECT WILL CREATE JOBS, BOTH NOW AND IN THE FUTURE, AS THE GOLF COURSE IS CONSTRUCTED AND OPERATED, THE

SUBDIVISION IS BUILT, AND HOME CONSTRUCTION TAKES PLACE IN THE NEW RESIDENTIAL COMMUNITY.

WHILE THE EFFECT OF THE PROJECT ON THE NATURAL ENVIRONMENT IS PART OF THE 404 REVIEW PROCESS, THE ECONOMIC IMPACT OF THE PROJECT AND THE BENEFITS TO BE REALIZED BY THE CITIZENRY ARE MAJOR CONSIDERATIONS IN DETERMINING WHAT IS IN THE OVERALL BEST INTERESTS OF THE PUBLIC.

WITH REGARD TO THE "PUBLIC" INTEREST AND THE USE OF THE PROJECT AREA, BEGINNING IN 1977, JEFFERSON PARISH UNDERTOOK TO DEVELOP, DEVELOPED AND SUBSEQUENTLY ADOPTED ITS OWN COASTAL ZONE MANAGEMENT PROGRAM WITH PROACTIVE PARTICIPATION AND IMPUT FROM A DIVERSE CITIZEN'S GROUP, INCLUDING THE ENVIRONMENTAL COMMUNITY, BUSINESS, LANDOWNERS, OUTDOOR INTERESTS - RECREATIONAL AND COMMERCIAL AND OTHERS, INCLUDING REPRESENTATIVES FROM THE PUBLIC SECTOR.

THE END RESULT, WHICH HAS BEEN APPROVED AT BOTH THE STATE AND FEDERAL LEVELS, REPRESENTS A PROGRAM WHICH BALANCES ENVIRONMENTAL ISSUES AND CONCERNS WITH THE PARISH'S NEED FOR FUTURE GROWTH THROUGH PLANNED DEVELOPMENT.

THAT PROGRAM DETERMINED THAT THE AREA IN WHICH THIS PROJECT IS TO BE BUILT, BEING BEHIND AND PROTECTED BY LEVEES AND UNDER FORCED DRAINAGE FOR DECADES, SHOULD BE COMMITTED AND DEVOTED TO CONVENTIONAL - THAT IS TO SAY RESIDENTIAL, COMMERCIAL AND INDUSTRIAL - DEVELOPMENT.

THE DEVELOPMENT PROPOSAL BEFORE YOU IS CONSISTENT WITH AND IN COMPLIANCE WITH JEFFERSON PARISH'S COASTAL ZONE MANAGEMENT PROGRAM; WILL MATERIALLY BENEFIT THE CITIZENS OF JEFFERSON PARISH; AND CLEARLY IS IN THE BEST INTERESTS OF THE PUBLIC.

IN CONCLUSION, I URGE YOU TO ISSUE THE REQUESTED PERMIT AS EXPEDITIOUSLY AS POSSIBLE.

WE NEED TO MOVE FORWARD WITH THIS DEVELOPMENT!

THANK YOU FOR YOUR TIME AND ATTENTION.

RM10-1. Comment Noted. Please refer to RM2-1 and RM2-2.

M11. Mike Diagle - Executive Director of the Jefferson Parish Economic Development and Port District

M11-1. Issue the permit to allow the project to move forward as quickly as possible. The economy of the west bank suffered due to the decline of the oil and gas industry in the mid-1980's. This type of project will help expand the economy of the west bank.

M11-2. Mr. Diagle encourages the Corps to adopt the growth, no-growth concept within the CZM plan in Jefferson Parish and look to the V-levee as that line. Mr. Diagle also suggests that the Corps adopt a more rapid process for evaluating proposals north of that line.

M12. David Loeb - Attorney representing 100 landowners in the area. He discusses the Corps west bank hurricane protection levee EIS and makes the following points from that EIS:

M12-1. Paragraph 1.1.4. "Some of the lands impacted by construction are adjacent to but within the existing levee system and are subject to the effects of forced drainage. Because these lands are currently under pump, it would be reasonable to assume that they would be developed whether impacted by this project or not. Mr. Loeb then states that it is reasonable to assume that if the lands were expected to be developed, that 404 permits would be issued.

M12-2. Paragraph 6.12.1 Concerning loss of habitat areas in the V-levee "...; however, a beneficial impact of the levee would be it would set the limits of growth on the west bank and very little development would occur outside the levee". Mr. loeb is looking for consistency with this statement in the current evaluation.

M13. Harvey Stern - Sierra Club

M13-1. Cumulative impacts are a concern with barely a page dedicated to them in the DEIS. Flooding, urban runoff, subsidence, groundwater contamination, habitat destruction, infrastructure, threatened and endangered species, and Jean Lafitte Park should all be discussed. No effort was made to quantify secondary growth around the site. The FEIS should more thoroughly assess cumulative impacts.

M13-2. Mr. Stern recommends that the FEIS explicitly state whether the negative consequences of secondary impacts to surrounding parcels and other cumulative impacts merit development of this site.

M13-3. If negative environmental impacts clearly outweigh the highly questionable economic gains to be realized by this project, there is clearly no justification for permitting the project.

M13-4. Mr. Stern recommends that the Corps look at the Barataria-Terrebonne National Estuary Program comprehensive management plan to determine consistency of the project with that plan.

M13-5. There are several large parcels off Manhattan Blvd that are unclear whether we looked at them for alternatives.

RM11-1. Comment Noted.

RM11-2. Comment Noted. Please refer to RM2-1 and RM2-2.

RM12-1. Comment has been incorporated into Chapter 2, Section 2.3.1.

RM12-2. Comment has been incorporated into Chapter 4, Section 4.1.

RM13-1. Additional information has been incorporated into Chapter 4, Section 4.7 to address cumulative impacts.

RM13-2. See last sentence of RM7-4. The EIS is not a decision document, but rather an information document.

RM13-3. Comment Noted.

RM13-4. The Barataria-Terrebonne National Estuary Program (BTNEP) was contacted to determine the status of their comprehensive management program and how it would apply to this EIS. According to BTNEP, the comprehensive management program was completed in July, 1996. The Governor of the State of Louisiana approved the plan on July 9, 1996 and the EPA must approve the plan within 120 of July 9. Therefore, it is not likely that an approved comprehensive management plan will be available until October or November 1996. In terms of the applicability of the BTNEP program to this EIS, it is the intent of the program to manage the natural resources of the basin, not to review and comment on all federal actions or permits requested within the basin boundaries. The management program is composed so that permit applications do not have to be in conformance with the program. In addition, the management program is in support of confining new development to currently leveed, pumped and drained areas.

RM13-5. In Chapter 2, the screening process for alternative sites was described. Section 2.3 states, "In order to support a golf facility only, the smallest component of the development, 200 acres would be necessary, thus, a suitable tract of land would be currently vacant and at least 200 acres in size." In other words, the criteria for alternative sites was a minimum of 200 acres to support a PGA Caliber 18 hole golf course. 1995 aerial photography of Jefferson Parish does not indicate any contiguous vacant parcels of 200 acres exist on Manhattan Blvd.

GOOD EVENING, I AM AARON BROUSSARD, CHAIRMAN OF THE JEFFERSON PARISH COUNCIL.

I AM APPEARING HERE TONIGHT AS CHAIRMAN OF THE COUNCIL AND ON BEHALF OF TIM COULON, PARISH PRESIDENT, WHO UNFORTUNATELY COULD NOT ATTEND THIS EVENING.

MY PURPOSE TONIGHT IS TO EXPRESS THE PARISH'S STRONG SUPPORT FOR THE NEW PUBLIC GOLF FACILITY FOR JEFFERSON PARISH AND THE RELATED SINGLE FAMILY RESIDENTIAL COMMUNITY DEVELOPMENT PROPOSED FOR THE WESTBANK OF JEFFERSON PARISH AND WHICH IS THE SUBJECT OF A SECTION 404 PERMIT APPLICATION.

M14-1. THE PROPOSED PROJECT REPRESENTS AN IMPORTANT ELEMENT IN THE CURRENT ECONOMIC RECOVERY OF THE WESTBANK OF JEFFERSON PARISH.

DURING THE LATE 1980'S AND THE FIRST PART OF THIS DECADE, JEFFERSON PARISH SUFFERED A SEVERE ECONOMIC DOWNTURN AND RECESSION. THE WESTBANK WAS DEVASTATED.

OUR ECONOMY IS NOW REBUILDING. IT IS EXPERIENCING THE FASTEST GROWTH IN THE ENTIRE NEW ORLEANS METROPOLITAN AREA, DUE IN LARGE MEASURE TO THE FACT THAT WEST JEFFERSON HAS THE GREATEST SUPPLY OF LAND AVAILABLE FOR DEVELOPMENT.

AVAILABLE LAND IN ORLEANS PARISH AND ON THE EAST BANK OF

JEFFERSON PARISH IS ALL BUT NON-EXISTENT. LAND ON THE NORTH SHORE OF LAKE PONTCHARTRAIN IS TOO FAR AWAY TO SATISFY THE DEMANDS AND NEEDS OF THE CITIZENS OF JEFFERSON PARISH.

THE PROPOSED PROJECT WILL ADDRESS THOSE NEEDS -- BOTH IN TERMS OF OUR EXISTING RESIDENTS WHO WANT TO MOVE INTO NEW COMMUNITIES AND THOSE WHO WISH TO MAKE THE WESTBANK THEIR HOME.

THE ABILITY TO MEET AN INCREASING DEMAND FOR SUCH RESIDENTIAL DEVELOPMENTS, TO PROVIDE MUCH-NEEDED PUBLIC GOLFING OPPORTUNITIES FOR OUR AREA, AND TO ATTRACT NEW RESIDENTS IS ESSENTIAL TO THE REVITALIZATION OF OUR PARISH.

IN ADDITION, IT BENEFITS THE PARISH THROUGH AN INCREASED TAX BASE AND INCREASED TAX REVENUES; CONSTRUCTION AND PERMANENT JOBS; AN ADDITIONAL RESIDENTIAL COMMUNITY AND EXPANDED RECREATIONAL OPPORTUNITIES. THIS PROJECT IS AN INDICATION OF THE STRENGTH OF OUR ECONOMIC RECOVERY AND THE CONFIDENCE WHICH I HAVE IN OUR FUTURE.

THE HISTORY OF THE PARISH'S PLANS FOR DEVELOPMENT ALSO SUPPORTS THE PROJECT. THE LAND FOR THE PROJECT IS ADJACENT TO A MAJOR TRANSPORTATION ARTERY - THE LAFITTE LAROSE HIGHWAY. THE

RM14-1. Comment Noted. This information is further discussed in RM2-1, RM2-2, and in Chapters 1 and 3.

PROJECT AREA IS LOCATED WITHIN AND NORTH AND WEST OF THE WESTBANK HURRICANE PROTECTION LEVEE, A JOINT FEDERAL AND STATE PROJECT WHICH PROVIDES HURRICANE AND FLOOD PROTECTION TO THE LANDS BEHIND THE LEVEE AS THEY ARE DEVELOPED IN THE FUTURE. THESE AREAS FOR MANY YEARS HAVE BEEN RECOGNIZED AS FUTURE AREAS FOR THE EXPANSION AND GROWTH OF WEST JEFFERSON AND REQUIRING SUCH PROTECTION.

M14-2. THE SELECTION OF THE ALIGNMENT FOR THE WESTBANK HURRICANE PROTECTION LEVEE WAS NOT AN EASY TASK. IT FOLLOWED YEARS OF PLANNING AND DEBATE, BEGINNING IN THE EARLY 1970'S, AS TO WHERE FUTURE GROWTH IN THE PARISH SHOULD TAKE PLACE.

ORIGINALLY, THE ENTIRE BAYOU AUX CARPES AREA TO THE SOUTH AND EAST OF THE PROJECT WAS EARMARKED FOR DEVELOPMENT AND WAS TO BE PROTECTED BY THE "HARVEY CANAL-BAYOU BARATARIA LEVEE PROJECT", A FEDERAL AND LOCAL PROJECT. THIS AREA HAS NOW BEEN REMOVED FROM COMMERCE BY THE ENVIRONMENTAL PROTECTION AGENCY'S 1985 "VETO" WHICH PREVENTED COMPLETION OF THE "HARVEY CANAL - BAYOU BARATARIA LEVEE PROJECT"; AND HAS BEEN SET ASIDE BY THE EPA AS AN AREA TO BE PRESERVED IN ITS NATURAL STATE.

THE PROJECT AREA HAS BEEN INCLUDED WITHIN ALL OF THE LONG

RANGE DEVELOPMENT PLANS OF JEFFERSON PARISH, INCLUDING THE "DEVELOPMENT 2000" LAND PLAN, AND THE MASTER DRAINAGE, SEWERAGE, AND TRANSPORTATION PLANS, AND THE PARISH HAS DETERMINED THAT EXISTING AND PLANNED PARISH INFRASTRUCTURE CAN SUPPORT THE PROPOSED DEVELOPMENT.

THE AREA HAS BEEN IDENTIFIED AND DESIGNATED BY THE JEFFERSON PARISH COUNCIL IN ITS APPROVED LOCAL COASTAL ZONE MANAGEMENT PROGRAM ADOPTED IN THE EARLY 1980'S AS AN AREA FOR CONVENTIONAL GROWTH AND DEVELOPMENT.

FURTHER, AS A LEVEED "FASTLAND" UNDER PUMP DRAINAGE, THE PROPOSED PROJECT AND USE OF THE AREA IS ALSO CONSISTENT WITH LOUISIANA'S COASTAL ZONE MANAGEMENT PLAN.

THE PROJECT AREA IS IN AN EXISTING DRAINAGE DISTRICT, AND HAS BEEN UNDER A FORCED DRAINAGE REGIME FOR OVER 30 YEARS. BECAUSE OF THE EFFECTS OF THE DRAINAGE, THE AREA IS IN A STATE OF TRANSITION FROM ITS ORIGINAL CONDITION TO A DRIER ENVIRONMENT, AND HAS BEEN SIGNIFICANTLY ALTERED FROM ITS ORIGINAL STATE.

IF JEFFERSON PARISH IS TO CONTINUE TO GROW AND EXPAND TO MEET THE NEEDS AND DEMANDS OF ITS CITIZENS, IT WILL HAVE TO BE

RM14-2. Refer to Chapter 2, Section 2.4.2 and Chapter 3, Section 3.6.4 for information on long range development plans in Jefferson Parish; including Development 2000 - Land Use Plan for Jefferson Parish, and drainage and sewage master plans. Refer to RM2-1 and RM2-2 for additional comments. Refer to Chapter 3, Section 3.6.4 for Parish infrastructure statistics.

INTO NEW AREAS AND THESE ALTERED AREAS ARE THE NECESSARY AND LOGICAL PLACES FOR THIS GROWTH AND EXPANSION TO OCCUR. WITHOUT THE USE OF SUCH ALTERED AREAS, THERE WILL BE NO OPPORTUNITY TO CREATE NEW RESIDENTIAL COMMUNITIES WITH ACCOMPANYING AMENITIES AND BENEFITS, OR COMMERCIAL FACILITIES TO CREATE JOB OPPORTUNITIES FOR OUR CITIZENS.

M14-3.

RM14-3. Comment noted.

IN CONCLUSION, AND IN BEHALF OF JEFFERSON PARISH, I REQUEST THAT THE 404 REVIEW PROCESS BE EXPEDITED AND CONCLUDED, AND THAT THE PERMIT APPLIED FOR BE ISSUED AT THE EARLIEST POSSIBLE TIME IN ORDER THAT THE PROJECT MIGHT PROCEED.

M14-4.

RM14-4. Comment noted.

THANK YOU.

M15. Roy Rogge - Sierra Club

M15-1. Mr. Rogge opposes the project.

M15-2. Subsidence is a constant problem.

M15-3. The use of pesticides on the golf course are a concern. An EPA survey showed that golf courses apply 3.5 pounds of herbicides/acre/year with a similar application of fungicides and 2.5 pounds of insecticides/acre/year. Average agricultural application of pesticides is less than 1.0 pounds/acre/year. Many of the pesticides to be used are acutely toxic to wildlife, pets, and humans. In most cases, the chemicals have not been thoroughly tested to determine long-term effects on humans and animals. These substances will find their way into aquifers and surrounding waters and move up the food chain to humans.

M15-4. Mr. Rogge questions whether this is really a public golf course or is it really for the homeowners around the golf course.

M16. Craig Taylor

M16-1. Mr. Taylor is concerned about Jean Lafitte Park and the need for the project with the displacement of wildlife that would occur. Mr. Taylor states that there are already 8 golf courses on the west bank and questions the appropriateness of the use of this area for this type of project.

M17. Dominick Perniciara

M17-1. Mr. Perniciara is against the proposal.

M17-2. Mr. Perniciara is concerned about drainage issues and taxpayers floating the bill for the project including maintenance and traffic problems that will result.

M18. Peter Gwynn - Sierra Club

M18-1. More details about mitigation would be appropriate.

M18-2. Mr. Gwynn is concerned about the set-up of this development and the subsidies (indirect and direct) to build it, including maintenance costs to be born by the taxpayer.

M18-3. The need for both the golf course and housing are questioned.

M18-4. A referendum should be held by the voters to decide about the golf course.

RM15-1. Comment noted.

RM15-2. Refer to RM3-3.

RM15-3. Refer to RM3-4.

RM15-4. Landowners adjacent to the golf course, while they will likely use the course more often per person than other residents of the Parish, are still considered members of the public. As stated in the EIS, the golf course will be a municipal golf facility maintained by Jefferson Parish.

RM16-1. As per the 1986, EIS and Feasibility Report on the West Bank hurricane protection levee, the Corps states, "Some of the lands impacted by construction are adjacent to but within the existing levee system and are subject to the effects of forced drainage. Because these lands are currently under pump, it would be reasonable to assume that they would be developed whether impacted by this project or not." Therefore, the permitting authority for wetland development in the Estelle V-levee area, the Corps, anticipated in 1986 that the wetlands within the Estelle V-levee would be developed. The applicant's proposed project is also consistent with the Jefferson Parish Coastal Zone Management Program and the Louisiana Coastal Zone Management Program.

As demonstrated in Chapter 1, Section 1.4, there is an unserved demand of approximately 120,000 annual rounds of golf on public courses in Jefferson Parish. The existing courses are not municipal courses and are not meeting the demonstrated demand.

RM17-1. Comment noted.

RM17-2. Refer to RM3-2, RM5-2, and RM9-1.

RM18-1. Comment noted, also refer to RM7-5.

RM18-2. Refer to RM3-2.

RM18-3 Refer to RM7-3.

RM18-4. Comment noted, also, refer to Appendix C, which contains a sub-population survey of West Bank residents.

5.4.2. PUBLIC COMMENT CORRESPONDENCE

National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive N.
St. Petersburg, Florida 33702

January 29, 1996

Colonel Kenneth Clow
District Engineer, New Orleans District
Department of the Army, Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160

Dear Colonel Clow:

L1-1. The National Marine Fisheries Service (NMFS) has received the Draft Environmental Impact Statement (DEIS), transmitted by letter of January 12, 1996, for the Estelle Plantation Partnership Municipal Golf Facility and Housing Development. The DEIS evaluates the impacts of the construction of a municipal golf facility and housing development located within Jefferson Parish, Louisiana.

Based on review, we find that living marine resources for which NMFS is responsible would not be impacted by implementation of any of the alternatives considered in the DEIS. Therefore, we have no additional comments to provide.

Thank you for this review opportunity.

Sincerely,

Andreas Mager, Jr.
Assistant Regional Director
Habitat Conservation Division

RL1-1. Comment noted.

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Federal Emergency Management Agency
Region VI
Federal Regional Center
800 North Loop 288
Denton, TX 76201-3698

January 31, 1996

Mr. R. H. Schroeder, Jr., Chief
Planning Division; Environmental Analysis Branch
Department of the Army; New Orleans District
Corps of Engineers; P.O. Box 60267
New Orleans, Louisiana 70160-0267

RE: Estelle Plantation Partnership
Municipal Golf Facility and Housing Development

Dear Mr. Schroeder:

We received your letter dated January 12, 1996, and the Draft Environmental Impact Statement for the above mentioned proposed project. Thank you for the opportunity to review and comment on the proposed project.

L2-1. One of the main concerns of floodplain management is to regulate development within the floodplain as delineated on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM). Although development is permitted within the floodplain, we do encourage the type of development that does not have an immediate impact or adverse effect on existing structures. We recommend that Mr. Brett Todd, Floodplain Administrator, be contacted to ensure that the project complies with the Parish's flood damage prevention ordinance. He may be contacted by calling (504) 736-6824.

If we can be of further assistance, please contact this office at (817) 898-5380.

Sincerely,

Kathy R. Hand
Hazard Mitigation Specialist

cc: Brett Todd
Floodplain Manager

Gregory Solovey
Natural Hazards Program Specialist

RL2-1. Mr. Brett Todd was contacted concerning this matter. According to Mr. Brett Todd, FEMA Floodplain Manager, the housing development must conform with the new FEMA standards. The 100 year flood elevation for this area according to the March 23, 1995 FEMA maps is 1.5 feet NGVD. It was the initial intent of the applicants' to fill the entire site to 1.0 to 2.0 feet NGVD. All homes and roadways for the proposed development will be maintained at a minimum elevation of 2.0 feet NGVD. This should meet the Parish's flood damage prevention ordinance. Final development plans will be provided to Mr. Brett Todd to assure compliance.

The development should not have an immediate impact or adverse effect on existing structures. Any increase in flood elevations due to filling of the EPP site should have minimal impact on the surrounding properties, consisting of the EG, Landco, and MLC1 alternative sites, since they are currently undeveloped. In addition, these properties will help retain water lessening impact on developed areas. Properties to the north and south of the proposed development are undeveloped. Flood waters should not cross Highway 3134 to the properties west of the site. If the additional capacity provided to the Estelle Pump Station is not sufficient to compensate for loss of the 100 year flood storage provided by the Estelle property, flood elevations could increase in the Woodmere and Woodmere South subdivisions. It can be assumed that the EPP development would remove a flood storage volume equal to the fill to be placed at the site or 1.1 million cubic yards. Based upon the area flooded during a 100 year storm as displayed in Figure 3.13 the removal of 1.1 million cubic yards of flood storage volume would be spread over approximately 3,200 acres. This could result in an approximate increase in flood levels by 2.5 inches over this area. This should be a conservative assumption since the new Estelle Pump Station should help reduce 10 year and 100 year flood levels in the Woodmere Subdivision area from those shown in Figure 3.13.

LLOYD F. GIARDINA
COUNCILMAN, DISTRICT 2
JEFFERSON PARISH COUNCIL

1221 ELMWOOD PARK BLVD.
HARAHAN, LA 70123
SUITE 1012
(504) 731-4434

4TH FLOOR NEW COURTHOUSE
GRETNA, LA 70053
SUITE 403
(504) 364-3446

FEBRUARY 22, 1996

GOOD EVENING. MY NAME IS LLOYD GIARDINA.

I AM A MEMBER OF THE JEFFERSON PARISH COUNCIL AND I REPRESENT DISTRICT 2, THE DISTRICT IN WHICH THE PROPOSED PROJECT IS TO BE DEVELOPED.

L3-1. MY PURPOSE IN APPEARING BEFORE YOU THIS EVENING IS TO VOICE MY SUPPORT FOR THE MUNICIPAL GOLF FACILITY AND UPSCALE RESIDENTIAL DEVELOPMENT IN THE LOWER ESTELLE AREA OF MARRERO AND TO REQUEST THAT A PERMIT BE ISSUED AS SOON AS POSSIBLE.

L3-2. THE GOLF COURSE DEVELOPMENT WILL ADDRESS A LONG TERM NEED FOR PUBLIC GOLFING FACILITIES IN JEFFERSON PARISH WHILE POSITIVELY IMPACTING THE ECONOMIC AND RECREATIONAL NEEDS OF THE PARISH'S CITIZENS. A CHAMPIONSHIP CALIBER GOLF COURSE DESIGNED TO MAINTAIN THE INTEGRITY OF THE AREA AVAILABLE FOR PUBLIC PLAY WILL INDEED BE AN ASSET TO THE PARISH. THE GROWTH OF THE GOLF INDUSTRY WITHIN THE UNITED STATES IN THE LAST TEN YEARS HAS BEEN SIGNIFICANT. THE COURSE WILL BE AN ATTRACTION, WHICH WILL COMPLIMENT THE JEAN LAFITTE NATIONAL PARK IN ATTRACTING VISITORS TO OUR AREA.

L3-3. FURTHER, COMBINING A PUBLIC GOLF FACILITY WITH A PROPOSED QUALITY RESIDENTIAL DEVELOPMENT WILL CONTRIBUTE TO THE CONTINUING RECOVERY OF THE ECONOMY OF THE WESTBANK AND ENHANCE THE QUALITY OF LIFE OF ITS CITIZENS.

L3-4. IN ADDITION TO EXPANDING THE TAX BASE AND TAX REVENUES OF THE PARISH, THE PROJECT WILL CREATE JOBS, BOTH NOW AND IN THE FUTURE, AS THE GOLF COURSE IS CONSTRUCTED AND OPERATED, THE SUBDIVISION IS BUILT, AND HOME CONSTRUCTION TAKES PLACE IN THE NEW RESIDENTIAL COMMUNITY.

L3-5 WHILE THE EFFECT OF THE PROJECT ON THE NATURAL ENVIRONMENT IS PART OF THE 404 REVIEW PROCESS, THE ECONOMIC IMPACT OF THE PROJECT AND THE BENEFITS TO BE REALIZED BY THE CITIZENRY ARE MAJOR CONSIDERATIONS IN DETERMINING WHAT IS IN THE OVERALL BEST INTERESTS OF THE PUBLIC.

L3-6. WITH REGARD TO THE "PUBLIC" INTEREST AND THE USE OF THE PROJECT AREA, BEGINNING IN 1977, JEFFERSON PARISH UNDERTOOK TO DEVELOP, DEVELOPED AND SUBSEQUENTLY ADOPTED ITS OWN COASTAL ZONE MANAGEMENT PROGRAM WITH PROACTIVE PARTICIPATION AND INPUT FROM A DIVERSE CITIZEN'S GROUP, INCLUDING THE ENVIRONMENTAL COMMUNITY, BUSINESS, LANDOWNERS, OUTDOOR INTERESTS - RECREATIONAL AND COMMERCIAL AND OTHERS, INCLUDING REPRESENTATIVES FORM THE PUBLIC SECTOR.

RL3-1. Comment noted.

RL3-2. Comment noted.

RL3-3. Comment noted.

RL3-4. Comment noted.

RL3-5. Refer to Chapter 2, Section 2.3 and Tables 2.6 and 2.7 and Chapter 4, Section 4.6.2, of the EIS and RM8-2.

RL3-6. Refer to RM2-2.

L3-7. THE END RESULT, WHICH HAS BEEN APPROVED AT BOTH THE STATE AND FEDERAL LEVELS, REPRESENTS A PROGRAM WHICH BALANCES ENVIRONMENTAL ISSUES AND CONCERNS WITH THE PARISH'S NEED FOR FUTURE GROWTH THROUGH PLANNED DEVELOPMENT.

L3-8. THAT PROGRAM DETERMINED THAT THE AREA IN WHICH THIS PROJECT IS TO BE BUILT, BEING BEHIND AND PROTECTED BY LEVEES AND UNDER FORCED DRAINAGE FOR DECADES, SHOULD BE COMMITTED AND DEVOTED TO CONVENTIONAL - THAT IS TO SAY RESIDENTIAL, COMMERCIAL AND INDUSTRIAL - DEVELOPMENT.

L3-9. THE DEVELOPMENT PROPOSED BEFORE YOU IS CONSISTENT WITH AND IN COMPLIANCE WITH JEFFERSON PARISH'S COASTAL ZONE MANAGEMENT PROGRAM; WILL MATERIALLY BENEFIT THE CITIZENS OF JEFFERSON PARISH; AND CLEARLY IS IN THE BEST INTERESTS OF THE PUBLIC.

L3-10. IN CONCLUSION, I URGE YOU TO ISSUE THE REQUESTED PERMIT AS EXPEDITIOUSLY AS POSSIBLE.

WE NEED TO MOVE FORWARD WITH THIS DEVELOPMENT!

THANK YOU FOR YOUR TIME AND ATTENTION.

RL3-7. Comment noted.

RL3-8. Refer to Chapter 3, Section 3.5.

RL3-9. Refer to Chapter 3, Section 3.5.

RL3-10. Comment noted.

Feb. 22, 1996
509 Third Avenue
Harvey, La. 70053

Robert Martinson
Dept. Of the Army
New Orleans District
Corps of Engineers
P. O. Box 60267
New Orleans, La. 70160-0267

Re: DEIS on Estelle Plantation Partnership Golf-Housing Development in Marrero wetlands

Mr. Martinson:

L4-1. These comments are being submitted on behalf of the New Orleans Group of the Delta Chapter of the Sierra Club and its approximately 1300 members. We have previously supplied comments at the time of the appearance of the Public Notice on this project, which was styled SE(Jefferson Parish Wetlands)238. We also completely endorse the comments dated March 4, 1993 made by the Tulane Environmental Law Clinic on behalf of the Orleans Audubon Society and the Louisiana Environmental Action Network.

L4-2. We have reviewed the DEIS on said project, both volumes I & II, and have found many inaccuracies, discrepancies, mistakes, and misrepresentations. Needless to say, we also found many accurate statements, but the presence of certain outrageous mistakes makes it very difficult to place any faith in statements made about aspects of the project about which we have no direct knowledge. Perhaps the most vexing thing about the DEIS was the strong implication that this project must be done, whereas in fact, there is no need for it.

L4-3. As recently as Jan. 20, 1996, an article appeared in the Times-Picayune entitled "Jeff growth slows amid urban ills", indicating that in the past year more people likely moved out of Jefferson Parish than moved in. To state that Jefferson Parish officials have "boasted" about soon "holding the reins" of the most populous parish in Louisiana is to state that the officials in question have a delightfully myopic worldview. Much of Jefferson's growth historically has been what could be called "forced growth", and such growth has invariably contributed to the urban ills of Orleans Parish. If we worked together to strengthen Orleans Parish and implement strict land use controls in Jefferson, everyone in the greater New Orleans area would have a higher standard of living and enjoy a stronger economic base. Instead, Jefferson Parish continues to work to the detriment of New Orleans.

L4-4. Jefferson Parish has a long history of draining wetlands at public expense to enrich certain politicians and large landowners and their often silent partners. There has never been what might be called common sense land use planning. This project is simply another example from that long tradition. Suppose we look now for a time to the DEIS itself.

RL4-1. Comment noted.

RL4-2. The Corps disagrees that the DEIS stated or implied that the project must be done. The document even states early on page S-2 that "The Corps has not completely verified the need for housing on the West Bank". More information has been provided by the applicants and the results are presented in the FEIS.

RL4-3. See RL4-2. Also, the Corps is not a land use planning agency. The Corps only analyzes how a proposed project fits in with local land uses and plans.

RL4-4. Refer to RL4-3.

We'll begin logically with Volume I, and work through to the end of Volume II, making comments that unite the two, or that point out discrepancies where necessary. The problems start already on page S-1 of the Summary. Any references to "need" here should be deleted. "Needing" another golf course (in an area with 17 golf courses) is akin to needing another candy bar, another cigarette, another trip to Disneyland, another massive dose of pesticides or defoliants. Purpose is the only point here. The purpose is to stick the taxpayers with a $6,327,047.00 bill for

L4-5. construction of a golf course (not to mention later operating and maintenance expenses) to enhance a private corporation's chances of making a lot of money. And more canals, and more pumps, and more, more, more. No, the large, empty tracts along Manhattan Blvd. in Harvey and Gretna must be developed first, as well as the vast undeveloped tracts of drained swamp and marsh south of Hwy. 90 bordered on the south by the Cataouache Hurricane Protection Levee. Development of those areas makes much more sense in terms of accessibility to traffic arteries and in terms of minimizing harmful impact on the only national park we have in the State of Louisiana. When, if ever, this tract is needed, the developer(s) would have to foot the bill for a new North-South traffic artery, sewage treatment, utilities, etc.

L4-6. 748 housing units are proposed. All of the alternatives discussed mention placing only enough fill to achieve an elevation of 1 foot MSL. It is hardly likely that this will be a sufficient elevation to allow any homes built to avoid flooding. The fill is notoriously unstable river sand to be placed over wildly unstable soils, which are mentioned later in the DEIS. We will certainly communicate our concerns in this respect to FEMA.

L4-7. P. S-6 - "There is levees to..." should read "There are levees to...".

L4-8. P. S-7 - We totally disagree with the conclusions reached under "Physical Resources". We would, in fact, insist that the urban runoff from both the homes and the golf course would cause serious harm. We have reviewed numerous reports on the quality of soil and water in and adjacent to golf courses, including one done on the high concentrations of mercury found in the lagoon bottoms and the fish that inhabit the lagoons at City Park in New Orleans. The results are alarming at best. We also recall a well-publicized incident a few years ago in which one of the leading professionals on the men's PGA tour collapsed on the course as the result of exposure to the high concentration of pesticide fumes present while he was playing. He was subsequently hospitalized for two days. Pesticides do not leave the body once absorbed, but remain stored in fatty tissues.

L4-9. There can be expected to be an enormous increase in runoff of oil, gasoline, solvents, antifreeze, defoliants, herbicides, detergents, etc. directly into the lagoons and drainage ditches and canals, and hence, directly into the Barartaria Bay estuary. So to say that such an increase should be ignored because industries along the Harvey Canal already pollute the water is like telling a diabetic he might as well take up smoking because he's not in perfect health, anyway. Hopefully, we do not need to launch a long discussion of the merits and importance nationally and locally of the Barataria Bay estuary, the Bayou aux Carpes 404© area, the Barataria Unit of the Jean Lafitte National Historical Park and Preserve, etc. There is no limit to the amount of poison any person can purchase and apply to his/her property, nor any way to keep such poisons

RL4-5. Refer to RM3-2, RM9-1, RM13-5, and RM16-1. Also refer to Chapter 2, Section 2.5, which is the location in the EIS where the undeveloped land within the Cataouatche levee is discussed.

RL4-6. Refer to RL-2, where FEMA was contacted and their response is given.

RL4-7. The correction has been made to S-6 to state that, "There are no levees..."

RL4-8. Refer to RM3-3 and RM3-4.

RL4-9. Chapter 4, Section 4.2.3.2 states, "Stormwater runoff from the EPP site will not flow over or into the 404(c) area, and thus should not impact this area. If water is exchanged between Bayou Barataria and the 404(c) area, existing water flow from Harvey Canal into Bayou Barataria is anticipated to have a much greater impact on this area than stormwater runoff from the EPP site." The comparison being made is that the potential for the Bayou aux Carpes area to be impacted by pollutants is greater from the Harvey Canal than from the stormwater run off associated with the applicant's proposed development. This statement does not support or promote pollution of the 404(c) area or any other habitat. In addition, this section of Chapter 4 has been amended to include additional surface water impacts.

confined to the site of application. There is no limit to the number of electrical "bug zappers", which kill millions of beneficial insects, bees and wasps each year. These insects, including mosquitoes, are critical pieces of the ecological puzzle which golf course residents are not likely to be willing to tolerate.

L4-10. P. S-7 - Not only will wildlife be displaced, but it will be eliminated, as the area's habitat can support only "x" numbers of animals of each species. Crowding existing animals into a smaller area inevitably increases chances for starvation, spread of disease, predation, etc. The increase in use of pesticides, etc. will certainly lower the water quality in any existing canals, thus affecting populations of fish, turtles, alligators, etc. and the people who still fish in those water bodies. We do not know if for the purposes of this study frogs, salamanders and snakes are considered to be "aquatic" or only "semi-aquatic" life, but the impact will be destruction of well over half of any remaining populations of such animals.

L4-11. P. S-8 - They say Ronald Reagan has Alzheimer's, but surely he wrote the following line: "The site is anticipated to increase visitation of JLNHPP and other recreational areas, increasing environmental awareness." Destroy nature to increase environmental awareness - this should become part of the Republican Party's national platform! As the Barataria Unit of the park has had up to 800,000 visitors a year in the past, it is hardly likely that increasing the visitation from 748 houses will be considered mitigation for the loss of 654 acres of habitat.

If the project would, indeed, spawn secondary growth, then there is added reason to deny the permit application.

L4-12. P. S-9 - "The affects of the project..." should read "The effects of the project..."

L4-13. P. S-12 - The assertion that destruction of habitat in Plaquemines Parish would not increase environmental awareness is undoubtedly true, but the prior assertion that destruction of habitat in Crown Point would increase environmental awareness is totally absurd.

L4-14. P. S-13 - The assertion that "the quality of housing provided would be diminished with the absence of a golf course" is false and stupid. I personally am much happier in my house now than I would be if it bordered a golf course.

L4-15. Pp. S-13 & 14 - We are happy to see all of the points listed under "Controversial and Unresolved Issues", and believe this should have been a theme more strongly woven into the text of the entire document. We would like to see concrete mitigation proposals immediately. It would have been very helpful to have had them present as part of this document.

L4-16. P. 1, etc. - This is simply a rehashing of the purpose already laid out in the Summary. Again, all references to "need" should be stricken, as they are no more than the product of an overactive imagination.

L4-17. P. 2 - "The applicants' believe that..." should read "The applicants believe that...".

RL4-10. These comments are unsubstantiated. Refer to Chapter 4, Section 4.3.2 for a discussion of potential project impacts to wildlife and habitat.

RL4-11. All references to the project increasing environmental awareness by increasing visitation to the JLNHPP have been removed. It should be noted here that the visitation of JLNHPP has been increasing, as has the population of the communities of Jean Lafitte and Estelle on the West Bank of Jefferson Parish. In 1994, JLNHPP listed 1,315,274 visitors, in 1995, the park recorded 1, 398,324 visitors.

At no location in this EIS is it suggested that increasing visitation to JLNHPP could be considered mitigation for loss of habitat as a result of the applicant's proposed project. In terms of mitigation, definitive mitigation plans are not required as part of the NEPA process, however, they will be required as part of the 404 permit process and public interest review.

RL4-12. The correction has been made.

RL4-13. Refer to RL4-11.

RL4-14. The Corps is aware that individuals prefer different circumstances. However, the Corps does not agree that the statement "is false and stupid".

RL4-15. The summary section is the designated location to point out to the decision maker controversial or unresolved issues. The decision maker should be aware of these issues during his/her review of the document. It is not the purpose of this document to establish detailed mitigation plans. Commenter should refer to RL14-14, RL15-9, RL15-11, RL5-8, RL5-9, RL5-10, RL5-11, and RL5-12.

RL4-16. Refer to RM7-3.

RL4-17. This statement does not exist on Page 2 of the EIS. However, this statement will be corrected where it appears.

L4-18. P. 10 (Figure 2.2) - The project site borders on the Bayou aux Carpes 404© area, which includes a bald eagle nest site. Noise, air pollution, light pollution, car/truck/golf cart exhaust, etc. will exponentially increase. Direct deposition of trash, illegal hunting and shooting pressure in all surrounding wetlands and woodlands will greatly increase. The already miserable traffic jams on Barataria Blvd. will be even worse.

L4-19. P. 16 - Given the fact that the site has no utilities, no inner road system, is still classified as wetlands, has patches of standing water, that parts of the property have subsided up to 12 feet, etc., if the Parish of Jefferson were in the land acquisition business, then it could easily find 654 acres of like property for a fraction of golf course development price, and for far less than the price suggested by the preparer of this EIS. It certainly does not need a donation of land with all of the costs and liabilities to detract from the national park, which is one of its main attractions.

Nor does it make sense to design storm water retention ponds based on a 10 yr. storm event, as we have had four or five 100 yr. storm events in just the last 20 years; and meteorologists have predicted that we are in the midst of a decade of unusually high rainfall.

L4-20. P. 18 - Again, given the type of land in question, to suggest that the fair market value of such property is $5K to $20K per acre is to suggest heavy use of dream-inducing drugs. Even using the data suggested by the preparer of the EIS, the Parish will still be about $1.5 million dollars in the hole (pun intended) after 10 years of having owned the golf course, and that with no consideration for maintenance or operating costs. Here, too, is the ludicrous and simply false assertion that "the golf course would provide enhanced quality of life for the residents who purchase lots and construct homes in the EPP development." This should be stricken from the text. We have already spoken about pesticides, decreased value of the park experience, flight of wildlife from surrounding areas, traffic, etc.

L4-21. The rest of Chapter 1 speaks about alternatives. This may all be disregarded or simply removed from the EIS, as none of those alternatives is under consideration.

L4-22. P. 38 - Re: the SC1 and JP2 sites - there are no time frame restrictions in the real world, so any arguments about two years are totally bogus, and should be removed from the text.

L4-23. Pp. 51, 53 & 54 - The discussion on soils speaks for itself, as does the entire history of commercial and residential development on such soils as Allemands drained muck, Barbary muck & Sharkey clay. There is a long history of problems & great suffering by residents who have homes built over such soils. There is no need to belabor the point here. Just read the corresponding section of the EIS.

L4-24. P. 72 - We now arrive at easily the most controversial (deficient? deceitful? what?) portion of the EIS. Table 3.1 indicates AAHUs lost in bottomland hardwood forest and in marsh with the project; the line just under the table says "AAHUs calculated over fifty years". This gives the impression that the total amount of AAHUs to be lost with the project is only 329, possibly not an amount to fret so much over. I have read pp. 72 & 73 several times, and find nowhere mention of

RL4-18. Traffic congestion is discussed in Chapter 3, Section 3.6.5.a, and in RM9-1. Letters relative to the potential impact of the project on the nearest bald eagle nest site are contained in Appendix K. There are no data to support the assumptions made in this comment.

RL4-19. Comment noted. There is no evidence that the property has subsided up to 12 feet; site visits to the EPP property have indicated subsidence of 1 to 3 feet in the marsh and former swamp area. In addition, the inner road system and sewer lines will be provided by the developer, not Jefferson Parish. The use of this property for a golf course and housing development is in conformance with Parish planning documents and the Coastal Zone Management Program. In reference to the design of the retention ponds, it is common practice for developments to be designed for the 10-year storm event and is standard in Jefferson Parish.

RL4-20. The market values stated in the document were based on information obtained through real estate appraisal companies on land that had sold or was for sale in the general vicinity of and of similar composition of each of the alternative sites. Property along the Mississippi River with the potential to attract industrial development is realistically worth $20,000.00 per acre. The remaining comments about quality of life are noted and are opinions of the commenter.

RL4-21. Comment noted; however, the Corps does not agree.

RL4-22. The Corps disagrees. Time constraints do exist; the loss of tax dollars, interest, and loss of investor backing are real possibilities.

RL4-23. Comment noted.

RL4-24. Chapter 3, Section 3.3.2, specifically states that AAHUs stands for average annual habitat units. One need only multiply the average units by the 50 year project life to arrive at the total number of units to be lost over the life of the project. This additional information was inserted into Section 3.3.2. Volume II is <u>not</u> essential to the comprehension of this information. Volume II does not expand on the figures presented in Table 3.1, it merely explains the methodology behind them and how they were determined.

the fact that there are 329 AAHUs to be lost annually over the life of the project, given here as 50 years. So the actual amount of AAHUs to be lost with this project is 16,450 AAHUs - quite a difference. The figures given in Volume II of the EIS are slightly different, and figures for bottomland hardwood forest are totally absent, but for fresh/int. marsh a net loss of 7,885.3 AAHUs is quoted. The Corps of Engineers mailed only Volume I to the vast majority of recipients, yet without Volume II we would not have been aware of the true magnitude of habitat destruction from this project. We can only hope that this was an oversight, and that Volume I will be corrected for the Final EIS.

L4-25. P. 76 - Brown pelicans have been regularly sited in the Harvey Canal since mid-1995, and now roost almost daily next to the Harvey locks. It should also be noted that the American box turtle (all varieties) has been listed as an animal of special concern by the World Wildlife Fund, due to high mortality rates from contact with humans, collection by virtually every person who encounters one, and foreign trade estimated for 1995 at 10,000 individuals. These turtles are holding their own on the project site, and in surrounding suitable unpopulated areas. Virtually every individual will be either destroyed or collected with the project in place. The alligator snapping turtle, an animal of special interest to the USF&WS, is also present on the project site. Mississippi kites (a threatened species) make regular seasonal use of all parts of the project site. The site is also used by many other kinds of federally protected raptors and federally protected wading and song birds, and is well within the range of the endangered peregrine falcon.

L4-26. P. 82 - We would be ecstatic if the Salvador WMA consisted of 82,000 acres, but we believe the correct figure to be 26,000 acres.

The figures on the Barataria Unit are no longer correct. The core area has been expanded; we believe the correct figure to be @ 13,500 acres.

L4-27. P. 85 - Yes, there are approximately 17 golf facilities in the study area - hardly a reason to build another.

L4-28. P. 88 - There is no city of Estelle. Estelle is but a portion of the village of Marrero.

L4-29. P. 96 - To quote: "The forested wetland habitat is locally rare and therefore provides a resource with increased aesthetic value...The habitat in and around the Jefferson Parish alternatives provides a rare opportunity for visitors (underline added) to view a natural marsh and forested wetland". In addition, some 54% of all of Louisiana's original wetlands have been lost, including over 80% of all bottomland hardwood forests.

L4-30. P. 99 - More tax dollars for private profit - "The existing pump station has a capacity of 450 CFS, which is inadequate for the area". (See p. 114)

L4-31. P. 111 - "The primary source of long term air emissions would be from increased automobile traffic". We guess this means "long term air polluting emissions", or some such. We disagree that increased such pollution would be minimal.

RL4-25. Refer to RM4-3.

RL4-26. Refer to RM4-4. The figures on the Barataria Unit were obtained in late 1994. The current correct acreage on the JLNHPP Barataria Unit are 20,000 acres in the park and 12,000 acres in the park protection zone. These figures have been added to Chapter 3, Section 3.5.3.

RL4-27. Comment noted.

RL4-28. References to the "city of Estelle" have been omitted.

RL4-29. Comment noted. There is no indication from the resource agencies that the pumped forested wetland habitat is rare, therefore, any reference to such habitat as rare has been reconsidered and removed from this EIS.

RL4-30. Refer to RM3-2 and to Chapter 4, Section 4.6.4.2.2.

RL4-31. This area is considered to have good air quality by the LDEQ and there are no communities in Jefferson Parish that are listed as not meeting emission standards. As stated in Chapter 3, Section 3.1, major air pollution problems do not exist in this area due to southeasterly winds that push pollutants over Lake Pontchartrain, where they are dispersed. These prevailing winds also prevent stagnation. The proposed development would represent less than a 0.5% population increase in Jefferson Parish. The increased traffic estimate of 1640 vehicles per day for the project represents a small increase (3%) in local road use (Barataria Boulevard). These small increases in vehicle traffic do not represent a large impact to air quality.

L4-32. P. 112 - Interestingly worded, this. Under "No action", one reads that over the next 20 years an additional four feet of subsidence is expected. But under "Applicants' Proposed Action", this four feet of subsidence is not mentioned, as if construction of 748 homes, roads, etc. will arrest subsidence.

RL4-32. Refer to RM3-3.

L4-33. P. 114 - "Surface water run-off from the EPP site is expected to increase due to the proposed golf course and housing development. This increase has been calculated as an additional 952 cfs of peak flow during a ten year storm." See p. 99, where we have only 450 cfs capacity at the pumping station. And we've already mentioned the relative frequency of storms with far more rainfall than the so-called "ten year storm". Further, "The water quality of the surface waters in the Estelle Drainage Basin is expected to be impacted in two ways, by contaminated run-off from the project site and removal of wetlands which currently filter run-off from other areas."

RL4-33. Refer to RM3-2, RL2-1, and revisions to Chapter 3 Section 3.6.4.2.a of the EIS.

L4-34. P. 115 - "Approximately one third of the site ...is anticipated to be flooded during 10-year storm events." This sounds like where I'd want to put my houseboat! And remember how they said earlier this was going to subside another 4 feet yet? Jefferson Parish has never given much priority to protecting its citizens from flooding, although it gives #1 priority to spending millions of dollars on projects touted to give such protection. Perhaps the names Orleans Village, Lincolnshire, Westminster and even Woodmere (especially Section 2) ring a bell? And it's amazing that Jefferson Parish Councilmen react with amazement after every flood, as if they're being made aware of these problems for the first time. One which even they should be able to remember was that of May, 1995.

RL4-34. Refer to RL4-33.

L4-35. P. 117 - The EIS exhibits a rather callous attitude towards groundwater, implying that the quality of groundwater may be worsened with impunity, since human beings do not currently utilize shallow groundwater resources beneath the project site. Within the past year, living creatures were found underground at a distance of one mile beneath the earth's surface. We know that chemicals travel underground, and that in geological terms, an earthquake even here could occur within a fairly short time. It would be foolish and criminal to indiscriminately trash our groundwater if such can at all be avoided.

RL4-35. The Corps believes the EIS states adequately what would be expected to happen if any of the alternatives would be implemented.

L4-36. P. 118 -The comments re: lower impact to reptiles and amphibians are disputable (see our comments in regard to pp. S-7 & 76 above). In addition, it appears that any ponded areas will not be left in their natural state, but will later emerge as the product of large-scale manipulation by the developer(s), so most of those animals should be destroyed in the process. Even afterward they could then be expected to be flooded with various pollutants.

RL4-36. Refer to RL5-5.

L4-37. P. 126 - Again, see our comments re: p. 76. The fact that threatened Mississippi kites were not identified within one mile of the site would indicate that only a very cursory study of the site was made. These birds are extremely visible during their season here. This leads one to believe that perhaps some other threatened species may be present but not reported.

RL4-37. Refer to RM4-3.

L4-38. P. 133 - Again, see our comments re: p. S-8 above. Delete any ridiculous claims that this

RL4-38. Refer to RL4-11.

project "may increase environmental awareness and recreational opportunities".

L4-39. P. 135 - Re: demographics and housing demand - refer back to p. 88. In 1990, there were 9,800 vacant housing units on the West Bank. Many more have been constructed since. The estimated demand in the EPP price range is 350 units per year. Obviously, no new housing units will be needed for many years. And this development will "capture" only 76 units per year.

L4-40. P. 137 - This project would have very little beneficial effect on employment, except possibly of immediate nature related to construction. Of course, by increasing the number of units that might be flooded in any year, and by increasing the chance of flooding in existing units, the project could provide additional economic benefits in terms of post-flooding repairs and retail sales to replace lost/damaged items. This is, however, not considered to be a favorable way to stimulate the economy, as it also involves tremendous cost to the general public.

L4-41. P. 140 - The assertion that "The applicants' action and the other Jefferson Parish alternatives would not effect (sic) the visual or aesthetic qualities of the JLNHPP or the Bayou aux Carpes area" is completely false. The entire atmosphere of entering an area that one normally perceives as pristine, or clean, or wild or scenic is ruined by the site of houses and golf carts within a stone's throw of the park entrance.

L4-42. P. 142 - Where the text reads "...due to capacity upgradess currently...", it should read "...due to capacity upgrades currently...".
The applicant must bear the $208K costs of the new force main, should the permit be issued.
We have not managed to find anyone who currently believes that Hwy. 3134 has a "low level of utilization".

L4-43. P. 147 - The Corps of Engineers is directed to consider cumulative impact, which in this particular area could hardly be more severe. We hope this aspect of the problem will not be ignored.

L4-44. P. 151 - Here, again, totally false numbers are given for the total number of habitat units to be lost, as somebody has conveniently forgotten to insert the word "annually" after the word "marsh".
We would like to see concrete mitigation proposals reduced to writing.
Improving timber stands in Ascension Parish is certainly a laudable endeavor; however, we will not accept such as mitigation for wetlands destruction in Jefferson Parish.

L4-45. Pp. 159-160 - It appears that the word "honorable" has been misused in certain instances. Couldn't we just say "Mr." or "Rep." or "Sen."?

L4-46. Moving now to Volume II, we find that Appendix A is mostly just a form of advertising, and of no use for our purposes.

RL4-39. It is estimated approximately one third of the 9,800 housing units cited might be considered "for sale" or as "other vacant" according to the 1990 census. The remainder of the housing units are for rent, rented or sold but not occupied, for seasonal or occasional use, for migrant workers, or boarded up. The "for sale" or "other vacant" housing units (approximately 3,250) do not necessarily represent quality housing which would attract or retain residents of Jefferson Parish. The estimated home prices for the proposed project are between $140,000 to $310,000 and are being provided to fulfill a demand for quality higher end housing. Since the 1993 Jefferson Parish average home price was $100,791, the majority of these 3,250 "for sale" or "other vacant" homes most likely do not meet the market demand for higher end housing. The results of the subpopulation survey provided in Appendix C demonstrates this demand for quality housing on the West Bank of Jefferson Parish.

RL4-40. The document discloses the likely employment scenarios.

RL4-41. Residential development already exists immediately to the east of the JLNHPP and in closer vicinity to the park than the applicants' proposed action. The applicants' proposed action is located across LA 3134 should not impact the visual resources or aesthetic qualities of the park. The project will also be separated from the Bayou aux Carpes area by a hurricane protection levee. The National Park Service did not comment on the DEIS.

RL4-42. Correction provided as suggested. Developers typically are required to pay for infrastructure improvements such as the force main required for the applicants' proposed action. The low volume of traffic counted on Highway 3134 indicates this roadway provides the highest level of service or unrestricted speed and maneuverability. The traffic anticipated due to the project should not impact this level of service. Respondent may have confused Highway 3134 with LA 45 (Barataria Boulevard) to the north which does have some capacity restrictions.

RL4-43. Refer to RM13-1.

RL4-44. Refer to RM7-5.

RL4-45. Comment noted.

RL4-46. Comment noted.

L4-47. Appendix B, p. 2 - To the best of our knowledge, there is not, nor has there ever been an entity known as the "National Wildlife and Forest Reserve". The fact that this analysis has been published with such an off-the-wall item, when the real info is so available, casts doubt on the verity of the entire document.

L4-48. P. 3 - There is no "Bayou Signette". Probably Bayou Segnette is meant. We are aware of only one Dugues Canal.

L4-49. Pp. 4 & 5 - The "gaming" analysis appears to be outdated. We would refer you to the multitude of articles on casino closings and other problems gambling is having in our area. Most jobs in that industry are low-paying, and would hardly create many candidates to become homeowners.

L4-50. P. 6 - Again, refer to the Times-Picayune article of 1/20/96 "Jeff Growth Slows Amid Urban Ills", mentioned above.

L4-51. P. 7 - Earnings information appears to be misinterpreted. It may be true that homeowners in Jefferson and Orleans are becoming older and are earning more money, but they are not becoming "wealthier". The buying power of a dollar is still down. In 1971, one dollar bought 3.67 Deutsche Marks; today a dollar buys 1.45 DM. This trend is similar against the currencies of those countries with strong economies. More money does not necessarily translate to more wealth. This fact may be confirmed by interviewing real people.

L4-52. P. 8 - "Metaire" should read "Metairie".
"Maket" should read "Market".
"Signette" should read "Segnette".

L4-53. P. 9 - An assertion is made that "Greenleaves and Ormond Country Club are successful golf oriented projects...". Perhaps in terms of money made for the developer(s), they are "successful". We all too well recall 2 immense floods in Ormond Estates; during the last, the cypress-tree-filled waters covering everything looked quite natural. We would like to have figures supplied at the parish, state and federal levels, and by all involved insurance companies just what the cost of that success was during those 2 events. It is hard to remember, but there have also been numerous floods in St. Tammany Parish, and we think Greenleaves was among the victims there. If so, then we would also like to see the figures on public funds spent as the result of flooding problems in that subdivision, too.

L4-54. P. 11 - The author must be puzzled, because he believes there is a lack of land in St. Tammany Parish. He needs to be provided with some infrared photos.

L4-55. Memorandum, p. 1 - Tom Fazio or Ben Crenshaw will design the course. If you look at Appendix A, p. 15 under Project Feasibility, someone named P. B. Dye will design the course. Is somebody playing games?

RL4-47. This was a housing study document prepared by a private firm for use in establishing the demand for quality housing in Jefferson Parish. The entity mentioned should be the "United States Fish and Wildlife Service" and not the "National Wildlife and Forest Reserve", however, this error did not effect the housing demand study and will not be corrected.

RL4-48. Again, the comment references the housing document referred to in L4-47. The document should read as Bayou Segnette, however, the misspelling of this waterway does not impact housing demand.

RL4-49. The analysis provided within the report referenced in Appendix B, utilized the gaming industry as one of many economic indicators. The report provided in Appendix B is considered a final report and will not be altered. For additional information on need, commenter should refer to RM7-3.

RL4-50. Refer to RM7-3.

RL4-51. Comment noted.

RL4-52. The need for corrections is noted. Changes are not provided since document in Appendix B is considered a final report.

RL4-53. Major rainfall events have caused flooding and will continue to result in flooding in the New Orleans metropolitan area. Some may argue that the city and surrounding communities should never have been built where they are, but they were. The May 1995 flood resulted in $306 and $545 million in damages in Orleans and Jefferson Parishes respectively. This flood was of such magnitude that it represents something of a worst-case scenario. Many long-standing homes never flooded before this event and it demonstrates that it is very difficult to avoid the possibility of flooding in the New Orleans metropolitan area. Some 13,000 homes were flooded in Orleans Parish, 17,000 homes were flooded on the east bank of Jefferson Parish, and 4,000 homes were flooded on the west bank of Jefferson Parish. Looking specifically at Jefferson Parish, approximately 25 percent of the residences flooded and damages averaged about $19,800 per flooded home. If we assume that the proposed project were in place during an event of this size, up to 188 homes would have flooded using the 25 percent figure. Multiplying by the average damage per home (shown above), contributes about $3.7 million in damages or 0.67 percent of the damages in Jefferson Parish.

RL4-54. The Corps agrees that there is still quite a bit of land in St. Tammany Parish; however, we take the statement to indicate land with convenient access (10 minutes) to the bridges connecting the north shore to the south shore.

RL4-55. The intent of 1992 report provided by Robert Charles Lessor & Co. (referred to as memorandum by respondent) is to indicate a top name quality designer will design the course. P.B. Dye, a quality designer, has provided a market analysis and initial layout for the course. The intent of the applicants to utilize a top name quality designer to finalize the course design remains.

L4-56. Memorandum, p. 3 - Talks about 500 acres, with 175 acres donated to the Parish. Other things indicate a 654 acre project, with 200 acres donated to the Parish. Which is correct? "...Jefferson Parish have already engaged..." should be "...Jefferson Parish has already engaged...".

L4-57. Memorandum, p. 4 - The statement "Access is further enhanced by the expansion of several main artery roads in the area, including Barataria Boulevard and the Lafitte Larose (sic) Highway, from four to six lane boulevards" is unsupported by personal observation. Perhaps the author knows of some expansion supposedly planned for some nebulous future time, but no evidence of any such expansion is currently visible.

Then we are told both that there is a concentration of higher density housing on the northern border of the subject property, and that there are developable and undevelopable vacant parcels on the northern boundary of the site. And again the make-believe "National Forest and Wildlife Preserve" appears.

L4-58. Memorandum, p.7 - We would like an analysis of the probabilities that a) an annual increase in population on the West Bank of 241 persons could generate a "need" for this project, and b) that an increase in population of only 241 persons could generate an increase of 674 households.

L4-59. Appendix C, 1st page - "The assumption that their is a..." should read "the assumption that there is a...".

"Northshore" implies some formal name which does not exist. Perhaps "north shore" is meant, or maybe there is some formal/informal convention within the real estate industry which refers to St. Tammany Parish as the "North Shore".

The remainder of Appendix C is irrelevant.

L4-60. Appendix D - irrelevant drivel.

L4-61. Appendix E - Re: Hobdy letter of 6/1/95 -We believe that Destrehan Plantation is on the East Bank of St. Charles Parish. Alternative #5 is in Plaquemines Parish, not in St. Charles Parish.

L4-62. Appendix F - Does the State of Louisiana really have water quality standards? Could you supply the exact figures on how this project would not violate such standards? We are particularly looking at pesticides, defoliants, herbicides, arsenic, ammonia, and heavy metals at every stage of construction, dredging or deposition of any fill, pre- and post-construction runoff, testing of surface and subsurface deposits at any old drilling sites, etc. Have any water quality standards changed since Gov. Foster has taken office?

L4-63. Appendices G & H - Irrelevant.

L4-64. Appendix I - See our aforegoing comments on actual number of AAHUs to be lost with the project in place.

L4-65. Appendix J - Irrelevant.

RL4-56. The numbers referred to were presented in the 1992 report provided by Robert Charles Lessor & Co. (referred to as memorandum by respondent) as well as the permit application. The original permit application states that the housing project will be constructed on approximately 643 acres with the donation of 175 acres to Jefferson Parish for the construction of a PGA caliber 18 hole golf course. The 654 acreage figure was developed by utilizing a planimeter on a 1995 aerial photograph of the Estelle site to obtain an acreage figure for each of the habitat types present on the property (which was necessary for the WVA environmental impact analysis). Utilizing this method, the total acreage figure for the site was determined to be 654 acres. For the purposes of the habitat review (including biological and aquatic resources, wildlife populations and habitat, and endangered and threatened species) the 654 acre figure was utilized for baseline conditions and to assess impacts, which are discussed in Chapter 4. In reference to utilizing 200 acres for the golf course, it was determined that the alternative site search would be more complicated by searching for 175 acre properties versus a higher rounded figure of 200 acres. This explanation has been added to Chapters 2 and 3.

RL4-57. Refer to RM9-1 and RL4-47.

RL4-58. The statement provided is based upon an analysis of economic indicators with the numbers provided as the most probable outcome. The "memorandum" referenced was a previous report provided by Robert Charles Lessor of December 7, 1992. The larger increase in households compared to population growth is due to a decrease in size of households. A recent report prepared by Real Property Associates & Company indicate both a strong employment growth between 1997-2000 due to recent increases in oil and gas activity, and limited lots available in existing development for house construction (Appendix Q). Both indicate the need for the applicants' proposed action. Reports provided in Appendix R and Appendix Q further demonstrate the need and feasibility of the proposed action. Commenter should also refer to RM13-1.

RL4-59. The need for corrections is noted. The term utilized should be the north shore. Changes are not provided since document in Appendix C is considered a final report.

RL4-60. Comment noted.

RL4-61. The need for corrections is noted. However, Appendix E contains copies of official correspondence which can not be changed. Requested changes in verbiage of the letter do not impact the evaluation performed by this agency.

RL4-62. The State of Louisiana water quality standards are located in the Louisiana Administrative Code (LAC) 33:IX:Chapter 11. Impacts to surface water were discussed in Section 4.2.3 of the EIS with consideration to these standards and existing water quality of surrounding water bodies.

RL4-63. Comment noted.

RL4-64. Refer to RM4-2.

RL4-65. Comment noted.

L4-66. Appendix K - There is apparent disagreement about where bald eagle nesting sites are located in respect to the proposed development. This is, in our opinion, of enough import to warrant exact information.

Perhaps there should be no input into this EIS from the Louisiana Natural Heritage Program, as they seem to believe, and we quote, that "No state or federal parks, wildlife refuges, or wildlife management areas are known within the Louisiana boundaries". Are they from the same planet?

Again, see our prior comments on endangered and threatened species, and species of special interest.

L4-67. Appendices L, M and N - Irrelevant.

L4-68. Appendix O - Needs to be accompanied by an explanation which would show how the given data would qualify or disqualify the project based on expected flooding.

L4-69. Appendix P - Re: Jefferson Parish CZM's letter of 5/18/93 - The concern expressed is nice to some tiny extent, but not of great overall use, as the suggestion could cause toxic hotspots, such as mentioned before with regard to City Park's lagoons.

L4-70. In the past, we have been accustomed to having available as part of any EIS those comments submitted in writing by all interested parties. Those of particular use to the general public are those submitted by such agencies as FEMA, the EPA, the USF&WS, the NMFS, the La. Dept. of Wildlife & Fisheries, the national, state and local conservation and civic associations, good government groups, etc. We must insist that all such comments are made part of the Final EIS.

L4-71. It is not far-fetched to imagine that this application was submitted knowing it would be denied merely to set the stage for some type of "takings" lawsuit in an attempt to make the taxpayers pay to protect themselves from a lousy project. We hope not.

L4-72. Thank you for this opportunity to comment. When dealing with the future of an entire area, particularly of an area bordering the largest unit of the only national park in the state, and contiguous with the northern boundaries of perhaps the estuary of most national importance, may we suggest that you do not fail to send the entire EIS package to all interested parties.

L4-73. Please include these comments in the permanent written record of this hearing and in the Final EIS. We reserve the right to amend these comments and/or to submit additional comments within the extended comment period.

Yours truly,

Joseph I. Vincent, Member
Conservation Committee

RL4-66. Refer to RM4-3 and RM4-6.

RL4-67. Comment noted.

RL4-68. New stormwater contaminant data has been provided to Appendix O. Information on flooding is addressed in RL2.

RL4-69. Comment noted.

RL4-70. All comments received will be incorporated into the final EIS.

RL4-71. Comment noted.

RL4-72. Comment noted.

RL4-73. Comment noted.

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Post Office Box 649
Albuquerque, New Mexico 87103

IN REPLY REFER TO:

February 29, 1996

ER 96/41

U.S Army Corps of Engineers,
New Orleans District
ATTN: Robert Martinson
P.O. Box 60267
New Orleans, Louisiana 70160-0267

Dear Mr. Martinson:

The U.S. Department of the Interior has reviewed the Draft Environmental Impact Statement (DEIS) for the Estelle Plantation Partnership Municipal Golf Facility and Housing Development, Jefferson Parish, Louisiana. In this regard, we provide the following comments for your consideration.

General Comments:

L5-1. The DEIS adequately describes most of the significant fish and wildlife resources in the project area and at the alternative project sites. However, we believe that more information on impacts to fish and wildlife resources is needed, along with greater specificity regarding planned mitigation measures.

Specific Comments:

L5-2. Page 114, Paragraph 4.2.3.2 - We recommend that, if feasible, the initial storm water runoff be diverted into the retention ponds, and that additional runoff be diverted to the drainage ditches. By holding and slowly releasing the retained initial storm water (that portion of the storm water runoff which has the poorest water quality), negative water quality impacts could be minimized. The above recommendation also applies to paragraphs 4.2.3.3 through 4.2.3.6.

L5-3. Page 115, Paragraph 4.2.3.2 - We do not believe that sufficient information has been presented to demonstrate that 748 new housing units will not adversely impact surface water quality. Storm water runoff from the project site can affect the water quality of adjacent wetland sites and can negatively influence the water quality of wetlands and associated aquatic habitats outside the V-levee [e.g., Bayou aux Carpes 404 area, and Jean Lafitte National Historical Park and Preserve's Barataria Unit]. Even if improved construction standards are used, sewer lines will leak as they subside and deteriorate over time. Such leakage would likely increase nutrient loading and biochemical oxygen demand, adversely impacting water quality in wetlands and aquatic habitats in

RL5-1. Comment noted.

RL5-2. Chapter 2 indicated that for all the alternative sites considered except the Bunge Corporation site, the proposed project would be pursued at these locations with few changes. Thus, it is the intent of the applicants to provide similar drainage patterns as shown on Figure 2.6 for all alternative sites except the Bunge Corporation alternative site. Where feasible, initial stormwater runoff will be diverted to retention ponds and the additional runoff will be diverted to drainage ditches. The recommended changes to paragraphs 4.2.3.2 through 4.2.3.6. have been provided.

RL5-3. Refer to RM3-4, RL4-9, and RL5-2. The BOD_5 of run off from established residential areas is presented in Table 4.1 of the EIS. The values reported for BOD_5 might be experienced in fifteen years after construction of the 748 new housing units. The use of retention ponds and drainage canals prior to discharge to Bayou Barataria should reduce the amount of BOD, phosphorus, and nitrogen reaching this water body. Settling basins may be typically responsible for removing as much as 30% of these pollutants. The degree of pollution from the EPP, EG, ML, and Landco site anticipated to reach Bayou Barataria is not anticipated to further degrade existing water quality.

the project area and negatively influencing wetlands outside the V-levee. Water quality degradation is a significant problem affecting the fishery resources of the upper Barataria Basin. We therefore, recommend that additional information be presented in the final EIS to accurately describe the potential water quality impacts of the proposed development on fish and wildlife resources. The above comments and recommendation should be addressed for each project alternative site discussed in paragraphs 4.2.3.3 through 4.2.3.5, and also apply to paragraphs 4.2.3.6 and 4.2.3.7, except for storm water runoff from those alternative project sites which does not influence areas outside the V-levee.

L5-4. Page 121, Paragraph 4.3.2.2 - Many of the bird species now using the site would not inhabit that area under future with-project conditions. While some bird species can adapt to urban areas, forest-interior nesting species (e.g., hooded warbler, pileated woodpecker, and red-shouldered hawk) that depend on large contiguous or semi-contiguous tracts of forested lands for successful nesting and/or foraging will be adversely impacted; this impact should be appropriately considered. This comment also applies to paragraphs 4.3.2.3, 4.3.2.4, and 4.3.2.5.

L5-5. Page 121, Paragraph 4.3.2.3 - While the 38 acres of retention ponds would provide moist areas for spawning, egg laying, and incubation by amphibians and reptiles, we believe the concentration of insecticides, herbicides, and suspended solids (reference Page 115, Paragraph 4.2.3.3) in those ponds would decrease the diversity and abundance of amphibians and reptiles. In addition, we do not agree with the conclusion that, "Snakes, lizards, and frogs adjust fairly well to "backyard life and would not likely suffer extreme decreases in populations as a result of ... " implementing this alternative. The deposition of 2.1 million cubic yards of fill would probably eliminate most habitat for the amphibians and snakes now occurring there. Using river sand to raise the site elevation would reduce soil moisture and increase the infiltration rate, further reducing the area's value for species that need moist areas for spawning, egg-laying, and incubation. We recommend that the final EIS recognize that only limited recolonization of the project site would occur. Additionally, existing populations levels and the current diversity of reptiles and amphibian populations would not return to pre-project levels. The above comment also applies to paragraphs 4.3.2.4 through 4.3.2.7.

L5-6. Page 124, Paragraph 4.3.3.2 - Episodic changes in drainage canal flows may result in changes in the composition of the aquatic community (i.e., from species which are more tolerant of stagnant or low-flow conditions to a community having species more tolerant of higher-flow conditions and vice versa). Such changes in community composition, however, would not necessarily represent an improvement in the aquatic community. We recommend that anticipated changes in the aquatic community due to project implementation be more fully described in the final EIS. The above comment also applies to paragraphs 4.3.3.3 through 4.3.3.6.

L5-7. Page 147, Paragraph 4.7.2 - Reference previous comments regarding Page 115, Paragraph 4.2.3.2. This comment also pertains to paragraphs 4.7.3 through 4.7.5.

L5-8. Page 151, Paragraph 4.8, subparagraph 1 - The final EIS should specifically identify those potential mitigation sites within the V-levee that are suitable and available for storm water retention, surface water restoration during the fall and winter months, and for bottomland hardwood reforestation and/or enhancement.

RL5-4. Comment noted and added with additional information written to Sections 4.3.2.3, 4.3.2.4, and 4.3.2.5 of the FEIS.

RL5-5. Section 2.3.1 of the EIS states ""a compartmentalized fill method using dikes would be utilized to protect portions of the site that are to be preserved." Thus, some of the habitat for the amphibians and reptiles would be preserved. Comment noted and added to sections 4.3.3.2 through 4.3.3.6 of the EIS.

RL5-6. Additional discussion of aquatic community impacts has been added to the suggested sections.

RL5-7. Refer to RL5-3.

RL5-8. The FEIS further defines potential on-site mitigation measures under consideration by the Corps. Detailed mitigation plans will not be presented in the EIS.

L5-9. Page 151, Paragraph 4.8, subparagraph 2 - We agree that habitat preservation and improvement are useful compensatory mitigation tools; however, to adequately evaluate the amount of compensatory mitigation likely to be achieved, the specific areas where such mitigation could be implemented should be identified.

L5-10. Page 152, Paragraph 4.8, subparagraph 3 - Restoration of damaged habitat may provide acceptable mitigation; however, the location of the potential mitigation areas, an assessment of their suitability for restoration, and the type and amount of habitat benefits those sites could provide should be identified in the final EIS.

L5-11. Page 152, Paragraph 4.8, subparagraph 4 - We recommend that all available mitigation options in or adjacent to the project area be thoroughly investigated prior to pursuing mitigation outside the project vicinity.

L5-12. Page 152, Paragraph 4.8, subparagraph 5 - While they have identified habitats in the Jean Lafitte National Historical Park and Preserve's Barataria Unit that would benefit from restoration and enhancement, we recommend that habitat units lost as a result of development be replaced by implementing actions that would exceed any management activities currently planned for implementation by the National Park Service.

L5-13. Page 152, Paragraph 4.8, subparagraph 6 - We support mitigation of impacts to fish and wildlife resources by first avoiding and minimizing on-site impacts, and then rectifying and/or compensating for unavoidable impacts. In addition, we recommend that the feasibility of minimizing adverse water quality impacts by using retention ponds to hold initial storm water runoff be investigated; the results of that analysis should be included in the final EIS.

We appreciate the opportunity to review this DEIS. We trust these comments will assist in the development of the final document.

Sincerely,

Glenn Sekavec

Glenn B. Sekavec
Regional Environmental Officer

RL5-9. A detailed mitigation plan will be developed in coordination with the 404 permit review and public interest review processes and will be presented after the printing of the FEIS.

RL5-10. The location of potential mitigation areas, an assessment of their suitability for restoration, and types and amount of habitat units those sites can provide will be established as part of the mitigation plan to be developed in coordination with the 404 review and public interest review processes.

RL5-11. The Corps agrees with conducting as much on site or adjacent to the site mitigation as feasible.

RL5-12. The Corps agrees. Any mitigation efforts proposed to be performed within the boundaries of the JLNHPP will exceed current management activities.

RL5-13. Refer to RL5-8 and RL5-11.

1723 ½ 4th St.
New Orleans LA. 70113
March 7, 1996

Mr. Bob Martinson
Army Corps of Engineers
Box 60267
New Orleans LA 70160-02267

ref: Estelle Plantation Partnership EIS

Dear Mr. Martinson:

These comments are submitted in response to the draft EIS for the Estelle Plantation Partnership Municipal Golf Facility and Housing Development. Many of these oral comments reiterate the remarks I made at the February 22 public hearing.

Cumulative Impact

L6-1. Although cumulative impact assessment is among the most important concerns in a project of this scale, the draft EIS devotes barely a page to reviewing cumulative impact at the subject site. Many issues are discussed individually throughout the report-- flooding potential, urban runoff, groundwater contamination, soil conditions and subsidence potential, habitat destruction, infrastructure requirements, proximity to Jean Lafitte Park; however, given the large size of this site, there is a glaring lack of analysis of the cumulative, interactive impact of these concerns on both the site itself and the surrounding area.

L6-2. The report states that the largest cumulative impact would be the potential for secondary development and increased pressure to develop wetland tracts surrounding the EPP site. If this is true, there is no effort to quantify (Eg. lost AAHU (habitat units)) of this significant indirect effect. We have only to look at the poorly planned, leap-frog development of St. Tammany Parish, subdivisions by subdivision (primarily in drained , leveed wetland areas similar to the subject site) to observe the incremental, destructive impact development has had on drainage, sewage, and road infrastructure; wetland habitat, and the overall quality of life on the North shore.

L6-3. Therefore, I recommend that the final EIS more thoroughly assess the cumulative impact of above mentioned issues on both the subject site and the adjacent currently vacant parcels on which secondary development is expected. I also recommend that the final EIS explicitly state whether the negative consequences of secondary development in surrounding areas, and the interactive, "synergistic" impact of the above mentioned factors on the subject and surrounding site merits the EPP development. Reasons for the conclusion should also be explicitly stated.

L6-4. If the likely negative environmental impacts outweigh the questionable positive economic impacts (the latter having only speculative, unsubstantiated documentation), then there is no

RL6-1. Refer to RM13-1.

RL6-2. The WVA analysis performed for the applicants' proposed action and other alternative sites accounted for potential impact on habitat within 0.5 mile radius of the site.

RL6-3. The cumulative impact section has been revised. Refer to RM13-1. The EIS is not a decision document, but an information document. Any conclusions about the merits of the development will be contained in the decision document.

RL6-4. Comment noted.

justification for permitting this project, particularly since the project is non-water/wetland dependent.

Alternative Site Analysis

L6-5. Most of the five "Reasonable" alternative sites considered are at least partially wetlands. 404 permit review procedures require that serious consideration be given to non-wetland sites for projects that are clearly non-water dependent such as this one.

L6-6. Although the report gives brief descriptions of alternatives considered but eliminated (Section 2.4), there is no map showing the location of these sites. This map should be provided. I also recommend that a map be provided showing existing non-wetland vacant parcels in Jefferson Parish over 100 acres. Tables 2.2 and 2.3 should be amended to include these smaller sites. Additionally these charts should add the same "wetland/non-wetland" criteria found in table 2.4. Any site that is predominately wetlands should be ruled out at the outset, since a non-wetland dependent use is under consideration. .

L6-7. In addition to reducing the potential site alternatives size to 100 acres (your alternatives analysis does not look at properties under 200 acres, according to Table 2.2) , serious consideration should be given to developing the 748 lots and golf course within two or more vacant parcels. These parcels need not be adjacent to, or even in close proximity to each other. Legitimate cost/economy of scale considerations should not preclude serious evaluation of the potential for portioning this development among two or more non-wetland parcels located adjacent to established neighborhoods currently having the infrastructure to support residential development. Manhattan Blvd. has several such vacant parcels. In this regard, the final EIS should also consider a downsized golf course --eg. nine holes, given the diminishing number of large undeveloped non-wetland sites in the New Orleans metropolitan area.

Thank you for seriously considering these comments.

Sincerely,

Harvey Stern,
Co-chair Wetlands Committee
New Orleans Sierra Club

RL6-5. The alternative search process is detailed in Chapter 2 of the EIS. The alternative search boundary utilized was identified in Figure 2.1 and alternative sites which were evaluated are displayed in Figure 2.4. Non-wetland sites were identified and evaluated within this alternative process.

RL6-6. The map requested is provided in Figure 2.4. As described in RM13-5, 200 acres was identified as the minimum acreage necessary to support the applicants' proposed action, eliminating detailed consideration of properties under 200 acres. It should be noted that properties falling just below 200 acres were still considered in the analysis (at least two sites that were less than 200 but greater than 150 acres were considered).

RL6-7. The consideration of a downsized golf course or course divided between widely scattered parcels is respectively declined. Such a consideration would not approach fulfilling the applicants' proposed action to provide a PGA caliber golf course. The Corps agrees that the two activities do not have to occur together.

TAYLOR
DESIGN

3/8/96

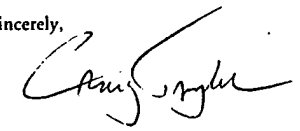
Dear Mr. Martinson,

L7-1. I'm writing in regard to the Estelle Plantation Project to express my profound opposition to this development. The Corps of Engineers has been entrusted with preserving, whether they are aware of this or not, Louisiana's rapidly dwindling natural habitat. Instead of using this ecologically sensitive area for a nature reserve, arboretum or some type of eco-park, we have developers who want to essentially clearcut this area to build.....a golf course?????.....in a wetland area??? The lack of vision or thoughtfulness of so many of our community and political leaders strikes me as nothing less than ludicrous and would almost be humorous if the consequences weren't so tragic.

L7-2. I've seen beautiful areas of the Westbank manipulated, manhandled, clearcut and paved over with little regard to creating any type of long range design aesthetic or greenspace or for preserving what was once beautiful and indigenous. When you lose concern for the so called "little things" of life (forests-habitat, wildlife) that most people take for granted you foster a community with little regard for Life and for each other.

L7-3. This particular area is simply not appropriate for this development. If the pertinent parties could simply remove their greenback colored glasses for a moment they could see the obvious. Since they will not, I implore you and the Corps to not rubberstamp this project but to stand up for the habitat to be lost and the generations to come that we may still have something worthwhile to give them.

Sincerely,



Craig M. Taylor • Watermark Studio • 630 Bellanger St. • Harvey, LA 70058 • 504-341-4872

RL7-1. Comment noted.

RL7-2. Comment noted.

RL7-3. Comment noted.

Peter C. Guynn
41 Maryland Drive
New Orleans, La. 70124

Mr. Bob Martinson
Dept. of the Army
New Orleans District, Corps of Engineers
P.O. Box 60267
New Orleans, La. 70160-0267

Dear Sirs,

On February 22, 1996 I stated my objections to the Estelle Plantation Partnership Project and problems with the DEIS at the public meeting. For the record here are my objections:

Economic:

L8-1. (1) The entire economic viability of this project is predicated on the acceptance of the entire financial and liability risk onto the public sector. Jefferson parish will first spend $6-7 million to build a golf course, secondly $1.5 million to upgrade the Estelle pump station (triggering a $45 million expenditure to add a new pump station for the remaining V-Levee area). Thereupon the developers can begin selling upscale lots and homes on the remaining 450 acres at the Estelle Plantation at their convenience. Additional expenditures will then include $3.2 million to upgrade the Marrero Sewage Plant as well as the building and maintenance of roads and infrastructure - all costs borne by the public sector. Also future environmental liabilities for water contamination caused by use of chemicals on the golf course will become the public's responsibility. In addition problems with subsidence (pages 51,53-54 Vol. I, DEIS) of the native soils is anticipated and future liabilities for this would be borne by the public as well. No responsible business enterprise would undertake this project without these subsidies.

The deficiencies in the economics of this project as presented must be corrected by:

L8-2. (1) Submitting the public golf course concept to a public referendum at election time. This will eliminate the need to rely on surveys by self-serving organizations (Golf Associates) and once and for all establish whether or not there is a demand for one.

L8-3. (2) Housing demand/economic surveys must take into account the demise of Casino Gambling in the GNO area since some of the housing demand was predicated as such in the DEIS. Also actual surveys while measuring the demand for upscale housing must also ask if West Bank residents would also be willing to move (upscale) to an area more flood-prone and subject to subsidence risk.

L8-4. (3) A study or comparative analysis be performed to predict the subsidence effect of the dredge material on the native soils found in the area in order to predict potential subsidence damage such as has occurred at other areas.

These Environmental considerations must be addressed in the final EIS:

L8-5. (1) Mercury contamination at the City Park lagoons has now been linked to fungicides used at the Golf course operation there. Further study is needed to confirm this link and if verified the developers must specify mitigation measures taken to avoid HG contamination in the Golf course retention ponds. In addition fertilizer and insecticide runoff will be extensive and will be directed into the Barataria Estuary, possibly affecting Jean LaFitte Park. Therefore a Coastal

RL8-1. Refer to RM3-2, RM3-3, RM3-4, and RM5-2.

RL8-2. This initiative would need to come from a source other than the Corps.

RL8-3. Additional housing demand analysis has been done and included in the FEIS. The demand and preference of West bank residences for upscale housing was demonstrated within the subpopulation study included as Appendix C of the EIS.

RL8-4. Refer to RM3-3.

RL8-5. Refer to RM3-4.

Use Permit is required and be of sufficient scope to require extensive mitigation on part of the developers.

L8-6. (2) Mitigation measures/alternative were only passively addressed in the DEIS and were of minimal value in relation to the value of the existing habitat to lose. In addition the WVA and Habitat value analysis did not account for the eventual migration/adjustment of the native fauna/flora to the effect of current pumping and thus may have denigrated it's value unjustly.

There is no firm acknowledgement that approval of the EPP site will result in the eventual development of the entire V-Levee wetlands. Yet this assumption is evident by the earmarking of public funds ($45 million) for pumping and the verbal expressions of pro-development interests at the public hearing. Therefore a tacit assumption that approval of the EPP project will trigger the eventual development of the entire V-Levee wetlands requires that a long-range, committed and significant mitigation program to replace the significant value of the wetland resourses lost must be specified in the final EIS.

Thank you for your consideration of my views on this matter.

Yours Truly,

Peter Guynn

RL8-6. The Corps did take the adjustment into account. That is why the EPP site was analyzed as bottomland hardwoods in agreement with the Fish and Wildlife Service and Louisiana Department of Wildlife and Fisheries rather than analyze it as the remnants of swamp. The Corps does not agree that if this development is approved, that the Corps will allow unrestricted development. As long as an area remains a wetland, developers will be subject to Clean Water Act and public interest review requirements.

MS

HOME BUILDERS ASSOCIATION HBA OF GREATER NEW ORLEANS
2424 North Arnoult Road, Metairie, LA 70001-1891 (504) 837-2700 FAX # 837-HOME

TELEPHONE TRANSMITTAL COVER SHEET

DATE: 03/11/96
TO: attn: John Weber
SENDER: Jim Gleason
THEIR FAX NUMBER: 862-2572
NUMBER OF PAGES TO FOLLOW COVER SHEET: 2
COMMENTS: Re: DEIS Estelle Plantation, Jefferson Parish

HOME BUILDERS ASSOCIATION HBA OF GREATER NEW ORLEANS

2424 North Amoult Road, Metairie, LA 70001-1891 504/ 837-2700 FAX/837-4663

March 11, 1996

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Department of The Army
New Orleans District,
Corps of Engineers
P. O. Box 60267
New Orleans, LA 70160-0267

Attn: R. E. Schroeder, Jr., Chief
Planning Division
Environmental Analysis Branch

Gentlemen:

This letter and the following comments are being submitted by and on behalf of the Home Builders Association of Greater New Orleans (the "Association"), a trade organization composed of 1,000 members engaged in all aspects of the home building industry in this area and beyond.

L9-1. The purpose of this letter is to express our Association's support of efforts to place areas of the Lower Estelle Area of West Jefferson into commerce, and to urge you, upon completion of your review process, to issue the necessary permits to allow the proposed project to proceed.

L9-2. Our members provide thousands of jobs and contribute significantly to the overall economy of the area. The health and growth of our members' businesses, however, depends upon the availability of land for development and the creation of single family homes. This is of paramount importance to our membership.

L9-3. It has always been our association's understanding that the area in question is one that would be available for residential and commercial development housing growth to meet the demands of the market over time. We are aware that the area is, and for some considerable time, has been within the approved protection levee system of Jefferson Parish and under drainage for several decades. It was our Association's further understanding that the location of the West Bank Hurricane Protection Levee which protects the project area was arrived at with due consideration for the present and future growth and development needs of West Jefferson, and that all of the land areas within the West Bank Hurricane Protection Levee would be available for conventional development, including, in particular, single family residential communities, the "mother's milk" of our Association's members.

"Do Business With HBA Members"

RL9-1. Comment noted.

RL9-2. Comment noted.

RL9-3. Comment noted.

L9-4. It is our Association's feelings that a denial of the permits for this project will result in severe hardship to the members of our association, as well as the economy of the area and the West Bank, both now and for the foreseeable future.

L9-5. Accordingly, we reiterate our request that the permits applied for be granted and that the project be allowed to proceed to fruition.

Very truly yours,

Home Builders Association
of Greater New Orleans,

By: Linda Nugent Smith
Linda Nugent Smith,
President

RL9-4. Comment noted.

RL9-5. Comment noted.

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P. K. Scheerle

TO: Attn of Mr John Weber

FAX: 862-2572

FROM: Joseph J Kraus, Jr.

RE: Letter March 11, 1996
Draft Environmental Impact Statement
Lower Coastal Area

DATE: 3/11/96 3:35

MESSAGE:

If you do not receive a total of 3 pages,
please let Millie know as soon as possible at 837-9470.

3012 26TH STREET • METAIRIE, LOUISIANA 70002 • PHONE (504) 831-0925 • FAX (504) 837-9477

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March 11, 1996

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Department of the Army
New Orleans District,
Corps of Engineers
P. O. Box 60267
New Orleans, LA 70160-0267

Attn: R. H Schroeder, Jr., Chief
Planning Division
Environmental Analysis Branch

Re: Draft Environmental Impact Statement
Municipal Golf Facility and
Housing Development
Lower Estelle Area,
Marrero, Louisiana

Gentlemen:

The Jefferson Business Council, an organization of major businesses in Jefferson Parish, wishes to take this opportunity to submit its written comments on the captioned matter, and the application by the Parish of Jefferson and Estelle Plantation Partnership for a permit to proceed with the development of the project.

L10-1. The Jefferson Business Council fully supports the project and urges you, at your earliest convenience, to issue the requested permit as this project, when viewed as a whole, is clearly in the overall best interests of the public.

L10-2. While the Jefferson Business Council recognizes that the impact on the natural environment is an issue to be considered in the decision making process, it is of equal if not paramount importance to consider the positive impacts and the numerous benefits to be realized by the citizens of Jefferson Parish in determining what is in the best interests of the public.

L10-3. A study of the project and a history of the area in question reveals that the area lies behind and within the intended protection of the West BankHurricane Protection Levee; is currently and for the last thirty years has been "under pump" in a forced drainage district which has materially modified the area from its original natural state; has been designated and dedicated by Jefferson

RL10-1. Comment noted.

RL10-2. The positive impacts and benefits to the public of the project are primarily addressed in the EIS by determining the need for the project. The increased tax revenue, provision of quality housing, and provision of recreational resources are all benefits to the public mentioned throughout the document.

RL10-3. Sections 3.5 and 4.5.1.2 of the EIS have been revised to contain this information.

3012 26TH STREET • METAIRIE, LOUISIANA 70002 • PHONE (504) 831-0925 • FAX (504) 837-9477

L10-4. Parish in its overall land planning as an area for conventional development and growth to meet the needs of the Parish; and is included as an area for, " planned residential, commercial and industrial development..." in Jefferson Parish's approved Coastal Zone Management Plan - a land use plan which balances environmental issues and concerns with the need for continued growth and development in Jefferson Parish. Finally, the ultimate commitment of those area, including the project area, to conventional use and development has been recognized previously in connection with the approval of the alignment and permit for construction of the West Bank Hurricane Protection Levee.

RL10-4. Comment noted.

L10-5. The proposed development offers the opportunity to expand the recreational facilities available to Jefferson Parish citizens, and at the same time, enhance economic growth through increased commercial activities and the creation of both temporary and permanent jobs. It constitutes a public - private partnership which benefits the West Bank community, as well as the entirety of Jefferson Parish.

RL10-5. Comment noted.

In summary, this project unquestionably is in the best interest of the public and should be permitted to proceed.

Very truly yours,

JEFFERSON BUSINESS COUNCIL

Joseph J. Kreps, Jr.
Chairman

JJK/mob

LWV

THE LEAGUE OF WOMEN VOTERS

OF JEFFERSON PARISH

March 11, 1996

Department of Army
New Orleans District Corps of Engineers
Planning Division
Environmental Analysis Branch
P.O. Box 60267
New Orleans, Louisiana 70160-0267

RE: ESTELLE PLANTATION PARTNERSHIP
MUNICIPAL GOLF FACILITY AND HOUSING DEVELOPMENT
DRAFT ENVIRONMENTAL IMPACT STATEMENT

Dear Sir(s):

The League of Women Voters of Jefferson Parish has reviewed the referenced document and finds that it is deficient in the following areas.

L11-1. 1 - Need For Proposed Action - Discussion of need for the golf course cites national and state figures, but does not adequately address the need in this particular area. The final EIS should include a map of the New Orleans metropolitan area showing all golf courses, public and private, on both sides of the Mississippi River.

L11-2. 2 - Alternatives - This section discusses some very superficial alternatives, most in wetlands; therefore, offering no environmental advantages to the proposed action. The proposed action is not water-dependent; therefore, a very real effort should be made to look at non-wetland alternative sites.

The no action alternative states that it would diminish Jefferson Parish's ability to construct a public golf course. No cost figures, i.e., price of land, maintenance cost of infrastructure in this high subsidence area, are provided to justify such a statement. The real cost to the Parish, i.e., how the land donation offsets down-the-road costs of flood abatement, infrastructure, access roads, etc., needs to be addressed in depth in the final EIS.

L11-3. 3. Cumulative Impacts - This discussion is very superficial, without clearly stating the very significant impacts which will follow the proposed activity. The final EIS needs to discuss impacts to surface water quality from golf course runoff. Negative impacts to water quality from use of chemicals (pesticides, fungicides, fertilizers) on golf courses has been well documented and should be discussed here.

L11-4. The final EIS should also include all written comments received by the Corps of Engineers regarding the proposed activity.

Your attention is appreciated.

Sincerely,

Charlotte Fremaux

Charlotte Fremaux, Environment
305 Cuddihy Drive
Metairie, Louisiana 70005

P.O. Box 7583 • Metairie, Louisiana 70010 •

RL11-1. Figure 1.1 of the EIS displays the public and private golf courses in the New Orleans Metropolitan area on both sides of the Mississippi River.

RL11-2. The alternative search process is detailed in Chapter 2 of the EIS. The alternative search boundary utilized was identified in Figure 2.1 and alternative sites which were evaluated are displayed in Figure 2.4. Non-wetland sites were identified and evaluated within this alternative process. Infrastructure costs have been added to Sections 2.3 and 4.6.4 of the EIS. A comparison of anticipated infrastructure maintenance costs and revenues generated by each alternative have been provided in Tables 2.6 and 2.7. Due to existing and previously planned infrastructure improvements, the project should produce revenues well in excess of the increased infrastructure costs due to the applicants' proposed action.

R11-3. Refer to RM13-1.

R11-4. Refer to RL4-70.

JEFFERSON PARISH
LOUISIANA
ENVIRONMENTAL & DEVELOPMENT CONTROL DEPARTMENT

TIM P. COULON
PARISH PRESIDENT

MARNIE WINTER
DIRECTOR

DEPARTMENT OF
PUBLIC WORKS
HERBERT MILLER
DIRECTOR

FAX

March 11, 1996

TO: Robert Martinson

FAX NUMBER: 862-2572
PHONE NUMBER:862-2582

FROM: Marnie Winter

FAX NUMBER: (504) 736-6445
PHONE NUMBER: (504) 736-6440

NUMBER OF PAGES (Including cover): 4

NOTES:

Mr. Martinson:

We realize that these tables may not fax well; therefore, we are mailing the hard copies also.

JEFFERSON PARISH
LOUISIANA
ENVIRONMENTAL & DEVELOPMENT CONTROL DEPARTMENT

Tim P. Coulon
PARISH PRESIDENT

MARNIE WINTER
DIRECTOR

DEPARTMENT OF
PUBLIC WORKS
Herbert Miller
DIRECTOR

March 11, 1996

Mr. Bob Martinson
Department of the Army
New Orleans District Corps of Engineers
Environmental Analysis Branch
P.O. Box 60267
New Orleans, LA 70160-0267

Re: Comments on Draft Environmental Impact Statement
Estelle Plantation Municipal Golf Facility and Housing Development

Dear Mr. Martinson:

The Environmental and Development Control Department has reviewed the referenced document and offers the following comments.

L12-1. 1. Section 3.2.3.a (page 60, first sentence) "The most recent water quality data for the Jefferson Parish sites was taken by the Corps of Engineers for their Jefferson and Orleans Parishes, Louisiana Urban Flood Control and Water Quality Management Study (Corps, 1992)." The data referenced in the Urban Flood Control Study (Corps, 1992) was collected by the Jefferson Parish Enviromental and Development Control Department during 1989 and 1990.

L12-2. 2. Section 3.2.3.a (page 60, third sentence) "The 5-day biochemical oxygen demand (BOD_5) for Estelle averaged from about 50 to 60 mg/L." Pages 50-51, Volume One of the Urban Flood Control Study (Corps, 1992) indicates that the concentration of COD in the Estelle Subbasin averaged from 50-60 mg/L, while the BOD_5 averaged between 3 and 4 mg/L.

L12-3. 3. Table 4.1 (page 119) The data in Table 4.1 are taken from Part 2 of the Jefferson Parish Application for a NPDES Permit for the Municipal Separate Storm Sewer System; however, the data, as presented, are incomplete. We have attached a complete set of data as it appears in the Part 2 Application. You may find this useful in preparing the final EIS.

If you have any questions or need further information, please call me at (504) 736-6440.

Sincerely,

Marnie Winter

Marnie Winter, Director
Environmental and Development Control Department

cc: B.K. Sneed
Herbert Miller

RL12-1. Section 3.2.3.a has been corrected as requested.

RL12-2. Section 3.2.3.a has been corrected as requested.

RL12-3. The updated information provided is appreciated and has been incorporated into Table 4.1 of the EIS.

1221 ELMWOOD PARK BLVD. - SUITE 703 - HARAHAN, LOUISIANA 70123 - (504) 736-6440

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TABLE 3-2

RESULTS OF WET WEATHER FIELD SCREENING
KENNER RESIDENTIAL (R1)

Parameter	Units	No. of Data Points	Date															Average	NURP	Primary Contact Recreation Criteria (1)	Secondary Contact Recreation Criteria (2)	Primary Drinking Water Standards (MCL)
			2/26/93	3/2/93	3/12/93	3/25/93	4/6/93	4/28/93	4/30/93	5/10/93	5/24/93	6/11/93	6/18/93	7/21/93	8/1/93	8/3/93	8/4/93	8/14/93					
Rainfall Amount	inches	16	0.44	1.67	0.98	0.52	1.39	0.33	0.57	0.6	1.05	0.07	0.98	1.69	0.94	0.1	0.9	0.85	0.82				
Duration of Rain Event	minutes	16	268	212	248	28	795	62	120	70	180	20	200	300	120	90	45	15	173.31				
Date of Previous Rain	date	16	NA	2/25/93	3/2/93	3/20/93	4/4/93	4/14/93	4/20/93	5/9/93	5/11/93	5/26/93	6/11/93	7/13/93	7/25/93	8/1/93	8/3/93	8/8/93	NA				
																			7.5		6.0 - 9.0	6.0 - 9.0	
pH	-	6		7.2	7.7	7.5			7.5			7.5	7.6						66				
Temperature	°F	6		63.0	48.0	68			73			72	74						0				
Total Chlorine Residual	mg/l	6		0	0	0			0			0	0										
															1.85		4.3	3.38	5.6				
Oil and Grease	mg/l	14	7.33	10.0	4.2	1.6	0.83	6.31	6	1.97	5.45	15	10.12			56000	98000		36178.6		200/400	1000/2000	
Fecal Coliform (3)	colonies/100 ml	7		>6,000	1250							>6000	68000	40000		16000	24000		21642.9				
Fecal Streptococcus	colonies/100 ml	7		>10,000	1900							4600	63000	42000		3.50	3.67		1.67				
Fecal Coli/Strep	--	--		0.6	0.66							1.30	1.08	0.95					0.3				
Cyanide	mg/l	14	0.443	<0.020	0.360	0.360	0.360	0.021	<.01	0.311	0.588	<.02	0.476		0.291		0.104	0.381	0.002		0.58	0.005	
Phenol	mg/l	10	0.0045	<0.02	<0.002	0.0045	<0.002	0.0025	<.02	0.00833	<.0023	<.02											
																			31.250	180			
Total Suspended Solids	mg/l	8	24.0		44.0	57	16					50	21	27			57		359.125		NA	NA	500
Total Dissolved Solids	mg/l	8	136.0		1360	105	1038					139	29	9			7		14.625	12			
BOD (5)	mg/l	8	7.0		13.0	12	9					42	9	18				66.67	133.987	82			
COD	mg/l	6	61.0	50.0	250.98		103.35					271.92						1.96	3.803	1.9			
TKN	mg/l	6	1.4	0.50	6.21		5.2					7.55						0.837	0.628				10
NO(2) + NO(3)	mg/l	6	<0.01	2.2	<0.01		0.073					0.657						0.8	2.905				
Total Ammonia	mg/l	6	0.25	0.18	5.8		4.6					5.8						1.16	0.898				
Organic Nitrogen	mg/l	6	1.15	0.32	0.41		0.6					1.75						0.359	0.311	0.42			
Total Phosphorus	mg/l	6	0.312	0.19	0.264		0.246	0.106				0.391							0.144	0.15			
Dissolved Phosphorus	mg/l	6		0.08	0.079		0.150++	0.1		0.135				0.468									
Metals														<0.02			<0.02		<0.02				
Antimony	mg/l	7		<0.005		<0.02	<0.02	<.02	<.06					<01			<.01		<0.01		0.069	0.05	0.05
Arsenic	mg/l	7		<0.005		<0.01	<0.01	<.01	<.01					<0.005			<0.005		<0.02				
Beryllium	mg/l	7		<0.001		<0.02	<0.02	<.005	<.005					0.003			<.001		<0.003				0.005
Cadmium	mg/l	7		<0.001		0.00266	<0.001	0.001	<.001					<01			<.01		<0.01		1.1	0.05	0.1
Chromium	mg/l	7		<0.001		<0.01	<0.01	<.01	<.01					0.042			<.005		0.024	0.043			1.0
Copper	mg/l	7		0.034		0.024	0.028	0.03	0.013					<.005			<.005		<0.009	0.182			0.050
Lead	mg/l	7		0.003		0.00668	<.005	0.0083	<.005					<.0002			<.0002		<0.0002				0.002
Mercury	mg/l	7		<0.0002		<0.002	<.002	<.0002	0.0003					<.01			<.01		<0.04				
Nickel	mg/l	7		0.006		<0.01	0.012	<.01	<.04					<.005			<.005		<0.005				0.05
Selenium	mg/l	7		<0.010		<0.005	<.005	<.005	<.005					<.002			<.002		<0.002				
Silver	mg/l	7		<0.001		0.0138	<.002	<.002	<.002					<.01			<.01		<0.01				
Thallium	mg/l	7		<0.005		<0.01	0.017	<.01	<.01					0.037			0.088		0.199	0.202	0.095	5	5
Zinc	mg/l	7		0.03		0.086	0.96	0.109	0.08														
																			BQL				
Volatile Organics	mg/l	8	BQL	BQL	BQL	BQL	BQL	BQL	BQL			BQL						BQL	BQL				
									BQL	BQL	BQL	BQL	BQL										
Base Neutral and Acid Extractable	mg/l	8		BQL														BQL	BQL				0.0005
									BQL	BQL	BQL	BQL	BQL										
Pesticides	mg/l	8		BQL														BQL	BQL				
									BQL	BQL	BQL	BQL	BQL										
PCBs	mg/l	8		BQL																			

NA Analyns not available at time of report.
N/A = Not Applicable.
BQL = Below Practical Quantification Limits.
(1) Toxics Criteria shown for marine water acute level.
(2) Toxics Criteria shown for protection of human health.
(3) Fecal Coliform Criteria shown for monthly log mean/annual maximum.
++ Analysis conducted after holding time due to holiday.

TABLE 3-3

RESULTS OF WET WEATHER FIELD SCREENING
PATRIOT AND FARRINGTON STREET (R2)

Parameter	Units	No. of Data Points	Data 2/16/93	3/1/93	3/16/93	3/25/93	4/8/93	4/20/93	4/30/93	5/16/93	5/24/93	7/8/93	7/21/93	8/4/93	8/6/93	Average	NURP	Primary Contact Recreation Criteria (1)	Secondary Contact Recreation Criteria (2)	Primary Drinking Water Standards (MCL)
Rainfall Amount	inches	13	0.41	1.78	2.7	0.24	1.17	0.53	1.23	0.71	0.55	0.28	1.40	0.24	0.38	0.89				
Duration of Rain Event	minutes	13	NA	324	NA	14	332	18	180	240	20	90	120	15	25	106.00				
Date of Previous Rain	date	13	NA	2/25/93	3/12/93	3/20/93	4/4/93	4/16/93	4/20/93	5/9/93	5/13/93	7/4/93	7/21/93	7/30/93	8/4/93	NA				
pH	--	6		7.4	7.9	7.5	7.6					7.6		7.4		7.57		6.0 - 9.0	6.0 - 9.0	
Temperature	°F	6		64.0	55.0	58	63					77		76		65.50				
Total Chlorine Residual	mg/l	6		0	0.25	0	0					0.0		0.0		0.04				
Oil and Grease	mg/l	10	2.98	7.0	8.5	4.30	2	8.61	9	9.67	10		2.57			6.46				
Fecal Coliform (3)	colonies/100 ml	6		>6000	<100		150					6000		100	>60000	1041.67		200/400	1000/2000	
Fecal Streptococcus	colonies/100 ml	6		>10,000	<100		440					1400		0	>60000	306.67				
Fecal Coli/Strep	--	--		0.6	1		0.3409					4.286								
Cyanide	mg/l	12	0.187	<0.02	0.173	0.298	<0.02	0.187	<.01	0.221	0.201	0.131	0.007	0.159		0.13				
Phenol	mg/l	9	0.0075	<0.02	0.0033	0.014	<0.02	0.0062	<.02	0.0038	0.0062					0.005		0.58	0.005	
Total Suspended Solids	mg/l	9	8		35	32	48		30	25	94		22	11		33.889	180			
Total Dissolved Solids	mg/l	9	416.0		420	202	170		523	65	161		274	261		276.889		NA	NA	500
BOD (5)	mg/l	8	12.0		10	9	10			5	18		17	17		12.250	12			
COD	mg/l	9	61.0			36.6	49.76	35.12	20	28	94.58		45.54	46		48.511	82			
TKN	mg/l	9	1.3		0.91	1.02	0.711	1.05	1.3	0.7			1.1	1.0		1.009	1.9			
NO(2) + NO(3)	mg/l	8			<0.01	0.084	0.042	<0.01	0.3	0.502			0.298	1.35		0.322				10
Total Ammonia	mg/l	9	0.4		0.07	0.19	0.25	0.22	0.16	0.2			0.31	0.35		0.239				
Organic Nitrogen	mg/l	9	0.93		0.84	0.83	0.46	0.83	1.14	0.48			0.75	0.67		0.770				
Total Phosphorus	mg/l	9	0.589		0.809	0.370	0.62	0.63	0.12	0.39			0.49	0.63		0.539	0.42			
Dissolved Phosphorus	mg/l	7	0.084		0.119				0.07		0.167	0.256	0.278	0.339		0.188	0.15			
Metals																				
Antimony	mg/l	8		<0.005	<0.020		<.02	<.02	<.06			<.02	<.02	<.02		<0.02				
Arsenic	mg/l	8		<0.005	<0.010		<.01	<.01	<.01			<.01	<.01	<.01		<0.01		0.069	0.05	0.05
Beryllium	mg/l	8		<0.001	<0.020		<.02	<.005	<.005			<.005	<.005	<.005		<0.02				
Cadmium	mg/l	8		<0.001	0.0023		<.001	<.001	<.001			0.0017	0.0012	<.001		<0.001				0.005
Chromium	mg/l	8		<0.001	<0.010		<.01	<.01	<.01			<.01	<.01	<.01		<0.01		1.1	0.05	0.1
Copper	mg/l	8		0.008	0.031		0.01	0.028	<.01			0.015	0.055	<.005		<0.02	0.43			1.0
Lead	mg/l	8		0.004	<0.005		0.0109	0.0076	<.005			0.0112	<.005	<.005		<0.01	0.182			0.050
Mercury	mg/l	8		<0.0002	<0.0002		<.0002	<.0002	0.006			<.0002	0.0004	<.0002		<0.0002				0.002
Nickel	mg/l	8		0.007	<0.010		<.01	<.01	<.04			<.01	<.01	<.01		<0.01				
Selenium	mg/l	8		<0.010	<0.005		<.005	<.005	<.005			<.005	<.005	<.005		<0.005				0.05
Silver	mg/l	8		<0.001	<0.002		<.002	<.002	<.002			<.002	<.002	<.002		<.002				
Thallium	mg/l	8		<0.005	<0.010		<.01	<.01	<.01			<.01	<.01	<.01		<.01				
Zinc	mg/l	8		0.05	0.144		0.14	0.095	0.08			0.116	0.067	0.075		0.110	0.202	0.095	5	5
Volatile Organics	mg/l	7	BQL	BQL	BQL	BQL	BQL	BQL	BQL							BQL				
Base Neutral and Acid Extractables	mg/l	6	BQL	BQL	BQL		BQL			BQL			BQL			BQL				
Pesticides	mg/l	6	BQL		BQL		BQL		BQL	BQL			BQL			BQL				0.0005
PCBs	mg/l	6	BQL		BQL		BQL		BQL	BQL			BQL			BQL				

NA Analysis not available at time of report.
N/A = Not Applicable.
BQL = Below Practical Quantification Limits.
(1) Toxics Criteria shown for marine water acute level.
(2) Toxics Criteria shown for protection of human health.
(3) Fecal Coliform Criteria shown for monthly log mean/annual maximum.
++ Analysis conducted after holding time due to holiday.

Orleans Audubon Society
A CHAPTER OF THE NATIONAL AUDUBON SOCIETY
1522 Lowerline St.
New Orleans, La 70118
March 11, 1996

Mr. Bob Martinson
Army Corps of Engineers
P.O.Box 60267
New Orleans, LA 70160

Re: Draft Environmental Impact Statement: Estelle Plantation Partnership Municipal Golf Facility and Housing Development
SE(Jefferson Parish Wetlands) 238

Dear Mr. Martinson,

L13-1. We are submitting this letter on behalf of the 1,500 members of the Orleans Audubon Society including those living in the Parish of Jefferson. I want to first state that we were surprised that copies of Vol. 2 of the Draft Environmental Impact Statement were unavailable to members of our organization. We were informed that the costs of printing and mailing the EIS were completely borne the Corps of Engineers and that their budget would not allow the additional expense of printing and mailing Vol. 2 to the public.

We also understand that the developer refused to pay for this expense. In fact, this whole process of administrative review, processing of the permit and other costs are subsidized by the federal taxpayer. We asked for an explanation and a listing of costs (see letter to Col. Clow dated Jan. 29, 1996) but to date we have not received a reply.

L13-2. 1. Why doesn't the Corps require the applicant pay the entire cost of the permitting process? If the project is going to be a major economic asset to the applicant, the least he could do is pay his way. Other agencies require it.

2. Why not have a policy of requiring a permit fee to cover all the permitting costs, to be to be paid by the applicant at the start of the permit process? This would be a fair approach.

We have the following comments on the substance of the Draft EIS. The project, as proposed, would clear cut one square mile of forested wetlands and marsh which is under pump. It proposes to convert the area to a 200 acre municipal golf course and the remainder to be used as housing for 748 upscale homes.

Building in a sinking area:

The soils (Allemands drained muck) are some of the worst soils on which to build, according to the Dept. of Agriculture (1983). Allemands muck has an extremely high shrink-swell potential and contains as much as 70% organic matter which increases the subsidence potential (DEIS p. 51). In fact, the EIS states that the "potential total subsidence is high" (p. 53). The soils are poorly suited for "urban uses and intensive forms of recreation." (p. 54). According to the EIS, the area has experienced greater than 4 ft of subsidence and it will "continue with continued pumping of the area." "An additional 4 ft of subsidence will occur with an upgraded pump station" (p. 112).

RL13-1. Comment noted.

RL13-2. The applicant is required to pay the cost of the 404 permitting process to some extent. The NEPA process is required to be performed by the Federal government on all almost all actions taken by the Federal government. This is not required of actions of private individuals or companies. The decision to grant or deny the 404 permit is the Federal action in this case. The applicant has already paid much of the cost to prepare the EIS to expedite its preparation.

L13-3. 1. A total of 1.1 mill cu yds of fill will be used to raise the elevation of the lots. How much additional subsidence will be caused by compaction of underlying native soils by the fill?

L13-4. 2. What will be the additional costs to the home buyers over a 30 yr period as a result of subsidence damage to their homes and lots? Earle (1975), reported on this issue and determined an average yearly cost to homeowners of houses on subsiding soils on the East Bank.

3. What are the average yearly costs to each homeowner based on problems in developments adjacent to the project area?

L13-5. 3. What will be the additional costs to the Parish for repairs and maintenance of utilities and infrastructure? What are potential economic impacts to the Parish based on subsidence and utility damage in similar areas on the Westbank?

L13-6. 4. How much peat is contained within the upper 10 ft of Allemands drained muck in the project area? A series of coreholes should be required to determine the thickness of peat in the project area. Oxidation of peat can cause substantial subsidence depending upon its thickness and depth below the surface.

L13-7. In evaluating the alternative sites for this development, the COE must relate soil types and subsidence potential of all alternate sites. The cumulative costs to Jefferson Parish to maintain utilities and infrastructure must also be considered in the economic evaluation of each alternate site.

Flooding Issues:

L13-8. According to the Draft EIS one-third of the area floods every ten years. Flooding will be exacerbated when all the vegetation is stripped from the project area. Increased runoff from denuded land and the paving of streets etc will change the runoff pattern/flooding frequency.

1. How will this impact the future flooding in the project area?
2. What size pumping station will be required to drain the future developed area?
3. At what elevation will the water level in the drainage ditches be maintained? What will be the elevation of the intake pipe of the pumping station?

Municipal Golf Course:

L13-9. The plan for this project includes the "giving" of 200 acres to the Jefferson Parish to build a "PGA Caliber" golf course for public use. The estimated cost to the taxpayer is $6.3 million. This Parish subsidy will allow the developer to sell lots at a much appreciated value since they will front on a golf course. This is a windfall for the developer. If it is proven that a golf course is really needed, a more fiscally responsible approach would be for the developer to build the golf course and allow the public to use it for a fee.

Golf Courses and Pesticides:

L13-10. We are concerned about the potential surface water contamination from the use of pesticides, herbicides, fungicides and fertilizers on the golf course. This water will eventually be pumped into the Harvey Canal and find its way into Bayou Barataria and the JLNHPP. Levels of pesticides used on golf courses (per acre) are much greater than applications used for agriculture. The EIS should have a section discussing the types of chemicals to be used and levels of application. The effects of these pesticides on the environment must be fully discussed.

L13-11. The additional ubanization (and golf course) will increase levels of heavy metals such as lead, mercury and cadmium in the drainage ditches and retention ponds. Recently, the La DEQ has found elevated mercury levels in fish and sediments in the City Park Lagoons. It is thought

RL13-3. Refer to RM3-3.

RL13-4. Refer to RM3-3.

RL13-5. Refer to RM-2, RM3-3, and RL11-2.

RL13-6. Refer to RM3-3.

RL13-7. Refer to RM3-2 and RL11-2.

RL13-8. Refer to RM3-2, RM5-2, and RL2.

RL13-9. As stated in RM3-2 the Jefferson Parish taxpayers should not incur a cost of $6.3 million. The remainder of the comment is noted.

RL13-10. Refer to RM3-4.

RL13-11. Refer to RM3-4. Typical metal levels for urban run off in Jefferson Parish is displayed in Table 4.1 of the EIS. Mercury based fungicides have been banned from use.

that the mercury may be sourced from mercury fungicides used on the golf course. The outfall from the City Park Golf Course flows into Lake Pontchartrain and urban runoff is the major cause of pollution of the Lake.

L13-12.

1. What will be the effect of golf course chemicals and urbanization on the water quality of upper Barataria Bayou?
2. What will be the impact of chemical usedon water quality in the retention ponds/lagoons?
3. Will fishing be allowed in the retention ponds? In the drainage canals?
4. What are the present levels of organic and inorganic pollutants in the Harvey Canal? Has a base level been established?
5. Will an effluent discharge permit be required for the new pumping station?
6. Will the Parish or State monitor the pumping station effluent discharge for pollutants?

Sewage Treatment:

L13-13.

In letters dated Feb. 3, & 17, 1993, the State of Louisiana Dept of Public Health and Hospitals (copies attached), raised concerns that there may not be enough sewage treatment capacity for the proposed development and that the developer had not indicated which sewage treatment facility would receive the waste. We request that all correspondence, on this issue, by Jefferson Parish and State Dept. of Public Health and Hospitals be provided in the Final Environmental Impact Statement. The attached letters were omitted from the Draft EIS appendices. We ask that these be added to the Final EIS. The issue of processing sewage and the additional burden on the existing and future sewage treatment facilities needs to be adequately discussed in the Final EIS.

Secondary Impacts:

If this project is permitted, adjacent properties will also be developed by future drainage and conversion. We request that a full review of the secondary impacts of the proposed development on the entire watershed (Estelle Drainage Basin) be researched and presented in the Final EIS. This should include but not be limited to:

L13-14.

1). Impact on total watershed drainage including potential flooding of existing developed areas.
2). The impacts of differential subsidence on flooding.
3). The impacts on flooding by the removal of undeveloped wetlands from use as a ponding area.
4). Impacts of increased traffic on existing neighborhoods.
5). Will the planned pumping station be adequate to handle the proposed and additional secondary development? What pumping station capacity would be needed to drain and prevent flooding of the remaining acreage within the basin, if it were developed.

L13-15.

In conclusion, the Orleans Audubon Society believes that this project, as planned and in this location, is an improper use of the land. It also may be an improper allocation of Jefferson Parish Funds. The large amount of tax dollars ($56 million) which will be spent to subsidize this and other housing developments, in a high subsidence area, could be be better spent to provide flood protection and services to the already developed areas of the Parish. We do not believe that the project, as presented, is in the public interest.

We request that this letter and attachments be made part of the public record and that the questions raised above be fully answered in the Final Environmental Impact Statement. We also

RL13-12. Refer to RM3-4. Table 4.1 of the FEIS demonstrates typical urban run-off pollutant concentrations. Water hazards and retention ponds are intended to be left as marsh (wetlands). Wetlands routinely function to filter pollutants from run-off. In reference to fishing, no fishing will be allowed in retention ponds, however, the applicants are not responsible for controlling fishing in public drainage canals. Although it is not the intent of this EIS to address pollution problems in area waterways, specific pollution statistics for the Harvey Canal can be obtained through the Louisiana Department of Environmental Quality's Water Quality Management Plan Data Summaries published every two years (a new edition is due for 1996). Pump station discharges are covered under the Parish's municipal stormwater permit issued by EPA. There are no sampling requirements specific to the Estelle Pump Station, all sampling parameters are generic to the Parish's entire stormwater discharge system.

RL13-13. Refer to RM3-2 and Section 3.6.4.3.a of the EIS. The State Water Quality Certification provided for the project as shown in Appendix F would not have been granted unless this issue was resolved.

RL13-14. Refer to RM5-2, RM9-1, RM13-1, RL2, and RL4-42.

RL13-15. Comment noted.

request that the entire set of volumes of the Final EIS be sent to us when available for public review.

Sincerely,

Barry Kohl

Barry Kohl, Ph.D.
Conservation Chairman

attachments:

cc: EPA, Dallas
U.S. Fish and Wildlife Service, Lafayette
Tulane Environmental Law Clinic
Sierra Club, New Orleans Group
Westbank Sportsmen and Conservation Club
La. Dept. of Public Health and Hospitals

References:

Earle, D. 1975. Land Subsidence problems and maintenance costs to Homeowners in East New Orleans, La. Occasional Paper #1, School of Environmental Design , Dept. of Landscape Architecture, LSU, Baton Rouge, 12 pp.

U.S. Dept. of Agriculture, 1983. Soil Survey of Jefferson Parish, La. 95 pp, maps.

Orleans Audubon Society

A CHAPTER OF THE NATIONAL AUDUBON SOCIETY

1522 Lowerline St.
New Orleans, LA 70118
January 29,1996

Col. Kenneth H. Clow
New Orleans District
U.S. Army Corps of Engineers
P.O. Box 60267
New Orleans, La. 70160-0267

Re: Unavailability of Corps Documents for Public Review.

Dear Col. Clow,

I recently received Vol I of a draft EIS on the **Estelle Plantation Partnership Municipal Golf Facility and Housing Development** dated November 1995. Volume II, which includes the Appendices, was not included. The project, a 640 acre development, has drawn considerable interest and many civic and environmental groups participated in the Scoping Meeting held over a year ago.

I called the Corps office last week to ask for a copy of Volume II and was told that there were only 30 copies printed and most were sent to state and federal agencies, leaving a deficit for public review. I visited the Corps to pick up two copies for our committee use and only one was available (the copy I was given was a personal staff copy). There were 125 copies of Vol. 1 sent to the standard mailing list. I am told that the Corps decided not to print and mail copies of Vol. II to the public because the developer refused to pay printing and mailing costs. While I know there are agency concerns about budgets cuts, I was appalled to know that the taxpayer is subsidizing the production and mailing of an EIS the costs of which should be borne by the developer.

I am assuming that this problem will continue with the production of the Final EIS as well. It is our opinion that the developer (permittee) and not the taxpayer should pay for the costs of producing and mailing these documents. By refusing to do so and supporting the reduction of appropriations for federal regulatory agencies the developers are restricting and slowing down the regulatory process (which is probably their goal).

Although we have had past disagreements with the Corps I can say that the dissemination of information to the public on regulated projects has been good. But if money is going to dictate whether or not the public will be informed, problems are going to arise. For instance: Will evening meetings be cancelled because there is no money for Corps personnel overtime? In the past, all meetings/public hearings were held during the Corps' normal working hours to avoid overtime. It took the environmental community two years to produce the present change in the New Orleans' District procedures.

The solution, we believe, is to estimate the cost of EIS's, public hearings and other administrative costs and present this estimate to the applicant when he applies for a permit. It is unfair to the taxpayer and the applicant if this procedure is not followed. I'm sure the

applicant would not mind paying his way since, in many cases, he has greater financial resources than does the Regulatory Branch. If government passes on the costs to the permittee, then there could be substantial savings over the long term to our federal budget deficit!

Our committee is reviewing the EIS and requests one more copy of Vol. II. I also request a reply to this letter and the issues raised herein. We also request a cost estimate for processing the permit including: 1) scoping meeting costs, 2) administrative costs, 3) production and mailing costs for the Draft and Final EIS (assuming a normal distribution of documents) for the Estelle Plantation Partnership Municipal Golf Facility. We do not consider copies placed in Public Libraries to be a normal distribution.

We hope that this problem will not become a trend which will tarnish the Corps ' excellent record of communicating with its constituency.

Sincerely,

Barry Kohl

Dr. Barry Kohl
Conservation Chairman
Orleans Audubon Society

cc: Tulane Environmental Law Clinic
Sierra Club, New Orleans Group
La. Wildlife Federation

FEB 24 1993

STATE OF LOUISIANA
DEPARTMENT OF HEALTH AND HOSPITALS

Edwin W. Edwards
GOVERNOR

LOUISIANA
Department of
HEALTH and
HOSPITALS

J. Christopher Pilley
SECRETARY

(504) 568-5102
February 17, 1993

Mr. Thomas A. Sands
ADAMS and REESE
4500 One Shell Square
New Orleans, LA 70139

Re: SE (Jefferson Parish Wetlands) 238
Corps of Engineers Permit Application
ESTELLE PLANTATION PARTNERSHIP
Clear and grade an area and otherwise install and maintain fill for a public golf course, residential and commercial development
Central to a point about 4 miles southerly from Marrero
Jefferson Parish, LA

Dear Mr. Sands:

This will acknowledge receipt of your 11 February 1993 correspondence, generally as regards the above referenced matter.

Upon consultation with Mr. R. Douglas Vincent, District Engineer (OPH), to whom it is noted that you apparently forwarded your letter, and in the interest of expedition of these considerations, the following is advised.

This office appreciates your relative assurance, in behalf of Estelle Plantation Partnership, that "sewage from the proposed development will be disposed of by connection to the Parish sewage treatment system." Notwithstanding such assertion, in order that this office may consider amending its previously advised determination to Department of the Army, Corps of Engineers, supplemental information must be secured. More specifically, please advise as to which "Parish sewage treatment system" it is proposed to dispose of (direct) the sewage generated from the project, once developed. Additionally, please provide evidence of both available capacity to properly treat by such system and commitment by such system to accept (receive) sewage from the development, predicated of course upon the availability of capacity.

At the urging of Mr. Vincent, it is respectfully requested that this office be provided for purpose of appropriate assessment by his office and in order that alternate recommendation may be considered with respect to the favorable determination (comments) which you have requested be provided to New Orleans District, Corps of Engineers, as regards the subject matter permit.

Should you require additional information or clarification concerning this communication, which is being transmitted both by means of "fax" and "first class mail," please so advise.

Respectfully
George E. Robichaux

George E. Robichaux
Administrator
Sewerage Unit

GER/lm

xc: Corps of Engineers
Jefferson Parish Health Unit
Sanitarian Regional Manager - Region 1
Attention: Ms. Jo McLean
Mr. Frank Deffes, Chief
Sanitarian Services
Mr. R. Douglas Vincent, District Engineer

MAR 1 1 1996
received
Rick Bush

COMMENTS OF
LOUISIANA ENVIRONMENTAL ACTION NETWORK,
SIERRA CLUB - DELTA CHAPTER
AND
ORLEANS AUDUBON SOCIETY
ON
ARMY CORPS OF ENGINEERS'
ESTELLE PLANTATION PARTNERSHIP
MUNICIPAL GOLF FACILITY AND HOUSING DEVELOPMENT
DRAFT ENVIRONMENTAL IMPACT STATEMENT

Prepared by:

Will Ferguson, Student Attorney
Daria Diaz, Supervising Attorney
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Tulane Environmental Law Clinic
6329 Freret Street
New Orleans, LA 70118
(504) 865-5789

March 11, 1996

COMMENTS OF
LOUISIANA ENVIRONMENTAL ACTION NETWORK,
SIERRA CLUB - DELTA CHAPTER
AND
ORLEANS AUDUBON SOCIETY
ON
ARMY CORPS OF ENGINEERS'
ESTELLE PLANTATION PARTNERSHIP
MUNICIPAL GOLF FACILITY AND HOUSING DEVELOPMENT
DRAFT ENVIRONMENTAL IMPACT STATEMENT

I. INTRODUCTION

The Sierra Club - Delta Chapter ("Delta Chapter"), Orleans Audubon Society ("Audubon"), and Louisiana Environmental Action Network ("LEAN"), through undersigned counsel, submit these comments in opposition to the golf course and housing development proposed by Estelle Plantation Partnership ("EPP").[1] The purposes of Orleans Audubon Society, Sierra Club - Delta Chapter, and LEAN include the protection and preservation of the

L14-1. environment that their members enjoy, and the protection of their members from pollution and health and environmental threats. Members of all three of these groups live and work in Jefferson Parish and take advantage of the wetlands in the area of the proposed project site and the wildlife and recreational opportunities that they provide. Destruction of wildlife, directly or indirectly, destruction of wetlands, and reduction of water quality in and around the proposed project area will adversely affect the enjoyment of the natural setting and the health of members of these groups and their families.

[1] The Tulane Environmental Law Clinic submits these comments on behalf of Louisiana Environmental Action Network, Sierra Club, Delta Chapter and Orleans Audubon Society, and not on behalf of Tulane University, the Tulane School of Law, or the Tulane Environmental Law Clinic.

EPP has applied for a permit under section 404 of the Clean Water Act to fill approximately six-hundred forty three (643) acres of Army Corps of Engineers ("Corps") jurisdictional wetlands for the purpose of constructing a linked housing development subdivision and public golf course in Jefferson Parish, Louisiana.

The wetlands proposed to be filled are located in an area now known the "Estelle Plantation Hunting Club" approximately four (4) miles south of Marrero, Louisiana. Corps jurisdictional wetlands comprise the entire area proposed to be filled.[2] Jean Lafitte National Historic Park is adjacent to the proposed development area.

L14-1. CONT'D

"Section 404 of the Clean Water Act was enacted 'to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.' 33 U.S.C. §1251(a) (1976)."[3] The plain statement of legislative purpose contained in §1251(a) is echoed in the legislative history, which indicates that section 404 was enacted "to protect the quality of water and to protect critical wetlands . . ."[4] Section 404 of the Clean Water Act authorizes the Corps to issue permits for the discharge of dredged or fill material into the waters of the United States. The wetlands at issue are waters of the United States under the jurisdiction of the Corps.[5] In considering section 404 permit applications, the Corps is required to apply the regulations and guidelines set forth in Titles 33 and 40 of the Code of Federal Regulations.[6]

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2 "Wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. 40 C.F.R. §230.3(t). Wetlands are considered "waters of the United States" and special aquatic sites. See 40 C.F.R. §§ 230.39(s)(3) and 230.41.

3 Buttrey v. United States, 690 F.2d 1170, 1180 (5th Cir. 1982), cert. denied, 461 U.S. 927, 103 S.Ct. 2087, 77 L.Ed.2d 298 (1983). See also, Mall Properties, Inc. v. Marsh, 672 F.Supp. 561 (D. Mass. 1987).

4 3 Legislative History of the Clean Water Act of 1977, 95th Congress 2d Sess. at 532 (1978).

5 33 U.S.C. §1344(A), Clean Water Act § 404. Thus the term "jurisdictional wetlands".

6 33 C.F.R. § 320; 40 C.F.R. Part 230.

Section 404(b)(1) directs the Corps to apply the guidelines developed by the EPA Administrator in conjunction with the Secretary of the Army, acting through the Chief of Engineers.[7] These section 404 guidelines are codified at 40 C.F.R. Part 230. ("Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines", Feb. 6, 1990 ("MOA guidelines").

L14-1. CONT'D

The 404(b) guidelines place four general restrictions on discharges: no "practicable alternative" can exist; the discharge must not cause a violation of any other statute or law; the discharge must not "cause or contribute to significant degradation of the waters of the United States"; and all "appropriate and practicable steps" must be taken to "minimize potential adverse impacts" of the discharge -- i.e. mitigation measures must be implemented.[8] Until EPP demonstrates that the proposed golf course and housing development project will not violate any of these standards, the Corps must deny EPP's 404 permit application.

Until compliance with the law is accomplished and demonstrated, Audubon, Delta Chapter and LEAN request that the Corps deny this permit application. Further, until the EIS is sufficient, any permit decision made by the Corps will be invalid and unlawful. We strongly urge the agency to give the following comments and suggestions careful consideration, and request that written response be made to these comments.

Oral comments were presented at the public hearing held in Harvey, Louisiana, on January 11, 1996, on behalf of Audubon, Delta Chapter and LEAN. These written comments supplement the oral comments given at the public hearing and reinforce the points offered in the

7 33 U.S.C. § 1344(B)(1).
8 40 C.F.R. § 230.10(a)-(d).

RL14-1. Comment noted.

oral comments, developing them in much greater detail, and offering additional points. Comments by individual members of each of these groups and by Melanie E. Reed,[9] Staff Scientist for Tulane Environmental Law Clinic are hereby adopted.

II. COMMENTS

A. THE DEIS DOES NOT CONSIDER SUFFICIENT ALTERNATIVES TO SATISFY THE 404(B) GUIDELINES

EPP proposes to construct a subdivision and golf course by filling 643 acres of wetlands. The guidelines evince a strong presumption against destroying wetlands through development. For example, the preamble to the 404(b)(1) guidelines states that the purpose of the "practicable alternatives" analysis is to "recognize the special value of wetlands and to avoid their unnecessary destruction, particularly where practicable alternatives were available in non-aquatic areas to achieve the basic purpose of the proposal."[10] In other words, when upland alternatives are available, the Corps must prefer them to sites that include wetlands.

L14-2.

The prohibition against developing wetlands except where absolutely necessary is further stated in the guidelines governing "non-water-dependent activities."[11] Non-water-dependent activities are those, that like a subdivision or a golf course, can be achieved without the presence of a body of water.[12] This guideline specifically provides that "no discharge of dredged or fill

9 See Appendix A.
10 45 Fed. Reg. 85,338 (1980).
11 40 C.F.R. § 230.10(a).
12 See 45 Fed. Reg. 85,338.

material shall be permitted if there is a practicable alternative" to the proposed project that would have a "less adverse impact" on the "aquatic ecosystem."[13]

Avoidance, rather than mitigation, is the preferred method of preventing wetland loss. Therefore, before the Corps may issue a section 404 permit, it must first determine that impacts have been avoided to the "maximum extent practicable."[14] "Permits are not to be issued if there is a practicable alternative which is less environmentally damaging to the aquatic ecosystem . . ."[15] Thus, if there is a practicable alternative available, the permit must be denied.

L14-2. CONT'D

The guidelines further state that, "unless clearly demonstrated otherwise," practicable alternatives[16] are (1) "presumed to be available" and (2) "presumed to have less adverse impact on the aquatic ecosystem."[17] "Thus, the guidelines couple a general presumption against all discharges into aquatic ecosystems with a specific presumption that practicable alternatives to the fill of wetlands exist."[18]

These two presumptions impose a heavy burden on any applicant seeking a section 404 permit for a non-water-dependent project.[19] Because the proposed project is a non-water-dependent project, EPP must unequivocally rebut both presumptions before becoming eligible

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13 See 45 Fed. Reg. 85,338.

14 MOA guidelines at 3.

15 40 C.F.R. 230.10(a).

16 An alternative is practicable if it is available and capable of being accomplished after taking into consideration cost, existing technology, and logistics in light of overall project purposes. 40 C.F.R. 230.10(a)(2).

17 "Where the activity associated with a discharge which is proposed for a special aquatic site [defined in subpart E to include wetlands] does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (i.e., is not "water-dependent"), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise. In addition, where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise." 40 C.F.R. 230.10(a)(3).

18 Louisiana Wildlife Federation, Inc. v. York, 761 F.2d 1044 (5th Cir. 1985). See also Hough v. Marsh, 557 F.Supp. 74, 82 (D.Mass. 1982).

19 See 45 Fed. Reg. 85,338.

to receive a section 404 permit for a non-water-dependent project.[20] Until the Corps' EIS analyzes alternative sites that represent the alternative sites actually available, these presumptions will remain in place, and sites that do not include wetlands will be presumed to be available and to involve less adverse impact on the aquatic ecosystem. Thus, until the EIS analyzes alternatives that effectively rebut those presumptions, Corps' approval of the 404 permit could be an arbitrary and capricious exercise of the Corps' power.

L14-2. CONT'D

1. Golf Courses and Housing Projects Are Non-Water-Dependent Activities

The Corps has previously adhered to the guidelines' mandate of wetlands preservation and has denied permits for non-water-dependent projects where alternatives were available. For example, in October of 1987, the Corps denied a 404 permit to the East Group Properties ("East Group") which sought to dredge and fill approximately 950 acres of wetlands in Jefferson Parish.[21]

The property that East Group sought to dredge and fill is located approximately 5.5 miles south of Marrero, immediately adjacent to the EPP site, and considered in the draft EIS as an alternative site to the EPP proposed project site.[22] The Corps determined that the ultimate purpose of that permit application was to fill wetlands for the development of residential and commercial projects.[23] The Corps further determined that residential and commercial developments were non-water-dependent.[24]

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20 See 45 Fed. Reg. 85,338.

21 See Statement of Findings, SE(Jefferson Parish Wetlands)168 (hereinafter "East Group Statement of Findings"). See Appendix B.

22 Army Corps of Engineers, Estelle Plantation Partnership Municipal Golf Facility and Housing Development Draft Environmental Impact Statement (hereinafter "draft EIS"), Volume I, Figure 2.5.

23 See East Group Statement of Findings. Where the basic purpose of a project is housing, the project is "not water dependent because housing does not have to be located near water or in wetlands." Report on

When reviewing the East Group permit application, the Corps performed an alternatives analysis which revealed that 8,180 acres of non-wetland alternative sites were available to East Group in Jefferson Parish alone. The Corps therefore rejected East Group's permit application, stating that this "nonwetland alternative would allow any of the 8,180 acres of nonwetland sites left on the West Bank of Jefferson Parish to be developed."[25]

14-2. ONT'D

The Corps also stated that the nonwetland sites "would allow the applicants to continue preparing land for development but not as proposed. Rather, "[t]he applicants could develop other property for home sites and the associated valued and functions of wetlands would be preserved."[26]

Within the EPP draft EIS the Corps' appears to have concluded that golf is not a water dependent activity. The draft EIS states that "[p]roperties that were not considered jurisdictional wetlands were preferred."[27] Similarly, other golf courses have been determined by the Corps to be a non-water-dependent activities.[28] In Sylvester v. United States, the Corps had produced an Environmental Assessment, as required by NEPA, for the golf course addition to an alpine resort project proposal that required the filling of jurisdictional wetlands. Like the draft EIS here, it is clear from the 9th Circuit's opinion that the Corps had concluded that golf courses are not water-dependent. The court found 40 C.F.R. § 230.10(a)(3) to mean that

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application for Department of Army Permit, Marco Island (Apr. 15, 1976). See also Deltona Corp. v. Alexander, 504 F.Supp. 1280, 1283 (M.D. Fla. 1981).

24 A water dependent project is one that requires access to water to achieve its basic purpose. 40 C.F.R. § 230.10(a)(2).

25 See East Group Statement of Findings.

26 Id.

27 Draft EIS, Vol. I at S-2. Note that while the draft EIS makes this assertion, there is evidence in the alternative selection tables provided in the draft EIS that demonstrate that such consideration was relegated to a very minor position in the selection process.

28 Sylvester v. United States, 882 F.2d 407, 409 (9th Cir. 1989).

"because [a] golf course is not a water dependent activity, the Corps' regulations presume that practicable alternatives are available unless clearly demonstrated otherwise."[29]

EPP proposes to fill wetlands to construct a golf course and a housing development.[30] Current information suggests that there are more than 8,000 acres of nonwetland available for development in Jefferson Parish.[31] As the Corps has previously determined on the East Group project, residential and commercial developments, as well as golf courses, are not water-dependent and can be built in nonwetland areas of Jefferson Parish or other parishes.

L14-2. CONT'D

2. The "Reasonable Alternative Sites" Analyzed In The Draft EIS Do Not Reflect The Reasonable Alternative Sites Actually and Presumptively Available

All five of the alternative sites analyzed by the EPP draft EIS included or consisted entirely of wetlands. While the draft EIS ostensibly looks at 23 alternative sites and narrows down the potential choices to the five "reasonable" alternatives, plus the proposed site.[32] As discussed below, the criteria for removing the other 17 sites were miscalculated and thus misrepresent what alternatives are actually available.

If the Corps is to be able to issue the 404 permit applied for by EPP, EPP must satisfactorily rebut the presumptions contained within the guidelines. These presumptions state that "unless clearly demonstrated otherwise," practicable alternatives are (1) "presumed to be available" and (2) "presumed to have less adverse impact on the aquatic ecosystem."[33] Available evidence suggests that the nonwetland acreage alternatives specifically identified by

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29 Id (quoting 40 C.F.R. § 230.10(a)(3)).
30 Draft EIS, Vol. I at S-1.
31 Testimony of Lloyd Baehr, Corps of Engineers, in West Jefferson Levee Dist. v. Joan Zarowitz Zaslow, Wife of and Laurence Zaslow et al., 24th J.D.C., Div. G, 419-056.
32 Draft EIS, Vol. I at 36.
33 40 C.F.R. § 230.10(a)(3).

the Corps when reviewing the East Groups' permit application increased from 8,810 acres to 9,312 acres between 1980 and 1986.[34] Unless there has been unprecedented development in the years since this study, and the increase in nonwetland acreage due to pumping has ceased, these nonwetland alternative sites still exist.

Part of the Corps' rationale for the denial of East Groups' application was that the "nonwetland site alternative would be the least environmentally damaging." The Corps stated that "[t]he continued elimination of bottomland hardwoods, cypress-tupelogum swamps, and marsh will result in the loss of their natural uses, values and functions."[35] Those natural uses, values and functions "includ[e] intrinsic qualities, opportunities for hunting, water storage, wildlife habitat, and aesthetics."[36]

L14-2. CONT'D

Regulation of wetlands use includes a "determination that potential impacts have been avoided to the maximum extent practicable."[37] the obvious first step required for avoidance of loss of wetlands is a consideration alternatives which the least damaging to the environment. In addition, 40 C.F.R. § 230.10(c) and (d) proscribe the Corps from permitting any discharge that would contribute to significant degradation of the nation's wetlands.

Like East Group's application, EPP's permit application proposes to destroy wetlands while a "nonwetland site alternative [is presumptively and actually available] and would be the least environmentally damaging." EPP's project is located in virtually the same location as the East Group site; as analyzed in the draft EIS, the two sites are directly adjacent to each other and are both within the V-levee. Again, just like East Group's proposal, EPP's planned project

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34 Environmental Assessment for LMNOD-SA(Jefferson Parish)168, at 16. See Appendix C.
35 East Group Statement of Findings at 5.
36 Id.
37 MOA Guidelines at 3.

requires elimination of wetlands resulting in "[t]he continued elimination of bottomland hardwoods, cypress-tupelogum swamps, and marsh [thereby furthering] the loss of their natural uses, values and functions."[38] It is clear that, in the face of upland alternatives, the wetland values in the area that East Group and EPP proposed their sites outweigh the potential value of development of that area. Therefore, EPP's permit must also be denied.

a. The Draft EIS Overweighted Consideration Of Cost Of Property In Selection Of Reasonable Alternative Sites

L14-2. CONT'D

EPP need not own an alternative site for it to be considered a "reasonable" alternative site under the section 230.10 regulations. Section 230.10(a)(2) provides in part that practicable alternative may include "an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purposes of the proposed activity." Thus, if the applicant does not own other sites, this fact does not affect the strong presumption that alternatives are available. Rather, use of an alternative tract of land not presently owned by the applicant is among commonly considered, practicable alternatives.[39]

In spite of the regulations recognizing the both the presumptions against use of wetland sites and the reasonableness of sites that are not owned by the applicant, the Corps used ownership of the property, willingness of the current owner to sell, and cost prohibitiveness as three of the five "Secondary Criteria for Removing Sites From Further Study."[40] This reverses the order that the regulations would have the criteria for site selection fall in because whether or not the alternative site was wetland or nonwetland was relegated by the draft EIS to being merely

38 Id.

39 Bersani v. United States Environmental Protection Agency, 850 F.2d 36 (2d Cir. 1988). See also Hough v. Marsh, 557 F.Supp. 74, 84 (D.Mass 1982).

40 Draft EIS, Vol. I at Table 2.3.

RL14-2. The Corps is aware of the 404(b)(1) guidelines including the guidance on practicable alternatives. A 404(b)(1) review will be conducted before a decision on whether or not to issue a permit is reached. We have reviewed the alternatives analysis and believe it to be comprehensive and reasonable. We looked at a variety of sites in a wide study area where such a development or somewhat scaled down version could be placed. Ownership of property, willingness of the owner to sell, and cost are all pertinent to evaluating the reasonableness of alternatives. For example, if the applicants owned another sizeable tract of land in the study area, it would be considered based on this factor to be a more reasonable alternative than a similar tract that they did not own. However, it could still be eliminated from detailed analysis for other reasons.

There appears to be some confusion by the commenter of the NEPA process with the 404(b)(1) evaluation. We are now in the NEPA process. There is nothing inherent in the NEPA process to rate one type of habitat over another. While wetlands are certainly a factor, that consideration will come in the 404(b)(1) evaluation along with other factors. The EIS does contain an alternative studied in detail (Bunge) that is mostly non-wetland.

The 8,000 acres of nonwetland on the west bank cited by the commenter was not determined by the Corps and was never an accurate number as far as the Corps is concerned. The number is very dynamic as areas are developed and other areas become drier. The Corps did determine in August of 1991 that there were 5,373 acres of nonwetland, but that number has no more validity today than the 8,000 acres cited by the commenter.

one of eight "Additional [i.e., tertiary] Criteria For Removing Sites From Further Study." The draft EIS does state, but apparently exaggerates, that "[p]roperties that were not considered jurisdictional wetlands were preferred."[41] The fact that sites were nonwetland should have been weighted more heavily than the cost of acquiring the land, yet cost was 3/5ths of the secondary criteria and identity as wetland or not was 1/7th of the tertiary criteria.[42]

L14-2. CONT'D

In reference to the mis-placement of three cost-related factors as secondary criteria, it is instructive to note that the draft EIS itself, in a section entitled "Controversial or Unresolved Issues," states that:

> "4) Absolute values for acquisition costs for alternative sites identified in this EIS have not been established. Estimates could only be based on owners' willingness to sell and suggested sale price or approximate appraised value. Cost comparisons between alternatives could only be grossly estimated."[43]

Thus, any use of cost figures for selection of alternative sites becomes speculative and should thereby be discounted against other considerations. Instead, as discussed above, cost played a major part in site elimination.

B. EPP AND THE DRAFT EIS HAVE NOT DEMONSTRATED A NEED FOR THE PROJECT

L14-3.

The draft EIS, in spite of its statements to the contrary in its Statement of Purpose and Need, does not demonstrate that there is a need for either a golf course or a housing development.[44] The statement of purpose and need states that various studies have documented

41 Id. at S-2.
42 Id. at Tables 2.3 and 2.4.
43 Id. at S-13 - S-14.
44 Id. at S-1.

the need for both the housing and the golf course components of the proposed project.[45] However, on the same page, the statement finds that "[t]he interdependency between both actions and the need for combining the two actions remains an unresolved issue between the applicants and the Corps."[46] Further, the Jefferson Parish Municipal Golf Course Feasibility Study states that: "...the resident public golf population is currently well served by existing market area public golf facilities."[47] And while this study discusses the possibility of tourist play supporting the need for the course, on the same page the study also states that: "...it would not be advisable to build a golf facility based solely on the potential rounds that may be derived from visitor populations."[48] Finally, the draft EIS itself states: "The Corps has not completely verified the need for housing on the West Bank."[49]

L14-3. CONT'D

In a letter to the Corps, the Department of the Interior, Fish and Wildlife Service looked at this project and recommended that the permit be denied:

> "**The 404(b)(1) guidelines . . . require that the project need be established prior to permitting the discharge of fill material into aquatic ecosystems.** Within an 8-mile radius of the project area, there are six golf courses, two of which are open to the public. Furthermore, the need for additional housing within the West Bank vicinity of the Mississippi River (Westwego, Marrero, and Harvey) has been recently investigated in association with previous permit proposals for similar activities [i.e., SE(Jefferson Parish wetlands 168 and 185]. Both permits were denied because the need to adversely impact wetland habitat for additional housing could not be demonstrated.
>
> "Based on the expected adverse project impacts on fish and wildlife habitat values, the apparent lack of need for the proposed project, and the presumption that less-damaging alternatives exist, **the Service recommends that the proposed permit be denied.**"[50]

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45 Id.
46 Id.
47 Draft EIS, Vol II, Appendix A, Golf Research Associates Comprehensive Market Evaluation, at 19.
48 Id.
49 Draft EIS at S-2.
50 March 4, 1993 letter from United States Department of the Interior, Fish and Wildlife Service, to Colonel Michael Diffley, District Engineer, U.S. Army Corps of Engineers. (Emphasis supplied). See Appendix D.

One of the two "previous permit proposals" was the East Group proposal. When East Group submitted its permit application, the Corps determined that the basic purpose of that application was to fill wetlands for the development of residential and commercial projects.[51] In denying East Group's permit application, the Corps relied on a University of New Orleans Housing Survey Report which showed that there was a housing glut in Jefferson Parish.[52] That study indicated that approximately 33 percent of the houses built in Jefferson Parish in 1986 remained unsold.[53] In addition, the study indicated that the apartment vacancy rate in Jefferson Parish was approximately 25 percent. Based on this information, the Corps determined that there was no need for additional housing.[54]

L14-3. CONT'D

Like East Group, EPP seeks a permit to fill 643 acres of wetlands for the purpose of constructing a housing project and a golf course on the West Bank of Jefferson Parish. The draft EIS's declarations in support of the need for this project appear to contradict the data within it, and are therefore suspect and a risk for the Corps to rely on in the face of potential judicial review. East Group's application was denied because "it failed to demonstrate a need for additional housing in Jefferson Parish."[55] Likewise, EPP's permit application must also be denied.

1. The Draft EIS Fails to Consider Infrastructure Costs to Jefferson Parish in Comparing the Benefits of the Project to the Costs to the Public

L14-4.

While the cost to Jefferson Parish for the construction of the proposed golf course is laid out and estimated to be $6,327,047, the draft EIS fails to consider the cost to the Parish for

[51] See East Group Statement of Findings.
[52] Id.
[53] Id.
[54] Id.
[55] Id.

RL14-3. Additional information of the purpose and need for the proposed action has been developed and added to the FEIS. Several of the comments noted have resulted from misinterpretation of presented information. Comment on "...the resident public golf population is currently well served by existing market area public golf facilities" is taken out of context. The statement actually fully states "This would seem to indicate the resident public golf population is currently well served by existing market area public golf facilities". After this point the document proceeds to explain why the market area may not be well served. Comment on "...it would not be advisable to build a golf facility based solely on the potential rounds that may be derived from visitor populations" is also taken out of context. The proposed golf course will not depend on visitor golfers but may help to satisfy this demand. In reference to the letter from the U.S. Fish and Wildlife Service (USFWS) sent to Mr. Robert Bosenberg of the Corps in response to the applicants' 404 permit application, the request for an EIS to address the impacts of the applicant's proposed project seems to have been excluded. The USFWS indicated that without the preparation of an EIS, they would have no alternative but to recommend denial of the application.

construction of the infrastructure necessary to support the project as a whole.[56] The draft EIS does briefly look at infrastructure concerns in the context of its comparison of the analyzed alternatives, but the treatment does not evaluate total initial costs and/or long term maintenance costs to the Parish.

The Department of Health and Hospitals has submitted two letters registering its disapproval of the project's infrastructure planning:

L14-5.

> "Upon review of the information contained in the subject document and in consideration of certain other relevant public health-related factors, this office has no other alternative than to object to the project, as described. Such determination, it should be noted, is based on the following:
>
> 1. The material submitted by Estelle Plantation Partnership does not include any information on the disposal and/or treatment of sewage from facilities which exist and/or may be constructed on the site. Additionally, this agency has received no alternate or additional information or application from Estelle Plantation Partnership for sanitary wastes handling from the site, as may be required by the Sanitary Code of the State of Louisiana and/or other applicable governing regulations."[57]

To the best of our knowledge, the Department of Health and Hospitals remains unconvinced about the sufficiency of planning and evidence supporting the treatment and disposal of sewage from the project. The costs to Jefferson Parish for violation of the Clean Water Act with respect to discharges from a publicly owned sewage treatment plant is potentially very great, and requires analysis to determine the Parish's exposure to fines and other actions.[58]

[56] Draft EIS, Vol II, Appendix A, Golf Research Associates Comprehensive Market Evaluation, at 3.

[57] February 3, 1993 letter from State of Louisiana, Department of Health and Hospitals, to Henry R. Schorr, Chief, Operations and Readiness Division, Department of the Army, New Orleans District (emphasis supplied). See appendix E.

[58] See Parthenia B. Evans, Municipal Liability Under the CWA, Westlaw, 6-SUM NATRE, Summer, 1991; Appendix M. See also G. Nelson Smith, Lawmaker as Law Lawbreaker: Enforcement Actions Against Municipalities for Failing to Comply with the Clean Water Act, 41 Cleveland State Law Review 685, 1993; Marcia R. Gelpe, Pollution Control Laws Against Public Facilities, 13 Harvard Environmental Law Review, 69, 1989.

RL14-4. Refer to RM3-2.

RL14-5. Refer to RL13-13.

L14-6. The draft EIS contains small statements that point to much larger problems for the calculation of costs. For example, in its analysis of environmental consequences for surface water, the draft EIS states unequivocally: "Approximately, one third of the site (Figure 3.13) is anticipated to be flooded during 10-year storm events."[59] This would seem to point to future costs to the Parish and homeowners as the streets and homes in that one third are flooded, but the draft EIS makes no attempt to quantify or analyze the potential costs associated with such an event. The May 8, 1995 flood here in Louisiana took "seven lives, inundated 35,000 homes and caused over $3 billion in property damage,"[60] In Jefferson Parish alone the flood killed one man "and cost the parish $2.2 million to clean up, including removal 13,000 tons of debris, enough to fill four typical months of landfill space."[61] It is clear that insufficient research has been done on the infrastructure costs that the Parish will be taking on as a result of this proposed project. Without that data, the draft EIS presents a devalued estimation of the costs associated with this project and "need" for the project is thereby artificially inflated by comparison.

L14-7. "Need" is further artificially inflated in a cost/benefit analysis by the subtraction of the cost of buying property for the project, due to its being 'donated' by EPP. Obviously, the donation is intended by EPP to provide a financial incentive to Jefferson Parish to support the project as planned. The draft EIS states that "EPP intends to donate 200 acres of the property to Jefferson Parish for construction of the public golf course. Jefferson Parish will facilitate construction and operation of the course." What this makes clear is that the project proponents are trying to hide the cost of the golf course land by calling it a donation, when, in fact, the cost

59 Draft EIS, Vol. I at 115.
60 Times-Picayune, Thursday, March 7, 1996 at A3.
61 Times-Picayune, Sunday, December 31, 1995 at 1D1.

RL14-6. Refer to RM5-2, RL2-1, and RL4-19.

RL14-7. Comment noted. Jefferson Parish is a co-applicant for the project. Additionally, Jefferson Parish would not commit to operating the golf course, if it did not desire to have such a facility. It is readily apparent from the response of several Jefferson Parish public officials, that Jefferson Parish supports this arrangement because it provides additional facilities to Jefferson Parish and provides positive economic development for the parish. The Commenter should also refer to RM3-2.

of that land is a major component of the project. Would EPP give 200 acres of land away for no return? Obviously not, the land is worth a substantial sum, which is why it is supposed to be such a boon to the project for the land to be donated. However, EPP is giving Jefferson Parish the land, and it may be presumed from basic economic sense that that donation is in return for rights or preferences that will benefit EPP. Those rights or preferences must be included as a real cost to Jefferson Parish. Further, that cost must be calculated into the selection of reasonable alternatives. Thus, Table 2.3, Secondary Criteria for Removing Sites From Further Study, is extremely misleading and is a flawed basis for removing any alternative sites from consideration.[62]

C. NOTICE OF DRAFT EIS PROVIDED BY CORPS WAS INSUFFICIENT

Volume II of the draft EIS was not distributed in sufficient numbers to give interested persons notice of the proposed project. 40 C.F.R. §1502.19 governs circulation of an environmental impact statement:

L14-8.

> "Agencies shall circulate the entire draft and final environmental impact statements except for certain appendices as provided in § 1502.18(d) and unchanged statements as provided in § 1503.4(c). However, if the statement is unusually long, the agency may circulate the summary instead, except that the entire statement shall be furnished to:
>
> (a) Any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved and any appropriate Federal, State or local agency authorized to develop and enforce environmental standards.
>
> (b) The applicant, if any.
>
> (c) Any person, organization, or agency requesting the entire environmental impact statement.
>
> (d) In the case of a final environmental impact statement any person, organization, or agency which submitted substantive comments on the draft.

[62] Draft EIS, Vol. I at Table 2.3.

If the agency circulates the summary and thereafter receives a timely request for the entire statement and for additional time to comment, the time for that request only shall be extended by at least 15 days beyond the minimum period.[63]"

While the Corps printed 125 copies of Volume, the Corps only printed 30 copies of Volume II. Draft EIS section "Draft Statement Recipients" states that a "complete listing of all those mailed a copy of this DEIS are as follows," but the list that follows has over 100 individual recipients. Obviously because only 30 copies of Volume II were printed, not all of those on the list received Volume II. Volume I of the draft EIS is about 180 pages, Volume II is over 500 pages. This is not a document that is easily comprehended in its implications or details, yet it appears that the Corps expects the interested public to be able to, assuming the best circumstances, look at Volume I (if they got one) and then go to the very rare place that may have received Volume II, and the put together meaningful comments within the comment period. This is unreasonable given that even federal document repositories did not receive a copy of Volume II.[64] Until the whole document is available for close study and easy access, the Corps inadequate distribution will be in violation of the intent of NEPA, the requirements of the Administrative Procedure Act ("APA"),[65] Section 404 of the Clean Water Act, and the Corps' own regulations.

L14-8. CONT'D

In National Wildlife Federation v. Marsh, the court considered the procedures required in a Corps 404 permitting decision.[66] Discussing the interaction of the APA and section 404, the court stated:

63 40 C.F.R. §1502.19.

64 Two members of Tulane University were supposed to receive copies of the whole EIS, but neither the professor nor the Louisiana Collection at the Howard Tilton Library has received Volume II.

65 5 U.S.C.A. §§ 701-06 (1988).

66 National Wildlife Federation v. Marsh, 568 F.Supp. 985, 993 (D.D.C. 1983).

RL14-8. The Corps printed 140 copies of Volume 1 and 30 copies of Volume 2. The Corps library, local public libraries, and several university libraries were sent complete sets for the public to review. Additional copies could be made for anyone willing to pay for the printing; requesters were informed of this option. The Corps actually had only a few requests for Volume 2 over the number printed. Printing and sending out 140 copies of Volume 2 would have been an unnecessary expense to the public. Some additional copies of both volumes of the FEIS will be printed. Individuals and groups who commented on the DEIS will receive a complete set provided that they disclosed an address.

". . . this Court's determination that section 404 in conjunction with the APA requires only an informal, rather than a formal or trial-type, adjudicatory proceeding does not completely dispose of National Wildlife's claim. Section 404 provides for "public hearings"; the Army's regulations provide that there be an opportunity for "meaningful comments." 33 C.F.R. § 325.3(a). Even in an informal adjudicatory setting, if the public is not apprised of the rationale behind a proposed decision, or if the public is informed of the rationale only after the close of the comment and hearing period, then the agency cannot be said to have provided a realistic opportunity for public hearings or meaningful comments. The requirements that an agency . . . provide initial notices of proposed action, . . . disclose internal reports, and . . . state its reasons for acting as it did, all rest on the fundamental proposition that the right to comment or the opportunity to be heard on questions relating to the public interest is of little or no significance when one is not apprised of the issues and positions to which argument is relevant. Only when the public is adequately informed can there be any exchange of views and any real dialogue as to the final decision. And without such dialogue any notion of real public participation is necessarily an illusion."[67]

As quoted above, the Corps regulations on public notice state that "notice must . . . include sufficient information to give a clear understanding of the activity to generate meaningful comment."[68] The court interpreted this requirement to mean that

L14-9.

> "that even in the informal adjudicatory process under section 404 of the CWA, the opportunity to comment and the right to a hearing both necessarily require that the Army present for public scrutiny the rationale and pivotal data underlying its proposed action before the close of the comment and hearing period."[69]

By providing only very limited access to Volume II, the Corps has not adequately provided the public with the information required to satisfy the law.

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67 Id. (quoting U.S. Lines v. Federal Maritime Commission, 584 F.2d 519, 540 (D.C.Cir. 1978) (footnotes omitted).

68 33 C.F.R. § 325.5(a). Some of the relevant provisions of § 325.5 are as follows:

> (a) General. The public notice is the primary method of advising all interested parties of the proposed activity for which a permit is sought and of soliciting comments and information necessary to evaluate the probable impact on the public interest. The notice must, therefore, include sufficient information to give a clear understanding of the nature and magnitude of the activity to generate meaningful comment. The notice should include the following items of information:
> (1) . . .
> (13) Any other available information which may assist interested parties in evaluating the likely impact of the proposed activity, if any, on factors affecting the public interest; . . .

69 National Wildlife Federation v. Marsh, 568 F.Supp. 985, 994-95 (D.D.C. 1983).

1. Volume II of the Draft EIS is a Necessary Part of Notice to Interested Parties

Without Volume II, the draft EIS is not only incomplete, it is misleading. For example, Table 3.1 describes a model calculation for the number of Average Annual Habitat Units ("AAHUs") lost for each of the six alternatives as compared to if nothing was done to each site.[70] It is noted at the bottom of the table that the AAHUs are "calculated over fifty [50] years." The inference to be taken from the table and write-up relating the calculations is that over the 50 years calculated for, the EPP proposed site will only lose 145.1 + 157.7 = 302.8 AAHUs.

L14-9. CONT'D

However, if one happens to have access to Volume II and has time to leaf through the massive explanation of the methodology that is ostensibly employed in calculation of AAHUs and the calculation tables for the project at hand it becomes clear that the 302.8 AAHUs are lost each year. 302.8 x 50 = 15,140 AAHUs. This is a staggering number that can only be discovered if one has Volume II and the time to read it very carefully in conjunction with Volume I.

From this example it is clear that Volume II is indispensable to understanding the implications of the proposed project and alternatives. Without Volume II, those who received Volume I were without necessary information and were very likely misled. It is possible that if more of those who received Volume I had received Volume II, they may have perceived the true nature of the project and its impact on the environment and commented in this proceeding. This is woefully insufficient notice in violation of the section 404, the APA, and the Corps' regulations.

[70] Draft EIS, Vol. I at 72.

RL14-9. See RM7-2 and RL4-24. Seeing Volume 2 does not change the AAHU number presented in Volume 1. Volume 1 presents AAHUs accurately and Volume 2 presents HU calculations accurately. The Corps agrees that seeing Volume 2 is important only to the point that the reviewer has the appropriate expertise to analyze and interpret the data. Volume 1 is written with the general public (the main audience) in mind and tries, as the NEPA regulations advise, to avoid technical details.

Until the locations and people listed as interested parties receive the second volume of the draft EIS and have time to research it and comment, the January 12, 1996 Notice of Availability will be incorrect and the notice and opportunity to comment on the EPP proposed project will be insufficient under the law.

2. Comments Submitted by Federal and State Agencies are a Necessary Part of Draft EIS

State and Federal Agencies by their very nature and design are in a position to be able to best collect, assess and interpret the data that surrounds projects that affect the environment. In many cases these agencies were created with the sole intent of protection of the fragile natural environment. The opinions of these agencies are uniquely informative in both the 404 permitting and NEPA processes. As discussed above, NEPA, the APA, section 404 and the Corps regulations together require important information to be revealed to the interested public. The informative quality of opinions received from commenting agencies is clearly such that those opinions should be included in a draft EIS if possible. Where opinions that directly address the project at hand and are received prior to the publication of a draft EIS, those comments constitute an extremely important part of the information available for publication and should therefore be included in the draft EIS to enable the public to make meaningful comments.

Prior to the publication of the draft EIS at issue here the Corps had received comments on the project from various federal and Louisiana agencies. For example, the Department of the Interior, Fish and Wildlife Service, the Environmental Protection Agency ("EPA"), the Louisiana Department of Wildlife and Fisheries, and the Louisiana Department of Health and

L14-10.

RL14-10. The Corps held scoping meetings, summarized all scoping comments, produced a scoping document made available to the public and employed the various concerns and questions raised during all evaluations. Additional analyses and information then becomes part of the EIS to help not only the Corps, but the various commenting agencies who had less information at the onset of the process.

Hospitals all submitted letters in response to Public Notice SE(Jefferson Parish Wetlands)238 of February 1, 1993. This notice is one of the initial steps to the Corps' evaluation of EPP's proposed project. The March 4, 1993 Fish and Wildlife Service letter describes the Service's view of the project site and the effects of the project on the fish, wildlife and habitat values therein.[71] Further, the letter states:

> "Based on the expected adverse project impacts on fish and wildlife habitat values, the apparent lack of need for the proposed project, and the presumption that less-damaging alternatives exist, the Service recommends that the proposed permit be denied."[72]

L14-11. The EPA letter states that: "It is EPA's opinion that the proposed project may result in substantial and unacceptable impacts to aquatic resources of national importance."[73] The Louisiana Department of Wildlife and Fisheries letter states that agency's opinion of the need for the Corps to give alternative site analysis, demonstration of "real need for this amount of activity in the wetlands," and avoidance, minimization and an "approved mitigation plan."[74] The two Louisiana Department of Health and Hospitals letters register the department's objection to the project on the basis of a lack of information on the proposed project's "disposal and/or treatment of sewage from facilities which exist and/or may be constructed on the site."[75]

These letters were not included in the draft EIS, in spite of their clear relevance and value toward informing the interested public on the agencies' view of the proposed project. In fact, to

[71] March 4, 1993, letter from United States Department of the Interior, Fish and Wildlife Service, to Colonel Michael Diffley, District Engineer, U.S. Army Corps of Engineers. (Emphasis supplied).

[72] Id.

[73] February 18, 1993, letter from the United States Environmental Protection Agency to Colonel Michael Diffley, District Engineer, U.S. Army Corps of Engineers. See Appendix F.

[74] February 15, 1993 letter from the State of Louisiana, Department of Wildlife and Fisheries, to Ronald J. Ventola, Regulatory Functions Branch, New Orleans District. See Appendix G.

[75] February 3, 1993 letter from State of Louisiana, Department of Health and Hospitals, to Henry R. Schorr, Chief, Operations and Readiness Division, Department of the Army, New Orleans District. See Appendix E.

RL14-11. The Fish and Wildlife Service and the Louisiana Department of Wildlife and Fisheries were involved in detailed analyses of habitat conditions at the alternative sites. The Environmental Protection Agency elected not to be involved in the detailed analyses, but all agencies had opportunity to comment on the DEIS and will have an opportunity to comment on the FEIS.

look at these documents members of the public must go through the Freedom of Information Act ("FOIA") process of submitting a request to the Corps and waiting for a response. Few are likely to go through this process, particularly because there is no way for the interested public to know such records exist. It is the Corps' responsibility to include any "pivotal data underlying its proposed action before the close of the comment and hearing period."[76]

D. THE CORPS MUST REQUIRE, AND EPP HAS FAILED, TO MINIMIZE POTENTIAL ADVERSE IMPACTS OF THE FILL

40 C.F.R. § 230.10(d) requires that: ". . . no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem." In determining what is "appropriate and practicable" the Corps must consider the overall purpose of the project, the scope and degree of impact, costs, existing technology and logistics.[77]

Some minimization measures are enumerated at 40 C.F.R. § 230.70 through 40 C.F.R. § 230.77. Actions the applicant might take consist of: (1) avoiding the wetlands area altogether by purchasing and developing on, nonwetland property; (2) changing the size and scope of the project to minimize losses of wetlands; and (3) as a last resort, setting aside a major portion of the wetlands as "untouchable," and purchasing off-site nearby wetlands to compensate for the losses. Additionally, "[i]t is important to recognize that there are circumstances where the impacts of the project are so significant that even if alternatives are not available, the discharges may not be permitted regardless of the . . . [minimization] or mitigation proposed."[78]

L14-12.

[76] National Wildlife Federation v. Marsh, 568 F.Supp. 985, 994-95 (D.D.C. 1983).
[77] MOA Guidelines at 3.
[78] Id. at footnote 5.

RL14-12. Refer to RL14-14, RL15-9, RL15-11, RL5-8, RL5-9, RL5-10, RL5-11, RL5-12, and RL14-2.

As mentioned above, EPP proposes to construct a golf course and housing development on the West Bank of Jefferson Parish. The Corps previously denied a permit to the East Group which proposed only to dredge wetlands located directly adjacent to the EPP proposed project site. East Group's permit application did not even contain a development component, yet the Corps determined that the dredging would ultimately result in development, and denied the East Group's permit application.

The draft EIS fails to demonstrate that EPP has included minimization procedures in its application or development plans. Thus, EPP's application is incomplete, and the Corps will be in violation of 40 C.F.R. 230.10(d) if the 404 permit is issued on the basis of the draft EIS and that application.

E. EPP'S PERMIT APPLICATION AND THE DRAFT EIS LACK A MITIGATION PLAN

1. Steps to Mitigate On-Site Adverse Environmental Damages Must be Undertaken

L14-13.

The 1990 MOA gives wetlands a higher priority than other aquatic areas. The Corps agreed that as to wetlands, it will seek to achieve "no overall net loss of values and functions."[79] Mitigation is essential in the Corps' 404 permit application review process because it ensures that the project complies with the Guidelines. "Consideration of mitigation will occur **throughout** the permit application review process and includes avoiding, minimizing, rectifying, reducing, or compensating for resource losses."[80]

[79] Id. at 2.
[80] 33 C.F.R. § 320.4(r)(1)(Emphasis supplied.); see also 40 C.F.R. §§ 230.70-230.77.

In order for the Corps to fulfill its obligation to avoid or minimize the destruction of wetlands to the greatest extent practicable, all permit applications must contain a mitigation plan so that it may be evaluated "throughout" the application process. If an such a plan is not available during the Corps' evaluation of the application, there will be no way for the Corps to satisfy its obligation under § 320.4(r)(1). Further, as discussed above, the Corps is obligated to give notice that "must . . . include sufficient information to give a clear understanding of the activity to generate meaningful comment."[81] The applicant's proposed mitigation plans surely constitute part of the required information.

L14-13. CONT'D

EPP has not attempted to minimize or proposed a plan to minimize or mitigate wetlands destruction, and the draft EIS itself merely states: "Impacts to wetlands and wetland habitat will be mitigated if a permit is issued, however, detailed mitigation plans will be prepared at a later date."[82] EPP has clearly failed to provide the Corps with the necessary and legally required information to allow the Corps to sufficiently evaluate EPP's permit application. As a result, EPP's permit application must be denied.

As discussed above, the Corps has previously denied a permit to the East Group which proposed to construct a residential and commercial project on a wetland site immediately adjacent to the proposed EPP site. The Corps found that a practicable nonwetland alternative existed and denied the permit.

A denial of EPP's permit would preserve 643 acres of wetlands and their "intrinsic qualities, opportunities for hunting, water storage, wildlife habitat, and aesthetics," as well as averting the damage and destruction to the Jean Lafitte National Park.

[81] 33 C.F.R. § 325.5(a).
[82] Draft EIS, Vol. I at S-14.

RL14-13. Refer to RM7-5.

2. Compensatory Mitigation Must be Used Only When All Other Alternative Means of Mitigation are Exhausted

Avoidance is the preferred method for stemming unnecessary wetlands destruction; losses must be avoided to the maximum extent practicable, and we believe they can be avoided here. However, if, and only if, the Corps finds that avoidance and minimization plans are not possible for the EPP site, compensatory mitigation may be considered. "Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts which remain after all appropriate and practicable minimization has been required."[83]

L14-14. Compensatory mitigation includes restoration of existing degraded wetlands or creation of man-made wetlands. Compensation may occur on-site or at an off-site location.

In the event that the Corps determines that compensatory mitigation is an option (even with a practicable alternative available) it must consider, in order of preference: (1) areas adjacent or contiguous to the EPP site; (2) if on-site compensatory mitigation is not practicable, off-site compensatory mitigation in the same geographic areas and the same watershed; and (3) approved "mitigation banking."[84]

In addition, "in determining compensatory mitigation, the functional values lost by the resource to be impacted must be considered values, not simply acreage lost. Wetland functions and values include not only habitat for wildlife, plants and aquatic life, but also natural filtration for pollutants, flood control, and groundwater recharge.[85]

In short, before the Corps can even consider compensatory mitigation, the Corps must determine not only that there is a "need" for the housing development and the golf course, but

[83] MOA Guidelines at 4.
[84] Id.
[85] EPA's Q&A at 2.

RL14-14. The Corps agrees that developing detailed compensatory mitigation would be premature at this time.

also that there are no other practicable alternatives and that minimization is impossible. The Corps is unable to perform this analysis in the draft EIS, however, because EPP has not provided sufficient information in the permit application to enable the Corps to make the requisite evaluation. EPP's permit application and the draft EIS are legally deficient; the permit must be denied.

F. THE DRAFT EIS FAILS TO CONSIDER INDIRECT EFFECTS OF THE PROJECT SUFFICIENTLY

Council on Environmental Quality ("CEQ") regulations require that the Corps, as lead agency for this project, discuss direct and indirect environmental effects of the proposed project in an EIS.[86] Indirect impacts are defined in the regulations as those that

> "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. . . . Effects include ecological (such as the effects on natural resources and on the components, structures and functioning of affected ecosystems) aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative."[87]

EPP's proposal would result in a multitude of indirect effects, including indirect land-use, aesthetic, socio-economic and natural-resource effects on the area's environment.

L14-15.

An EIS prepared in 1977 in conjunction with a proposal for Belle Terre Subdivision -- a residential and commercial development proposal was similar to EPP's -- illustrates the adverse effects such development can have on vegetation, wildlife and habitat.[88] Under the plan, the developer proposed conversion of a 900-acre site into a development consisting of single-family

L14-16.

[86] 40 C.F.R. § 1502.16(b).
[87] 40 C.F.R. § 1508.8(b).
[88] U.S. Dep't of Housing & Urban Development, Draft Environmental Impact Statement No. HUD-R06-EIS-77-D (1977) (hereinafter "Belle Terre EIS"). See Appendix G.

RL14-15. The Corps believes the DEIS does disclose indirect impacts related to most of the items raised here; however, more information has been included in the FEIS about pesticides. Most of the abandoned housing is not in the same category proposed by the applicants and its disposition is beyond the scope of the EIS. We suggest you contact the Parish and the Department of Housing and Urban Development with any suggestions regarding abandoned housing.

L14-16. CONT'D

residences and an 18-hole golf course, complete with club house, swimming pool and tennis courts. The water-quality effects of the proposal to build Belle Terre Subdivision in LaPlace, Louisiana, were described in the Belle Terre EIS:

> "Once the . . . area is substantially developed, it is expected that the quantity and the peak discharge of storm water runoff will increase. The quality of runoff will be altered by the introduction of oils, trash, chemical fertilizers, insecticides and other deleterious substances (washed from streets, driveways and landscaped areas) which will eventually drain into the wetlands . . . Both the increased runoff rates and the quality of storm water runoff will result in an adverse impact on the water quality of areas to which this runoff will be pumped. In addition, the runoff will accelerate the erosion processes and the potential ground water recharge in the project area."[89]

As the Belle Terre EIS points out, residential and commercial development has significant adverse impacts on the water quality of not only the site itself, but the surrounding areas as well. Thus as with the impacts of habitat destruction, the deleterious effect of water-quality impacts will be compounded by the sensitive neighboring park and protected areas.

The EPP site poses similar problems. The draft EIS states that runoff from the site is expected to increase due to the project, the runoff from the golf facility is expected to affect the surface water quality in the area, and that "[r]unoff from the golf course is expected to include insecticides, herbicides, and fertilizer."[90] The application of large quantities of chemical pesticides to residential and commercial developments results in extremely significant adverse water- and air-quality effects. That is especially true in developments such as the one proposed by EPP, which incorporates an 18-hole golf course.

The effects of pesticide use on golf courses in particular have recently been the focus of a great deal of concern. A study performed by the Attorney General of New York State in 1991

[89] Id. at IV-3.
[90] Draft EIS, Vol. I at 115.

RL14-16. While the Corps does not disagree with the information presented in the referenced DEIS, but the situations are very different.

revealed that "golf courses on Long Island use almost four to seven times the average amount of pesticides used in agriculture, on a pound per acre basis."[91] The study found that the 52 golf courses surveyed used "approximately 200,000 pounds of bulk dry products and close to 9,000 gallons of bulk liquid formulations in one year. This included 192 different pesticide products containing 50 different active ingredients which totaled more than 50,000 pounds.[92] The study further revealed that

L14-17.

> "[s]ix pesticides . . . totaling . . . 19.8 percent of the total active ingredients applied, have been classified by the EPA as possible or probable human carcinogens . . . Another three . . . totaling . . . 12.7 percent of the total . . . break down in the environment into various compounds including substances the EPA classifies as probable human carcinogens. . . . One active ingredient [amounting to] 3.6 percent of the total active ingredients applied, has been found by the EPA to be contaminated with traces of dioxin, a probable human carcinogen."[93]

In addition to being human carcinogens, many of the pesticides used on the studied golf courses have been found to result in other adverse health effects. EPA has stated that "some of the [] chemicals can impair the nervous system, while others may damage the kidneys, liver, thyroid and adrenal glands, and the blood. Some cause degeneration of the testes, decreased sperm counts, reduction in weight of the uterus, and decreased birth weight.[94] According to the New York study, pesticides could be detected in New York water supplies as early as 1979.[95] More recently, a second pesticide was detected in Long Island drinking water at levels twenty times greater than New York's safe drinking-water standard. In addition, by 1988, a total of 22 additional pesticides had been detected in Long Island's groundwater.[96] According to the study:

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91 Department of Law, State of New York, Toxic Fairways: Risking Groundwater Contamination From Pesticides on Long Island Golf Courses, July 1991, at 3. See Appendix H.
92 Id. at 8.
93 Id. at 10 (emphasis added).
94 Id. at 11.
95 Id. at 4.
96 See id.

"Anyone on the golf course or nearby is at risk. Pesticide applicators, either professional contractors or golf course workers, can be exposed to these poisoned during storage, mixing and application. Golfers, often playing shortly after pesticides have been applied, can be exposed directly to the pesticides on the turf, as well as to pesticide vapors and mists. People living near a golf course may be affected by sprays and dusts blown from the golf course onto their property and into their homes. Finally pesticides applied to the turf may run off into surface waters or leach down to groundwater, which can then expose people to contaminated drinking water. These people may live far from the place where pesticides were used."[97]

L14-17. CONT'D

Far from being comparatively benign, residential and commercial pesticide use has also been found to significantly affect the environment. The New York study notes that "three to six times as much pesticides are used per acre on home lawns than to grow the food we eat."

The contamination of significant groundwater resources in the region surrounding EPP's proposal as a result of pesticide use has been documented in the "West Bank" EIS.[98] That document reveals that:

"Aldrin, DDT, dieldrin, endrin, malathion, methyl parathion, parathion, kiazinon, PCB's, 2-4-D, 2, 4, 5-T, and Silves were detected during the six-month water quality survey . . . Dieldrin was detected at each of the sampling locations, except New Government Canal. Diazinon was the most frequently detected organophosphorous insecticide with about 75% of the samples positive. Diazinon was detected at all eight sampling sites. The phenoxy herbicides were the most frequently detected class pesticide. About 96% of the collected samples contained measurable concentrations of the herbicide 2, 4-D."

Because EPP's proposal would incorporate one of the most pesticide-intensive uses of property in a region whose groundwater is already contaminated by pesticides, the effects will be very broad and difficult to estimate. Moreover, many of the same diseases and afflictions that occur in humans would also occur in wildlife that becomes exposed to pesticide-contaminated groundwater. Because wildlife is abundant in the areas surrounding the site and the water flow

RL14-17. Refer to RM3-4.

[97] Id. at 3-4 (emphasis added).

[98] United States Army Corps of Engineers, West Bank of the Mississippi River in the Vicinity of New Orleans, LA., Feasibility Report and Environmental Impact Statement, Technical Appendixes, Volume II, December 1986, at EIS-42 - EIS-45. See Appendix I.

from the site is expected to spread the poisons, the potentil harm of the proposal is further compounded.

The potential for high levels of mercury and other poisons to accumulate in the proposed lagoons is a prime example of the potential for disaster that heavy golf course use of pesticides, herbicides and fungicides presents. The lagoons proposed by EPP for the golf course are designed to receive all of the runoff for the course. The runoff from the golf course will carry mercury and other poisons that may be traced to fungicides used on the course into the lagoons and, by bioaccumulation, into the fish that are caught and eaten by fishermen young and old. The lagoons could become toxic hot spots, endangering those that come into contact with the water, particularly those that eat the fish. As a result of the obvious hazards to the surrounding population, the liability of Jefferson Parish for harm caused directly or indirectly by toxic accumulations in the lagoons is an issue that the draft EIS ignored completely. That liability could potentially be very great and deserves consideration.

L14-17. CONT'D

Another indirect effect of EPP's proposal would be on the existing vacant residences of Jefferson Parish. Vacant and abandoned housing is an aesthetic, social and health problem of significant proportion in the parish. Vacant housing is not only aesthetically unpleasant, but presents safety and health hazards, depressed property values, and a breeding ground for crime. EPP's proposal will weaken the market for existing vacant housing and thus adversely impact the problems posed by that housing. The Corps recognized the importance of such impacts in the East Group Properties Statement of Findings, noting that "[t]here [was] no discernible need for

L14-18.

RL14-18. Of the 18,674 "vacant housing units" cited, only 2,374 are classified as "for sale only" and 4,382 as "other vacant". The remainder of these housing units are for rent, rented or sold but not occupied, for seasonal or occasional use, for migrant workers, or boarded up. It is uncertain if the housing units described as "other vacant" would be homes of reasonable quality which would generate any type of public demand. Including these homes with homes "for sale only" represents only 3.6% of the total housing units within Jefferson Parish. Refer to RL4-39 and RL14-15.

additional housing . . . of the houses built in Jefferson Parish in 1986, 31 percent remain unsold."[99]

1990 census data reveals that at that time, Jefferson Parish contained 18,674 vacant housing units.[100] NEPA's cumulative-effects analysis requires an evaluation of the incremental adverse impact of EPP's proposal on the present market for vacant housing. To permit EPP's proposal to expand development into unspoiled, wetland areas without a demonstrated need, and without thoroughly evaluating the market-weakening and vacancy-inducing effects of that proposal, would be contrary to NEPA.

Other indirect effects of proposed development include those that commonly result from the suburbanization of undeveloped areas. The proposed land-use change from sensitive wetlands -- which, as noted previously, provide valuable natural habitat and water-resource values -- to a commercial and residential development would result in not only the destruction of those values, but other growth-related effects as well. Such effects would likely include many of those identified in the Belle Terre Subdivision EIS, including: "[l]ong-term increased traffic from vehicles housed in the development and from provision of community services," "[l]ong-term use of non-renewable resources;" "[i]ncreased requirements for utility systems and community services;" "[i]ncreased noise levels" and "[p]ossible increase of crime and other urban problems related to growth."[101]

L14-19.

As the preceding discussion reveals, EPP's proposal would indeed have enormous impacts on the environment of the area; some of those effects will include those on floodwater

L14-20.

99 East Group Statement of Findings, supra note 26, at 4.

100 Bureau of the Census, U.S. Dep't of Commerce, 1990 Census of Population and Housing: Summary Population and Housing Characteristics: Louisiana 85. See Appendix J.

101 Belle Terre EIS, supra note 33, at VI-I.

RL14-19. We believe that the EIS fully disclosed that the area would be converted from fairly natural habitat to houses and a golf course if a permit is issued for the applicants' proposal.

RL14-20. The Corps does not agree all impacts would be enormous, however, we note the comment that EPP's proposal will have an environmental impact.

storage capacity, vegetation and biota, habitat, housing occupancy, cultural resources, air and water quality, and those resulting from suburbanization.

G. TO DENY ISSUANCE OF A PERMIT TO ESTELLE WOULD NOT CONSTITUTE A "TAKING" UNDER THE FIFTH AMENDMENT TO THE U.S. CONSTITUTION.

In making permitting decisions, the Corps is neither empowered, nor authorized to consider whether the project at hand would constitute taking of "private property for public use, without just compensation," under the Fifth Amendment to the U.S. Constitution.[102] It is true that isolated cases have arisen in which regulatory action has been determined to be an

L14-21.

uncompensated "taking" of property under that Amendment.[103] Although the Supreme Court indicated that "the economic impact of . . . regulation on [a] claimant and, particularly, the extent to which . . . regulation has interfered with distinct investment backed expectations are of course relevant considerations," it has also held that government may validly "execute laws or programs that adversely affect recognized economic values."[104] "Government could hardly go on if to some extent values incident to property could not be diminished without paying for every such change in the general law."[105]

In United States v. Riverside Bayview Homes, Inc., 474 U.S. 121 (1985), the Supreme Court considered the applicability of the Fifth Amendment "takings" analysis to the Section 404 permitting system. The Court confirmed that it has,

> "suggested that governmental land-use regulation may under extreme circumstances amount to a "taking" of affected property. We have never precisely defined those circumstances; but our general approach was summed up in Agins v. Tiburton, 447 U.S. 255, 260 (1980), where we stated that the application of land-use regulations to a

102 U.S. Const. amend. V.
103 See, e.g., Pennsylvania Coal Co. v. Mahon, 260 U.S. 393 (1922).
104 Penn Central Transp. Co. v. City of New York, 438 U.S. 104, 124 (1978).
105 Pennsylvania Coal, 260 U.S. at 413.

particular piece of property is a taking only "if the ordinance does not substantially advance legitimate state interests . . . or denies an owner economically viable use of his land."[106]

The Court further asserted that "even if [a] permit is denied, there may be other viable uses available to the owner. Only when a permit is denied and the effect of the denial is to prevent 'economically viable' use of the land in question can it be said that a taking has occurred."[107]

L14-21. CONT'D

Under the Supreme Court's analysis, denial of the application of EPP's proposal to fill more than 600 acres of wetland for development would not constitute a "taking" because it would not prevent all economically viable uses of the land in question. Instead, denial of the application would preserve presently existing economically viable uses of the land. Such viable uses may include commercial timber harvesting, trapping, or management as a private hunting or nature preserve. Indeed, the EA issued in conjunction with the East Group proposal indicates that the area "provides habitat to commercially important furbearers such as nutria, muskrat, raccoon, and mink; and to game mammals such as gray squirrel, fox squirrel, white tailed deer, and swamp rabbit."[108] Further, other economically viable uses may exist that incorporate smaller-scale development, which accommodates, rather than destroys, the value of 643 acres of valuable wetlands that compromise the site in question.

The preceding analysis makes clear that the Corps' purview does not extend to a consideration of whether denial of the permit at issue might constitute a regulatory "taking." Further, such a challenge would lack merit in any event because it would not deny EPP all economically viable uses of its land. The Corps should thus be guided in its determination not

RL14-21. Comment noted.

106 United States v. Riverside Bayview Homes, Inc., 474 U.S. 121, 126 (1985)(citations omitted).
107 Id. at 127 (emphasis added).
108 East Group EA, supra note 22, at 2.

by any perceived threat of subsequent constitutional challenge, but solely by its own regulations promulgated under Section 404 of the Clean Water Act and those under the National Environmental Policy Act.

III. CONCLUSION

L14-22. Until compliance with the law has been demonstrated, this permit application must be denied. For all of the above reasons, the citizens on whose behalf these comments are submitted respectfully request that the Corps deny the permit application of Estelle Plantation Partnership.

L14-23. We request that the Corps provide us with a concise statement of responses to our oral or written comments as well as those comments by any other person or entity that has commented on the permit application and a copy of all volumes of the final EIS. We also request that we be mailed a copy of the final permit if and as soon as it is issued by the Corps.

RL14-22. Comment noted.

RL14-23. Comment noted.

Respectfully submitted,

William H. Ferguson III
Student Attorney

Daria B. Diaz
Supervising Attorney

March 11, 1996

[redacted]

Comments on the Estelle Plantation Partnership Municipal Golf Facility and Housing Development
Draft Environmental Impact Statement (DEIS)
Volume I
November 1995
from
Melanie E. Reed, staff scientist, Tulane Environmental Law Clinic

P. S-3 No Action Alternative

This paragraph should state that the "No Action Alternative" is the BEST alternative. Also, the following should be added to this paragraph:
If no action is taken -
Alternative 1- Applicants' proposed action will not be necessary. Approximately 654 acres of jurisdictional wetlands will not have to be destroyed due to the construction of a PGA caliber public golf facility and housing development on property owned by the Estelle Plantation Partnership (EPP). Approximately 1.1 million cubic yards of fill material will not be placed on the jurisdictional wetlands as spoil therefore, destroying the wetlands. If the No Action alternative is taken, 1.1 million cubic yards of fill material would not elevate the development higher than the existing community causing the surrounding existing communities to flood. Also, the community and the environment would not have to worry about the harmful side effects of runoff that will result from a golf course laden with harmful metals and pesticides. Even though the Estelle Plantation site has been levee and under pump for greater than thirty years, with the No Action alternative the local community and the environment, including species on the Federal endangered list and the federal threatened list will not have to be impacted or destroyed. The wetlands behind the levee have significant biological functions and values that support migratory birds and freshwater fisheries. According to Stephen Farber - an economist at the University of Pittsburgh Institution of International Policy and Environment and formerly with Louisiana State University - the estimated worth of wetlands is about $5,000 an acre. If the No Action alternative is taken, 654 acres of jurisdictional wetlands valued at approximately $3,270,000 (654X$5,000)will not have to be destroyed. If the natural pollution-treating or energy-producing abilities of the 654 acres of jurisdictional wetlands are taken into account, wetlands valued at approximately $14,000 and $80,000 or more an acre or from $9,156,000 to $52,320,000 (654X$14,000 to 654X$80,000) would not have to be destroyed. If the No Action alternative is taken, the present jurisdictional wetland will continue to provide natural flood protection.

L14-24.

RL14-24. These sections are describing the alternatives, not impacts related to them.

EPP DEIS comments cont'd

P. S-3 Alternative 1 - Applicants' Proposed Action
The following should be added:

L14-25. The applicants' proposed action to construct a PGA caliber public golf facility and housing development on property owned by the Estelle Plantation Partnership (EPP) will destroy approximately 654 acres of jurisdictional wetlands. According to the National Environmental Policy Act (NEPA), this Alternative 1 will impact and cause serious environmental consequences on the 654 acres of wetlands that the Department of the Army, New Orleans District Corps of Engineers (COE/NOD) is responsible to protect. Even though the property is owned by the EPP, a person or partnership does not have the right to use property in the way that can hurt other people and endangered species which need clean air, water resources, and soils to survive (see above comment P.S-3 No Action alternative).

P. S-3-4 Alternative 2 - East Group Property
On the Cover Sheet of this Draft Environmental Impact Statement (DEIS), in section f: Abstract, it was stated "alternatives were identified and evaluated with a stress on non-wetland alternatives." Why is this "alternative 2" considered to be an alternative when it is stated that 641 acres is primarily jurisdictional wetlands? It also states that "the portion of the property that is not considered wetlands is located on the top of the Bayou des Familles ridge and would not be utilized if the proposed action were moved to this location." **Yet, the primary portion of the**

L14-26. **641 acres that contains jurisdictional wetlands will be destroyed as part of this Alternative**
Isn't the objective to choose sites or alternatives that will not destroy wetlands?
How does the DEIS substantiate the following statement: "This property is not owned by EPP and may hinder EPP's donation of land to Jefferson Parish for the construction and operation of a PGA caliber golf facility." If this statement can not be substantiated (written documents, quotations), it should not be included. Is the Department of the Army, New Orleans District Corps of Engineers (COE/NOD) the responsible agency for this DEIS representing the Jefferson Parish interest relevant to EPP's donation of land to Jefferson Parish? How did the COE/NOD know of the possible hindrance of EPP's donation of land to Jefferson Parish? This COE/NOD awareness of the status of EPP's donation of land to Jefferson Parish should be documented or included in this Alternative 2 paragraph and/or the DEIS.

P. S-4 Alternative 3 - Marrero Land Company

L14-27. Again, same as Alternative 2 comment. 475 acres of wetlands will be destroyed. This is not an alternative; it is jurisdictional wetlands. And the owner is non-responsive relative to selling the property? According to the DEIS P.S-4 Alternative 3 paragraph "the current owner is non-responsive relative to selling the property," then, there is no Alternative 3 - Marrero Land Company alternative. Again, see comment P. S-4 Alternative 2 above for substantiating the COE/NOD statement "This may hinder EPP's donation of land to Jefferson Parish...."

RL14-25. See RL24-14 and comment noted.

RL14-26. A wide array of alternative sites was originally generated, with a screening process applied to obtain a reasonable number to be analyzed in detail in the EIS. Concerning the statement about how the Corps knew of a possible hindrance of EPP's donation of land, EPP's consultant wrote the statement. This should be a credible source.

RL14-27. The owner did not state that they would be unwilling to sell the property, so it was not eliminated based on that criteria. See previous response.

P. S-4 Alternative 4 - Landco

L14-28. Again, same as Alternative 2 comment. 869 acres of wetlands will be destroyed. This is not an alternative; it is jurisdictional wetlands. Again, see comment P. S-4 Alternative 3 above for substantiating the COE/NOD statement "At this site EPP may not be able to donate land to Jefferson Parish...." Has the other owners been contacted?

RL14-28. See RL14-26 & 27.

P. S-5 Alternative 5 - Plaquemines Parish 1.

L14-29. Again, same as Alternative 2 comment. 655 acres of wetlands will be destroyed. This Alternative 5 is a jurisdictional wetland.

RL14-29. Refer to RL14-26 & 27.

P. S-5 Alternative 6 - Bunge Corporation

L14-30. Alternative 6 - Bunge Corporation is the only "alternative" of the six proposed alternatives where the majority of the land 277 acres is not wetlands. Why is this the sixth alternative, when this alternative is the first of the five previous alternatives to involve land in which the majority is not wetlands? Again, refer to the Cover Sheet of this Draft Environmental Impact Statement (DEIS), in section f: Abstract, it was stated "alternatives were identified and evaluated with a stress on non-wetland alternatives." According to this COE/NOD draft DEIS, this is the first primarily non-wetland alternative:

RL14-30. The order of alternatives has nothing to do with ranking them. This was the only primarily non-wet site that satisfied the other screening criteria.

P. S-6 Summary of Environmental Impacts

No Action Alternative

L14-31. A. Physical Resources
The following should be added: There will be no threat to the local surface water quality from pesticides and fertilizers from Estelle Plantation Partnership Alternatives .

RL14-31. Refer to RM3-4 and refer to sections 3.2.3 and 4.2.3 of the EIS.

B. Biological Resources

L14-32. The statement: " The no action alternative would impact the biological resources at the EPP project site," is misleading. It should say, **There will be no impact to the biological resources at the EPP project site as a consequence of no action, because there will be no destruction of existing jurisdictional wetlands and their associated habitat.** There will be no impact on the biological resources, because the majority of the existing vegetation would not be removed; nor would the current wildlife population be killed or displaced. The continued pumping with the V-levee has nothing to do with the EPP proposed project to destroy jurisdictional wetlands to build a public PGA caliber golf course and a housing development.
The statement "The cypress and tupelo trees are anticipated to be replaced by bottomland hardwoods in twenty years" should be deleted. On the cover sheet of this DEIS it is stated, "This DEIS had been prepared in accordance with the National Environmental Policy Act (NEPA) to analyze the potential **environmental consequences** of the proposed development of a wetlands area into a PGA caliber public golf course and a middle to high income housing

RL14-32. We are disclosing that the site is in transition because of man's activities and will continue in this transition over the next 20 years. This was agreed upon with the Fish and Wildlife Service and Louisiana Department of Wildlife and Fisheries personnel.

community." The removal of trees in twenty years is not the consequence of the No action alternative, but it is a direct consequence of the EPP proposed project. Because of the No action alternative, these trees will not be destroyed.

P. S-7 D. Land Use No Action Alternative

This entire paragraph should be eliminated, because it can not be substantiated. The following statements: "The Jean Lafitte Historic National Park and Preserve (JLHNPP) would receive its current number of visitors with no increase," "Utilization of other parks would remain unchanged." is not the potential environmental consequences of the proposed development of a

L14-33. wetlands area into a PGA caliber public golf course and a middle to high income housing community. Visitation at the JLHNPP and other parks is not a consequence of the No action alternative. If the COE/NOD think this is true, then where are the marketing studies? The responsible agency for this document- the COE/NOD should stick to the facts for the purpose of this DEIS in accordance with the NEPA.
The statement: "The major impact would be the demand for a golf facility would remain unsatisfied," should be eliminated. Still the question is "Where is the demand?" Where are the facts, COE/NOD? COE/NOD as the responsible agency to the people of the United States government and in accordance with the NEPA should tell the people the facts.

Paragraph D. Land Use P.S-7 should read:
The No action alternative would have no impact on existing Land Use of the EPP site. The No

L14-34. action alternative will not subject the Jean Lafitte Historic National Park and Preserve (JLHNPP) and its visitors to the adverse impacts with respect to the destruction of the jurisdictional wetlands, such as noise levels, visibility, air quality, groundwater resources, blasting, public safety, and traffic. With the No action alternative, visitors to the JLHNPP and other parks will not see the value of the area for wildlife habitat decrease due to the placement of a golf course on the EPP site which will lead to vegetative changes that could alter the aquatic ecosystem, impact wildlife, and flora and fauna candidates for the endangered species list.

P. S-7 E. Economic and Social Resources
This entire paragraph should be eliminated, because it is not in accordance with the NEPA requirement for the DEIS to include an analyze of potential environmental consequences of the

L14-35. proposed development of a wetlands area into a PGA caliber public golf course and a middle to high income housing community. This entire paragraph can not be substantiated by the responsible agency - the COE/NOD.

The paragraph should read: If the No Action alternative is taken 654 acres of jurisdictional wetlands valued at approximately $3,270,000 (654X$5,000)will not have to be destroyed. If the natural pollution-treating or energy-producing abilities of the 654 acres of jurisdictional wetlands

RL14-33. The Land Use Section of the Executive Summary was poorly worded and has been revised. In addition, the purpose and needs analysis has been expanded and accurately demonstrates a purpose and "need" for this proposed project.

RL14-34. Comment noted.

RL14-35. It is precisely in accordance with NEPA to address all impacts of a proposed action, including social and economic resource impacts. Statements expressed in the summary are based on the facts as presented in the FEIS and have been updated to reflect the most current and accurate information. The Commenter's suggested rewrite of this section has been noted.

are taken into account, wetlands valued at approximately $14,000 and $80,000 or more an acre or from $9,156,000 to $52,320,000 (654X$14,000 to 654X$80,000) would not have to be destroyed. If the No Action alternative is taken, the present jurisdictional wetland will continue to provide natural flood protection.

P. S-7 Alternative Number 1 - Applicants' Proposed Action

A. Physical Resources

L14-36. This paragraph should include the following: The primary impact of the proposed action will be the destruction of 654 acres of jurisdictional wetlands. This include the destruction of field vegetation, and forest. The wildlife population will be reduced, including birds and rabbits. Some endangered and threatened species will be destroyed or displaced.
The statement: "....and overshadowed by existing contamination from the Harvey Canal," should be eliminated, because contamination can not be overshadowed. The statement should read: Contamination from the pesticides and fertilizers use from operation of the golf facility will impact the Bayou Barataria and the Bayou aux Carpes. "Overshadowing" the contamination does not eliminate the contamination.

RL14-36. No federally listed threatened or endangered species have been identified at the site. Refer to RM4-3. Section 4.2.3 and page S-7 have been revised to remove comments pertaining to overshadowing of contamination.

P. S-7-8 Alternative Number 1 - Applicants' Proposed Action

L14-37. B. Biological Resources
This paragraph should include the destruction of field vegetation, and forest. The wildlife population will be reduced, including birds and rabbits. Some endangered and threatened species will be destroyed or displaced.

RL14-37. Refer to RM4-3 and RL14-36.

D. Land Use

L14-38. The statement: "The impact of EPP project on agricultural resources is anticipated to be minimal." should read: "There will be a significant adverse impact on the agricultural resources, due to the conversion of the land use from wetlands to residential." This conversion will increase stormwater runoff from the EPP site.
See comment P. S-7-D. No Action Alternative Land Use in reference to the JLHNPP and other recreation areas and the "demand for a quality public golf facility."

RL14-38. The Corps disagrees with this comment. The EPP site currently has little agricultural value.

E. Economic and Social Resources

L14-39. This entire paragraph is misleading and one-sided. The following should also be included: If the development at the EPP site occurs, 654 acres of jurisdictional wetlands valued at approximately $3,270,000 (654X$5,000) will have to be destroyed. If the natural pollution-treating or energy-producing abilities of the 654 acres of jurisdictional wetlands are taken into account, wetlands valued at approximately $14,000 and $80,000 or more an acre or from $9,156,000 to $52,320,000 (654X$14,000 to 654X$80,000) would have to be destroyed.

RL14-39. Refer to RM3-2 and RL11-2.

L14-40. **P. S-8-9-10-11 Alternative Number 2,3,4, 5**
Alternative number 2 - 5 are wetland alternatives. Alternative number 2- 5 create the same potential environmental consequences as does Alternative number 1, therefore these are not "true" alternatives.

L14-41. **P. S-13 Controversial or unresolved issues**
Nos. 1-5 of this section should be at the beginning of the Summary of Environmental Impacts. In reference to no. 5, the mitigation plans should have been included as a part of this DEIS. According to the NEPA the mitigation plan would have analyzed the potential environmental consequences of the proposed development of a wetlands area into a PGA caliber public golf course and a middle to high income housing community.

RL14-40. The Corps disagrees with this comment.

RL14-41. Commenter should refer to RL14-14, RL15-9, RL15-11, RL5-8, RL5-9, RL5-10, RL5-11, and RL5-12.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

MAR 2 8 1996

Colonel Kenneth H. Clow
District Engineer, New Orleans District
U.S. Army Corps of Engineers
Attn: CELMN-PD-RS
P.O. Box 60267
New Orleans, LA 70160-0267

Dear Colonel Clow:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act (NEPA), and the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the U.S. Environmental Protection Agency (EPA) Region 6 office in Dallas, Texas, has completed its review of the U.S. Army Corps of Engineers, New Orleans District's (NOD) Draft Environmental Impact Statement (DEIS) for the proposed Estelle Plantation Golf Course and Housing Development. The site of the preferred alternative is located near Marrero, within the Bayou Barataria/Barataria Waterway drainage basin, Jefferson Parish, Louisiana.

The DEIS evaluates the potential impacts of the proposed development of a wetland area into a Professional Golf Association (PGA) caliber public golf course and a middle to high income housing community. Six alternatives including the proposed action were identified. Impacts of these alternatives and the no action alternative were considered. Previous EPA correspondence on this project indicated the project, as planned, may result in significant adverse impacts to an aquatic resource of national importance. Currently, we understand that the New Orleans District, Corps of Engineers (COE) is in the process of determining whether to issue a Department of the Army Section 404 permit as proposed, modify the permit or deny the permit based on the "public interest" review and compliance with the Section 404(b)(1) Guidelines (Guidelines). To facilitate these decisions the District has developed a DEIS disclosing the effects on the environment.

We classify your proposed action and DEIS as "EO-2," i.e., EPA has "Environmental Objections" to the proposal and requests

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additional information in the Final EIS (FEIS). The basis for our objection and request for additional information needed in the FEIS include: 1) the need for expanded alternative analysis, 2) development of purpose and need to support practicable alternative, 3) minimization of direct and secondary impacts, 4) lack of a mitigation plan to offset unavoidable impacts, 5) water quality managment, and 6) lack of consideration of Executive Order 11990 (Wetlands Protection) and Executive Order 11988 (Floodplain Management).

Detailed comments regarding these concerns and others are provided in an enclosure to assist you in the preparation of the FEIS and in determining compliance specifically with the Guidelines and for the "public interest" determination.

We invite the opportunity to discuss our comments with your staff at your convenience, if necessary. Please contact Mr. Rob Lawrence or Mr. Bill Kirchner at (214) 665-2258 or (214) 665-8332 respectively, for any questions or assistance on this matter.

Our classification will be published in the Federal Register according to our responsibility under Section 309 of the Clean Air Act, to inform the public of our views on proposed Federal actions.

We appreciate the opportunity to review the DEIS. We request that you send our office five (5) copies of the FEIS at the same time that it is sent to the Office of Federal Activities, (2251A), EPA, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20044.

Sincerely yours,

for

Samuel Coleman, P.E.
Director
Compliance Assurance and
Enforcement Division

Enclosure

cc: Cliff Rader, OFA
Clay Miller, OWOW

DETAILED COMMENTS
ESTELLE PLANTATION GOLF COURSE
AND
HOUSING DEVELOPMENT

BACKGROUND.

Estelle Plantation Partnership (EPP) and Jefferson Parish have applied for a Department of the Army Section 404 permit. If issued, as proposed, the permit would authorize the construction of a housing development and a public Professional Golf Association (PGA) caliber golf course within a 454 acre wetland parcel on the east side of LA Highway 3134 two miles south of Marrero, Jefferson Parish, Louisiana. The purpose of the project, as stated by EPP, is to develop a PGA caliber golf course to provide recreational opportunities and increase economic development in Jefferson Parish. Additionally, a second purpose is to provide a housing development with a high standard of living for the middle and high income community of Jefferson Parish. This will allow the Parish government to maintain and expand its tax base and accelerate the economic viability of the West Bank. The EPP maintains that combining the actions will assure; 1) a community with a high standard of living to achieve a greater attraction and retention of middle and high income residents; 2) the golf course will help EPP obtain the full economic potential for the housing development on their property ; 3) the housing development will also provide a basis of support for the golf course; and 4) the project will fulfill a specific demand for quality housing with golf course communities.

ALTERNATIVES ANALYSIS.

L15-1. A rigorous exploration of all reasonable alternatives is a key requirement of the President's Council for Environmental Quality (CEQ) regulations for preparing Environmental Impact Statements (40 CFR 1502.14). Similarly, the Environmental Protection Agency's (EPA) 404(b)(1) Guidelines (Guidelines) for evaluating discharges under Section 404 of the Clean Water Act state that a discharge will not be incompliance with the Act if there exists a practicable alternative which would entail a less significant effect on the aquatic environment (40 CFR 230.12). Except for the no action alternative, all of the alternatives considered in the Draft Environmental Impact Statement (DEIS) have wetland impacts, and if selected, will require a Section 404 permit. It would appear that the alternative analysis is skewed toward wetland sites without considering nonwetland areas or even the consideration of moving the golf course feature outside the hurricance protection levee, since this feature would not need the level of protection as high density housing. To satisfy the CEQ and EPA's Guidelines requirements, the FEIS should consider upland sites. If such sites are not available, then the FEIS should explain why nonwetland sites were not consider in the analysis of alternatives.

RL15-1. Alternative 6 is mostly non-wetland. Many areas, including areas with non-wetland habitat were identified for possible alternatives. Most were eliminated for reasons we believe made them unreasonable. The Corps does not understand why the EPA would suggest going outside the levee system, as those lands would be wetlands of higher quality than areas inside of the levee. We believe the EIS does explain why alternatives were eliminated in Chapter 2.

L15-2. The Guidelines constitute one of the primary regulatory directives requiring the protection of wetland and other special aquatic sites from unnecessary destruction or degradation. Consequently, proper interpretation and implementation of the Guidelines is essential to ensure that the New Orleans District, Corps of Engineers (COE), provide the degree of protection to special aquatic sites mandated by the Guidelines and required by the COE wetland policy (33 CFR 320.4(b)). Based on information provided by State and Federal resource agencies, the resource to be impacted is a productive and valuable public resource, the alteration or destruction of which should be discouraged as contrary to the public interest. Specifically, the wetland area performs functions important to the public interest including significant biological functions [i.e., food chain production, general habitat (nesting, resting, spawning and rearing site)] for aquatic or land species; the site actively plays a significant water quality role by filtering and removal of sediments, wastes, nutrients and toxins; the alteration will affect the natural drainage characteristics; the alteration will affect the storage and conveyance area for storm and flood waters; and the alteration will affect a resource that is scarce in quantity to the local area as well as regionally. This data indicates that the proposal is not in the overall public interest and, therefore, the discharge should be discouraged.

L15-3. One key provision of the Guidelines (i.e., practical alternatives) clearly is intended to discourage unnecessary filling or degradation of wetlands. As explained in the preamble to the Guidelines, this provision means that "the Guidelines ... prohibit discharges where there is a practicable, less damaging alternative ... Thus, if destruction of an area of waters of the United States may reasonably be avoided, it should be avoided." The rebuttable presumption created by this provision is intended to increase the burden of proof on the applicant that no practicable alternative exists to the proposed discharge and that the discharge complies with the Guidelines. The information supplied by the applicant is of a general nature and does not specifically refute the rebuttable presumption since cost for aquiring new sites and other logistical support information were not provided in the DEIS.

L15-4. Based on the information made available in the DEIS, it appears there are a number of less damaging practical alternatives to the proposal including the property currently owned by the Bunge Corporation. While the applicant wishes to minimize their cost which is obviously a factor which the District can consider, that factor alone must not be allowed to influence the District's definition of project purpose or practicable alternative, or any other part of the Guidelines. The DEIS provides some useful information necessary to document the administrative record for the practicable alternative analysis. However, it appears that the District may be deferring to the applicant's wishes without any independant control.

RL15-2. The Corps agrees up to the last semicolon. We aren't sure what is meant by scarce. Wetlands are not scarce in south Louisiana; however, a case could be made to claim that drained and pumped wetlands are scarce. The final sentence will be noted.

RL15-3. Cost estimates indicating potential development costs for each alternative site have been estimated and provided in Section 2.3 and Table 2.6 of the FEIS. Firm cost estimates for land acquisition could not be obtained since they were dependent on willingness to sell of current owners and future property negotiations.

RL15-4. Comment noted. The Corps disagrees with the last sentence of the comment provided.

PURPOSE AND NEED TO SUPPORT A PRACTICABLE ALTERNATIVE

L15-5. One essential aspect of applying the Guidelines to a particular 404 permit case is to decide what is the basic purpose of the planned discharge. The available information on this issue is only the applicant's stated purpose "is to develop a PGA caliber golf course to provide recreational opportunities and increase economic development in Jefferson Parish. Additionally, a second purpose is to provide a housing development with a high standard of living for the middle and high income community of Jefferson Parish." This statement indicates that other alternatives would not be practical in light of EPP's project purpose, since EPP maintains that combining the actions will assure: 1) a community with a high standard of living to achieve a greater attraction and retention of middle and high income residents; 2) the golf course will help EPP obtain the full economic potential for the housing development on their property ; 3) the housing development will also provide a basis of support for the golf course, and 4) the project will fulfill a specific demand for quality housing with golf course communities. The District is responsible for controlling every aspect of the Guidelines analysis. While the District should consider the views of the applicant regarding his project purpose and the existence (or lack of) practicable alternatives, the District must determine and evaluate these matters itself, with no control or direction from the applicant, and without undue deference to the applicant's wishes.

L15-6. In this case the administrative record should reflect a basic project purpose that reflects the applicant's need for economic return on investments not necessarily the need for additional housing and a golf course, since local demand for housing (at least two 404 permits have been denied because the need to destroy wetland habitat for additional housing could not be demonstrated) and a public golf course (two public golf courses within an eight mile radius of the project area) is currently being met. In fact, the building of a phased home development will take place some 3 to 5 years, meeting some future perceived need. Therefore, the need to destroy 643 acres of wetlands to meet demands that are currently being satisfied is not apparent in this case.

L15-7. The Guidelines analysis for this case should adequately address the practical alternatives to the proposal. Currently, the applicant's rebuttal of available alternatives does not deal with the issue in a satisfactory manner. Consequently, the available record can only be used to conduct a Guidelines evaluation that is essentially a standard checklist with very little analysis or project specific information. An apparent problem with this approach to the Guidelines review is that it is leading to the characterization of project purpose in such a way as to preclude the existence of practicable alternatives. Finally, it appears that the District is accepting the

RL15-5. The Corps controlled all aspects of the alternatives analysis performed in this FEIS and conducted an in depth analysis of alternative sites to develop the practical alternatives utilized in this FEIS.

RL15-6. The need for housing demonstrated is the need for quality housing within Jefferson Parish. This need is current. The economic impact of this project on Jefferson Parish, a co-applicant should be considered in this FEIS.

RL15-7. Refer to RL15-5.

applicant's assertion that the project as proposed must be accepted as the basis for the Guidelines practicability analysis. The District should considar the applicant's views, but the District must determine (and appropriately document its determination) whether in fact other alternatives exist. Again, the applicant bears the burden of proof for all of the tests of the Guidelines to demonstrate to the District that his project, or any part of it, should be built in waters of the United States. The District should evaluate the applicant's evidence and determine, independantly of the applicant's wishes, whether all the requirements of the Guidelines have been satisfied.

MINIMIZATION OF PROJECT DIRECT AND SECONDARY IMPACTS

L15-8. The DEIS has no general discussion concerning a reduction in the scope of the proposal. In fact, there has been no attempt to reduce the direct impacts associated with the preferred alternative. Also, the DEIS does not adequately reflect secondary impacts (i.e., induced development of other wetland tracts, fragmentation of contiguous forest, increased disturbance and hydrologic changes, degradation of water quality) will negatively impact the entire basin. The final EIS should explain why direct impacts were not reduced and should address secondary impacts related to the project.

MITIGATION OF UNAVOIDABLE IMPACTS.

L15-9. Section 1502.14(f) of the CEQ Regulations states that an EIS must address of each alternative appropriate mitigation measures not included in the proposed action. Section 1508.20 defines mitigation to include: a) avoiding the impact altogether by not taking a certain action; b) minimizing impacts by limiting the degree or magnitude of the action, and its implementation; and c) rectifying the impact by repairing, rehabilitating or restoring the affected environment; and d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the project.

L15-10. Additionally, the Clean Water Act, Section 404(b)(1) Guidelines provide that no discharge of dredged material or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts on the aquatic ecosystem.

L15-11. The DEIS does provide potential conceptual mitigation measures which are described on pages 151 and 152 of the Draft Statement. Such attention to mitigation concerns are admirable; however, to satisfy the Section 404 permitting process a complete and detailed plan would have to be developed with full opportunity for review by the public and Federal and state agencies. Given this concern, it is our position that no determination can be made as to whether the project would comply with the Section 404(b)(1) Guidelines and therefore we would

RL15-8. This discussion has been reserved until the processes of gathering and analyzing information is complete and will be addressed during the public interest review process.

RL15-9. The Corps has presented possible mitigation that could apply to any of the alternatives with some refinement in the FEIS. Details of any mitigation plan will be coordinated during the 404(b)(1) analysis and public interest review. The Corps agrees with the sequencing of mitigation.

RL15-10. The guidelines will be followed.

RL15-11. The Corps Regulatory personnel have not yet done the 404(b)(1) analysis or started the public interest review processes. During those processes, details of appropriate mitigation will be described and coordinated with the public and Federal, state, and local agencies.

request that no 404 action be completed until a mitigation plan is fully developed. We believe such a plan and its review can best be assured by completing the mitigation plan and incorporating the plan into the FEIS.

EXPANSION OF THE NEW ORLEANS METROPOLITAN AREA.

L15-12. The DEIS does not adequately describe the expansion of the New Orleans metropolitan area into Jefferson Parish, which has resulted in the development of portions of the nearby marshes and swamps for urban uses. The organic and semifluid mineral soils in these marshes and swamps are severly limited for most urban uses because of flooding, wetness, subsidence, low strength and the very high shrink swell potential. Although flooding and wetness are common to the Parish, subsidence is a problem unique to the organic and semifluid mineral soils in marhes and swamps.

L15-13. Subsidence is the loss of surface elevation after an organic soil or a semifluid soil is artifically drained. For organic soils subsidence is attributed to dessication, consolidation, compaction, and biochemical oxidation. Initial subsidence includes dessication and consolidation which normally occures within the first three years. The preferred alternative has been under pump for +25 years and is probably undergoing "continued subsidence" until the mineral material or the permanent water table is reached. The reported continued subsidence in the survey area is 0.5 to 2 inches per year. The total subsidence potential may be as much as 144 inches.

L15-14. Additional urbanization on organic and semifluid mineral soils can lead to increased subsidence if the water table is lowered. Because of the hard surface cover by the addition of streets, parking lots, buildings, and other structures, the absorptive capacity of the soil is decreased. This increases runoff; consequently drainage canal size and pump ing capacity are generally increased to accommodate additional runoff. As a result of the more intensive drainage, the water table is lowered. This is accompanied by a new incremnt of initial subsidence. With this new depth of drainage ditches, pumping capacity must again be increased to pevent flooding. This cycle will continue until all of the organic material has been oxidized and the mineral layers dewater; however, this cycle may be prevented by maintaining a water table at the surface.

L15-15. Additionally, subsidence can be reduced to some degree by covering the surface with mineral soil to slow the oxidation process. In land use decisions, a choice must be made in controlling the water table; to use the land without drainage to control subsidance; to use the land with some drainage (i.e., tolerate wet conditions and subsidence, or to provide better drainage and tolerate subsidence at a greater rate. The preferred alternative reflects the choice to tolerate subsidence at a greater rate resulting in greater maintenance costs in

RL15-12. These conditions are common in New Orleans as well as Jefferson Parish and throughout the metropolitan area and the State of Louisiana.

RL15-13. Refer to RM3-3. Also, there are other causes of subsidence.

RL15-14. Refer to RM3-3.

RL15-15. Refer to RM3-3. It is the intent of the applicant to utilize pilings and specially constructed foundations to assure minimal subsidence of homes within the current housing development.

subsidence related damage repairs. The indirect costs reflected in property costs, utility rates, and taxes may make the full cost considerably higher. This may indicate that the project is not economically valuable or needed in the marketplace.

For areas currently mapped as Allemand muck, drained, in most developed areas, the surface layer has been covered with 1 to 3 feet of mineral material. The organic material, in drying, shrinks and cracks, it remains cracked if rewetted. The potential for total subsidence is high. The soil is poorly suited to urban uses. Flooding, wetness, subsidence, low strength and the very high shrink swell potential are the main limitations. If the water table is lowered, the organic matter oxidizes and slowly subsides. In places, buried logs and stumps cause uneven subsidence.

It is well known that if these areas are used for dwellings, pilings and specially constructed foundations are needed. The applicant has indicated that the area will be hydraulically filled prior to developing the property.

WATER QUALITY MANAGEMENT.

To strengthen the Final EIS, the following information should be incorporated into the "Affect Environment" chapter of the EIS:

L15-16. The site of the preferred alternative is located in the Barataria Water Quality Management Basin (02), in the Bayou Barataria/Barataria Waterway - Intracoastal Waterway to Bayou Rigolettes stream segment (020802). The major receiving waterbody in the basin is Barataria Bay. The Basin consist largely of wooded wetlands and fresh to brackish marshes, having some saline marsh on the fringes of Barataria Bay. Elevations range from minus two to four feet above sea level.

Currently the Louisiana Department of Environmental Quality report that stream segment 020802 is partially supporting its designated uses. Suspected sources of pollutants include petroleum activities, runoff/leachate from land disposal and unsewered properties. Suspected causes of partial support of designated uses include nutrients, organic enrichment/disolved oxygen, pathogen indicators, and oil and grease from non-point sources.

EXECUTIVE ORDER 11990 (Protection of Wetlands) and EXECUTIVE ORDER 11988 (Floodplain Management)

L15-17. Executive Order 11990 provides that Federal agencies shall avoid undertaking new construction located in a wetland unless the agency finds: 1) that there is no potential alternative; and 2) the proposed action includes all practicable measures to minimize harm to the wetlands which may result from such use.

RL15-16. Information has been added to Section 3.2.3 of the EIS as requested.

RL15-17. Comment noted.

This Executive Order further directs agencies to provide leadership and to take action minimizing the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural beneficial values of wetlands in carrying out their responsibilities.

L15-18. Executive Order 11988 requires each Federal agency to consider alternatives to avoid adverse effects and incompatible development in the floodplain. If practicable alternatives are not available, the agency must design its action to minimize potential harm to the floodplain and prepare and circulate notices containing an explanation of why the action is proposed to be located in a floodplain. Because floodplain development can lead to loss of human and other natural resources, we believe it should be avoided whenever possible.

L15-19. The COE recommended action to approve a permit allowing construction of a golf course and a housing development in a jurisdictional wetland and a floodplain which provide flood storage capacity for storm water runoff appears to be inconsistent these Executive Orders and their mandates as cited above. The DEIS does not directly address either of the above Executive Orders and how they will be considered in the Corps decision making regarding issuance of the Section 404 permit. The FEIS must address these Executive Orders and how they will affect the public interest review in the issuance of the Section 404 permit.

RL15-18. Comment noted.

RL15-19. The Corps did not recommend any action relative to approving a permit for the proposed project in the DEIS. The EIS is not the 404(b)(1) evaluation, nor is it the decision document. Whether or not a permit is issued for the applicants' proposed action is to be decided by the Corps Regulatory personnel and the District Engineer, who have not yet done the 404(b)(1) analysis or started the public interest review processes. Table 5.2 addresses applicable Federal and State environmental laws and the referenced Executive Orders.

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