

**U.S. ARMY CORPS OF ENGINEERS
JEFFERSON PARISH PUMP STATION
STORMPROOFING ACTIVITIES
FINAL ENVIRONMENTAL ASSESSMENT
EA# 454**



Safe room located at the Bonnabel Pump Station in Jefferson Parish, Louisiana (photograph taken on February 2, 2007).

**Prepared by:
U.S. Army Corps of Engineers
New Orleans District
Hurricane Protection Office**

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INTRODUCTION

The U.S. Army Corps of Engineers (USACE), New Orleans District (MVN) has prepared this Environmental Assessment (EA #454) to evaluate the potential impacts associated with the proposed stormproofing modifications at 12 pump stations currently lacking adequate stormproofing measures in Jefferson Parish, Louisiana, to help ensure the operability of the stations during hurricanes, storms, and high water events. The proposed action is located at 12 existing pump stations on the east and west banks of the Mississippi River in Jefferson Parish. EA #454 has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality's Regulations (40 Code of Federal Regulations [CFR] 1500-1508), as reflected in the USACE Engineering Regulation (ER) 200-2-2 "Procedures for Implementing NEPA" and ER 1105-2-100 "Planning Guidance Notebook". The following sections include a discussion of the purpose and need for the proposed action, the authority for the proposed action, alternatives to the proposed action, significant resources affected by the proposed action, and the impacts of the proposed action.

Key issues to be analyzed in this EA are the potential impacts that the construction of safe rooms at select pump stations, and the automation of others, would have on both the natural and human environments. This EA will assist the USACE and Jefferson Parish in deciding among alternatives, how best to implement the preferred alternative, and determining the potential need for any appropriate mitigation measures.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed project is to provide flood, hurricane, and storm damage reduction by helping to ensure pump station operation for the east and west banks of urbanized areas of Jefferson Parish (Figure 1) during, and immediately following large tropical storm events, and to provide safe refuge for Jefferson Parish employees that are responsible for the operation and maintenance of the forced drainage system (*i.e.*, pump operators).

The proposed action resulted from the need to protect residences and businesses in Jefferson Parish from flood waters caused by high rainfall during future tropical storms, to protect infrastructure from flooding as a result of tropical storms, and to retain the ability to utilize transportation routes located in the floodplain for evacuation and protection of residents during and immediately following future tropical storms.

AUTHORITY FOR THE PROPOSED ACTION

The proposed action was authorized by Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Public Law [PL] 109-234; 4th Supplemental).

PRIOR REPORTS

Information on pump stations and pump station repairs completed immediately following Hurricane Katrina come from the Project Information Report for Rehabilitation of Damaged Flood Control Works, Federal and Non-federal Pump Stations, Flood Control, Jefferson Parish, Louisiana (2006). The following reports are associated with the proposed action and are incorporated herein by reference.

West Bank of the Mississippi River in the Vicinity of New Orleans Project Feasibility Report (1986).

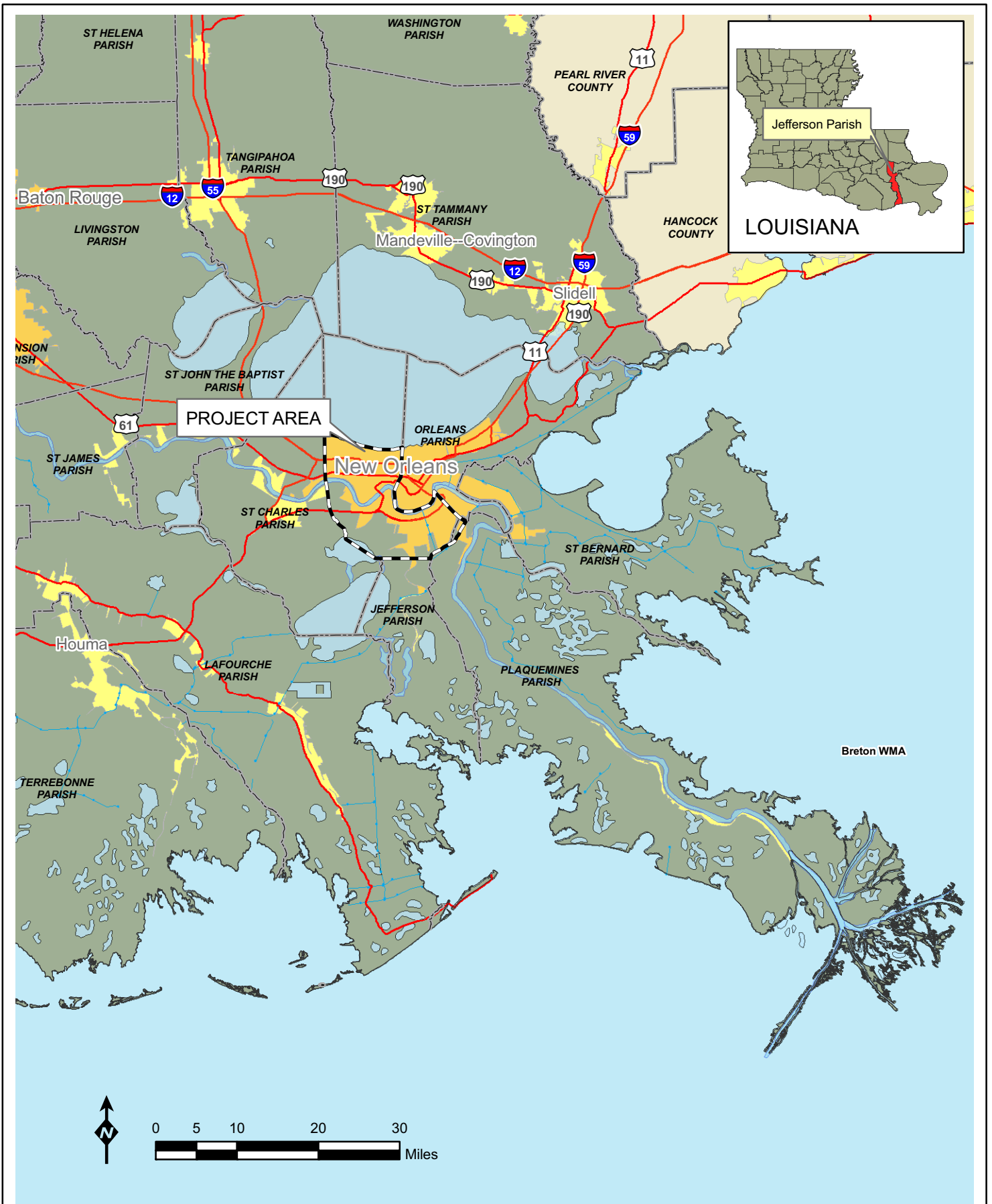


Figure 1: Vicinity Map



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Jefferson and Orleans Parishes, Louisiana Urban Flood Control and Water Quality Management Reconnaissance Study. (1992).

West Bank of the Mississippi River in the Vicinity of New Orleans, Louisiana (East of Harvey Canal) Feasibility Report (1994).

EA #165 – Westwego to Harvey Canal Disposal Site (1992).

EA #208 – Lake Pontchartrain Stormwater Discharge, Louisiana, Jefferson Parish Demonstration Project (1995).

Supplemental EA #208A – Lake Pontchartrain Stormwater Damage Discharge, Jefferson Parish, Louisiana Demonstration Project (1996).

EA #236 – Southeast Louisiana Urban Flood Control Jefferson Parish Technical Report (1996).

EA #238 – Southeast Louisiana Urban Flood Control Jefferson Parish Technical Report #2 (1996).

Westwego to Harvey Canal, Louisiana Hurricane Protection Project Lake Cataouatche Area, Environmental Impact Statement (1996).

EA #306 - West Bank and Vicinity, New Orleans, Louisiana, Hurricane Protection Project, Harvey Canal Sector Gate Site Relocation and Construction Method Change (2002).

Supplemental EA #306A – West Bank of the Mississippi River in the Vicinity of New Orleans, East of the Harvey Canal, Floodwall Realignment and Change in Method of Sector Gate (2005).

EA #315 – Southeast Louisiana Urban Flood Control Project East of Harvey Canal, 533(d) Report, West Bank Basin Canal and Pumping Station Modifications, Jefferson Parish, Louisiana (2001).

EA #320 – Harvey Canal Hurricane Protection Features Jefferson Parish Louisiana (2000).

EA #337 – West Bank and Vicinity New Orleans Louisiana Hurricane Protection Project Algiers Canal Levee Alternate Borrow Site (2003).

EA #433 - U.S. Army Corps of Engineers Response to Hurricanes Katrina and Rita in Louisiana (2006).

PUBLIC CONCERNS

The greatest area of public concern is related to the importance of providing hurricane, storm, and flood damage reduction for businesses and residences, and providing for public safety during major storm events. Hurricane Katrina forced most parish residents from their homes, and, due to extensive flooding, made returning in a timely manner unsafe. Additionally, Jefferson Parish is responsible for the safety of pump operators during major tropical storm events. Without the appropriate stormproofing measures at manned pump stations, pump station operators must be evacuated to a location that would help ensure for their safety during and immediately following the storm event.

DESCRIPTION OF PROPOSED ACTION

Jefferson Parish is located in southeast Louisiana in the metropolitan New Orleans area. The Mississippi River divides urban Jefferson Parish into an east bank (located north and east of the Mississippi River), and west bank (located south and west of the Mississippi River). Portions of Jefferson Parish are in the Louisiana coastal area and in the Pontchartrain Basin, situated near the center of the Gulf Coastal Plain in the lower reaches of the Mississippi Embayment.

The east bank basin is connected by a grid of canals. The lateral canals equalize flow between the major outfall canals, allowing rain water to flow in different directions depending on the rainfall patterns and available capacities at the pump stations. The west bank basins are subdivided into subbasins that, for smaller rainfall events, operate independently. However, overbank flow does occur between adjacent subbasins for a 10-year event. Rainfall runoff is collected by the canal system and pumped over the hurricane, storm, and flood damage reduction levee system into Lake Pontchartrain on the east bank, or into tidal estuaries on the west bank.

Since 1851, 51 hurricanes have made landfall on the Louisiana coast, 20 of which were considered major storms (Category 3 or greater). Of the 51, 10 have made landfall in Jefferson Parish (National Hurricane Center 2007). Even relatively small tropical storm events typically include large amounts of rainfall accompanying the high winds and potential storm surge. For example, Tropical Storm Frances deposited up to 21 inches of rainfall during a 3-day period in Jefferson Parish and in much of south Louisiana in September 1998, causing extensive flooding (National Hurricane Center 2006). High rainfall amounts during short periods of time are typical of tropical storms, and have the potential to flood much of the low-lying areas of Jefferson Parish (with an average elevation of approximately 5 ft below sea level, and ranging from as high as +12 ft near the Mississippi River, to -9 ft) in the absence of the full operation of the forced drainage system.

Because much of urban Jefferson Parish is below sea level it relies upon forced drainage (pumps) to remove excess water during storm events. A series of pump stations (21 in total; Figure 2; Photograph 1) are located on both the east and west banks of Jefferson Parish. These pump stations collect storm runoff that gathers into the drainage canal network, and discharges the storm water over levees into adjacent water bodies, including Lake Pontchartrain on the east bank and several tidal estuaries on the west bank.

Diesel-powered electric and hydraulic pumps move storm water at each pump station. In order to run the pumps during storm events, operators are needed to remove trash and debris that can clog pump intakes, and monitor the number of operating pumps to remove storm water efficiently.



Photograph 1. Example of a Jefferson Parish Pump Station (Westwego #2; photograph taken on February 9, 2007).

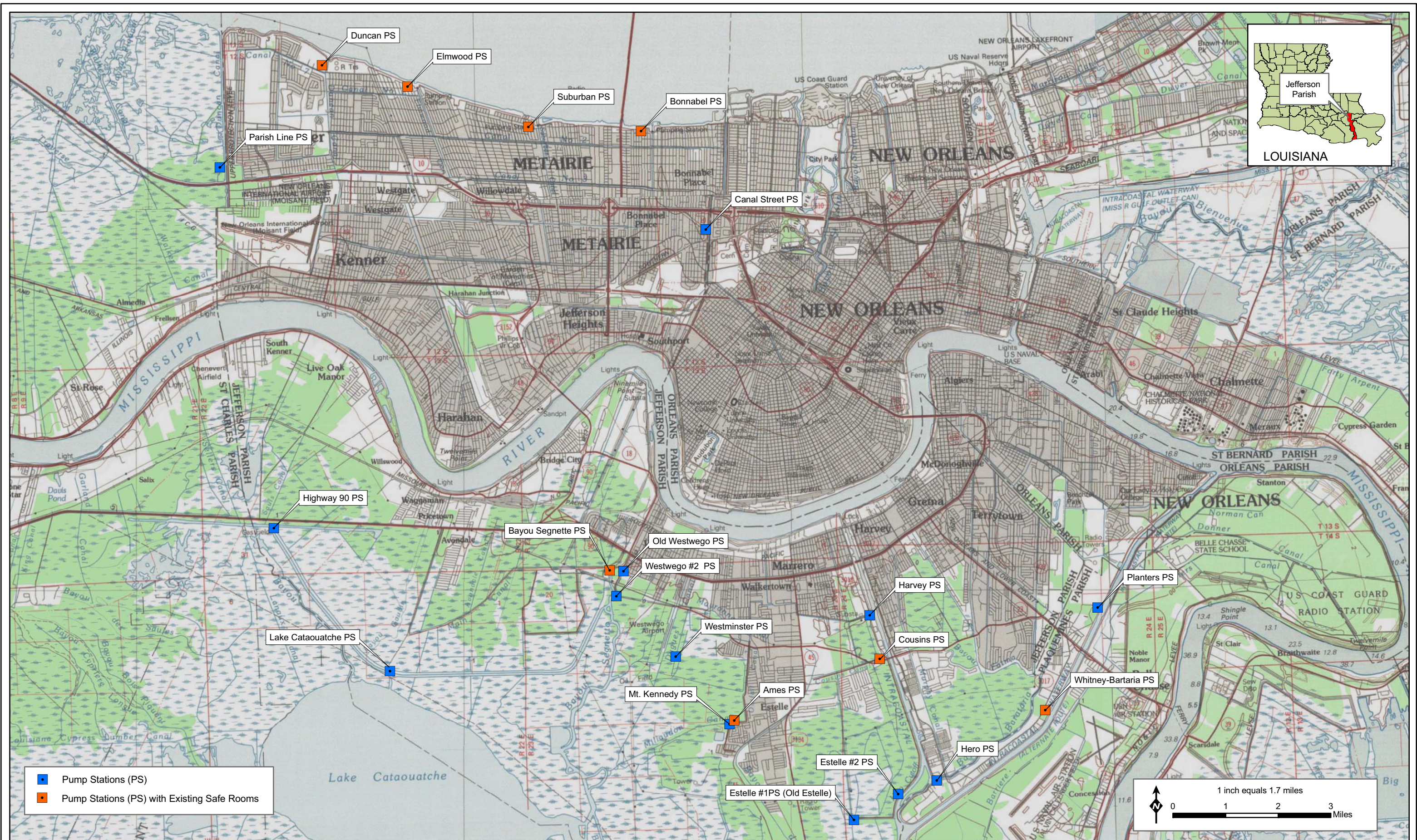


Figure 2: Jefferson Parish Pump Stations

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Prior to Hurricane Katrina, through the allocation of local funds, Jefferson Parish had started stormproofing by constructing safe rooms at five pump stations. At the time Hurricane Katrina made landfall, those safe rooms were only approximately 35 percent complete. Since Hurricane Katrina, Jefferson Parish has continued with the stormproofing of existing pump stations. By borrowing \$40 million, Jefferson Parish has completed some stormproofing activities such as the construction of safe rooms at eight pump stations (Ames, Duncan, Elmwood, Suburban, Bonnabel, Bayou Segnette, Whitney-Barataria, and Cousins; see Figure 2), and completed some automation projects that allow for mechanical trash and debris removal at pump screens with limited operator intervention and pump operation information feedback. The eight safe rooms funded and constructed by Jefferson Parish are prefabricated buildings placed on foundations immediately adjacent to the pump stations, and provide safe refuge and automated operation capabilities for pump operators during large tropical storm events. These safe rooms replace the need to evacuate these pump operators to inland location(s) prior to the landfall of large tropical storm events.

Under the proposed action, additional stormproofing, in the form of safe room construction, additional pump automation at existing safe rooms, and additional pump automation from remote safe rooms, is proposed. Safe rooms would be constructed within the immediate vicinity of five pump stations on the west bank (Figure 3). Those five pump stations are:

- Lake Cataouatche
- Westwego #2
- Estelle #2
- Hero
- Planters

The proposed safe rooms would be similar to those already constructed at eight other pump stations in Jefferson Parish (Photograph 2). The safe rooms would be prefabricated buildings that would be delivered to each pump station location. The prefabricated buildings would be approximately 400 square feet (ft²) in size and contain approximately 200 ft² of living space for pump operators (Photograph 3). The living space would typically contain eight fold-



Photograph 2. Completed safe room constructed at the Bonnabel Pump Station (photograph taken on February 2, 2007).



Photograph 3. Interior of completed safe room at the Duncan Pump Station (photograph taken on February 2, 2007).

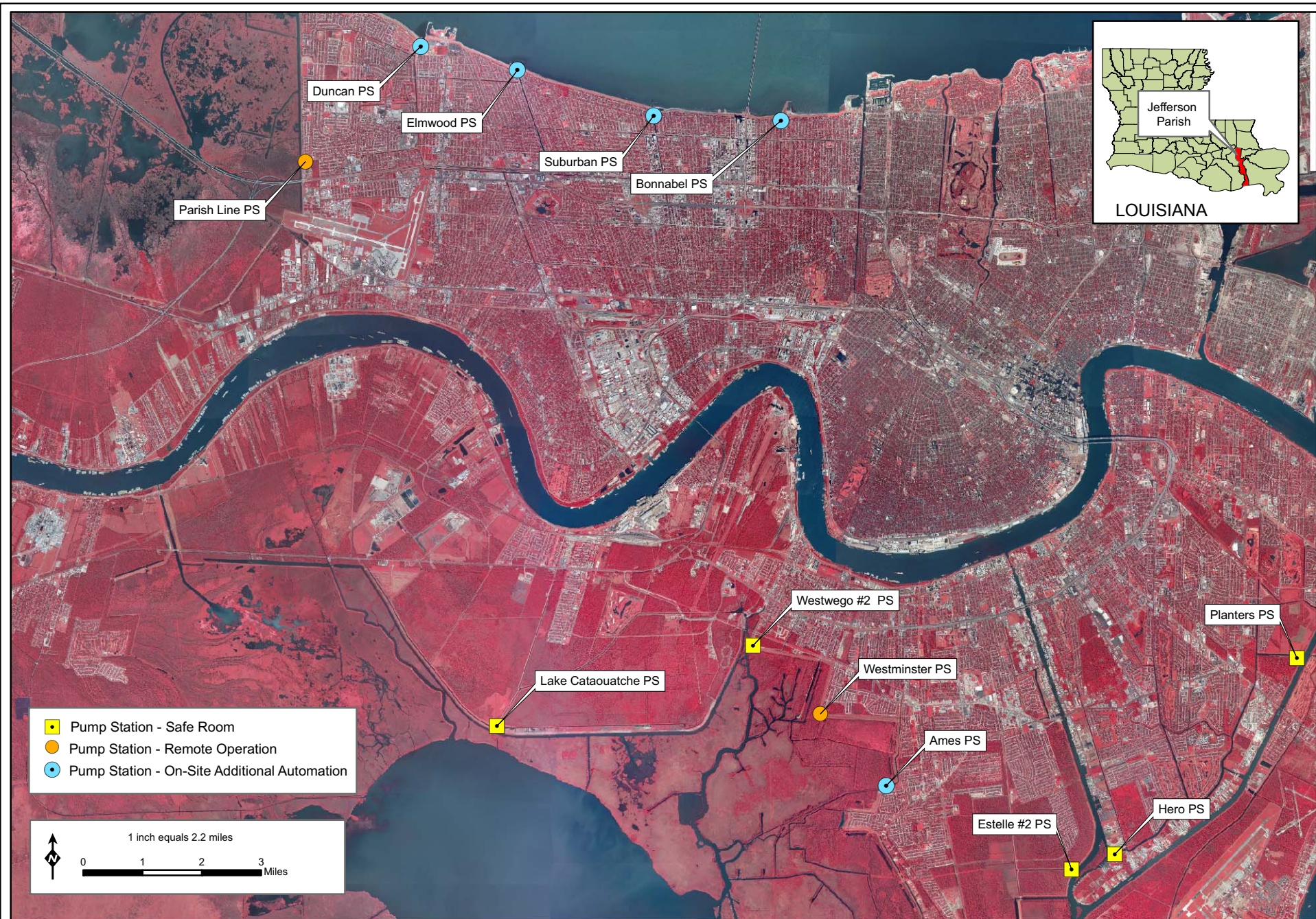


Figure 3: Proposed Action



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up, wall-mounted bunk beds, a unisex restroom, lockers, shelves, and counter space. The safe rooms would also contain a generator with a 550-gallon base tank located on a ground-level slab (Photograph 4) allowing for a 5-day generator running time, and a heating, ventilating, and air conditioning (HVAC) system to provide heating and cooling. The safe rooms would be constructed to withstand winds from a Category 5 hurricane; this type of construction includes 8-inch thick concrete walls, pressure doors, and a roof hatch.



Photograph 4. 550-gallon diesel tank and septic tank at an existing safe room at the Duncan Pump Station (photograph taken on February 2, 2007)

Each prefabricated safe room would be lifted and anchored onto an 8-inch thick slab foundation placed at a height that would secure the safe room from flooding from storm surges. Drilled shafts (drilled to a typical depth of 80 to 100 ft below the ground surface) would secure 12 columns, which would extend approximately 25 ft above the ground surface (based upon the existing surface elevation at each pump station); these 12 columns would provide support for the 8-inch slab foundation. Two galvanized steel staircases would be installed to provide access to the safe room. Additionally a 48-inch galvanized steel pipe guardrail would be placed around the exterior of the safe room and roof hatch to provide protection for pump operators from falls from the exterior areas of the elevated safe room. Any excess soil removed during the placement of drilled shafts and foundation construction would be stockpiled at Jefferson Parish facilities for future use in Parish construction projects or canal bank and levee maintenance. Approximately 60 days would be required to construct the foundation for each safe room. Weekly equipment checks (*i.e.*, exercising of generators) of the safe room would be required to keep them in operating condition.

At five pump stations with existing safe rooms (four on the east bank and one on the west bank), additional automation between the pump station and the nearby safe room is proposed (see Figure 3). The five pump stations where additional automation between the existing safe room and pump station is proposed are:

- Ames
- Duncan
- Elmwood
- Suburban
- Bonnabel

To allow for remote operation of each of these five pump stations from the safe room located at the pump station, fiber optic cabling would be placed between the existing pump station and safe room (see Figure 3). The cable length between each pump station and safe room would generally be no greater than 350 ft, and the cables would be buried in high density polyethylene (HDPE) conduit.

Remote pump operation is also needed at the Westminster and Parish Line pump stations, which lack an existing safe room. To allow for remote operation, a Supervisory Control and Data Acquisition (SCADA) system would provide communication either through the use of microwave towers, or fiber optic lines that would connect the existing safe room at the Duncan pump station and the pumps at the Parish Line pump station, and between the existing safe room at the Ames pump station and the pumps at the Westminster pump station. The fiber

optic lines would be buried within HDPE conduit along the canal banks between the safe rooms and pump stations; the total length of fiber optic cable between each pair of pump stations is approximately 3 miles (Figures 4a and 4b). SCADA controls would be installed to provide remote operation of Parish Line and Westminster pump stations from the Duncan and Ames pump station safe rooms.

In addition to utilizing fiber optic cables or microwave towers to allow remote operations of the pumps at the Westminster and Parish Line pump stations, climber screens would be constructed at the debris barriers within these two pump stations. The climber screens (Photograph 5) are fully automated trash and debris rakes that are capable of removing most debris that stacks up against the pump intakes during operation. Without climber screens, pump operators must manually remove all trash and debris that collects in front of pump intakes, both to maintain pumping efficiency, and to keep pumps from overheating and failing due to a lack of water for pump cooling during operation. Climber screens would be needed in combination with the fiber optic cables from the proposed safe rooms to fully automate the Westminster and Parish Line pump stations, and allow for their remote operations from the Ames and Duncan pump stations during major tropical storm events. Climber screens would also be utilized periodically to remove trash and debris during regular storm events, as well as during major tropical storm events.



Photograph 5. Climber screen (to the left) at the Bonabel Pump Station (photograph taken on February 2, 2007).

A small range of possible locations for the proposed safe rooms at each of the five pump stations are shown in Appendix A.

ALTERNATIVES TO THE PROPOSED ACTION

A full range of alternatives, which meet the project's purpose and need, was developed and evaluated. Each alternative, as well as the no action alternative, was evaluated based on the following operational and environmental factors. Operational factors are important design, location or construction features that may affect the degree to which the proposed action can satisfy the project needs and objectives. Environmental factors are important issues or concerns recognized by regulatory agencies, or those conditions that must be met to minimize potential impacts to the environment associated with the proposed action. The operational factors being evaluated include:

1. Facilities would provide protection for pump operators, during all tropical storm events, including Category 5 hurricanes.
2. Facilities would allow quick access to pumps for immediate pump maintenance to help insure the pumps would potentially continue operation during storm events.
3. Facilities would provide for adequate manpower to fully operate and maintain the pump stations during all tropical storm events.

ALTERNATIVES ELIMINATED FROM ANALYSIS

Due to not meeting the operational factors described above, two alternatives were evaluated and eliminated from further analysis. An alternative that would fully automate all seven pump stations and not build any additional safe rooms was not evaluated further because



Figure 4a: Fiber Optic Line From Parish Line Pump Station to Duncan Pump Station



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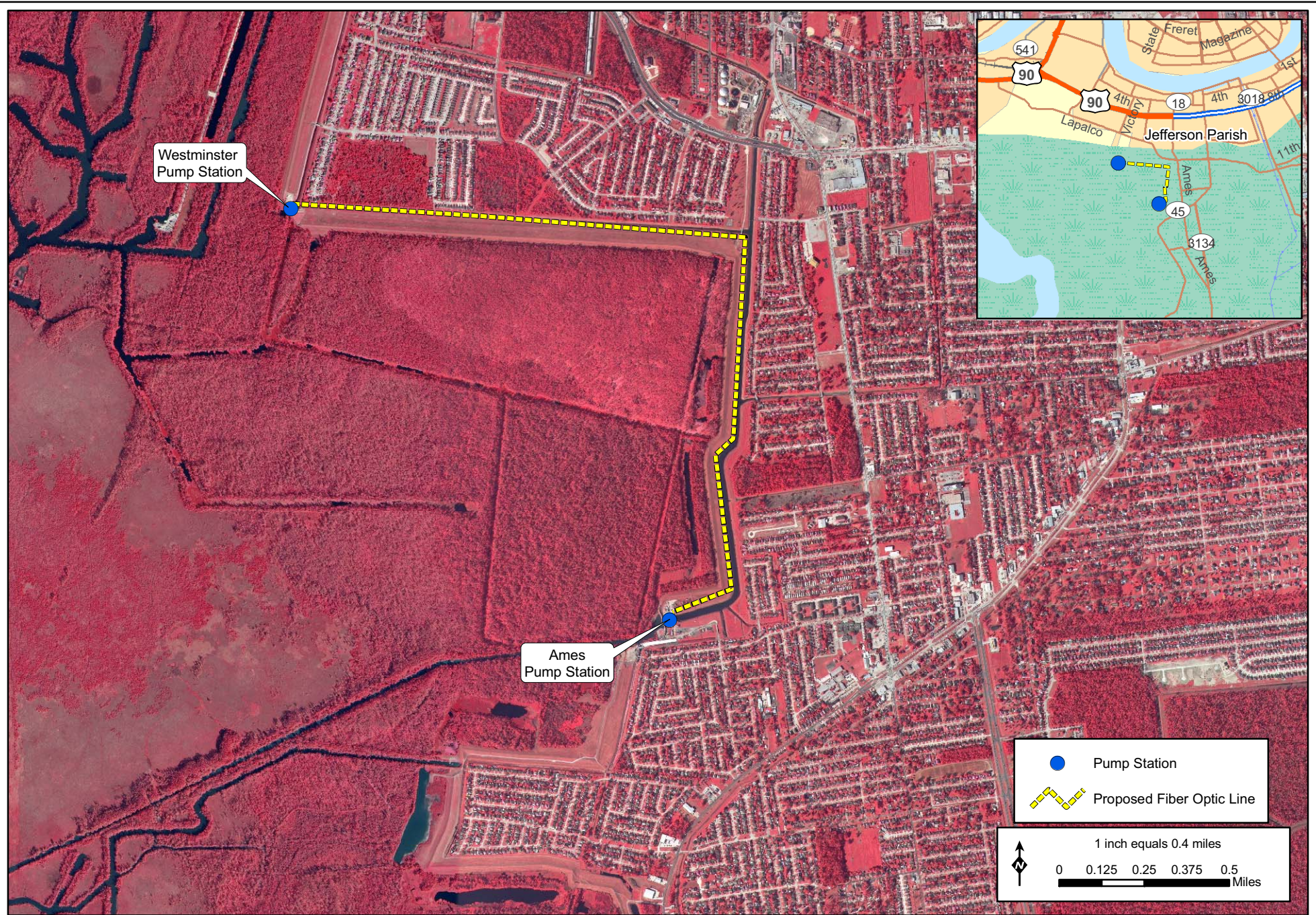


Figure 4b: Fiber Optic Line From Westminster Pump Station to Ames Pump Station

it would not provide adequate manpower to fully operate all pump stations. Furthermore, the additional climber screens and fiber optic cabling needed to fully automate the seven pump stations exceeded the projected average annual benefits and the amount allocated to this project. A second alternative that would not provide additional automation between the five existing safe rooms and pump stations was not evaluated further because to fully stormproof the 12 pump stations, pump operators must be able to operate and monitor the pumps from within each safe room during a major tropical storm event. If additional automation is not provided between the existing safe rooms and the pump stations, pumps may be inoperable for a period of time while operators are secured within the safe rooms.

Although two alternatives were eliminated from further analysis, three alternatives to the proposed action were considered. These were: no action alternative; non-structural alternative; and safe rooms at seven stations and complete automation at five stations alternative.

NO ACTION ALTERNATIVE

The President's Council on Environmental Quality's (CEQ) regulations and USACE's ER for implementing NEPA require that a no action alternative be evaluated. Under the no action alternative, the proposed action would not be constructed by the MVN. Therefore, immediately prior to a large tropical storm making landfall and affecting Jefferson Parish, the pump operators would be either evacuated to one of the eight existing safe rooms located at Jefferson Parish pump stations, or to another central secure location, such as a hospital or Parish facility. Due to a lack of funds to stormproof pump stations in an expedited manner (Jefferson Parish borrowed \$40 million to construct eight safe rooms), no additional safe rooms for pump operators or further automation of pump stations in Jefferson Parish would occur under the no action alternative. Pump operation during a major tropical storm event relies upon an adequate number of pump operators, and therefore would only occur at pump stations with existing safe rooms and automation. All other pump stations without safe rooms and automation would remain inoperable during the passage of the tropical storm, and would only come online when conditions are safe for the pump operators to return to the pump stations and initiate the pump station operation.

NON-STRUCTURAL ALTERNATIVE

Section 73 of the Water Resources Development Act of 1974 requires that non-structural alternatives be evaluated in flood damage reduction studies. ER 1105-2-100 provides planning guidance on applicable non-structural measures. Non-structural flood damage reduction measures typically include permanent relocation, evacuation, or demolition of structures in the floodplain; floodproofing of structures; flood warning systems; and regulation of floodplain uses.

The average annual cost of implementing nonstructural measures such as floodproofing by raising individual homes and businesses within Jefferson Parish exceeded the projected average annual benefits and the amount allocated to this project. Other non-structural measures such as permanent relocation, demolition of inhabited structures, or regulation of floodplain use are not within the authority of the MVN. Additionally, flood warning systems and evacuation plans are already in place in Jefferson Parish. Therefore, the non-structural alternative was eliminated from further consideration.

ALTERNATIVE 1: SAFE ROOMS AT SEVEN STATIONS AND COMPLETE AUTOMATION AT FIVE STATIONS

Alternative 1 would include the same stormproofing activities as described under the proposed action (safe room construction and automation), with the exception of the Westminster and Parish Line pump stations (Figure 5). Instead of providing automation between existing

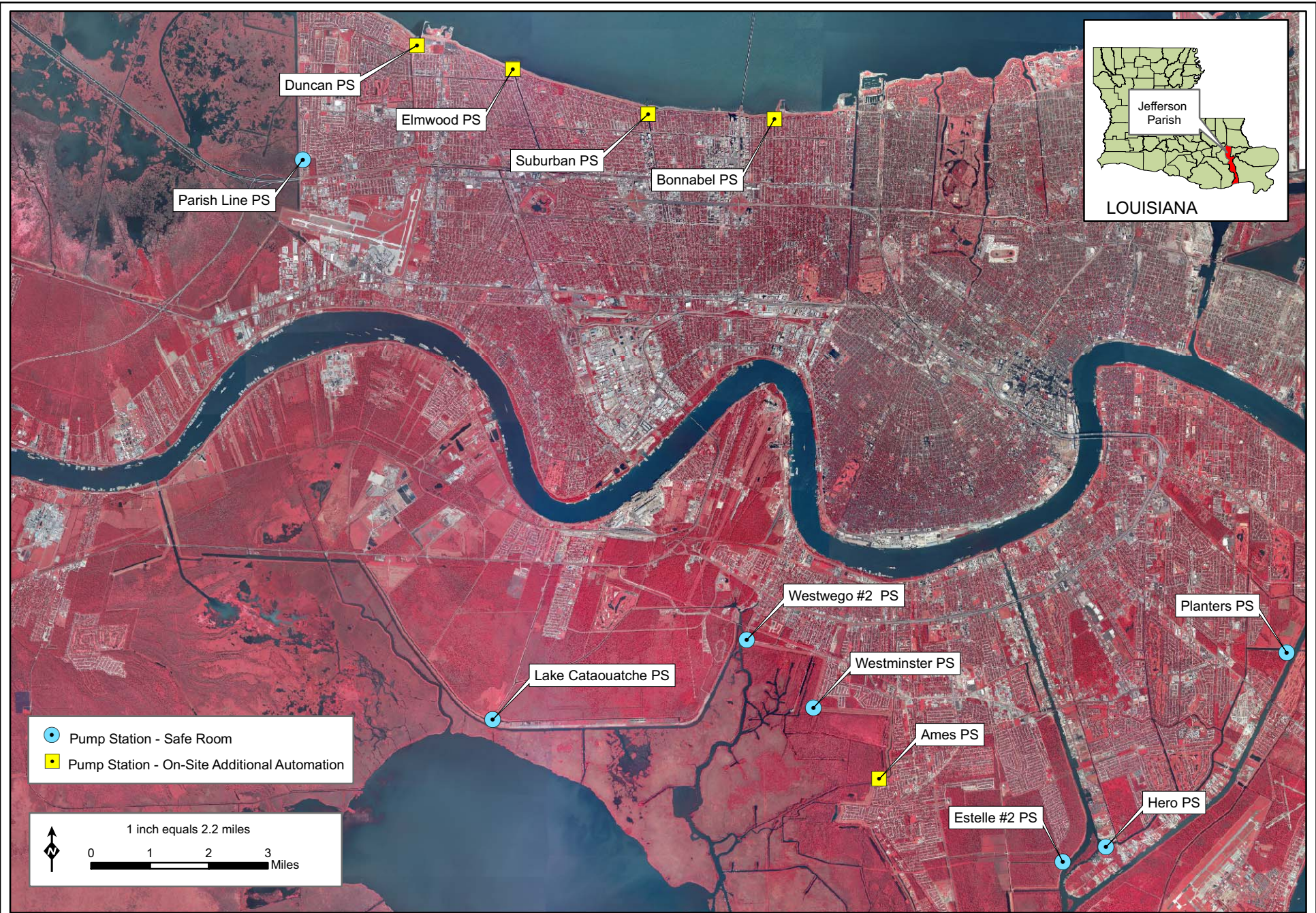


Figure 5: Alternative 1

safe rooms at distant pump stations and the pumps at the Westminster and Parish Line pump stations, safe rooms would also be constructed at the Westminster and Parish Line pump stations (for a total of seven new safe rooms constructed in Jefferson Parish).

The construction of the two additional safe rooms would be the same as described for the proposed action, however, at the Parish Line pump station, the safe room could be built either over the existing canal, with drilled shafts and piers supporting the safe room located in the canal banks on either side of the canal or on one side of the canal (see Appendix A).

SUMMARY

The remainder of the body of this EA will include only further analyses of the proposed action, and alternatives to the proposed action, which includes the no action alternative and alternative 1.

ENVIRONMENTAL SETTING

GENERAL

The project is located at 12 existing pump stations on the east and west bank of Jefferson Parish, Louisiana. The land use at each of the 12 pump stations and canal banks where modifications are proposed is developed. Even those pump station locations on the west bank, such as Lake Cataouatche, that occur in relatively isolated areas are within the Jefferson Parish storm drainage system, are located on canal banks, and are considered developed (Photograph 6).



Photograph 6. Location of proposed safe room at Lake Cataouatche Pump Station (photograph taken on February 2, 2007).

CLIMATE

Extreme rainfall events are common along the Gulf Coast. The most damaging non-tropical rainfall event in Metropolitan New Orleans occurred on May 8 and 9, 1995. On the night of May 8, 1995, 12.4 inches of rain was recorded at New Orleans International Airport, and a maximum of 24.5 inches of rain was reported for the 2-day period at Abita Springs, Louisiana. The rainfall event lasted 40 hours and damaged 44,500 homes and businesses (NOAA 2007).

Tropical storms typically produce the highest wind speeds and greatest rainfall events along the Gulf Coast. Category 5 hurricanes, such as Hurricane Camille which made landfall just east of New Orleans on August 17, 1969, generate the highest sustained wind speeds in the region (greater than 155 miles per hour). The high winds are typically accompanied by massive storm surge, and in the case of Category 5 storms, storm surge exceeds 18 ft in height (National Hurricane Center 2006). Between 1926 and 2005 a total of 10 hurricanes have struck Jefferson Parish (National Hurricane Center 2006). The frequency of hurricanes is greatest between August and October; however, hurricane season is from 1 June through 30 November (National Climate Data Center 2007). Prior to Hurricane Katrina in 2005, Hurricane Betsy, on September 9, 1965, was the most damaging tropical storm in Metropolitan New Orleans. Hurricane Betsy caused a storm surge of 10 ft, flooding large parts of the city, claiming 81 lives

and causing \$1 billion in damage (NOAA 2007). No impacts to regional climate would occur from the construction of the proposed safe rooms.

SOILS

Available soil data for the areas comprising the 12 pump stations are found in the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service (SCS), Soil Survey of Jefferson Parish, Louisiana (USDA-SCS 1983). Soil types found at the pump stations include Kenner muck; Kenner muck, drained; Barbary muck; Harahan clay; and Westwego clay. Kenner muck and Kenner muck, drained are level, poorly drained organic soils with a high total subsidence potential. Barbary muck, Harahan clay, and Westwego clay are level, poorly drained mineral soils, with medium to high total subsidence potential (USDA-SCS 1983). Harahan clay is classified as a prime farmland soil.

Only temporary disturbance to soils would occur during construction. Following construction activities, all disturbed areas would be re-vegetated with turf grass to prevent soil erosion. Although Harahan clay is classified as a prime farmland soil, the pump stations are previously developed and are not utilized for agricultural production.

IMPORTANT RESOURCES

This section contains a description of important resources that could potentially be impacted, and a discussion of the impacts of the proposed action and alternatives to the proposed action on these resources. The following important resources are those recognized by: laws, executive orders, regulations, and other standards of Federal, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public.

The important resources described in this section are land non-wetland/upland, fisheries, wildlife, endangered or threatened species, cultural resources, recreational resources, aesthetics, noise, air quality, social and economic, and transportation. Although water quality, essential fish habitat, fisheries, wetlands and water bodies are institutionally and technically important resources, all of the proposed safe room locations and pump station automation features are located in upland areas and along canal banks. The water quality of canals and adjacent water bodies (*i.e.*, Lake Pontchartrain and Barataria basins) as affected by the operation of pumps would continue as normal for rain fall and storm events. Standard construction and operation requirements, measures to improve water quality, and permits by the state of Louisiana are in place to regulate and monitor water quality of the drainage basins, therefore this resources will not be subject to further analysis. The land based nature of the proposed action would not cause any impacts to essential fish habitat, wetlands, or water bodies, therefore these resources will not be subject to further analysis.

NON-WETLAND RESOURCES / UPLAND RESOURCES

These resources are institutionally important because of the Food Security Act of 1985, as amended; the Farmland Protection Policy Act of 1981; and the Fish and Wildlife Coordination Act of 1958, as amended. These resources are technically important because of the habitat provided for both open and forest-dwelling wildlife, and the provision or potential for provision of forest products and human and livestock food products. These resources are publicly important because of their present economic value or potential for future economic value.

Existing Conditions

All of the safe room locations are located along canal banks or immediately adjacent to pump stations and levees (Photograph 7). The vegetation at these sites is maintained turf grasses, and is highly disturbed. No woody vegetation (*i.e.*, trees or shrubs) was observed in the vicinity of any of the proposed safe room locations.

Future Conditions with No Action

No change in upland resources would occur under the no action alternative because no construction of safe room or additional automation would take place. All of the proposed safe room locations would continue to be maintained as canal banks, including regular mowing of turf grasses.

Future Conditions with the Proposed Action

Approximately 0.2 acres of uplands would be disturbed as part of the proposed action. However, all of these areas are located along existing canal banks, and are comprised of maintained turf grasses. Large volumes of soil would be removed during the placement of drilled shafts. These subsoils would be hauled off-site to a Jefferson Parish facility, stored, and potentially utilized by Jefferson Parish for other construction projects or canal bank maintenance. No upland habitats that are rare or unique would be disturbed as a result of the proposed action, and no woody vegetation would be removed.



Photograph 7. Example of a proposed safe room location along a canal bank at Westwego #2 Pump Station (photograph taken on February 2, 2007).

Alternative 1: Future Conditions with Safe Rooms at Seven Stations and Complete Automation at Five Stations

Approximately 0.3 acres of uplands would be disturbed as a result of this alternative. The nature of the impacts would be the same as those of the proposed action, and all of the proposed construction would occur on canal banks in highly disturbed areas.

WILDLIFE

This resource is institutionally important because of the Fish and Wildlife Coordination Act of 1958, as amended, and the Migratory Bird Treaty Act of 1918. Wildlife resources are technically important because: they are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources. Wildlife resources are publicly important because of the high priority that the public places on their esthetic, recreational, and commercial value.

Existing Conditions

The pump station locations proposed for stormproofing are all disturbed and devoid of native vegetation (Photograph 8 and Appendix A), and located within urban or semi-urban areas behind hurricane, storm, and flood damage reduction levees within the Jefferson Parish

drainage area. The majority of wildlife species that would be present are those commonly found in urban and developed areas including a variety of transient and resident urban wildlife species such as rodents (rats, mice, squirrels, nutria [*Myocaster coypus*]), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), nine-banded armadillo (*Dasypus novemcinctus*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), rock dove (*Columba livia*), cattle egret (*Bulbulcus ibis*) common grackle (*Quiscalus quiscula*), and American crow (*Corvus brachyrhynchos*). However, several areas managed for wildlife are located near the project vicinity.



Photograph 8. Example of a proposed safe room location in a highly disturbed area at Planters Pump Station (photograph taken on February 2, 2007).

Future Conditions with No Action

No direct or indirect impacts to wildlife would be anticipated under the no action. The pump station locations receive very little wildlife use because they are highly developed and primarily located in urban or semi-urban areas, and normal pump station operations do not impact wildlife in adjacent estuaries. Current management practices would continue unchanged on all nearby managed areas.

Future Conditions with the Proposed Action

With implementation of the proposed action, no direct or indirect impacts to wildlife would be anticipated because all construction activities would be temporary and are proposed within previously developed areas during daylight hours. Furthermore, no changes in normal pump station operations would occur; therefore there would be no impacts from regular operations to adjacent estuaries. Current management practices would continue on nearby managed areas.

Alternative 1: Future Conditions with Safe Rooms at Seven Stations and Complete Automation at Five Stations

With implementation of alternative 1, the impacts to wildlife would be similar to those described by the proposed action.

ENDANGERED OR THREATENED SPECIES

This resource is institutionally important because of: the Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940. Endangered or threatened species are technically important because the status of such species provides an indication of the overall health of an ecosystem. These species are publicly important because of the desire of the public to protect them and their habitats.

Existing Conditions

Federal

Six Federally endangered and five Federally threatened species have the potential to occur within Jefferson Parish. The endangered species are brown pelican (*Pelecanus occidentalis*), West Indian manatee (*Trichechus manatus*), hawksbill sea turtle (*Eretmochelys*

imbricata), Kemp's ridley sea turtle (*Lepidochelys kempii*), leatherback sea turtle (*Dermochelys coriacea*), and pallid sturgeon (*Scaphirhynchus albus*); the threatened species are the bald eagle (*Haliaeetus leucocephalus*), green sea turtle (*Chelonia mydas*), loggerhead sea turtle (*Caretta caretta*), piping plover (*Charadrius melodus*), and gulf sturgeon (*Acipenser oxyrinchus desotoi*). The brown pelican was observed in Lake Pontchartrain during the February 2007 survey of the proposed safe room locations. However, none of the other species, or suitable habitat to support any listed species was observed at the proposed safe room locations or along canal banks during the survey. Currently, gulf sturgeon has critical habitat designated within Jefferson Parish (U.S. Fish and Wildlife Service [USFWS] 2003). The gulf sturgeon's designated critical habitat is along the south shore of Lake Pontchartrain in eastern Jefferson Parish. The Bonnabel Pump Station is adjacent to waters designated as gulf sturgeon critical habitat. Due to the land based nature of the work no impact is expected. Bald eagles and brown pelicans are known to occur in Jefferson Parish, however there are no nests or rookeries noted in the project area. Other adjacent suitable foraging areas (*i.e.*, water bodies) exist in the immediate vicinity of the proposed safe rooms, therefore an onsite inspection will be made prior to construction, because transient bald eagles may occur in the study area.

Future Conditions with No Action

Under the no action, no adverse effects to threatened and endangered species, or critical habitat would be anticipated because there would be no construction or change in condition within the project area.

Future Conditions with the Proposed Action

With implementation of the proposed action, there would be no adverse effects to threatened and endangered species, or critical habitat. None of the proposed safe room locations provide suitable habitat to support any listed species. Some minor short term beneficial effects to aquatic species would occur due to the reduction in the urban floodwaters that would be pumped into the Lake Pontchartrain and Barataria basins following major tropical storm events.

This evaluation was coordinated with and reviewed by the USFWS by fax/email letter dated February 28, 2007. As a result of this review, MVN and USFWS jointly concluded that the proposed action is not likely to adversely affect any threatened or endangered species or their critical habitat (USFWS fax dated March 8, 2007).

Alternative 1: Future Conditions with Safe Rooms at Seven Stations and Complete Automation at Five Stations

The impacts from the implementation of alternative 1 are the same as for the proposed action.

CULTURAL RESOURCES

This resource is institutionally important because of: the National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979; as well as other statutes. Cultural resources are technically important because of: their association or linkage to past events, to historically important persons, and to design and/or construction values; and for their ability to yield important information about prehistory and history. Cultural resources are publicly important because preservation groups and private individuals support their protection, restoration, enhancement, or recovery.

Existing Conditions

Most of the Jefferson Parish pump stations became operational since the 1960s. The oldest portions of each of the 12 pump stations are Westminster - 1998; Parish Line - 1987; Bonnabel and Duncan - 1986; Westwego #2 and Ames - 1985; Elmwood - 1981; Lake Cataouatche - 1978; Planters - 1973; Suburban - 1970; Estelle #2 - 1962; and Hero - 1920s. Although the Hero pump station is older than 50 years, and therefore potentially eligible for the National Register of Historic Places (NRHP), it has been heavily modified through time and neither the buildings nor the pumps are considered eligible. Therefore, no pump station is considered eligible for the NRHP. This conclusion for Section 106 was coordinated with the Louisiana State Historic Preservation Officer (SHPO) in correspondence dated February 16, 2006. No pump station is considered of historic significance.

Based upon visitation and a visual survey, the area surrounding the pump stations and along canal banks where safe rooms and fiber optic cable installation is proposed has been previously disturbed. There is no indication or expectation of cultural resources either above ground or below ground at these 12 pump stations or along the proposed route of fiber optic cables, and no further investigation is warranted. This conclusion for Section 106 was coordinated with the SHPO in correspondence dated March 7, 2007.

Future Conditions with No Action

Under the no action alternative, no historic properties would be directly impacted. The current potential flooding conditions in all of Jefferson Parish would remain the same. As a result, there is a potential for historic properties, particularly historic structures and objects, to be adversely impacted by floods if the pumps are not able to operate during severe tropical storm events.

Future Conditions with the Proposed Action

Construction of the proposed safe rooms and trenching for fiber optics between existing safe rooms and pump stations would occur within previously disturbed areas (e.g., canal banks), and these areas have been examined for historical significance and determined by the MVN and SHPO to be not significant. As a result, it is not anticipated that cultural resources would be adversely impacted from the construction of the safe rooms, additional automation at these locations, or from fiber optic cable installation along canal banks. The safe rooms would allow for operation of the pumps during storm events, and would reduce the potential for a flooding event to take place within Jefferson Parish. As a result, historic properties within Jefferson Parish would experience long-term, beneficial impacts from the implementation of the proposed action.

Alternative 1: Future Conditions with Safe Rooms at Seven Stations and Complete Automation at Five Stations

With the implementation alternative 1, the future conditions would be essentially the same as those outlined under the proposed action.

RECREATIONAL RESOURCES

This resource is institutionally important because of the Federal Water Project Recreation Act of 1965, as amended, and the Land and Water Conservation Fund Act of 1965, as amended. Recreational resources are technically important because of the high economic value of recreational activities and their contribution to local, state, and national economies. Recreational resources are publicly important because of: the high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting

licenses sold in Louisiana; and the large per-capita number of recreational boat registrations in Louisiana.

Existing Conditions

Recreational opportunities within the proposed project area include Bayou Segnette State Park, Jean Lafitte National Historic Park and Preserve – Barataria Unit, Barataria Preserve, Lake Pontchartrain, and over 30 Jefferson Parish parks, playgrounds, and sports complexes. Many of the recreational areas listed offer opportunities for hiking, camping, fishing, boating, bike riding, and picnicking.

Two large recreational areas, Bayou Segnette State Park and Jean Lafitte National Historic Park and Preserve – Barataria Unit, offer a multitude of recreational opportunities. Bayou Segnette State Park, located in the southwestern portion of the project area, offers cabins, camping, fishing, boating, canoeing, swimming and playgrounds. Additionally, the Jean Lafitte National Historic Park and Preserve – Barataria Unit offers boardwalks and hiking throughout its 20,000 acres, while canoeing and kayaking through its waterways are encouraged through ranger-guided treks and excursions.

Future Conditions with No Action

Under the no action alternative, flooding of recreational areas on the east and west banks of Jefferson Parish during severe tropical storm events could occur. Flooding would limit recreational use during the duration of the flooding episode, as well as potentially reducing recreational capacity after flood waters recede due to possible damage to park infrastructure.

Future Conditions with the Proposed Action

With implementation of the proposed action, flooding during major tropical storm events would be minimized as Jefferson Parish pumps would be able to operate during and immediately following the storm event. Recreational resources may still remain unusable during the extreme weather event, but minimal damage to Jefferson Parish parks' infrastructure from large-scale flooding would occur.

Alternative 1: Future Conditions with Safe Rooms at Seven Stations and Complete Automation at Five Stations

The impacts from the implementation of alternative 1 would be the same as those described for the proposed action.

AESTHETICS (VISUAL RESOURCES)

This resource's institutional significance is derived from laws and policies that affect visual resources, most notably the National Environmental Policy Act of 1969, the Coastal Barrier Resources Act of 1990, Louisiana's Natural and Scenic River's Act of 1988, and National and Local Scenic Byway Programs. This resource is technically significant because of visual accessibility to unique combinations of geological, botanical, and cultural features that may be an asset to a study area. Public significance is based on expressed public perceptions and professional evaluation.

Existing Conditions

The aesthetic resources in the vicinity of the proposed action include the architectural character and landscaping of surrounding residential areas. The architectural character and landscaping associated with areas in the vicinity of pump stations varies, with many of the east bank pump stations being located near residential areas; while many of the west bank pump

stations are near industrial or commercial areas, or are located out-of-sight from any development. There are no scenic rivers as defined by the Louisiana Scenic Rivers Act §1847, natural areas, parks, or other areas typically susceptible to aesthetic degradation or which provide high aesthetic value that are visibly accessible to the pump stations. The pump stations themselves lack any aesthetic value and consist of industrial-style buildings and structures, paved or graveled areas, canals, and canal banks, and maintained grass areas.

Future Conditions with No Action

With implementation of the no action, no changes to the aesthetic setting of the project area would occur. However, the aesthetic resources associated with residential areas would be susceptible to degradation by flooding during extreme tropical storm events.

Future Conditions with the Proposed Action

With implementation of the proposed action, aesthetic resources would be temporarily impacted in residential areas within the visual limits of the safe room construction activities. The presence of construction equipment and materials would temporarily increase the industrial character within the immediate view of affected pump stations. The distance at which the pump stations can be seen would be permanently increased following construction of the safe rooms. However, similar industrial or commercial areas or the levee itself are found within the same view shed, and the addition of safe rooms would not substantially alter the general character or quality of aesthetic resources at each pump station. Due to the minimal amount of time and equipment required for safe room construction, lack of significant aesthetic resources nearby, and existing industrial elements of the existing pump stations, impacts to aesthetic resources would be minimal.

Alternative 1: Future Conditions with Safe Rooms at Seven Stations and Complete Automation at Five Stations

With implementation of alternative 1, the nature of the impacts to aesthetic resources would be similar to those described for the proposed action. The construction of two additional safe rooms would introduce additional industrial elements within view of the Westminster and Parish Line pump stations. Therefore, impacts to aesthetic resources would be somewhat greater in comparison to the proposed action.

NOISE

This resource is institutionally important because of the Noise Control Act of 1972. Compliance with surface carrier noise emissions is technically important. Exposure of persons to or generation of noise levels in excess of applicable standards is publicly significant.

Existing Conditions

Noise is usually defined as “unwanted sound”, and is recognized as an environmental pollutant that can produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep. The proposed safe room complexes are located in and near population centers and in urban and semi-rural areas. Construction and installation of the piling system, depending on location, may create unwanted noise.

Sound is represented on a logarithmic scale with a unit called the decibel (dB). Sound on the decibel scale is referred to as a sound level. The threshold of human hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB.

Sound levels are computed over a 24-hour period and adjusted for nighttime annoyances to produce the day-night average sound level (DNL). DNL is the community noise measurement recommended by the USEPA and has been adopted by most Federal agencies (USEPA 1974). A-weighted decibels (dBA) are used to express the relative loudness of sounds in air as perceived by the human ear (Generac Power Systems, Inc. 2004). A-weighting is necessary to compare the effects of sounds on the human body, because the human ear is less sensitive at low frequencies than at high frequencies. A DNL of 65 dBA is most commonly used for noise planning purposes, and represents a compromise between community impact and the need for activities like construction. Areas exposed to DNL above 65 dBA are generally not considered suitable for residential use. A DNL of 55 dBA was identified by USEPA as a level below which there are effectively no adverse impacts (USEPA 1974).

Noise levels surrounding the project sites are variable depending on the time of day and climatic conditions. The construction activities potentially causing elevated noise levels within the project corridor would include diesel and gasoline powered generators, trucks, drilling equipment, and operation of construction equipment.

Heavy duty trucks generate a noise level of approximately 90 dBA. Attenuation to 55 dBA occurs at a distance of approximately 2,600 ft depending on climatic conditions, topography, vegetation, and man-made barriers (Generac Power Systems, Inc. 2004). Noise levels for other types of construction equipment range from the loudest, tractors and backhoes (70 to 95 dBA) to pumps and generators (65 to 85 dBA) (Bugliarello *et al.* 1976).

Future Conditions with No Action

The no action alternative would have no direct impacts to noise at the proposed safe room sites because no construction would occur. Existing noise levels would remain at their current levels.

Future Conditions with the Proposed Action

Noise levels created by large trucks, portable generators, construction equipment, and drilling equipment would vary greatly depending on several factors, such as climatic conditions, season, equipment type and model, construction activity, and the condition of the equipment. Most installation and transport activities would occur during daylight hours. It is possible that concrete would be poured in the pre-dawn hours to account for the heat restrictions for adequate drying and curing processes. Noise levels would decrease to an inaudible level as the distance between the noise producer (e.g., gas powered generators) and the noise receptors increases.

Operation of generators, drilling equipment, and trucks would result in a short term increase in noise levels. The drilling equipment units would produce approximately 65 dBA of noise and each portable generator produces approximately 65 dBA of noise, depending on the particular manufacturer; these levels were used for planning purposes. Noise generated from the generators, drilling equipment, trucks, and tools would also be rapidly attenuated depending on weather/season, nearby vegetation density, and topography. Since the generators would be used only for construction purposes and moved to various locations on an as-needed basis, the effects of noise would be minor, localized, and temporary. Noise generated from drilling equipment would be temporary (a maximum of 60 days) and localized.

Alternative 1: Future Conditions with Safe Rooms at Seven Stations and Complete Automation at Five Stations

As described for the proposed action, noise from construction equipment would be reduced from 65 dBA (*i.e.*, gas powered generators and drilling equipment) to 55 dBA (*i.e.*,

acceptable noise level) within 2,600 ft. Because the increased noise levels would be temporary, no direct significant impacts to ambient noise levels would occur upon completion of construction.

AIR QUALITY

This resource is considered institutionally important because of the Louisiana Environmental Quality Act of 1983, as amended, and the Clean Air Act of 1963, as amended. Air quality is technically important because of the status of regional ambient air quality in relation to the National Ambient Air Quality Standards (NAAQS). It is publicly important because of the desire for clean air expressed by virtually all citizens.

Existing Conditions

The Federal Clean Air Act (CAA) requires that all states comply with the National Ambient Air Quality Standards (NAAQS). NAAQS have been developed for seven pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), sulfur dioxide (SO₂), and two forms of particulate matter (PM₁₀ – particulate matter with a diameter of 10 micrometers or less; and PM_{2.5} - particulate matter with a diameter of 2.5 micrometers or less).

When ambient air pollution parameters exceed NAAQS, the Federal and state government are responsible for implementing an air quality management plan for the air-shed. These air-sheds are called “non-attainment” and “air maintenance” zones. If a Federal action occurs in a one of these managed areas, they are subject to an air “Conformity Determination.” The state is responsible for preparing a State Implementation Plan (SIP) that designs a plan to “attain” ambient NAAQS. Federal actions occurring in the non-attainment zone must conform to the SIP and not prevent the state from achieving air quality goals.

Jefferson Parish is in attainment for all of the seven NAAQS. A number of parishes west of Jefferson Parish are designated as “non-attainment” areas for the 8-hour ozone standard. These include East Baton Rouge, Ascension, Iberville, and West Baton Rouge parishes. Air emissions from internal combustion engines produce volatile organic compounds (VOCs) and nitrogen oxides (NO_x) which are precursor molecules that react with oxygen in the atmosphere to create ozone. If metropolitan New Orleans experiences a southeast wind, which is common during summer months, air pollution from Jefferson Parish may migrate into the designated non-attainment parishes mentioned above.

Future Conditions with No Action

The no action alternative would not require any construction, and therefore would not result in any impacts to air pollution.

Future Conditions with the Proposed Action

Temporary increases in air pollution would occur from the use of construction equipment, such as cranes, generators, compressors, pumps, and construction vehicle traffic. Combustible emissions from construction equipment would be expected to temporarily increase during the construction phase of the project. Particulate emissions (fugitive dust) would be generated by activities that disturb and suspend soils, such as vehicle trips on unpaved roads, bulldozing, compacting, truck dumping, and grading operations. Operation of construction equipment, portable light generators, and support vehicles would also generate VOCs; PM-10, NO_x, CO, ozone and SO_x emissions would be generated from diesel engine combustion.

Due to the short duration and limited activities of the construction project, any increases or impacts on ambient air quality would be expected to be short-term and minor. Contractors

would be instructed to conduct proper and routine maintenance of all vehicles and other equipment. These actions ensure that emissions would be within the design standards of all construction equipment. Dust suppression methods would be implemented to minimize fugitive dust emissions. Additionally, all construction equipment and vehicles would be required to be kept in good operating condition to minimize exhaust emissions. No significant impacts to air quality would be expected to occur as a result of implementing the proposed alternative.

Standard construction BMPs, such as routine watering of access roads, would be used as a primary means of fugitive dust control during the construction phases of the proposed action.

Alternative 1: Future Conditions with Safe Rooms at Seven Stations and Complete Automation at Five Stations

Impact to air quality from the implementation of alternative 1 would be the same as those described for the proposed action.

SOCIAL AND ECONOMIC RESOURCES

Compliance with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, is institutionally important. Evaluating all actions to determine if they disproportionately affect low income or minority populations is technically important. The displacement of substantial numbers of existing housing or people is publicly important.

Existing Conditions

Population and Demographics

The population of Jefferson Parish in 2000 was 451,109 and in July 2005, just prior to Hurricane Katrina, the population was estimated to have dropped slightly to 448,578 (Greater New Orleans Community Data Center 2007). The population estimate for Jefferson Parish dropped to 411,305 in January 2006 after Hurricane Katrina. By August 2006 the population grew to 434,666, but still below the July 2005 population prior to Hurricane Katrina (Greater New Orleans Community Data Center 2007). The 2005 racial mix of Jefferson Parish, prior to Hurricane Katrina, was predominantly Caucasian (66.2 percent), followed by African-American (26.7 percent) and Asian (3.4 percent), with the remaining 3.7 percent of the population split between American Indians and Alaskan Natives, Native Hawaiians and other Pacific Islanders, and other races (U.S. Census Bureau 2007a). No estimates of the racial composition of Jefferson Parish after Hurricane Katrina are available.

Economic

In 2004, the total number of persons in the labor force in Jefferson Parish was 231,173, which comprised approximately 65 percent of the total population of the Parish. In 2004, Jefferson Parish had a per capita personal income (PCPI) of \$32,156. This PCPI ranked second in the state of Louisiana, and was 11.8 percent of the state average of \$27,297, and 97 percent of the National average of \$33,050. The average annual growth rate of PCPI from 1994 to 2004 was 4.3 percent. This average annual growth rate was higher than that for the state (4.0 percent) and the Nation (4.1 percent). In 2004, Jefferson Parish had a total personal income (TPI) of \$14.6 billion. This TPI ranked 1st in the state and accounted for 11.8 percent of the state total. The 2004 TPI reflected an increase of 5.7 percent from 2003, which was lower than 2003-2004 state change of 5.9 percent and the National change of 6.0 percent (Bureau of Economic Analysis 2007).

Housing

Jefferson Parish had a total of 176,234 housing units according to the 2000 U.S. Census Bureau, and an estimated 192,373 housing units in 2005 (U.S. Department of Housing and Urban Development 2006b; U.S. Census Bureau 2007a). An estimated 93,872 occupied housing units in Jefferson Parish experienced some damage from Hurricane Katrina. This accounted for 53.3 percent of the total occupied housing units in the parish. Of those damaged housing units, 32,320 had major to severe damage, which accounted for 19.5 percent of the total occupied housing units in Jefferson Parish.

A total of 30,737 occupied housing units in Jefferson Parish experienced flood damage. Of those housing units, 19,053 housing units experienced major damage and 3,883 housing units experienced severe damage or were destroyed. The Small Business Administration median verified loss for housing units experiencing major damage in Jefferson Parish was \$66,237, and for those experiencing severe damage was \$72,267 (U.S. Department of Housing and Urban Development 2006b). As stated in the introduction, overall, the damage associated with the flooding in Jefferson Parish from Hurricane Katrina has been estimated to be approximately \$6 billion.

Environmental Justice

According to the November 2004 CRS Report for Congress, Hurricane Katrina: Social-Demographic Characteristics of Impacted Areas; Hurricane Katrina disproportionately impacted poor and minorities, mostly African-Americans (Gabe *et al.* 2005). Twenty-six percent of the total population of Jefferson Parish prior to Hurricane Katrina was comprised of African-Americans. Of the 2003 total population of Jefferson Parish, 15.7 percent are living at or below poverty levels (U.S. Census Bureau 2007b).

Future Conditions with No Action

Under the no action alternative, no additional safe rooms would be built. As a result, several pump stations would need to be abandoned during a severe tropical storm event and would not be able to operate through the entire storm event. Therefore, there is the potential for flooding in Jefferson Parish and the associated costs in damage to housing units and other public and commercial structures. Furthermore, as was shown in the case of Hurricane Katrina, such damage may disproportionately effect low-income and minority populations. As a result, without the implementation of the proposed action, there is the potential for Environmental Justice issues.

Future Conditions with the Proposed Action

With the implementation of the proposed action, short-term, minor, beneficial economic impacts would occur during construction of the safe rooms and installation of the fiber optic lines from the associated construction costs and purchase of materials. The safe rooms and additional automation would potentially allow the pump stations to operate throughout a storm event, and would reduce the possibility of large-scale flooding in Jefferson Parish. As a result, a reduction in the costs resulting from flooding damage can be expected from the implementation of the proposed action. The additional hurricane, storm, and flood damage reduction with the implementation of the proposed action would cover the entire parish, and would not disproportionately put a burden on minority or low-income populations. The proposed safe rooms are located near the pump stations and are not disproportionately located near concentrations of low-income or minority populations. Furthermore, the hurricane, storm, and flood damage reduction from the implementation of the proposed action would reduce the potential of Environmental Justice issues resulting from another major flood event.

Alternative 1: Future Conditions with Safe Rooms at Seven Stations and Complete Automation at Five Stations

With the implementation of alternative 1, the socioeconomic impacts would be the same as those outlined under the proposed action.

TRANSPORTATION

Existing Conditions

Access to the pump station sites for construction is provided by Interstate 10 (I-10) on the east bank and the West Bank Expressway (US 90) on the west bank. Both I-10 and US 90 are limited access, divided highways. Secondary roads, such as Williams Boulevard and Clearview Parkway on the east bank, and Lapalco Boulevard on the west bank provide access between I-10 and US 90 and local 2-lane street networks, which provided access to the pump stations. Generally, the level of service for I-10 and US 90, as well as secondary multi-lane roads such as Williams Boulevard and Lapalco Boulevard, includes large volumes of traffic with a high density of vehicles during peak commute hours.

Future Conditions with No Action

The no action alternative would not require any construction and therefore there would be no change in traffic flow or patterns.

Future Conditions with the Proposed Action

Construction equipment and transportation of materials would be required during the approximately 60-day construction period for the foundations (*i.e.*, pilings and slabs) of each of the five safe rooms. The small number of vehicle trips to each of the five safe room construction sites would not impact traffic flow or patterns on arterial or secondary roads in the vicinity of the safe rooms, but would have minor, short-term impacts on nearby 2-lane roads and residential streets located immediately adjacent to the safe room construction sites. Once the safe room construction was completed, no additional vehicle trips are anticipated, therefore there would be no long-term impacts to traffic flow or patterns as a result of the proposed action.

The delivery of the prefabricated safe rooms could require the temporary closing of some 2-lane roads and residential streets, and traffic detours, to accommodate the oversized load during the delivery period. However, this is anticipated to be a minor short-term impact, and would likely disrupt traffic patterns immediately adjacent to each of the five safe room construction sites for less than one day each.

Alternative 1: Future Conditions with Safe Rooms at Seven Stations and Complete Automation at Five Stations

With the implementation of alternative 1, the impacts to local and regional transportation at the seven safe room construction sites would be similar to those short-term impacts on traffic flow and patterns described for the proposed action.

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

The MVN is obligated under ER 1165-2-132 to assume responsibility for the reasonable identification and evaluation of all Hazardous, Toxic, and Radioactive Waste (HTRW) contamination within the vicinity of the proposed action. A Phase I HTRW Initial Site Assessment (ISA) is currently underway for the proposed action and will be on file in the New

Orleans District. The risk of encountering HTRW for the proposed action is believed to be low, based on the below preliminary assessment. This will be confirmed by the Phase I HTRW ISA.

Solid and hazardous waste are regulated in Louisiana by the LDEQ as mandated by regulations promulgated in the Louisiana Administrative Code (LAC) Title 33 Environmental Quality Act and authorized by the U.S. Environmental Protection Agency (USEPA) in 1999.

Existing Conditions

A search was conducted on the USEPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) for the proposed Jefferson Parish project area. The CERCLIS database provides information on superfund sites that are on the National Priorities List (NPL) or those sites proposed for the NPL, and include hazardous waste sites, potential hazardous waste sites, and any remedial activities. Jefferson Parish currently has four sites which are listed on CERCLIS, three of which are sites which require No Further Remedial Action Proposed (NFRAP), and have been archived from the CERCLIS database (CERCLIS, USEPA 2006) as seen on Figure 6. The fourth site is the 11th Street Drum site in Harvey, Louisiana, in which a Removal Action was completed in 1998, but a Preliminary Assessment is still waiting to be assigned. Additionally, the LDEQ Make-a-Map program was used to locate any Resource Conservation and Recovery Act (RCRA) facilities and Type I and II landfill facilities (LDEQ 2007). The Make-a-Map query yielded information on three RCRA Treatment, Storage, and Disposal (TSD) facilities, 41 RCRA Large Quantity Generator (LQG) facilities, and one Type I and II landfill within the project area as seen in Figure 6.

Based on a review of information from LDEQ's Radiological Emergency Preparedness and Response Division, there are no nuclear power plants in Jefferson Parish. The nearest nuclear power plant is the Waterford Facility near Taft, Louisiana in St. Charles Parish.

Future Conditions with No Action

Under the No Action, flooding of nearby RCRA hazardous waste facilities and CERCLIS listed sites could occur due to lack of pumping during and immediately following major tropical storm events on the east and west bank of Jefferson Parish. Since most of Jefferson Parish relies on these pumping facilities to ensure little to no flooding occurs, unmanned pump stations would potentially cause hazardous wastes stored at RCRA facilities and potentially-contaminated leachate from Type I and II landfills to migrate off-site during a flooding episode; this could cause contamination of flood waters and possible soil contamination after flood waters recede.

Future Conditions with the Proposed Action

With implementation of the proposed action, flooding during major tropical storm events would be minimized as continuous pump operations in the Jefferson Parish would be possible. RCRA hazardous waste facilities, Type I and II landfills and CERCLIS listed sites may still receive flood water but the potential for extreme flooding would be lessened, and therefore, the potential for off-site migration of hazardous chemicals would be minimized.

Alternative 1: Future Conditions with Safe Rooms at Seven Stations and Complete Automation at Five Stations

With implementation of alternative 1 the consequences to hazardous, toxic and radioactive wastes would be the same as for the proposed action described above.

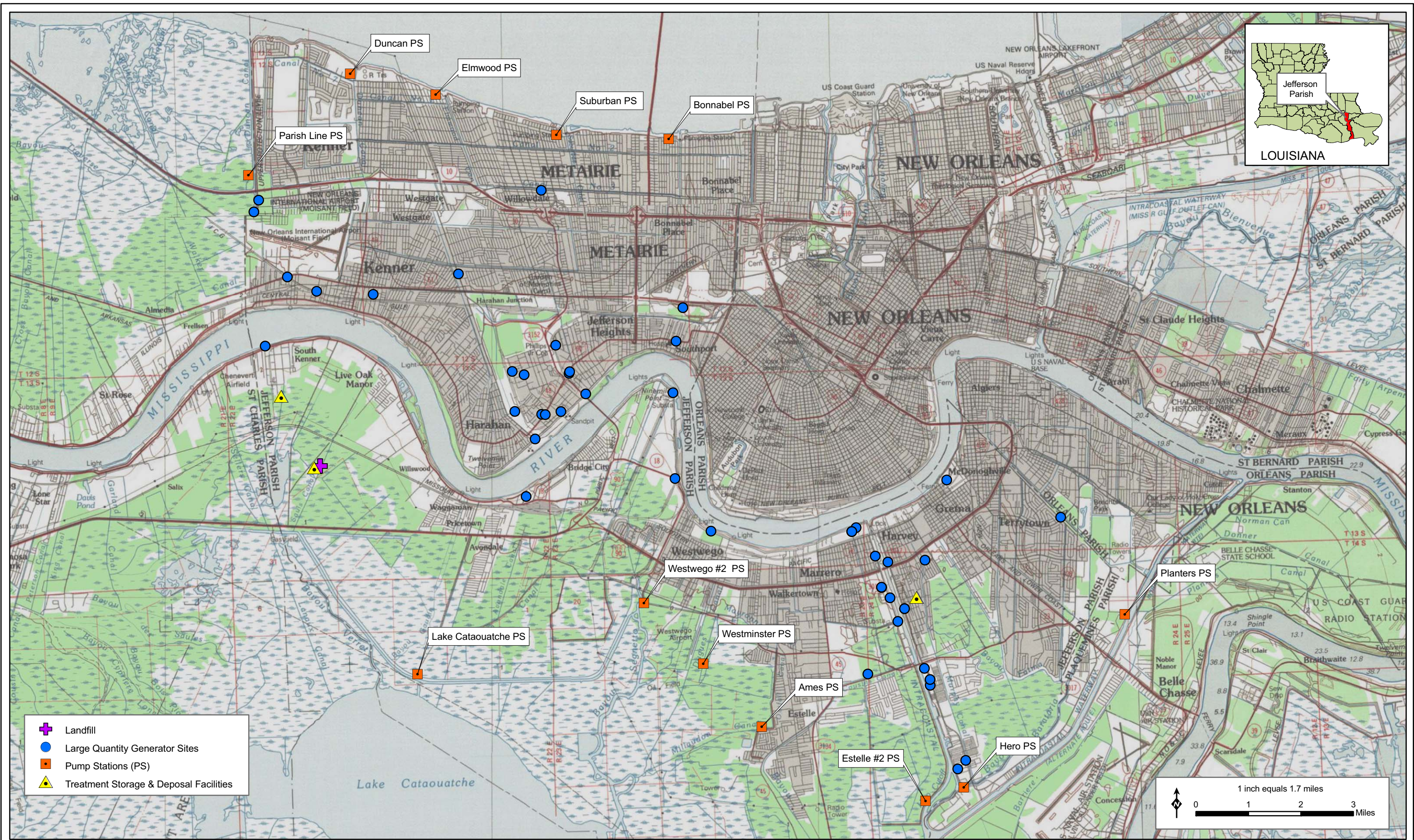


Figure 6: Type I and II Landfill, RCRA TDS and RCRA LQG Facilities near Existing Jefferson Parish Pump Stations

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CUMULATIVE IMPACTS

The CEQ Regulations define cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

The Metropolitan New Orleans Hurricane Protection System is divided into three USACE authorized projects: 1) Lake Pontchartrain and Vicinity; 2) West Bank and Vicinity; and 3) New Orleans to Venice. The New Orleans to Venice project is not discussed further because its alignment is not located within the project area. The Lake Pontchartrain and Vicinity Project was authorized by Section 204 of the Flood Control Act of 1965 (PL 89-298 as amended) and currently provides for enlargement of hurricane protection levees along Lake Pontchartrain in Orleans, Jefferson, and St. Charles Parishes and in portions of Orleans and St. Bernard Parishes between the Mississippi River and the Mississippi River-Gulf Outlet. The West Bank and Vicinity Project was originally authorized by the Water Resources Development Act (WRDA) of 1986 (PL 990-662) and named the Westwego to Harvey Canal Hurricane Protection Project. The WRDA of 1996 modified the project and added the Lake Cataouatche area to the project. WRDA 1996 also authorized the East of Harvey Canal Hurricane Protection Project. WRDA 1999 combined the three projects into a single project under the current name. The project includes levees, floodwalls, and a flood gate, and is located on the west bank of the Mississippi River in the vicinity of New Orleans and in Jefferson, Orleans and Plaquemines parishes.

Prior to Hurricane Katrina, Jefferson Parish maintained and operated the forced drainage network on the east and west banks. This included maintenance and upgrades of the existing pump stations, canal maintenance, such as mowing of vegetation along the banks, and clearing of debris, and periodic dredging of canals to insure adequate capacity. Also prior to Hurricane Katrina, Jefferson Parish started construction of several safe rooms at select pump stations. Due to funding issues, none of the safe rooms were completed.

In 1997, the MVN entered into a Project Cooperative Agreement with Jefferson Parish to improve drainage. Authority for this endeavor is the Southeast Urban Flood Control (SELA) Project. Under the SELA project, drainage improvements consist of channel improvement projects, adding capacity to existing pump stations, and constructing new pump stations.

There are a total of 21 pump stations in Jefferson Parish. Under the Federal SELA Project, two of these pump stations were enlarged (Elmwood and Suburban), one new station (Whitney-Barataria) was constructed, and one station is under construction (Cousins). The remaining stations are non-Federal pump stations. Many of the pump stations were damaged by Hurricane Katrina, and all of the damaged pump stations are being repaired to pre-Katrina conditions. The majority of the damage repair is to roofs, windows, and lighting.

Since Hurricane Katrina, there has been a substantial amount of proposed infrastructure repair and upgrade in the vicinity of the 12 pump stations. Work is ongoing throughout the New Orleans Hurricane Protection System to achieve authorized levels of protection. On the east bank, the lakefront levee is proposed to be raised to provide 100-year hurricane, storm, and flood damage reduction; some of these levee improvements would occur near, or adjacent to existing pump stations. The west return floodwall in Kenner would receive repair and modification efforts to improve its stability. On the west bank, levees and floodwalls would be modified, and additional pump station fronting protection and modifications would occur to provide 100-year hurricane, storm, and flood damage reduction as part of the proposed West Bank and Vicinity project.

Rebuilding efforts are taking place throughout southeast Louisiana, and along the Mississippi and Alabama Gulf Coast. The Insurance Information Institute has estimated that the total insured losses from Hurricane Katrina was \$40.6 billion in six states, and in Louisiana the insured losses are estimated at \$25.3 billion (Insurance Information Institute 2007); much of those insured losses will be a component of the regional rebuilding effort. In Jefferson Parish alone, it has been estimated that 93,872 occupied housing units experienced some damage from Hurricane Katrina. Although it is unknown how many structures will be rebuilt in Jefferson Parish and throughout the Gulf Coast over the next 5 to 10 years, a large-scale rebuilding effort is underway.

The implementation of the proposed action would have no cumulative adverse impacts, because all of the proposed safe rooms and additional automation would occur in already developed areas, along existing canal banks. No change in normal pump station operations or canal and pump station maintenance would occur. However, the proposed action would have cumulative beneficial impacts to socioeconomics as the levees and floodwalls are improved in Jefferson Parish to provide additional hurricane, storm, and flood damage reduction, and the safe rooms are built, and pump stations automated to help ensure that the pumps are operational during and immediately following severe tropical storm events. Improved hurricane, storm, and flood damage reduction benefits all residents, regardless of income or race, and allows for development and redevelopment of existing urban areas.

COORDINATION

Preparation of this EA and a draft Finding of No Significant Impact (FONSI) has been coordinated with appropriate Congressional, Federal, state, and local interests, as well as environmental groups and other interested parties. The following agencies, as well as other interested parties, are receiving copies of this EA and draft FONSI:

U.S. Department of the Interior, Fish and Wildlife Service
U.S. Environmental Protection Agency, Region VI
U.S. Department of Commerce, National Marine Fisheries Service
U.S. Natural Resources Conservation Service, State Conservationist
Advisory Council on Historic Preservation
Governor's Executive Assistant for Coastal Activities
Louisiana Department of Wildlife and Fisheries
Louisiana Department of Natural Resources, Coastal Management Division
Louisiana Department of Natural Resources, Coastal Restoration Division
Louisiana Department of Environmental Quality
Louisiana State Historic Preservation Officer

Coordination with the USFWS was initiated by email letter on February 28, 2007 and concluded with a USFWS fax response on March 8, 2007. A Section 106 concurrence request from SHPO was initiated by letter on February 14, 2007. Section 106 concurrence from SHPO was received on March 7, 2007.

MITIGATION

No impacts have been identified that would require compensatory mitigation.

COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Environmental compliance for the proposed action would be achieved upon: coordination of this EA and draft Finding of No Significant Impact (FONSI) with appropriate agencies, organizations, and individuals for their review and comments; USFWS and NMFS confirmation

that the proposed action would not be likely to adversely affect any endangered or threatened species; Louisiana Department of Natural Resources concurrence with the determination that the proposed action is consistent, to the maximum extent practicable, with the Louisiana Coastal Resources Program; receipt of the Louisiana State Historic Preservation Officer Determination of No Affect on cultural resources; receipt and acceptance or resolution of all USFWS Fish and Wildlife Coordination Act recommendations; and receipt and acceptance or resolution of all Louisiana Department of Environmental Quality comments on the air quality impact analysis documented in the EA. The draft FONSI will not be signed until the proposed action achieves environmental compliance with applicable laws and regulations, as described above.

CONCLUSION

The proposed action consists of additional stormproofing, in the form of safe room construction and additional automation, at 12 existing pump stations in Jefferson Parish, Louisiana. This office has assessed the environmental impacts of the proposed action and has determined that the proposed action would have no impact upon wetlands, land use, cultural resources and upland resources, and only a minor short term impact to noise, air quality, and water resources. The proposed action would result in the loss of limited biological production on approximately 0.2 acres of soils, which would affect a smaller area than alternative 1.

PREPARED BY

The point of contact for this EA is Laura Lee Wilkinson, USACE, New Orleans District, Hurricane Protection Office. Table 1 lists the preparers of relevant sections of this report. Ms. Wilkinson can be reached at the U.S. Army Corps of Engineers, New Orleans District; Hurricane Protection Office, P.O. Box 60267, 7400 Leake Avenue; New Orleans, Louisiana 70118.

Table 1. Environmental Assessment Preparation Team

EA Section	Team Member
Environmental Manager	Laura Lee Wilkinson, USACE-HPO
Report Production	Eric Webb, GSRC
Water Quality, Air, and Noise	Steve Kolian, GSRC
Fisheries, Wildlife, Aesthetic Resources	Michael Hodson, GSRC
Threatened and Endangered Species	Aaron Caldwell, GSRC
Cultural Resources and Socioeconomics	John Lindemuth, GSRC
Water Bodies, HTRW, Geology	Denise Rousseau Ford, GSRC
Technical Review	Suna Knaus, GSRC
Technical Review	Steve Oivanki, GSRC
Technical Review	Lee Walker, Evans-Graves Engineers - HPO
Technical Review	Avis Gaines, Evans-Graves Engineers - HPO
Technical Review	Steven Johnson, USACE
Technical Review	Paul Hughbanks, USACE - HPO
Technical Review	Elizabeth Behrens, USACE - MVN
Technical Review	Richard Gatewood, USACE - MVN

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APPENDIX A
Pump Station Maps



Figure A1: Parish Line Pump Station

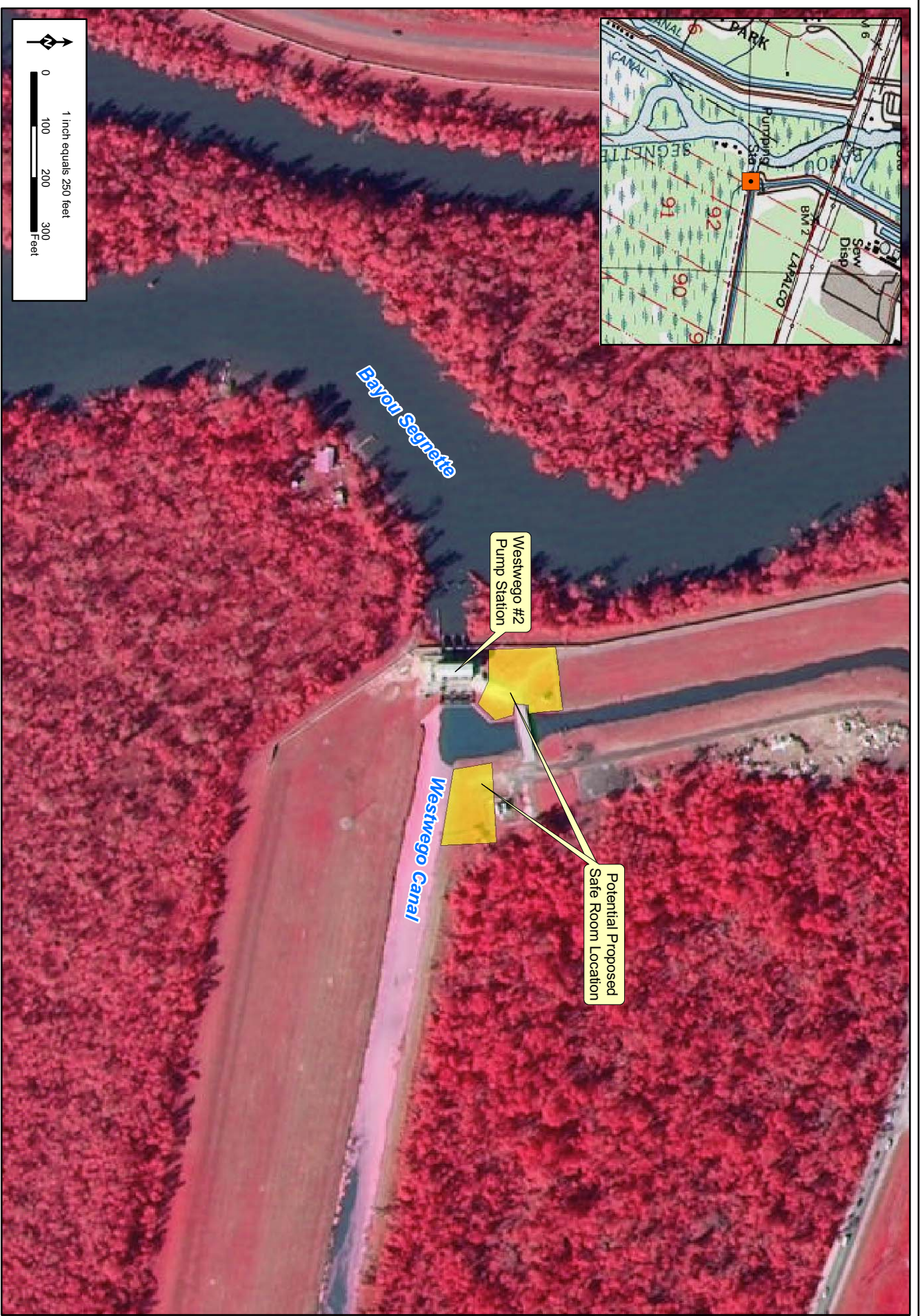


Figure A2: Westwego #2 Pump Station



Figure A3: Westminster Pump Station

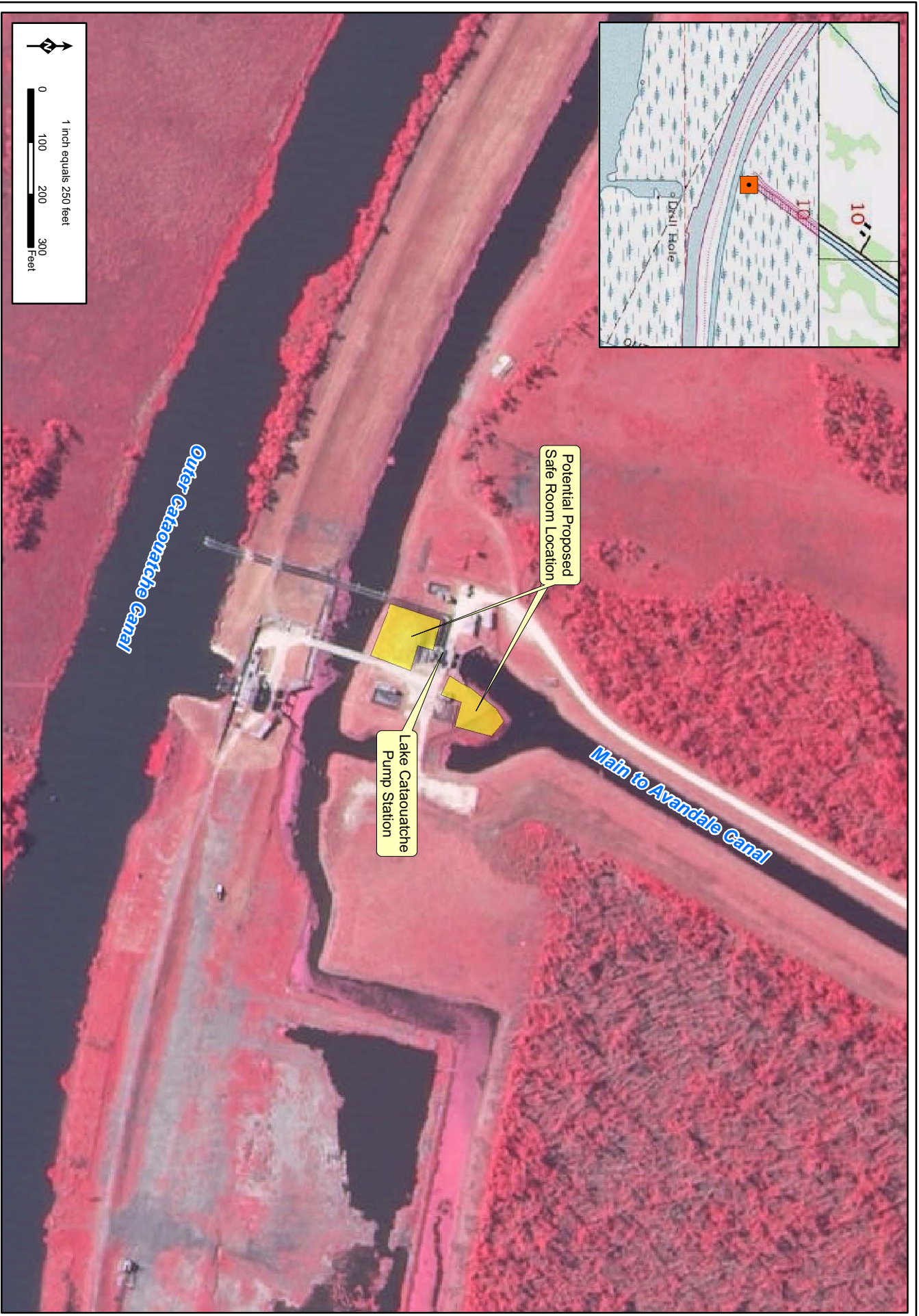


Figure A4: Lake Cataouatche Pump Station



Figure A5: Estelle #2 Pump Station

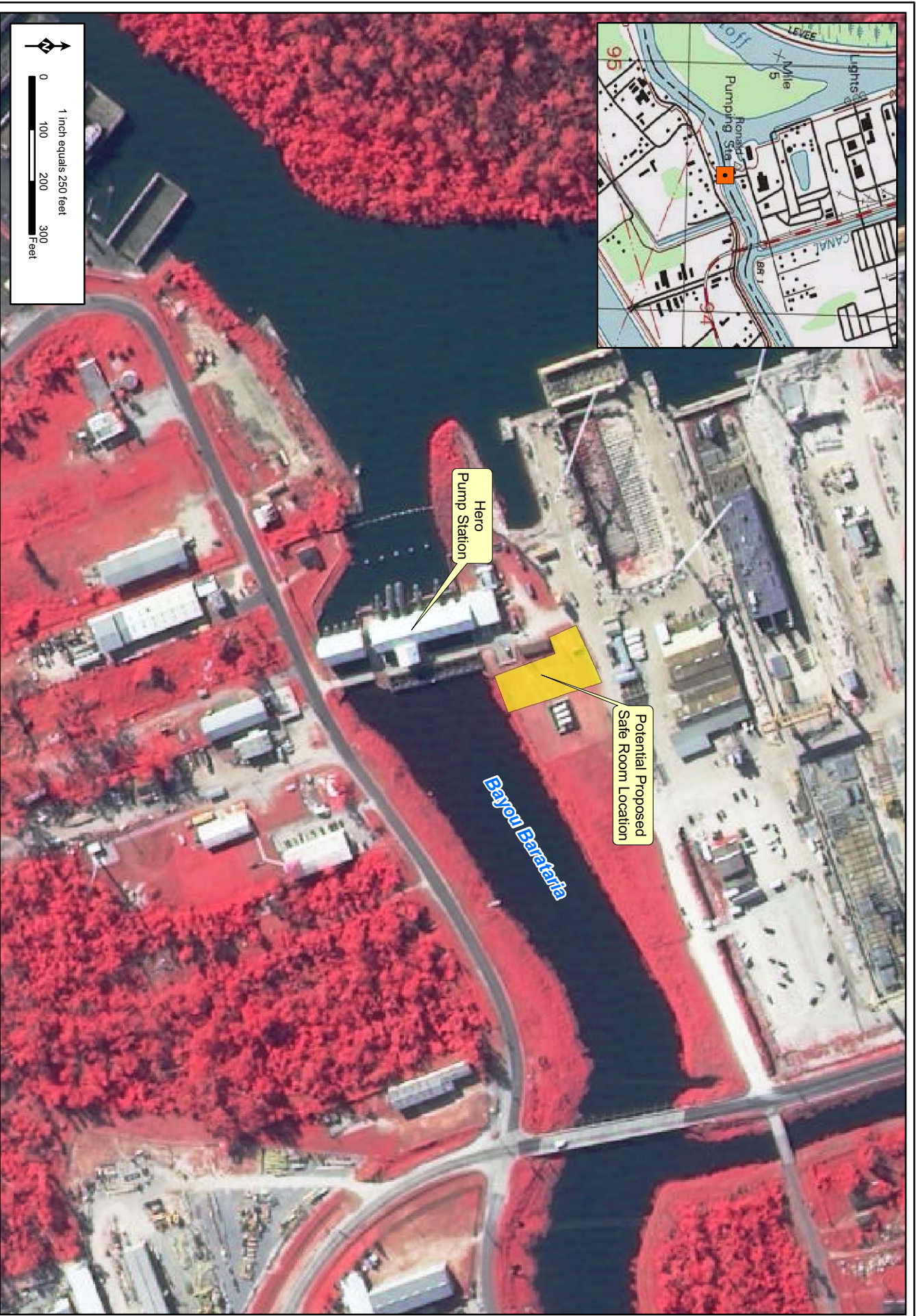


Figure A6: Hero Pump Station



Figure A7: Planters Pump Station

