



May 6, 2003

Georgia Cranmore
Acting Assistant Regional Administrator
NMFS, Southeast Region
Protective Resources Division
9721 Executive Center Drive North
St. Petersburg, Florida 33702

RE: NEPA Notice of Draft Supplemental Environmental Assessment (SEA); ESA Section 7 Informal Consultation Request; and MSFCMA Consultation Request for the Bay Point Key/Saddlebunch Key Wastewater System, Monroe County, Florida

Dear Ms. Cranmore:

The purpose of this letter is to provide your agency with notice that URS Group, Inc. (URS), on behalf of the Federal Emergency Management Agency (FEMA), is preparing a Draft Supplemental Environmental Assessment (SEA); pursuant to the National Environmental Policy Act; for the Bay Point Key/Saddlebunch Key Wastewater System, Monroe County, Florida. The Draft SEA evaluates three wastewater management alternatives proposed for Bay Point Key/Saddlebunch Key: No Action (Alternative 1); Centralized Wastewater Treatment Plant located on Bay Point Key (Alternative 2); and New Wastewater Transmission System Construction (Alternative 3). At this time, FEMA requests your concurrence with their findings of no effect in compliance with Section 7 of the Endangered Species Act, and the Essential Fish Habitat provisions of the Magnuson-Stevens Fishery Conservation and Management Act for the three alternatives under review.

FEMA is considering funding an application from the Florida Keys Aqueduct Authority (FKAA) to construct a wastewater treatment system that would serve residents of Bay Point and Saddlebunch Keys in the Florida Keys. The purpose of the FKAA project is to reduce wastewater nutrient loading at selected Monroe County-identified "hot spots" to improve water quality; these "hot spots" are believed to contribute to water quality degradation. The Monroe County Sanitary Wastewater Master Plan ranked Bay Point and Saddlebunch Keys as the 3rd most critical "hot spot" in the Florida Keys. The "hot spot" ranking is linked to the use of cesspools and septic systems as Bay Point Key and Saddlebunch Key's main wastewater treatment systems. FEMA would provide funding assistance to the FKAA as part of their effort to assist residents on Bay Point and Saddlebunch Keys in meeting the Florida Statutory Treatment Standards of 2010 for

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wastewater effluent disposal to shallow wells. A description of the range of alternatives for the proposed wastewater treatment system is attached. Please note that this attachment represents only a portion of the draft SEA. Additionally, a street map of the project vicinity has also been attached. Your comments on the range of alternatives will be considered and incorporated into the final SEA document, which is slated for completion later this year.

Current lists of special status species with the potential to occur in Monroe County were obtained from "Threatened and Endangered Species Software (TESS), Version 2.0," from the U.S. Fish and Wildlife Service (FWS) Threatened and Endangered Species Internet site (<http://endangered.fws.gov/>), as well as the internet sites for the Gulf of Mexico Fishery Management Council (<http://www.gulfcouncil.org/>) and the South Atlantic Fishery Management Council (<http://www.safmc.net/>).

On August 1, 2002 URS biologists Keith Stannard and Michael Breiner performed a reconnaissance level field survey at the preferred site. On February 19, 2003, URS biologists Keith Stannard and Ramon Mendieta performed reconnaissance level field surveys at the alternate sites. The purpose of these surveys was to investigate the potential presence of federally protected species and/or suitable habitat for these species at each of the sites. The following sites were investigated:

- **Preferred Site for Construction on a New Treatment Plant** – Wastewater Treatment Plant (WWTP) Preferred Site located south of US Highway 1 (US-1) and east of West Circle Drive on Bay Point Key at approximately mile marker (MM) 14.8; and
- **Alternate Site for a Vacuum Pump Station, and Corridor for Construction of a New Transmission System to an Existing Treatment Plant** – Alternate Site for a Vacuum Pump Station (VPS), located south of US Highway 1 (US-1) and east of West Circle Drive on Bay Point Key at approximately mile marker (MM) 14.8; approximately 11-mile corridor for wastewater transmission system, constructed along the south side of the US-1 right-of-way (ROW); and an existing WWTP on south Stock Island.

Under Alternatives 2 and 3, no marine resources, tidal wetlands or other potential Essential Fish Habitat (EFH) typically occur within 150 feet of the proposed alternative sites. Neither construction nor operation of either alternative would affect EFH. Further, as described in Section 3.3 (Biological Resources) and Section 3.6.2 (Fishing Industry) of the Programmatic Environmental Assessment for Wastewater Improvements in the



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Florida Keys, implementation of the either alternative is expected to improve nearshore water quality, by reducing nutrient loading. Seagrasses, mangroves and hardbottom habitats serve as critical nursery habitat for commercially significant fisheries species as well as several Federal and state-listed marine species. Their health is dependent to a large degree on water quality. Therefore, the implementation of the either alternative is expected to have a net positive effect on EFH as well as Federally-listed marine species.

In order to further ensure that EFH is not affected, FKAA would employ best management practices (BMPs) to prevent concrete, steel and other demolition debris, waste, and construction material from entering tidal wetlands and/or marine waters. These measures may include the deployment of silt screens, turbidity curtains, or other barriers prior to commencement of construction.

All equipment operating in the project area would be regularly cleaned, checked for leaks, and otherwise maintained. Equipment refueling would be done away from marine waters, and, in the unlikely event that a fuel leak or spill were to occur, adequate containment equipment and cleanup (absorbent material) supplies would be readily available at the worksite.

No species listed for protection at the state or Federal levels were observed in either of the proposed areas alternative sites. Based on the results of the biological field visit, consultation with experts, and a review of special status species lists, FEMA finds that the proposed alternatives would not result in the take of threatened or endangered species or species protected under the Migratory Bird Treaty Act (MBTA), jeopardize the continued existence of these species, or adversely affect their habitat.



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As part of the informal consultation process, FEMA respectfully seeks written concurrence with this determination of no effect within 30 days to the letterhead address. If you have any questions or comments, please do not hesitate to contact me at (305) 884-8900, or Ms. Science Kilner, FEMA Lead Environmental Specialist, at (770) 220-5357. Thank you very much for your assistance.

Sincerely,

URS Group, Inc.

A handwritten signature in black ink, appearing to read 'Ramon Mendieta', written over the typed name.

Ramon Mendieta
Environmental Scientist

Attachments as noted

cc: Science Kilner, FEMA Region IV, Lead Environmental Specialist
Stephen Carruth, URS Group, Inc., Environmental Planner



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, FL 33702
(727) 570-5312, FAX 570-5517
<http://caldera.sero.nmfs.gov>

MAY 19 2003

Dear Colleague:

The National Marine Fisheries Service (NMFS) Protected Resources Division has reviewed your letter pursuant to Section 7(a)(2) of the Endangered Species Act (ESA) concerning Bay Point Key / Saddlebunch Key Wastewater System, Monroe County, Florida, dated May 16, 2003.

_____ We cannot determine impacts to threatened or endangered species, or designated critical habitat, under NMFS purview because the letter lacks sufficient information to evaluate the project.

_____ As requested, enclosed is a list of federally protected species under the jurisdiction of NMFS for the project area. Biological information on federally protected sea turtle species and other listed species can be found at the following website addresses: NMFS Southeast Regional Office (<http://caldera.sero.nmfs.gov/protect/protect.htm>); NMFS Office of Protected Resources (http://www.nmfs.noaa.gov/prot_res/prot_res.html); U.S. Fish and Wildlife Service (<http://noflorida.fws.gov/SeaTurtles/seaturtle-info.htm>); the Ocean Conservancy (<http://www.oceanconservancy.org/main.php3>); the Caribbean Conservation Corporation (<http://www.cccturtle.org/>); and <http://www.turtles.org>

✓ It is NMFS' opinion that the project will have **no effect** on listed species or critical habitat protected by the ESA under NMFS' purview, because there are no listed species or designated critical habitat in the project area. **No further consultation with NMFS pursuant to Section 7(a)(2) of the ESA is required.**

If you have any questions, please contact the Section 7 coordinator, Eric Hawk, at (727)570-5312, or by e-mail at eric.hawk@noaa.gov.

Sincerely,

Georgia Cranmore
Assistant Regional Administrator
for Protected Resources

_____ Enclosure

File:1514-22.b. General correspondence
O:\forms\no-effect letter.wpd





May 6, 2003

Ms. Jocelyn Karazsia
National Marine Fisheries Service
Division of Habitat Conservation
11420 N. Kendall Drive, Suite 103
Miami, Florida 33176

RE: NEPA Notice of Draft Supplemental Environmental Assessment (SEA); ESA Section 7 Informal Consultation Request; and MSFCMA Consultation Request for the Bay Point Key/Saddlebunch Key Wastewater System, Monroe County, Florida

Dear Ms. Karazsia:

The purpose of this letter is to provide your agency with notice that URS Group, Inc. (URS), on behalf of the Federal Emergency Management Agency (FEMA), is preparing a Draft Supplemental Environmental Assessment (SEA); pursuant to the National Environmental Policy Act; for the Bay Point Key/Saddlebunch Key Wastewater System, Monroe County, Florida. The Draft SEA evaluates three wastewater management alternatives proposed for Bay Point Key/Saddlebunch Key: No Action (Alternative 1); Centralized Wastewater Treatment Plant located on Bay Point Key (Alternative 2); and New Wastewater Transmission System Construction (Alternative 3). At this time, FEMA requests your concurrence with their findings of no effect in compliance with Section 7 of the Endangered Species Act, and the Essential Fish Habitat provisions of the Magnuson-Stevens Fishery Conservation and Management Act for the three alternatives under review.

FEMA is considering funding an application from the Florida Keys Aqueduct Authority (FKAA) to construct a wastewater treatment system that would serve residents of Bay Point and Saddlebunch Keys in the Florida Keys. The purpose of the FKAA project is to reduce wastewater nutrient loading at selected Monroe County-identified "hot spots" to improve water quality; these "hot spots" are believed to contribute to water quality degradation. The Monroe County Sanitary Wastewater Master Plan ranked Bay Point and Saddlebunch Keys as the 3rd most critical "hot spot" in the Florida Keys. The "hot spot" ranking is linked to the use of cesspools and septic systems as Bay Point Key and Saddlebunch Key's main wastewater treatment systems. FEMA would provide funding assistance to the FKAA as part of their effort to assist residents on Bay Point and Saddlebunch Keys in meeting the Florida Statutory Treatment Standards of 2010 for wastewater effluent disposal to shallow wells. A description of the range of alternatives

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for the proposed wastewater treatment system is attached. Please note that this attachment represents only a portion of the draft SEA. Additionally, a street map of the project vicinity has also been attached. Your comments on the range of alternatives will be considered and incorporated into the final SEA document, which is slated for completion later this year.

Current lists of special status species with the potential to occur in Monroe County were obtained from "Threatened and Endangered Species Software (TESS), Version 2.0," from the U.S. Fish and Wildlife Service (FWS) Threatened and Endangered Species Internet site (<http://endangered.fws.gov/>), as well as the internet sites for the Gulf of Mexico Fishery Management Council (<http://www.gulfcouncil.org/>) and the South Atlantic Fishery Management Council (<http://www.safmc.net/>).

On August 1, 2002 URS biologists Keith Stannard and Michael Breiner performed a reconnaissance level field survey at the preferred site. On February 19, 2003, URS biologists Keith Stannard and Ramon Mendieta performed reconnaissance level field surveys at the alternate sites. The purpose of these surveys was to investigate the potential presence of federally protected species and/or suitable habitat for these species at each of the sites. The following sites were investigated:

- **Preferred Site for Construction on a New Treatment Plant – Wastewater Treatment Plant (WWTP) Preferred Site** located south of US Highway 1 (US-1) and east of West Circle Drive on Bay Point Key at approximately mile marker (MM) 14.8; and
- **Alternate Site for a Vacuum Pump Station, and Corridor for Construction of a New Transmission System to an Existing Treatment Plant – Alternate Site for a Vacuum Pump Station (VPS)**, located south of US Highway 1 (US-1) and east of West Circle Drive on Bay Point Key at approximately mile marker (MM) 14.8; approximately 11-mile corridor for wastewater transmission system, constructed along the south side of the US-1 right-of-way (ROW); and an existing WWTP on south Stock Island.

Under Alternatives 2 and 3, no marine resources, tidal wetlands or other potential Essential Fish Habitat (EFH) typically occur within 150 feet of the proposed alternative sites. Neither construction nor operation of either alternative would affect EFH. Further, as described in Section 3.3 (Biological Resources) and Section 3.6.2 (Fishing Industry) of the Programmatic Environmental Assessment for Wastewater Improvements in the Florida Keys, implementation of the either alternative is expected to improve nearshore



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water quality, by reducing nutrient loading. Seagrasses, mangroves and hardbottom habitats serve as critical nursery habitat for commercially significant fisheries species as well as several Federal and state-listed marine species. Their health is dependent to a large degree on water quality. Therefore, the implementation of the either alternative is expected to have a net positive effect on EFH as well as Federally-listed marine species.

In order to further ensure that EFH is not affected, FKAA would employ best management practices (BMPs) to prevent concrete, steel and other demolition debris, waste, and construction material from entering tidal wetlands and/or marine waters. These measures may include the deployment of silt screens, turbidity curtains, or other barriers prior to commencement of construction.

All equipment operating in the project area would be regularly cleaned, checked for leaks, and otherwise maintained. Equipment refueling would be done away from marine waters, and, in the unlikely event that a fuel leak or spill were to occur, adequate containment equipment and cleanup (absorbent material) supplies would be readily available at the worksite.

No species listed for protection at the state or Federal levels were observed in either of the proposed areas alternative sites. Based on the results of the biological field visit, consultation with experts, and a review of special status species lists, FEMA finds that the proposed alternatives would not result in the take of threatened or endangered species or species protected under the Migratory Bird Treaty Act (MBTA), jeopardize the continued existence of these species, or adversely affect their habitat.



Ms. Jocelyn Karazsia
National Marine Fisheries Service
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As part of the informal consultation process, FEMA respectfully seeks written concurrence with this determination of no effect within 30 days to the letterhead address. If you have any questions or comments, please do not hesitate to contact me at (305) 884-8900, or Ms. Science Kilner, FEMA Lead Environmental Specialist, at (770) 220-5357. Thank you very much for your assistance.

Sincerely,

URS Group, Inc.

A handwritten signature in black ink, appearing to read 'R. Mendieta', written over a faint, illegible typed name.

Ramon Mendieta
Environmental Scientist

Attachments as noted

cc: Rickey N. Ruebsamen, NMFS Southeast Region
Science Kilner, FEMA Region IV, Lead Environmental Specialist
Stephen Carruth, URS Group, Inc., Environmental Planner



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702

May 29, 2003

Mr. Ramon Mendieta
URS Corporation
Eastern Financial Building, Suite 1000
700 South Royal Poinciana Boulevard
Miami Springs, Florida 33166

Dear Mr. Mendieta:

The National Marine Fisheries Service (NOAA Fisheries) has reviewed the May 6, 2003, **Notice of Draft Supplemental Environmental Assessment (SEA) for the Bay Point Key/Saddlebunch Key Wastewater System, Monroe County, Florida**, which you provided. By letter dated February 18, 2003, to the Federal Emergency Management Agency (FEMA), we provided comments on the September 20, 2002, Draft Programmatic Environmental Assessment (PEA) for the Proposed Wastewater Treatment Improvements in the Florida Keys, Florida. In addition, by letters dated February 27, 2003, and March 17, 2003, to URS Corporation, NOAA Fisheries provided comments on the Draft Supplemental Environmental Assessments for the Conch Key and the Plantation Key Wastewater Systems in Monroe County, Florida.

According to the information you provided, URS Group, Inc., on behalf of FEMA, is preparing a SEA for the Bay Point Key/Saddlebunch Key Wastewater System in Monroe County, Florida. FEMA is considering funding an application from the Florida Keys Aqueduct Authority (FKAA) to construct a wastewater treatment system that would serve residents on Bay Point Key and Saddlebunch Key in the Florida Keys. The propose of the FKAA's project is to reduce wastewater nutrient loading at selected Monroe County identified "hot spots," thereby improving water quality. These hot spots are believed to contribute to water quality degradation. The Monroe County Sanitary Wastewater Master Plan ranked Bay Point and Saddlebunch Keys as the 3rd most critical hot spot in the Florida Keys. The hot spot ranking is linked to the use of cesspools and septic systems as Bay Point Key and Saddlebunch Key's principal means for wastewater treatment.

The Draft SEA evaluates three wastewater management alternatives proposed for Bay Point Key/Saddlebunch Key. These alternatives include, Alternative 1: No Action; Alternative 2: Centralized Wastewater Treatment Plant located on Bay Point Key; and Alternative 3: New Wastewater Transmission System Construction. These three alternatives are briefly described below.



The No Action Alternative would not provide funding assistance to the FKAA for the proposed wastewater management project. In order to meet the Florida Statutory Treatment Standards of 2010, the FKAA and service area residents would need to identify another source of funding for upgrading currently inadequate wastewater treatment systems.

The New Wastewater Treatment Plant Construction (Alternative 2 and the Preferred Alternative) would involve construction of a new wastewater collection system, vacuum pump station, and wastewater treatment plant (WWTP) that would be located on Bay Point Key. This alternative would establish new service to residents and business owners formerly utilizing on-site systems within the Bay Point Key/Saddlebunch Key service area. Through this alternative, approximately 320 cesspools and septic systems would be removed from residences and businesses in the service area.

The New Wastewater Transmission System Construction (Alternative 3) would involve the construction of a new transmission system including construction of a wastewater collection system on Bay Point and Saddlebunch Keys, a vacuum pump station on Bay Point Key and a wastewater transmission system extending from Bay Point Key to the existing Key West Resort Utilities wastewater treatment plant on Stock Island. Like Alternative 2, approximately 320 cesspools and septic systems would be removed from residences and businesses in the service area.

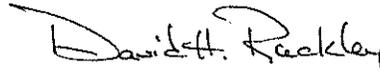
According to the information provided, Alternatives 2 and 3 are expected to improve nearshore water quality by reducing nutrient loading. In addition, no marine resources, tidal, wetlands, or other areas designated Essential Fish Habitat (EFH) occur within 150 feet of either proposed alternative site. Through execution of either alternative, a net positive effect on EFH is expected, given that the health of seagrass, mangrove, and hardbottom habitats is dependent, to a large degree, on water quality. In addition, the FKAA would employ best management practices, as outlined in the information provided, to further ensure that EFH is not affected.

NOAA Fisheries concurs with the determination that construction of a Bay Point Key/Saddlebunch Key Wastewater System is expected to have a beneficial effect with regard to EFH. Nearshore marine habitats including seagrass communities and coral reefs are likely to benefit as a result of reductions in total suspended solids, nutrients, and pathogens that are expected in connection with wastewater improvement activities.

In conclusion, NOAA Fisheries supports improvement of the existing wastewater treatment facilities Keys-wide, including the proposed improvements at Bay Point Key/Saddlebunch Key. Reducing nutrient loading into nearshore waters from outdated septic systems and cesspits should result in improved water quality and positive effects on EFH and other NOAA Fisheries-trust resources in the Florida Keys.

At this time, we do not have specific comments or recommendations to provide. We look forward to working with FEMA and URS, Inc., as you develop more detailed information. If we can be of further assistance, please advise. Related comments, questions or correspondence should be directed to Ms. Jocelyn Karazsia in Miami, Florida, at (305) 595-8352.

Sincerely,



Frederick C. Sutter III
Deputy Regional Administrator

cc:
EPA, Marathon
DEP, Marathon
FFWCC, Tallahassee
FWS, Big Pine Key
F/SER4
F/SER45-Karazsia



May 6, 2003

Mr. Jay Slack
U.S. Fish and Wildlife Service
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960-3559

**RE: NEPA Notice of Draft Supplemental Environmental Assessment (SEA); and
ESA Section 7 Informal Consultation Request for the Bay Point
Key/Saddlebunch Key Wastewater System, Monroe County, Florida**

Dear Mr. Slack:

The purpose of this letter is to provide your agency with notice that URS Group, Inc. (URS), on behalf of the Federal Emergency Management Agency (FEMA), is preparing a Draft Supplemental Environmental Assessment (SEA); pursuant to the National Environmental Policy Act; for the Bay Point Key/ Saddlebunch Key Wastewater System, Monroe County, Florida. The Draft SEA evaluates three wastewater management alternatives proposed for Bay Point Key/Saddlebunch Key: No Action (Alternative 1); Centralized Wastewater Treatment Plant located on Bay Point Key (Alternative 2); and New Wastewater Transmission System Construction (Alternative 3). At this time, FEMA requests your concurrence with their findings of not likely to adversely effect in compliance with Section 7 of the Endangered Species Act and the Migratory Bird Treaty Act (MBTA) for the three alternatives under review.

FEMA is considering funding an application from the Florida Keys Aqueduct Authority (FKAA) to construct a wastewater treatment system that would serve residents of Bay Point and Saddlebunch Keys in the Florida Keys. The purpose of the FKAA project is to reduce wastewater nutrient loading at selected Monroe County-identified "hot spots" to improve water quality; these "hot spots" are believed to contribute to water quality degradation. The Monroe County Sanitary Wastewater Master Plan ranked Bay Point and Saddlebunch Keys as the 3rd most critical "hot spot" in the Florida Keys. The "hot spot" ranking is linked to the use of cesspools and septic systems as Bay Point Key and Saddlebunch Key's main wastewater treatment systems. FEMA would provide funding assistance to the FKAA as part of their effort to assist residents on Bay Point and Saddlebunch Keys in meeting the Florida Statutory Treatment Standards of 2010 for wastewater effluent disposal to shallow wells. A description of the range of alternatives for the proposed wastewater treatment system is attached. Please note that this attachment represents only a portion of the draft SEA. Additionally, a street map of the project

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Mr. Jay Slack
U.S. Fish and Wildlife Service
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vicinity has also been attached. Your comments on the range of alternatives will be considered and incorporated into the final SEA document, which is slated for completion later this year.

Lists of special status species with the potential to occur in Monroe County were obtained from "Threatened and Endangered Species Software (TESS), Version 2.0," and from the U.S. Fish and Wildlife Service (FWS) Threatened and Endangered Species Internet site.

On August 1, 2002 URS biologists Keith Stannard and Michael Breiner performed a reconnaissance level field survey at the preferred site. On February 19, 2003, URS biologists Keith Stannard and Ramon Mendieta performed reconnaissance level field surveys at the alternate sites. The purpose of these surveys was to investigate the potential presence of federally protected species and/or suitable habitat for these species at each of the sites. The following sites were investigated:

- **Preferred Site for Construction on a New Treatment Plant** – Wastewater Treatment Plant (WWTP) Preferred Site located south of US Highway 1 (US-1) and east of West Circle Drive on Bay Point Key at approximately mile marker (MM) 14.8; and
- **Alternate Site for a Vacuum Pump Station, and Corridor for Construction of a New Transmission System to an Existing Treatment Plant** – Alternate Site for a vacuum pump station, located south of US Highway 1 (US-1) and east of West Circle Drive on Bay Point Key at approximately mile marker (MM) 14.8; approximately 11-mile corridor for wastewater transmission system, constructed along the south side of the US-1 right-of-way (ROW); and an existing WWTP on south Stock Island.

Description of Preferred Site

Under Alternative 2, a new treatment plant would be constructed on Bay Point Key at approximately MM 14.8, south of US-1 and east of West Circle Drive. The site is bounded to the south by an unnamed service road, and is approximately 0.3 acres in size. Existing vegetation at the Preferred Site can largely be characterized as upland habitat dominated by invasive, non-indigenous plant species.

Approximately half of this site consists of Australian pine (*Casuarina equisetifolia*) with a dense Brazilian pepper (*Schinus terebinthifolius*) understory, and a few umbrella trees (*Schefflera actinophylla*) and potato trees (*Solanum erianthum*) on the periphery. The



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herbaceous vegetation, dominant in the western portion of the site, includes yellow joyweed (*Alternanthera flavescens*), beggarticks (*Bidens alba* var. *radiata*), false buttonweed (*Spermacoce verticillata*), Indian hemp (*Sida rhombifolia*), common wireweed (*Sida acuta*), wedelia (*Sphagneticola trilobata*), capeweed (*Phyla nodiflora*), West Indian dropseed (*Sporobolus indicus* var. *pyramidalis*), bluestem grasses (*Andropogon* spp.), and crowfootgrass (*Dactyloctenium aegyptium*).

No federal- or State-listed wildlife species were observed on the preferred site. No jurisdictional wetlands or surface waters or other critical habitat were identified at this site.

Description of Alternate Sites

Under Alternative 3, a transmission system would be constructed from Bay Point Key to an existing treatment plant on Stock Island. Under this alternative, a site located Bay Point Key located at approximately MM 14.8, south of US-1 and east of West Circle Drive (previously described under Alternative 2) would be used for the placement of a vacuum pump station. In addition, an approximately 11-mile transmission system corridor to an existing treatment plant on south Stock Island would be required. Portions of the transmission force main would be slip-lined in an abandoned 18-inch FCAA water main that runs parallel to US-1. Areas not available for slip-lining would be trenched to accommodate the force main. The entire transmission system would be contained in the southern right-of-way (ROW) of US-1.

Much of the vegetation adjacent to the paved US-1 roadway, along the proposed transmission system route consists primarily of grasses and weeds typical of maintained ROW, grading south to a forested fringe of coastal wetland vegetation with an open connection to the Atlantic Ocean. Vegetation within the maintained ROW consists of Bermuda grass (*Cynodon dactylon*), St. Augustine grass (*Stenotaphrum secundatum*), and crowfootgrass. A few planted ornamentals consisting mainly of coconut palms (*Cocos nucifera*) are also present along portions of the 11-mile corridor. An 8-foot wide bicycle/pedestrian trail, extending from the Bay Point vacuum pump station site to Shark Channel, is located along the proposed transmission corridor.

Adjacent to the south of the maintained ROW, fringing coastal mangrove wetlands with open connections to the Atlantic Ocean form an almost continuous system from Bay Point Key to Shark Channel, broken only by a paved access road (Blue Water Drive) on Saddlebunch Key. The widths of the fringing coastal wetlands vary from approximately



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10 feet to 40 feet. The tidal wetlands from Bay Point Key to Big Coppitt Key include the surface waters and mangrove islands of Saddlebunch 2, 3, 4, and 5 Bridge crossings. Dominant species within these coastal wetlands include red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*), white mangrove (*Laguncularia racemosa*), buttonwood (*Conocarpus erectus*), and sea oxeye (*Borrchia frutescens*). Brazilian pepper and seagrape (*Coccoloba uvifera*) were also present along the outermost landward edge.

A depressional freshwater wetland is located at approximately MM 10.6, (approximately 400 feet west of Boca Chica Road). Dominant species in this wetland include cattail (*Typha* sp.), Brazillian pepper, buttonwood, lead tree (*Leucaena leucocephala*), rusty flat sedge (*Cyperus odoratus*), and saltgrass (*Distichlis spicata*).

Four fringing coastal mangrove wetlands and one freshwater depressional wetland were identified south of the maintained ROW on Big Coppitt Key. The four coastal wetlands have direct connections to the Atlantic Ocean, and are dominated by red mangrove, black mangrove, white mangrove, buttonwood, and sea oxeye. The coastal wetlands also include the mangrove islands of the Rockland Channel bridge crossing and the surface waters of the Atlantic Ocean.

An almost continuous fringing coastal mangrove wetland exists just south of the maintained ROW from Rockland Key to Key Haven. Dominant species comprising the coastal wetlands include red mangrove, black mangrove, white mangrove, buttonwood, and sea oxeye. Brazillian pepper and seagrape are also present along the outermost landward fringe.

A manmade ditch (apparently a former mosquito control feature) occurs near Midway Avenue (MM 7) on Boca Chica. This ditch is located south of the maintained ROW and runs parallel to US-1; the ditch terminates at approximately MM 8. The ditch supports a coastal mangrove wetland dominated by red mangroves. This wetland is bordered to the south by disturbed uplands dominated by Australian pine.

The alternate WWTP site primarily consists of mixed bare gravel, used as fill with occasional maintained ground cover and landscaped vegetation. The ground cover, where present, consists mainly of weedy grasses. A linear fringe of vegetation is present along the south, west, and east side of the facility dominated by Australian pine, buttonwood, and seaside mahoe (*Thespesia populnea*).



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No federal- or State-listed wildlife species were not observed on any of the alternate sites.

Anticipated Impacts to Special Status Species

The Preferred Site consists of disturbed ruderal or landscaped areas unlikely to support federally listed threatened and endangered species that potentially occur in this portion of the Florida Keys. Very little or no habitat was observed at the Alternate site that would likely support federally listed threatened and endangered species..

Although the federally-endangered Lower Keys marsh rabbit (*Sylvalagus palustris hefneri*) and silver rice rat (*Oryzomys palustris natator*) potentially occur in the area (i.e., Saddlebunch Keys; Hipes et al., 2001), it is unlikely that these two endangered mammals directly utilize either the Preferred or Alternate site due to highly disturbed and altered site conditions. The marsh rabbit and rice rat have specific requirements for undisturbed nesting and foraging habitat, and any occurrences at these sites by these species would be transitory in nature.

The federally-threatened Stock Island tree snail (*Orthalicus reses reses*) may potentially occur in the area of the KWRU WWTP (Hipes et al, 2001), but due to the highly developed and urbanized environment it is unlikely that the site provides suitable habitat for this species.

The osprey (*Pandion haliaetus*) is listed by the State as a Species of Special Concern in Monroe County. One osprey nest was observed along the transmission system corridor on Boca Chica. Potential impacts to the osprey would be limited to temporary disruption of foraging along the fringe of mangrove trees directly adjacent to the construction area. No permanent impacts to the existing osprey nest are anticipated as a result of this project.

Additionally, due to its small size, proximity to US-1 and other developed areas and degraded habitat value due to exotic species invasion, the Preferred Site is not likely to provide significant nesting, roosting or foraging habitat for migratory birds or other transient species. The Alternate Site may provide some foraging habitat for migratory birds and other transient species, but no permanent impacts to foraging habitat are anticipated.

Under the No Action Alternative (Alternative 1), no changes would be made to the existing wastewater systems. It is likely that the benefits associated with improved water



Mr. Jay Slack
U.S. Fish and Wildlife Service
May 6, 2003
Page 6 of 6

quality would be delayed and continued degradation in water quality would continue in the short-term.

Based on the results of the biological field visit, consultation with experts, and a review of special status species lists, FEMA finds that the proposed alternatives would not result in the take of federally listed threatened or endangered species or species protected under the Migratory Bird Treaty Act (MBTA), jeopardize the continued existence of these species, or adversely affect their habitat. As part of the informal consultation process, FEMA respectfully seeks written concurrence on this determination of no effect within 30 days to the letterhead address. If you have any questions or comments, please do not hesitate to contact me at (305) 884-8900, or Ms. Science Kilner, FEMA Lead Environmental Specialist, at (770) 220-5357. Thank you very much for your assistance.

Sincerely,

URS Group, Inc.

Ramon Mendieta
Environmental Scientist

Attachments as noted

cc: Andrew Gude, U.S. Fish and Wildlife Service
Science Kilner, FEMA Region IV, Lead Environmental Specialist
Stephen Carruth, URS Group, Inc., Environmental Planner

References

Hipes, D., D. R. Jackson, K. NeSmith, D. Printiss, and K. Brandt. 2001. Field guide to the rare animals of Florida. Florida Natural Areas Inventory, Tallahassee.
Service (FWS), 1999. South Florida Multi-Species Recovery Plan, Atlanta, Georgia.



Federal Emergency Management Agency
Region IV – Federal Insurance and Mitigation Division
3003 Chamblee Tucker Road
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Phone: (770) 220 5406
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July 21, 2003

Mr. Allen Webb
U.S. Fish and Wildlife Service
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960-3559

RE: NEPA Notice of Draft Supplemental Environmental Assessment (SEA); and ESA Section 7 Informal Consultation Request for the Bay Point Key/Saddlebunch Key Wastewater System, Monroe County, Florida

Dear Mr. Webb

The purpose of this letter is to provide your agency with notice that URS Group, Inc. (URS), on behalf of the Federal Emergency Management Agency (FEMA), is preparing a Draft Supplemental Environmental Assessment (SEA); pursuant to the National Environmental Policy Act; for the Bay Point Key/ Saddlebunch Key Wastewater System, Monroe County, Florida. A Programmatic Environmental Assessment (PEA) (referenced in the attachments) evaluating the environmental effects of wastewater management alternatives on a broad scale was completed in December 2002. The Draft SEA tiers from the PEA and evaluates three wastewater management alternatives proposed for Bay Point Key/Saddlebunch Key: No Action (Alternative 1); Centralized Wastewater Treatment Plant located on Bay Point Key (Alternative 2); and New Wastewater Transmission System Construction (Alternative 3). At this time, FEMA requests your concurrence with their findings of not likely to adversely effect in compliance with Section 7 of the Endangered Species Act and the Migratory Bird Treaty Act (MBTA) for the three alternatives under review.

FEMA is considering funding an application from the Florida Keys Aqueduct Authority (FKAA) to construct a wastewater treatment system that would serve residents of Bay Point and Saddlebunch Keys in the Florida Keys. The purpose of the FKAA project is to reduce wastewater nutrient loading at selected Monroe County-identified "hot spots" to improve water quality; these "hot spots" are believed to contribute to water quality degradation. The Monroe County Sanitary Wastewater Master Plan ranked Bay Point and Saddlebunch Keys as the 3rd most critical "hot spot" in the Florida Keys. The "hot spot" ranking is linked to the use of cesspools and septic systems as Bay Point Key and Saddlebunch Key's main wastewater treatment systems. FEMA would provide funding assistance to the FKAA as part of their effort to assist residents on Bay Point and Saddlebunch Keys in meeting the Florida Statutory

Treatment Standards of 2010 for wastewater effluent disposal to shallow wells. A description of the range of alternatives for the proposed wastewater treatment system is attached. Please note that this attachment represents only a portion of the draft SEA. Additionally, a street map of the project vicinity has also been attached. Your comments on the range of alternatives will be considered and incorporated into the final SEA document, which is slated for completion later this year.

Lists of special status species with the potential to occur in Monroe County were obtained from "Threatened and Endangered Species Software (TESS), Version 2.0," and from the U.S. Fish and Wildlife Service (FWS) Threatened and Endangered Species Internet site.

On August 1, 2002 URS biologists Keith Stannard and Michael Breiner performed a reconnaissance level field survey at the preferred site. On February 19, 2003, URS biologists Keith Stannard and Ramon Mendieta performed reconnaissance level field surveys at the alternate sites. The purpose of these surveys was to investigate the potential presence of federally protected species and/or suitable habitat for these species at each of the sites. The following sites were investigated:

- **Preferred Site for Construction on a New Treatment Plant** – Wastewater Treatment Plant (WWTP) Preferred Site located south of US Highway 1 (US-1) and east of West Circle Drive on Bay Point Key at approximately mile marker (MM) 14.8; and
- **Alternate Site for a Vacuum Pump Station, and Corridor for Construction of a New Transmission System to an Existing Treatment Plant** – Alternate Site for a vacuum pump station, located south of US Highway 1 (US-1) and east of West Circle Drive on Bay Point Key at approximately mile marker (MM) 14.8; approximately 11-mile corridor for wastewater transmission system, constructed along the south side of the US-1 right-of-way (ROW); and an existing WWTP on south Stock Island.

Description of Preferred Site

Under Alternative 2, a new treatment plant would be constructed on Bay Point Key at approximately MM 14.8, south of US-1 and east of West Circle Drive. The site is bounded to the south by an unnamed service road, and is approximately 0.3 acres in size. Existing vegetation at the Preferred Site can largely be characterized as upland habitat dominated by invasive, non-indigenous plant species.

Approximately half of this site consists of Australian pine (*Casuarina equisetifolia*) with a dense Brazilian pepper (*Schinus terebinthifolius*) understory, and a few umbrella trees (*Schefflera actinophylla*) and potato trees (*Solanum erianthum*) on the periphery. The herbaceous vegetation, dominant in the western portion of the site, includes yellow joyweed (*Alternanthera flavescens*), beggarticks (*Bidens alba* var. *radiata*), false buttonweed (*Spermacoce verticillata*),

Indian hemp (*Sida rhombifolia*), common wireweed (*Sida acuta*), wedelia (*Sphagneticola trilobata*), capeweed (*Phyla nodiflora*), West Indian dropseed (*Sporobolus indicus* var. *pyramidalis*), bluestem grasses (*Andropogon* spp.), and crowfootgrass (*Dactyloctenium aegyptium*).

No federal- or State-listed wildlife species were observed on the preferred site. No jurisdictional wetlands or surface waters or other critical habitat were identified at this site.

Description of Alternate Sites

Under Alternative 3, a transmission system would be constructed from Bay Point Key to an existing treatment plant on Stock Island. Under this alternative, a site located Bay Point Key located at approximately MM 14.8, south of US-1 and east of West Circle Drive (previously described under Alternative 2) would be used for the placement of a vacuum pump station. In addition, an approximately 11-mile transmission system corridor to an existing treatment plant on south Stock Island would be required. Portions of the transmission force main would be slip-lined in an abandoned 18-inch FCAA water main that runs parallel to US-1. Areas not available for slip-lining would be trenched to accommodate the force main. The entire transmission system would be contained in the southern right-of-way (ROW) of US-1.

Much of the vegetation adjacent to the paved US-1 roadway, along the proposed transmission system route consists primarily of grasses and weeds typical of maintained ROW, grading south to a forested fringe of coastal wetland vegetation with an open connection to the Atlantic Ocean. Vegetation within the maintained ROW consists of Bermuda grass (*Cynodon dactylon*), St. Augustine grass (*Stenotaphrum secundatum*), and crowfootgrass. A few planted ornamentals consisting mainly of coconut palms (*Cocos nucifera*) are also present along portions of the 11-mile corridor. An 8-foot wide bicycle/pedestrian trail, extending from the Bay Point vacuum pump station site to Shark Channel, is located along the proposed transmission corridor.

Adjacent to the south of the maintained ROW, fringing coastal mangrove wetlands with open connections to the Atlantic Ocean form an almost continuous system from Bay Point Key to Shark Channel, broken only by a paved access road (Blue Water Drive) on Saddlebunch Key. The widths of the fringing coastal wetlands vary from approximately 10 feet to 40 feet. The tidal wetlands from Bay Point Key to Big Coppitt Key include the surface waters and mangrove islands of Saddlebunch 2, 3, 4, and 5 Bridge crossings. Dominant species within these coastal wetlands include red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*), white mangrove (*Laguncularia racemosa*), buttonwood (*Conocarpus erectus*), and sea oxeye (*Borrchia frutescens*). Brazilian pepper and seagrape (*Coccoloba uvifera*) were also present along the outermost landward edge.

Allen Webb
ESA Section 7 Informal Consultation
July 21, 2003
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A depressional freshwater wetland is located at approximately MM 10.6, (approximately 400 feet west of Boca Chica Road). Dominant species in this wetland include cattail (*Typha* sp.), Brazillian pepper, buttonwood, lead tree (*Leucaena leucocephala*), rusty flat sedge (*Cyperus odoratus*), and saltgrass (*Distichlis spicata*).

Four fringing coastal mangrove wetlands and one freshwater depressional wetland were identified south of the maintained ROW on Big Coppitt Key. The four coastal wetlands have direct connections to the Atlantic Ocean, and are dominated by red mangrove, black mangrove, white mangrove, buttonwood, and sea oxeye. The coastal wetlands also include the mangrove islands of the Rockland Channel bridge crossing and the surface waters of the Atlantic Ocean.

An almost continuous fringing coastal mangrove wetland exists just south of the maintained ROW from Rockland Key to Key Haven. Dominant species comprising the coastal wetlands include red mangrove, black mangrove, white mangrove, buttonwood, and sea oxeye. Brazillian pepper and seagrape are also present along the outermost landward fringe.

A manmade ditch (apparently a former mosquito control feature) occurs near Midway Avenue (MM 7) on Boca Chica. This ditch is located south of the maintained ROW and runs parallel to US-1; the ditch terminates at approximately MM 8. The ditch supports a coastal mangrove wetland dominated by red mangroves. This wetland is bordered to the south by disturbed uplands dominated by Australian pine.

The alternate WWTP site primarily consists of mixed bare gravel, used as fill with occasional maintained ground cover and landscaped vegetation. The ground cover, where present, consists mainly of weedy grasses. A linear fringe of vegetation is present along the south, west, and east side of the facility dominated by Australian pine, buttonwood, and seaside mahoe (*Thespesia populnea*).

No federal- or State-listed wildlife species were not observed on any of the alternate sites.

Anticipated Impacts to Special Status Species

The Preferred Site consists of disturbed ruderal or landscaped areas unlikely to support federally listed threatened and endangered species that potentially occur in this portion of the Florida Keys. Very little or no habitat was observed at the Alternate site that would likely support federally listed threatened and endangered species.

Although the federally-endangered Lower Keys marsh rabbit (*Sylvalagus palustris hefneri*) and silver rice rat (*Oryzomys palustris natator*) potentially occur in the area (i.e., Saddlebunch Keys; Hipes et al., 2001), it is unlikely that these two endangered mammals directly utilize either the Preferred or Alternate site due to highly disturbed and altered site conditions. The marsh rabbit

and rice rat have specific requirements for undisturbed nesting and foraging habitat, and any occurrences at these sites by these species would be transitory in nature.

The federally-threatened Stock Island tree snail (*Orthalicus reses reses*) may potentially occur in the area of the KWRU WWTP (Hipes et al, 2001), but due to the highly developed and urbanized environment it is unlikely that the site provides suitable habitat for this species.

The osprey (*Pandion haliaetus*) is listed by the State as a Species of Special Concern in Monroe County. One osprey nest was observed along the transmission system corridor on Boca Chica. Potential impacts to the osprey would be limited to temporary disruption of foraging along the fringe of mangrove trees directly adjacent to the construction area. No permanent impacts to the existing osprey nest are anticipated as a result of this project.

Additionally, due to its small size, proximity to US-1 and other developed areas and degraded habitat value due to exotic species invasion, the Preferred Site is not likely to provide significant nesting, roosting or foraging habitat for migratory birds or other transient species. The Alternate Site may provide some foraging habitat for migratory birds and other transient species, but no permanent impacts to foraging habitat are anticipated.

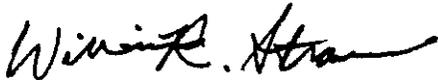
Under the No Action Alternative (Alternative 1), no changes would be made to the existing wastewater systems. It is likely that the benefits associated with improved water quality would be delayed and continued degradation in water quality would continue in the short-term.

Based on the results of the biological field visit, consultation with experts, and a review of special status species lists, FEMA finds that the proposed alternatives would not result in the take of federally listed threatened or endangered species or species protected under the Migratory Bird Treaty Act (MBTA), jeopardize the continued existence of these species, or adversely affect their habitat. As part of the informal consultation process, FEMA respectfully seeks written concurrence on this determination of no effect within 30 days to the letterhead address.

Allen Webb
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If you have any questions or comments, please do not hesitate to contact me at (770) 220-5432, or Ms. Science Kilner, FEMA Lead Environmental Specialist, at (770) 220-5357. Thank you very much for your assistance.

Sincerely,



William Straw, Ph.D.
FEMA Region IV Regional Environmental Officer

Attachments as noted

cc: Andrew Gude, U.S. Fish and Wildlife Service
Stephen Carruth, URS Group, Inc., Environmental Planner

References:

Hipes, D., D. R. Jackson, K. NeSmith, D. Printiss, and K. Brandt. 2001. Field guide to the rare animals of Florida. Florida Natural Areas Inventory, Tallahassee.
Service (FWS), 1999. South Florida Multi-Species Recovery Plan, Atlanta, Georgia.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960



September 17, 2003

William Straw, Ph.D.
Federal Emergency Management Agency
Region IV Environmental Officer
Federal Insurance and Mitigation Division
3003 Chamblee Tucker road
Atlanta, Georgia 30341

Service Log No.: 4-1-03-1-2084
Project: Bay Point/Saddlebunch Key
Wastewater Treatment System
Date: May 6, 2003 and August 5, 2003
County: Monroe

Dear Dr. Straw:

The Fish and Wildlife Service (Service) has reviewed plans, maps, and other information provided by the Federal Emergency Management Agency (FEMA) and the URS Group on behalf of FEMA for the Draft Supplemental Environmental Assessment for the Bay Point Key/Saddlebunch Key Wastewater System. You have requested concurrence with a "no effect" determination regarding threatened and endangered species and migratory birds. Our comments are provided under the provisions of section 7 of the Endangered Species Act (ESA) of 1973, as amended (87 Stat. 884; 16 U.S.C. 1531 *et seq.*) and in consideration of the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. 703-712).

FEMA is considering funding an application from the Florida Keys Aqueduct Authority to construct a wastewater treatment system that would serve the residents of Bay Point and Saddlebunch Key in the Florida Keys. The project would be located at mile marker 14.8, south of U.S. Highway 1, on Bay Point Key, Monroe County, Florida. The system would include a wastewater collection system, vacuum pump station, and wastewater treatment plant. The site is approximately 0.3 acre in size and is characterized as disturbed upland dominated by invasive, non-indigenous plant species. For the proposed action, FEMA provided a determination that the project will have no effect on federally listed threatened and endangered species or migratory birds.

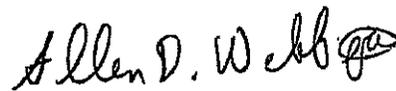
Based upon review of your project proposal and biological information, the Service supports FEMA's determination that this project will have no effect on federally listed threatened or

William Straw, Ph.D.
September 17, 2003
Page 2

endangered species or migratory birds. If modifications are made to the project, or if additional information involving potential effects to listed species becomes available, reinitiation of consultation may be necessary.

Thank you for your assistance in conserving the environment of the Florida Keys. If you have any questions, please contact Brad Rieck at 772-562-3909 extension 231.

Sincerely yours,



Linda S. Ferrell
Assistant Field Supervisor
South Florida Ecological Services Office

cc:

EPA, West Palm Beach, Florida
FWC, Vero Beach, Florida



May 6, 2003

Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Subject: Notice of Draft Supplemental Environmental Assessment (SEA) for the Bay Point Key/Saddlebunch Key Wastewater System, Monroe County, Florida.

Dear Sir or Madam:

This purpose of this letter is to provide your agency with notice that URS Group, Inc., on behalf of the Federal Emergency Management Agency (FEMA), is preparing a Draft Supplemental Environmental Assessment (SEA) for the Bay Point Key/Saddlebunch Key Wastewater System, Monroe County, Florida. The Draft SEA evaluates several wastewater management alternatives proposed for Bay Point Key/Saddlebunch Key, and the potential environmental consequences associated with those alternatives. At this time, FEMA requests your comments regarding the range of alternatives (attached).

In 1998, during the aftermath of Hurricane Georges, Congress allocated additional monies for long-term disaster recovery projects in the State of Florida to assist counties whose needs were yet unmet through allocation of primary disaster relief funds. This Unmet Needs money was earmarked for the counties most impacted by Hurricane Georges, including Monroe County. Monroe County requested that wastewater management improvement projects be considered for disaster funding since many existing wastewater facilities do not provide adequate collection, treatment, or disposal, and thus contribute to degrading water quality in the Florida Keys. Since then, FEMA has received a grant application from the Florida Keys Aqueduct Authority requesting Federal assistance to upgrade the current wastewater treatment facilities on Bay Point Key/Saddlebunch Key.

The National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR Parts 1500 through 1508), and FEMA regulations for NEPA compliance (44 CFR Part 10) direct FEMA and other Federal agencies to fully understand and take into consideration during decision making, the environmental consequences of proposed Federal actions (projects). Therefore, FEMA must comply with NEPA, and other applicable Federal laws and regulations, before making Federal funds available for any disaster recovery and mitigation actions. A

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Florida State Clearinghouse
Department of Community Affairs
May 6, 2003
Page 2 of 2

Programmatic Environmental Assessment (PEA) for Wastewater Management Improvements in the Florida Keys was prepared in accordance with these regulations, and provides a framework to address impacts of a range of wastewater treatment projects in the Florida Keys. In accordance with 40 CFR Part 1508.28, the Draft SEA for Bay Point Key/Saddlebunch Key tiers from the PEA, and addresses issues specific to this project location.

FEMA respectfully seeks your written comments within 30 days to the letterhead address. If you have any questions or comments, please do not hesitate to contact me at (305) 884-8900, or Ms. Science Kilner, FEMA Lead Environmental Specialist, at (770) 220-5357. Thank you very much for your assistance. Your comments will be considered during the Draft SEA preparation process.

Sincerely,

URS Group, Inc.

A handwritten signature in black ink, appearing to read 'R. Méndieta', written over the typed name.

Ramon Méndieta
Environmental Scientist

Attachments as noted

cc: Science Kilner, FEMA Region IV, Lead Environmental Specialist
Stephen Carruth, URS Group, Inc., Environmental Planner

**PROPOSED BAY POINT AND SADDLEBUNCH KEY
WASTEWATER TREATMENT SYSTEM ALTERNATIVES**

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1.0 WASTEWATER MANAGEMENT SYSTEM ALTERNATIVES

NEPA, CEQ regulations implementing NEPA (40 CFR Parts 1500 to 1508), and FEMA regulations for NEPA compliance (44 CFR Part 10) direct FEMA to investigate and evaluate project alternatives. Alternatives identified in the Monroe County Sanitary Wastewater Master Plan (2000) and in the PEA are evaluated for the proposed Bay Point and Saddlebunch Key Wastewater Management System. In the following sections, three alternatives are considered and evaluated in detail: No Action, New Wastewater Treatment Plant Construction, and New Wastewater Transmission System Construction.

1.1 Alternative 1 – No Action Alternative

As discussed in PEA Section 2.3.1 (No Action Alternative), FEMA would not provide funding assistance to the FKAA for the proposed action. In order to meet Florida Statutory Treatment Standards of 2010, FKAA and service area residents would need to identify another funding source for upgrading currently inadequate wastewater treatment systems.

1.2 Alternative 2 – New Wastewater Treatment Plant Construction

Alternative 2 is described in PEA Section 2.3.2 (Centralized Wastewater Treatment Plant Alternative). FKAA would apply FEMA funding to the construction of a new wastewater collection system, vacuum pump station and wastewater treatment plant (WWTP) that would be located on Bay Point Key (Figure 1). The proposed WWTP would be designed to meet the Florida Statutory Treatment Standards of 2010 for effluent disposal to shallow injection wells. This alternative would establish new service to residents and business owners formerly utilizing on-site systems within the Bay Point and Saddlebunch Keys service area, in unincorporated Monroe County, Florida.

The design parameters for this alternative were calculated using wastewater flows and peaking factors for the service area, and assume complete build-out of Bay Point and Saddlebunch Keys (FKAA, 2002). Wastewater flow rates for residences and businesses in the service area were used to estimate the number of equivalent dwelling units (EDUs), as summarized in Table 1. The service area of the new system would include a total of 438 occupied and vacant land parcels on Bay Point and Saddlebunch Keys (Table 2). The new system would be based on 391 equivalent dwelling units (EDUs) (FKAA, 2002).

Based on the estimated numbers of EDUs, the estimated annual average day collection system design flow (AADF) would be 65,300 gallons per day (gpd). Assuming a treatment plant recycle flow of 10 percent of the estimated collection system flow, the estimated AADF for the treatment plant would be about 72,000 gpd (FKAA, 2002).

About 320 existing on-site septic systems would be removed from residences and businesses in the service area. Pursuant to the Florida Department of Health (DOH) requirements, each property owner would be responsible for decommissioning and abandonment of their existing on-site system.

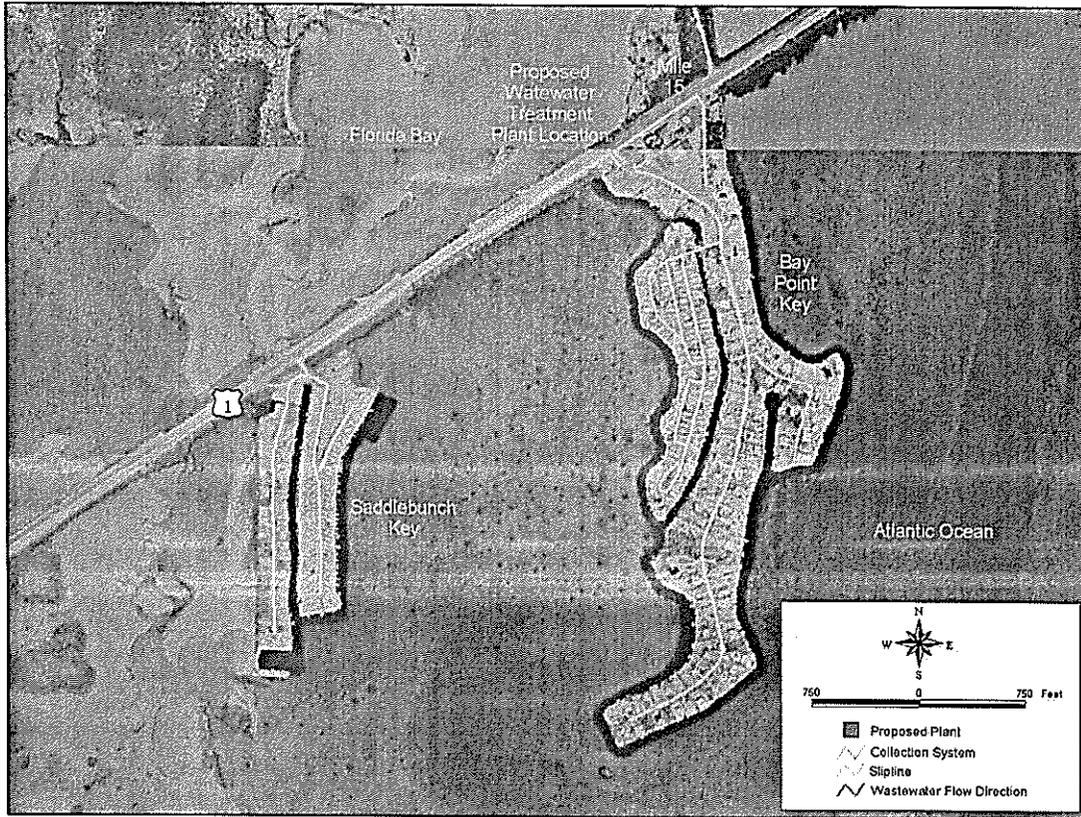


Figure 1. Proposed Bay Point and Saddlebunch Key New WWTP Site Location Map*

*Arrows represent direction of wastewater flow.

	Current Average Water Use (gpd) per parcel type	Number of EDUs per parcel type	Total number of parcels	Total Estimated EDUs
Mobile Homes	167	1	98	98
Single Family	167	1	124	124
Multi-Family	167	1	32	32
Commercial	334	2	10	20
Vacant Lots	N/A	1*	93	93
RV Lots	50	0.3	81	24
Total	---	---	438	391

* assumed to be one future EDU.

	Bay Point Key	Saddlebunch Key	Total
Mobile Homes	98	0	98
Single Family	97	27	124

Multi-Family	28	4	32
Commercial	8	2	10
Vacant Lots	74	19	93
RV Lots	0	81	81
Total	305	133	438
Source: Monroe County Property Appraiser			

1.2.1 Wastewater Collection System

Wastewater collection mains would be placed within the limits of public road rights-of-way (ROWs) throughout the service area in front of the residences and businesses to be served. The streets within the service area consist of paved roads with platted right-of-way widths between 30 to 50 feet (FKAA, 2002). Collection mains would be required to maintain horizontal separation from the existing potable water mains. The service areas on Bay Point and Saddlebunch Keys would be served by separate collection systems.

A 0.75-mile transmission main would transport wastewater from Saddlebunch Key to the wastewater treatment plant on Bay Point Key (Figure 1). This transmission main would be installed along the south ROW of U.S. Route 1 (US-1) within an abandoned 18-inch FKAA steel pipe. This pipe was previously used as a potable water transmission main and subsequently abandoned in place. The abandoned main would act as a sleeve or casing for a collection main up to an outer diameter of about 12 inches (FKAA, 2002).

The Saddlebunch-Bay Point transmission force main would also require a 700-foot bridge crossing over the Saddlebunch No. 2 causeway at MM 14.5. The force main would be slip-lined within the abandoned 18-inch steel water main attached to the old bridge, and the fittings and hardware that attach the existing 18-inch water main would be replaced.

Service laterals consisting of polyvinyl chloride (PVC) pipe would be provided up to the ROW line (Figures 2a and 2b). Property owners would be responsible for constructing individual connections to the service laterals. Special plumbing fixtures or electrical connections would not be required at houses or mobile homes, since the current fittings are adequate. About 200 cubic yards of soil would be excavated for the installation of vacuum sewer mains, vacuum pits, buffer tanks, and gravity service laterals. The majority of the excavated material would be used as backfill material for pipe and vacuum pit excavations. Excess excavated material would be used for foundations and grading at the treatment plant site.

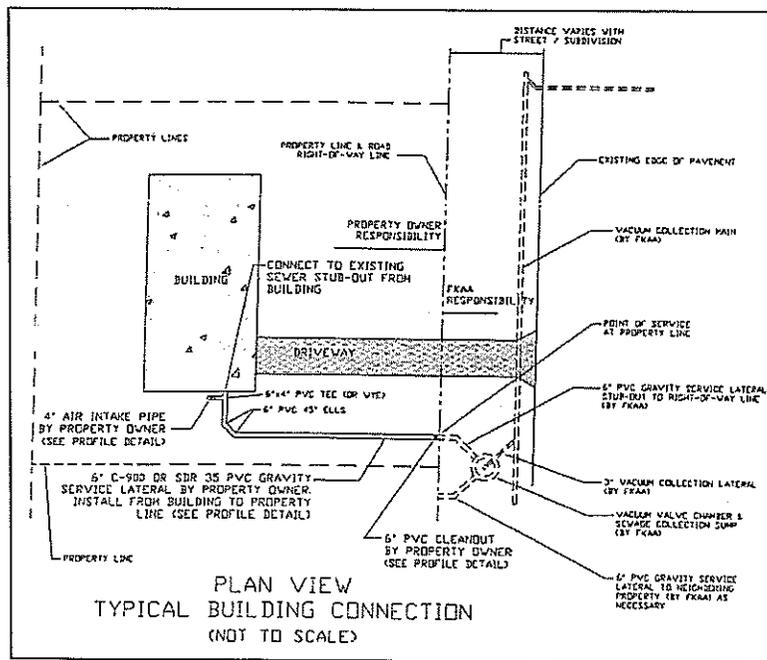


Figure 2(a). Plan View Typical Building Connection (FKAA, 2002)

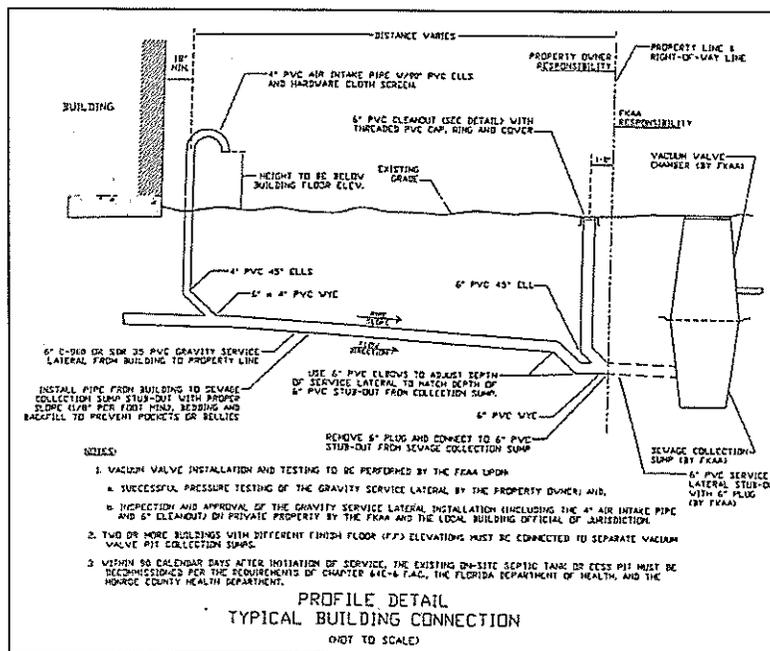


Figure 2(b). Profile Detail Typical Building Connection (FKAA, 2002)

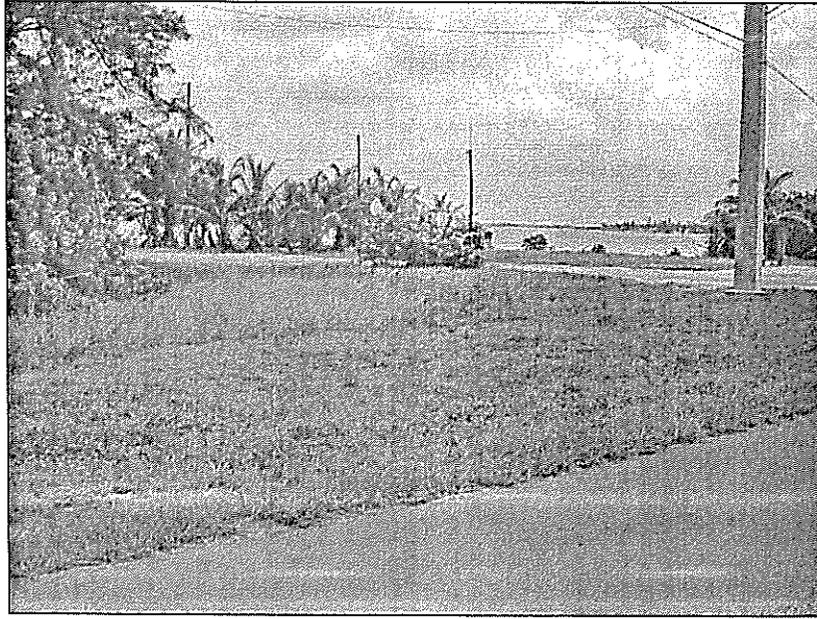
The proposed collection system would consist of a vacuum sewer system with a vacuum pump station (VPS). The vacuum sewer system would be composed of gravity collection mains and/or service laterals, sewage holding sumps and vacuum valve pits, vacuum collection mains and a vacuum pump station building, as described in PEA Section 2.3.2.1.1 (Vacuum Pumping). Residential sewage would flow by gravity into a vacuum

valve pit, the lower portion of which is a fiberglass holding sump, and the upper portion of which includes a vacuum valve. Two or more homes would be serviced by one vacuum valve pit. When wastewater in the holding sump rises to a preset level, a sensor extending from the valve chamber into the holding sump detects the liquid level in the sump, and the vacuum interface valve is pneumatically opened. Differential air pressure propels the sewage from the sump through the valve and into 3-inch or larger PVC vacuum wastewater collection mains. Vacuum mains would be constructed 3 feet below existing elevation throughout the service area. Sewage would then be transported from the collection mains to the wastewater collection tank at the vacuum pump station by the introduction of air into the collection main from successive open/close cycles of the vacuum valves in the system.

A vacuum pump station, located within the treatment plant site, would be required to generate the negative pressure necessary on the vacuum collection mains. The station would draw raw sewage through the collection mains and pump it to the treatment plant. The station would consist of an about 40-foot by 30-foot slab-on-grade building containing air blowers, discharge pumps, a collection tank, and an emergency generator. Discharge pumps connected to the vacuum collection tank would transfer sewage to the treatment plant. A separate concrete pad external to the station would accommodate odor control equipment (either a vapor phase activated carbon filter or a biological filter) for the treatment of air discharged from the collection tank by the vacuum pump station blowers.

1.2.2 Wastewater Treatment Plant

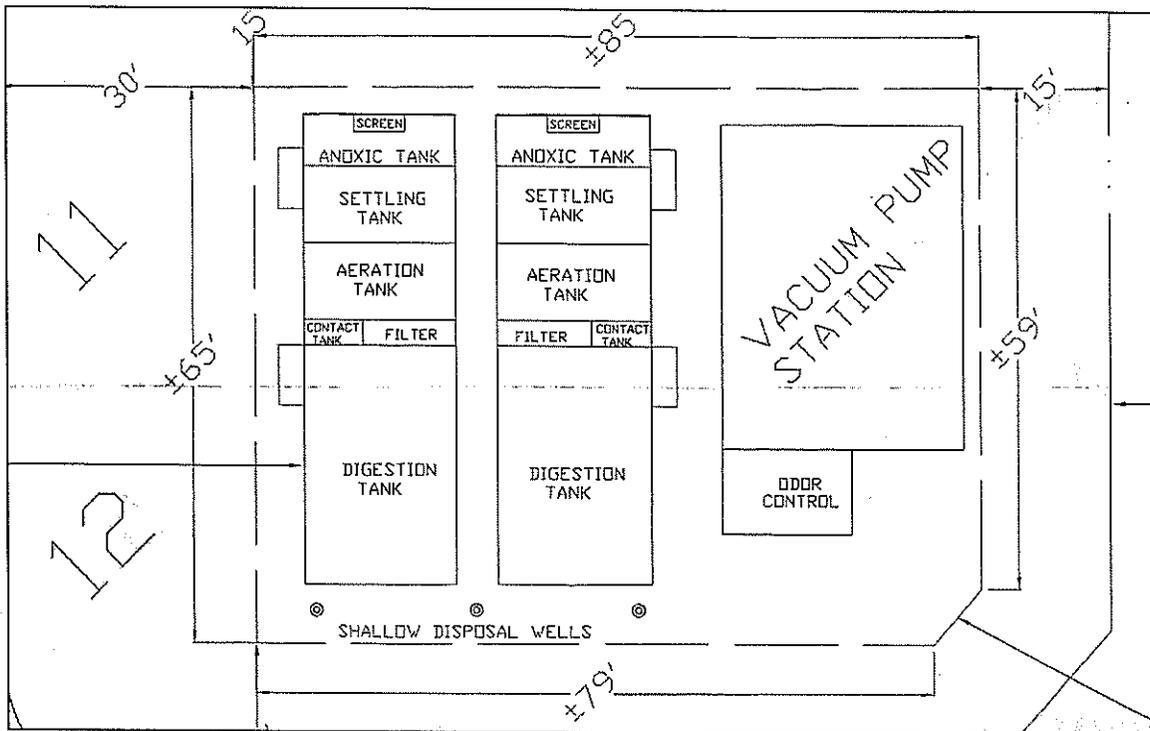
The wastewater treatment plant would be constructed on currently vacant, Monroe County lands, on the oceanside of Bay Point Key at MM 15 (Figure 3). The proposed plant site is an 80-foot wide by 130-foot long, 0.31 acres, open space that contains invasive exotic plants and grass cover. The northern property boundary is sited along US-1 and the western property boundary along West Circle Drive. Private residences are located about 150 feet (0.03 miles) south of the site. The closest water body to the site is Lower Sugarloaf Sound, about 158 feet (0.03 miles) northwest of the site. The Straits of Florida are located about 264 feet (0.05 miles) southwest of the site.



**Figure 3. Proposed Wastewater Treatment Plant Site
(URS Site Visit; August 1, 2002)**

The WWTP would provide primary treatment, biological treatment, solids removal, phosphorus removal, filtration, effluent disinfection and disposal to shallow injection wells (Figure 4). Raw sewage flow from the pump station into the treatment plant would be measured, recorded and totaled by an in-line magnetic flow meter. Automatic screening, using either a mechanical bar screen or rotary screen, of the influent wastewater would remove large particulate matter. Pretreatment screenings would be discharged to a collection hopper or trash receptacle for collection and hauling to a Florida Department of Environmental Protection (FDEP) permitted sanitary landfill facility for disposal (FKAA, 2002). If necessary, alkalinity of the influent wastewater would be buffered using sodium hydroxide, and no excess sodium hydroxide would be discharged to the environment (Garcia, Pers. Comm., 2003). Components of the sodium hydroxide feed system would include storage drums, metering pumps, small diameter PVC piping and valves, and a small containment area with a concrete slab and curb, electrical power and controls.

Wastewater would likely be treated using the sequencing batch reactor (SBR) with alum addition and conventional filters, or the upflow sludge blanket filter (USBF) process with alum addition and conventional filters. Other possible methods of treatment include the modified Ludzak-Ettinger process, Bardenpho process, and the immersed membrane bioreactor. Two parallel process trains, each with two equally sized biological reactor systems, would be used so that if one system were out of service the remaining train would be capable of treating the system design flow.



**Figure 4. Proposed Bay Point and Saddlebunch Keys
WWTP Preliminary Drawings (FKAA, 2002)**

Additional treatment would include the addition of metal salts, such as aluminum sulfate (alum), sodium aluminate, ferric chloride, ferrous chloride, ferric sulfate or ferrous sulfate to reduce the total phosphorus of the wastewater to 1 milligram per liter (mg/L). The alum would be utilized to coagulate excess phosphorus and would be disposed with the decanted sludge (Garcia, Pers. Comm., 2003). Components of a liquid metal salt feed system would include storage drums, metering pumps, small diameter PVC piping and valves, a containment area with a concrete slab and curb, electrical power and controls. Filtration may also be needed to produce effluent with total suspended solids of not more than 10 mg/L, remove soluble effluent phosphorus concentrations in excess of 1 mg/L, and remove unsettled phosphorus precipitate discharged from the settling tank. Two automatic backwashing filter units would be needed. The units would be sized such that, with one filter out of service, the remaining unit would have sufficient capacity to receive flow equal to not less than 75% of the design capacity of the treatment plant.

Effluent disinfection would occur in a disinfection contact tank using one of three methods: calcium hypochlorite tablets or briquettes; commercial grade or on-site generated sodium hypochlorite; or ultraviolet radiation. Effluent would be disposed by gravity flow into two on-site 8-inch diameter shallow injection wells, cased and cement grouted to 60 feet below land surface (bls), with a gravel-packed open hole section from 60 feet to 90 feet bls (PEA Section 2.3.2.2 [Wastewater Treatment Plant Effluent Disposal Options]). Shallow injection wells located at the treatment plant site would be constructed in accordance with Chapter 62-528, Florida Administrative Code [F.A.C.]. One 3-inch groundwater monitoring well, 10 feet bls cased depth and 30 feet bls total

depth, would also be constructed. The total number of injection wells would be sufficient to dispose of effluent peak hour flows with any disposal well out of service. Recycle flows, including filter backwash and digester decant, would be directed back to the head of the treatment plant for processing.

Stabilization of residual bio-solids would occur via the aerobic digestion process. The aerobic digester would be equipped with an aeration system used to mix and aerate the residual bio-solids. Decanted sludge residuals would be returned to the plant for treatment; settled solids would be removed from the digester and loaded into a tank truck through a draw-off pipe located near the base of the tank. The fill station would be located to provide easy access by tanker trucks. Decanted sludge would be temporarily stored in an aerated holding tank on-site, and the liquid sludge would be hauled by truck to one of three Monroe County Solid Waste Transfer Stations. Several neighboring municipalities have the capacity to accommodate the expanded waste quantity from Monroe County (e.g., Miami-Dade South District WWTP, Florida City, etc.). FKAA would enter into an agreement with the accepting municipality prior WWTP start-up (Shimokubo, Pers. Comm., 2003). Based on the estimated volume of excess bio-solids generated by the wastewater treatment process and a maximum thickened sludge concentration of 2.0% in the aerobic digester, sludge hauling is estimated to be required once per month using a 5,000-gallon capacity tanker truck (FKAA, 2002).

In addition to the new treatment plant, design elements at the site would include parking and paved access roads, as well as storage space for maintenance equipment, treatment chemicals, and other operations materials. The finish floor elevation of buildings subject to occupancy and structures containing electrical equipment or process equipment would be constructed above the base flood elevation of 8.0 feet National Geodetic Vertical Datum (NGVD). The facility would be operated on a permanent basis and would be automated based on pre-set vacuum and collection tank levels. Station controls would be made resistant to fire, wind, and flood.

The length of time needed for construction, including sewer line placement, would be about 12 months. Construction equipment would likely include a backhoe, trenching machine, bulldozer, crane, drilling rig, front-end loader, street sweeper, and boring machine. Trucks would also be used to transport equipment and materials to and from the project sites. The lifespan of the treatment plant would be between 30 and 50 years.

1.3 Alternative 3 – New Wastewater Transmission System Construction

Alternative 3, construction of a new transmission system, is described in PEA Section 2.3.2 (Centralized Wastewater Treatment Alternative). FKAA would apply FEMA funding to the construction of a wastewater collection system on Bay Point and Saddlebunch Keys, a vacuum pump station on Bay Point Key, and a wastewater transmission system (WTS) extending from the vacuum pump station on Bay Point Key to the existing Key West Resort Utilities (KWRU) wastewater treatment plant on south Stock Island, between MM 15 and MM 4 (Figure 5).

The basis of design for this alternative is similar to that used for Alternative 2. The total estimated AADF for the service area would be 72,000 gpd. Upgrades to the existing KWRU WWTP on Stock Island would not be required to accommodate the increased flow from the service area. As in Alternative 2, about 320 on-site septic systems currently utilized by property owners on Bay Point and Saddlebunch Keys would be removed. Pursuant to the Florida DOH requirements, each property owner would be responsible for decommissioning and abandonment of their existing on-site septic systems.

The length of time needed for construction, including sewer line replacement, would be about 12 months. Construction equipment would likely include a backhoe, trenching machine, bulldozer, crane, pile driver, drilling rig, front-end loader, and street sweeper. Trucks would also be used to transport equipment and materials to and from work sites. The lifespan of the transmission system would be about 50 years.

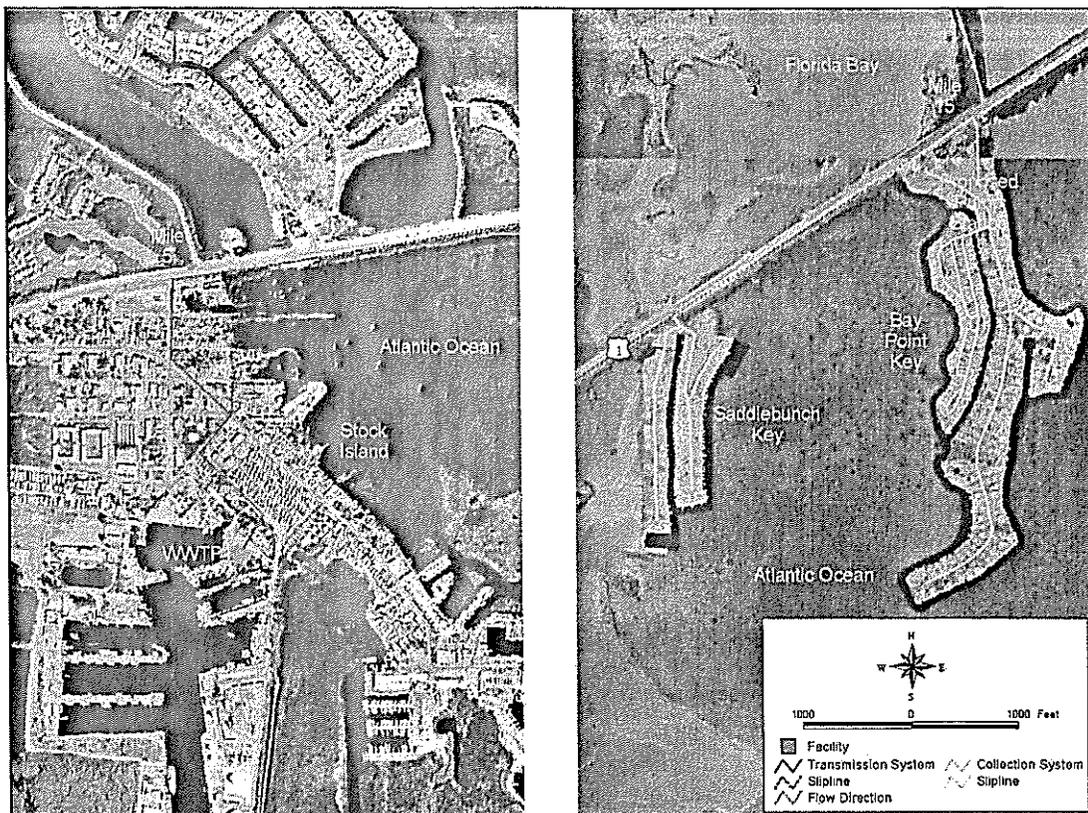


Figure 5. Proposed Bay Point and Saddlebunch Keys Wastewater Transmission System Site Location Map*

*Arrows represent direction of wastewater flow.

1.3.1 Wastewater Collection System

The collection system would be similar to the one described in Section 1.2.1. Bay Point and Saddlebunch Keys would be served by separate collection systems (Figure 1). As in Alternative 2, a force main bridge crossing of about 700 linear feet would be required across Saddlebunch No. 2 causeway, between Saddlebunch and Bay Point Keys, at MM 14.5. The force main would be slip-lined inside the existing 18-inch FCAA abandoned pipeline attached to the bridge, and the fittings and hardware used to attach the 18-inch main to the bridge would be replaced.

Use of a vacuum sewer system would require construction of a pump station on Bay Point Key (Figure 5). This facility would be located at the proposed Alternative 2 treatment plant site, and is described further in Section 1.3.2. Service laterals, for connection to the collection system by residents, would be provided up to the property ROW line (Figure 2). As in Alternative 2, connection to the collection system would be the responsibility of the property owner. Special plumbing fixtures or electrical connections would not be required since the current fittings are adequate.

1.3.2 Vacuum Pump Station

The vacuum pump station would be located at the treatment plant site as described in Alternative 2 (Section 1.2.1; Figure 6). Design elements at the site would include the new pump station, influent vacuum mains, and discharge yard piping, site access, parking, and landscaping. The size of the building would vary between 1,000 and 1,300 square feet (Figure 6). The final building area would depend upon the number of air blowers, the number and volume of collection tanks, and the size of the emergency generator required to maintain service in the event of a power outage. Vacuum blowers would create a vacuum of about 16 to 20 inches of mercury (Hg) or 0.53 to 0.67 atmospheres, capable of extracting wastewater from the vacuum valve pits, through the collection mains into the tank. The tank would provide adequate storage to allow the sewage pumps to operate.

Two submersible-type discharge pumps would also be housed in the station, each capable of pumping about 180 gpm peak hour wastewater flow rate; one pump would be operational at peak hour flow and one pump as a backup. The pumps would have the capability of being increased to 20 horsepower as total head conditions increase in the transmission force main due to flows from future wastewater projects in the Boca Chica Community Service Area. As identified in the Monroe County Sanitary Wastewater Master Plan (Monroe County, 2000), the Boca Chica Community Service Area consists of Big Coppitt Key, Geiger Key, Rockland Key and portions of Boca Chica Key.

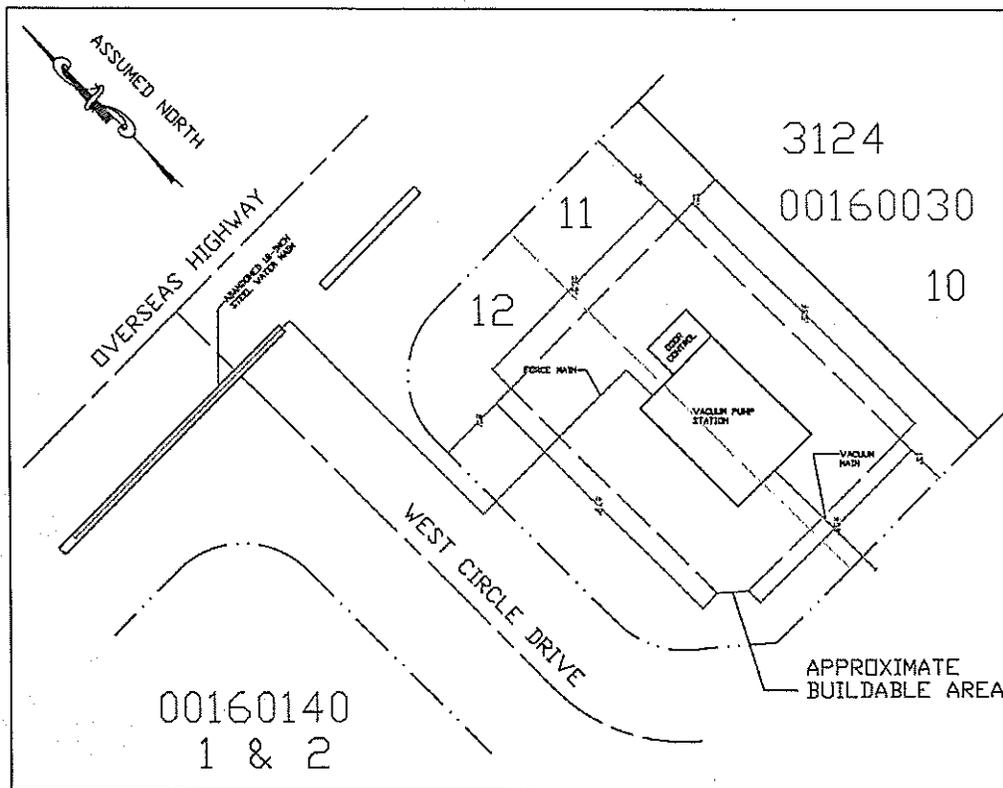


Figure 6. Proposed Vacuum Pump Station Preliminary Drawings (FKAA, 2003)

Wastewater discharge pumps would direct flow accumulated in the vacuum collection tank to the force main transmission system and ultimately to the KWRU WWTP on south Stock Island. Each pump would be capable of about 72 gpm peak hour wastewater flow. Since the pumps would be susceptible to inundation, submersible units would be utilized. One wastewater pump and one vacuum blower would be operational while an additional wastewater pump and an additional vacuum blower would provide backup. To minimize odors, air discharged from the blower exhaust at the vacuum pump station would run through a filter such as an in-ground wood chip bed or packaged iron filings bed before emission. A separate concrete pad external to the station would accommodate odor control equipment for the treatment of air discharged from the collection tank by the vacuum pump station blowers.

The vacuum pump station facility that would permanently house the vacuum pump station would consist of a fixed slab-on-grade building. The finish floor elevation of buildings subject to occupancy, and structures containing electrical equipment or process equipment, would be constructed above the 100-year floodplain level. The facility would be operated on a permanent basis and would be automated based on pre-set vacuum and collection tank levels. Station controls would be made weatherproof against fire, wind, and flood.

1.3.3 Wastewater Transmission System

The transmission main would commence at the pump station and be routed along US-1 through an existing abandoned FKAA 18-inch water main for a portion of the distance to the KWRU WWTP (refer to Figure 5). The abandoned main would act as a casing for a pipe up to an outer diameter of about 12 inches. About 11 miles of transmission force main would be required. Due to the long distance that the sewage must be pumped, the force main would be slightly oversized to maintain pump discharge pressures within acceptable limits. In addition, portions of this force main would be oversized to receive and transport future flows from the Boca Chica Community Service Area to the KWRU treatment plant. The conceptual transmission force main sizing, based on the projected wastewater flows from the Boca Chica Community Service Area, is shown in Table 3.

Table 3. Conceptual Transmission Force Main Sizing (FKAA, 2002)

From	To	Approximate length (miles)	Estimated peak flow (gpm)	Pipe size (inches)	Flow velocity (feet per second [ft/s])
Bay Point Key	Boca Chica Road (Big Coppitt Key)	4	180	6	2.04
Boca Chica Road	4 th Street (Big Coppitt Key)	1	320	8	2.05
4 th Street	Rockland Drive (Rockland Key)	1	850	10	3.47
Rockland Drive	KWRU WWTP (Stock Island)	5	950	12	2.56

The proposed force main would be installed inside the portion of the abandoned 18-inch pipeline that lies within the southern US-1 ROW at the most favorable locations (i.e., straight portions of pipeline). Two portions of the abandoned main are expected to be available and in acceptable condition for use as a sleeve or casing for the transmission force main:

- From Bay Point Key (MM 15) to Rockland Drive (MM 9) on Rockland Key, about 6 miles; and
- From the west end of Boca Chica (MM 6.25) to Stock Island (MM 5.0), about 1.5 miles.

Between MM 9 and the Boca Chica Bridge (MM 6.75), a new force main would be constructed and trenched. A force main bridge crossing about 2,700 linear feet would be needed to cross the Boca Chica Channel, from MM 6.75 to MM 6.25. The design of this crossing would require Florida Department of Transportation (FDOT) approval of the method by which the force main would attach to the bridge. Beginning at the west end of the bridge crossing, the force main would be slip-lined west to Stock Island, about MM 5.0. A new force main would be constructed and trenched from about MM 5.0 to the existing KWRU WWTP, about MM 4.0. The lengths of the force main would be butt-fusion welded at 50-foot intervals while being slip-lined into the 18-inch abandoned pipe,

and the pipeline would be sealed at the beginning and end of each extension to prevent infiltration of water and soil.

1.3.4 Existing Key West Resort Utilities Wastewater Treatment Plant

The KWRU WWTP is currently permitted to 20/20 (TSS [Total Suspended Solids]/BOD [Biochemical Oxygen Demand] in mg/L) effluent disposal requirements. Effluent at the WWTP is treated to basic level disinfection and directed to off-site reuse storage/equalization ponds, where furtherer treatment reduces TSS to 5 mg/L or less. In compliance with Florida Statutory Treatment Standards, the KWRU WWTP would need to be upgraded to best available technology (BAT) standards of 10 mg/L BOD, 10 mg/L TSS, 10 mg/L TN (Total Nitrogen), 1 mg/L TP (Total Phosphorus) by 2010. The irrigation-quality treated effluent is currently disposed of by slow-rate land application reuse (i.e., spray irrigation) at the Key West Golf Club (KWGC). Back-up effluent disposal is provided by six Class V, shallow injection wells that are used during periods when land application cannot be performed at the KWGC. These disposal wells have a cased depth of 60 feet bls, total depth of 90 feet bls, and were upgraded in 1997 to meet current FDEP regulations. Sludge from the KWRU WWTP would continue to be transported out of the Keys to the Florida mainland for disposal at an appropriately permitted facility.

The existing treatment plant currently has sufficient reserve capacity to receive the additional wastewater flows from Bay Point Community Service Area. No equipment or treatment plant upgrades would be necessary. Further, since the wastewater flow from Bay Point Community Service Area would be pumped directly to the KWRU treatment plant site via an independent transmission force main, modifications or improvements would not be required for the existing KWRU wastewater collection and transmission system. The KWRU WWTP currently serves about 1,200 residential connections that produce a maximum month average day flow of 300,000 gpd. The permitted capacity of the KWRU WWTP is 499,000 gpd, which is sufficient for the anticipated average day wastewater flow from Saddlebunch and Bay Point Keys (estimated at 72,000 gpd).

2.0 REFERENCES

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