

**HERBERT HOOVER DIKE MAJOR REHABILITATION  
HENDRY, GLADES AND PALM BEACH COUNTIES, FLORIDA**

**ENVIRONMENTAL ASSESSMENT  
&  
FINDING OF NO SIGNIFICANT IMPACT**



**PARTIAL REACH 1 AND 2 DITCH BACKFILL  
&  
CULVERT 14 REMOVAL**

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**ENVIRONMENTAL ASSESSMENT  
PARTIAL REACH 1 AND 2 DITCH BACKFILL AND CULVERT 14 REMOVAL,  
HENDRY, GLADES AND PALM BEACH COUNTIES, FLORIDA**

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- Appendix C – Mitigation
- Appendix D – Real Estate
- Appendix E – Pertinent Correspondence

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## GUIDE TO HHD ENVIRONMENTAL DOCUMENTS<sup>1</sup>

Reach 1	Date	Purpose	Description
"Herbert Hoover Dike Major Rehabilitation Report, Draft Environmental Impact Statement, July 1999"	July 1999	Assessed impacts of Alt No 3 (the 2000 MRR preferred alt), seepage berm with relief trench and French drain.	Assessed impacts of Alt No 3 (2000 MRR preferred alternative): seepage berm (40 ft wide) with relief trench (25 ft deep, 2ft wide) and a French drain system (48in diameter perforated culvert wrapped in geotextile fabric) along the landward toe of embankment. Oct 1998 Draft CAR recommended the WRAP be implemented and compensatory mitigation site be located for toe ditch wetlands backfilling.
"Herbert Hoover Dike Major Rehabilitation Report, Reach One, Supplemental Environmental Impact Statement, March 2005"	March 2005	Assessed impacts of Alt No4, partially penetrating cutoff wall, relief trench with inverted filter and relief berm within ROW.	In 2001 a VE study was initiated to reduce RE costs and minimize footprint within functional wetlands. July 2002 recommendations included excavating toe and placing gravel filter and seepage trench lake ward of dike (no tailwater management or ground water management in toe ditch). The design was unsuccessful when implemented during emergency repairs in 2002 and 2003 near South Bay due to the seepage trench conveying ground water into toe ditch and private properties. Alt No4 was developed as the preferred alt: partially penetrating cutoff wall on landward side of dike at 26 ft NVGD with relief trench with an inverted filter and relief berm stopping at the TD. No mitigation necessary because project within ROW.
"Herbert Hoover Dike Major Rehabilitation Report, Reach One, Final Environmental Impact Statement, July 2005"	July 2005		
Record of Decision Signed by Brigadier General Michael J. Walsh	Sept 2005		

<sup>1</sup> The following environmental documents can be referenced at the following websites:

<http://planning.saj.usace.army.mil/envdocs/envdocsb.htm>

<http://www.saj.usace.army.mil/cco/HHD/hhdike.htm>

<p>Herbert Hoover Dike Reaches 2 and 3, Draft Engineering Analysis and Draft supplement to the 1999 Draft Environment Impact Statement, Palm Beach, Glades and Hendry Counties, Florida</p>	<p>Draft December 2006</p>	<p>Assessed impacts for a cutoff wall and seepage berm within the Corps right-of-way in Reaches 2 &amp; 3</p>	<p>This document is a supplement to the 1999 Draft EIS which covered Reaches 1-8 of HHD. A plan recommended by the ITR team involved the incorporation of additional property into an expanded seepage berm of the dike system to provide additional stability and reduce piping. The plan developed through this process for Reach 1 formed the basis for the rehabilitation for Reaches 2 &amp; 3. The real estate acquisition process can be lengthy and the need to approve the HHD rehabilitation is a high priority the USACE decided to implement the footprint within the existing right-of-way.</p>
<p>Herbert Hoover Dike Major Rehabilitation, Glades, Hendry and Palm Beach Counties: Modified Design in Reach 1 and Priority Toe ditch Repairs in Reaches 1, 2, and 3, Environmental Assessment and Finding of No Significant Impact</p>	<p>Draft Dec 2006  Final Jan 2007</p>	<p>Assessed Impacts of backfilling toe ditch in identified focus areas.</p>	<p>After Hurricane Katrina the Corps' initiative was to provide the best possible engineering solution to rehabilitate HHD. Following a series of reports including the BCI rpt and IPET rpt the Corps conducted an external ITR on HHD rehabilitation to ensure that the best engineering solution would be implemented. The Corps developed an alternative that was robust, resilient, and redundant that will provide the needed reliability for HHD. Because the solution would take some time to design and implement, the Corps decided to take action where possible by backfilling the toe ditch in the most critical areas of the HHD as an interim risk reduction measure. This EA assessed the impacts of backfilling the toe ditch in the nine focus areas identified and scored previous mitigation created.</p>

<p>Herbert Hoover Dike Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Seepage Berm and Reach 1A Test Cutoff Wall, Environmental Assessment and Finding of No Significant Impact</p>	<p>Draft April 2007</p> <p>Final May 2007</p>	<p>Assessed impacts of Alt No 5 test cutoff wall in R1A and seepage berm in R1 and within the existing ROW.</p>	<p>The preferred alternative (Alt No 5) consists of a seepage berm and impervious partially penetrating cutoff wall implemented at the center of the dike. The EA documented impacts from implementation of a test cutoff wall in Reach 1A and a partial seepage berm in Reach 1 (within the Corps ROW), functional wetland loss due to the seepage berm and determined if any additional mitigation would be necessary. Previously mitigation covered impacts to the toe ditch wetlands.</p>
<p>Herbert Hoover Dike Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Cutoff Wall, Environmental Assessment with Addendum (Quarry) and Finding of No Significant Impact.</p>	<p>Draft Dec 2007</p> <p>Final Feb 2008</p>	<p>Assesses impacts of a partially penetrating cutoff wall in Reach 1 and effects of filling the state owned quarry lands in Subreach 1D.</p>	<p>In an effort to expedite HHD rehabilitation, the partially penetrating cutoff wall impacts are analyzed in this EA. When the final design footprint is completed for the landside rehabilitation features in Reach 1, an EIS will be produced.</p>
<p>Herbert Hoover Dike Major Rehabilitation, Hendry, Glades, and Palm Beach Counties: Partial Reach 1 and 2 Ditch Backfill and Culvert 14 Removal Environmental Assessment and Proposed Finding of No Significant Impact.</p>	<p>Draft July 2008</p> <p>Final August 2008</p>	<p>Assess impact of the removal of Culvert 14 in Reach 1 and toe ditch filling in Focus Areas 1 and 6. Assess impacts of filling in 8,277 feet of ditch in Reach 2 along Melaleuca removal project.</p>	<p>In an effort to expedite HHD rehabilitation and implement interim risk reduction measures the removal of Culvert 14 and ditch filling are analyzed in this EA. When the final design footprint is completed an EIS will be produced for Reach 1 and Reaches 2 and 3.</p>
<p>Herbert Hoover Dike Major Rehabilitation, Martin and Palm Beach Counties: Reach One Supplemental Second Draft Environmental Impact Statement</p>	<p>Forecast dates: March 2009 Sept 2009</p>	<p>Assess impacts of full project design, specifically the landside rehabilitation in Reach 1.</p>	<p>The Reach 1 EIS will document the impacts of the landside rehabilitation solution in combination with the cutoff wall, including any footprint (real estate) issues.</p>

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**FINDING OF NO SIGNIFICANT IMPACT  
HERBERT HOOVER DIKE REACH ONE AND TWO  
HENDRY, GLADES, AND PALM BEACH COUNTIES, FLORIDA**

Based on the information analyzed in the Modified Design in Reach 1 and Focus Area Toe Ditch Repairs in Reaches 1, 2 and 3 Environmental Assessment (EA), dated January 2007, the September 2005 Environmental Impact Statement (EIS) which covered proposed HHD Reach 1 repairs and information presented in this EA reflecting pertinent information obtained from agencies having jurisdiction by law and/or special expertise, I conclude that the proposed action will not significantly impact the quality of the human environment and does not require an EIS. Reasons for this conclusion are, in summary:

- a. The proposed action, covered in this EA, includes toe ditch backfilling in Focus Areas 1 and 6 (1.6 acres) and ditch backfilling along 8,277 feet (9.5 acres) of Reach 2. In addition Culvert 14 will be removed. The Record of Decision for the Final EIS (September 2005) approved implementation within Reach 1 and the Potential Failure Modes Analysis for Herbert Hoover Dike and Lake Okeechobee Section 4.6, (August 2007) identified toe ditch filling as a potential risk reduction measure and the Interim Risk Reduction Measures Plan discussed culverts as weak points, Appendix 2, Section 3.1, Seepage and Piping, (August 2007) discussed the implementation of the selected plan features.
- b. The goal of the rehabilitation of the HHD is to reduce risk to public safety and health. Levee seepage and stability have a direct effect on the capability of the levee to provide authorized protection. The Flood Control Act of 1948 authorizes levee operation and maintenance as proposed in the interim risk reduction measure plan (ditch backfill) and final solution with Culvert 14 removal for the renovation of the HHD in Reach 1.
- c. This EA was circulated with a proposed Finding of No Significant Impact (FONSI) for public and agency review and coordination in compliance with the National Environmental Policy Act. All public and agency comments have been addressed.
- d. Adverse impacts to protected species are not anticipated. There is no critical habitat for listed endangered species along the dike. Special measures will be incorporated during project construction to avoid or minimize adverse effects to any listed endangered, threatened, or species of special concern that may be present (see Environmental Commitments Section 4.9). The U.S. Army Corps of Engineers (USACE) and the South Florida Water Management District (SFWMD) agree to maintain an open and cooperative informal consultation process with the U.S. Fish and Wildlife Service (USFWS) and Florida Fish and Wildlife Conservation Commission (FFWCC) throughout the design, construction, and operation of this rehabilitation project. The proposed action is in compliance with the Endangered Species Act.

- e. Approximately 3.2 acres of wetlands in the ditches will be removed. Although the quality of wetland in these man-made ditches is not considered high, a variety of wading birds, small fishes and invertebrates utilize the ditches. In the Final EIS for Reach 1 repairs (July 2005), the U.S. Fish and Wildlife Service (USFWS) suggested mitigation measures in the Coordination Act Report (CAR). The Corps has included a proposed plan for compensatory mitigation through the removal of approximately 9 acres of exotic plants within Reach 2 to offset any wetland impacts.
- f. The proposed action of backfilling the toe ditch in Focus Areas 1 and 6 occurs outside of the Federal Right-of-Way and 3.85 acres of land acquisition (agricultural) would be necessary to implement this interim risk reduction measure (Appendix D).
- g. The USACE previously coordinated a consistency determination under the guidelines of the Coastal Zone Management Act (CZMA) in the Final EIS, dated September 2005. The State concurred with the determination (Annex D of the Final EIS, dated September 2005) that the proposed action is consistent with the State's CZMA programs. The Corps has determined that the modified plan is likewise consistent with the Florida CZMA program. The updated Florida CZMP Evaluation can be referenced in Appendix A of this report.
- h. The proposed action has been coordinated with the Florida State Historic Preservation Officer in accordance with the National Historic Preservation Act and the Archaeological and Historic Preservation Act. Consultation with the State Historic Preservation Officer (SHPO) was initiated August 20, 1999. In a response dated August 7, 2005, the SHPO concurred with the Corps' no adverse effect determination on Reach 1. The project will not have an adverse affect on any historic properties included in or potentially eligible for inclusion in the National Register of Historic places. Conditions to protect undiscovered resources will be implemented as follows: Language will be included in construction contract specifications outlining the steps to be taken in the event that undiscovered historical properties are encountered. An informational training session, developed by a professional archaeologist, will be conducted for the contractor's personnel to explain what kinds of archaeological/cultural materials might be encountered during construction of the cutoff wall, and the steps to be taken in the event these materials are encountered. A professional archaeologist will conduct periodic monitoring of the project area during construction to determine if activities are impacting unanticipated cultural resources. The proposed action is consistent with these Acts.
- i. The project will be in compliance with the Clean Water Act. A water quality certificate for the ditch backfilling and culvert removal has been applied for and is expected to be issued by Florida Department of Environmental Protection in September of 2008. All State water quality requirements will be followed. See

Section 1.6 – Permits, Licenses, and Entitlements for a list Water Quality Certificates obtained by the Corps.

In view of the above and after consideration of public and agency comments received on the project, I have concluded that the proposed action for the rehabilitation of HHD will not result in a significant adverse effect on the human environment. This Finding incorporates by reference all discussions and conclusions contained in the EA enclosed herewith.



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Paul L. Grosskruger  
Colonel, U.S. Army  
District Engineer

28 Aug 2008

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Date

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**HERBERT HOOVER DIKE  
ENVIRONMENTAL ASSESSMENT FOR  
PARTIAL REACH 1 AND 2 DITCH BACKFILL &  
CULVERT 14 REMOVAL  
HENDRY, GLADES, AND PALM BEACH COUNTIES, FLORIDA**

## **1.0 PROJECT PURPOSE AND NEED**

The Herbert Hoover Dike (HHD) was originally constructed to provide local flood protection from hurricane-induced wind surges. Seepage and sand boils have been observed along Reaches 1, 2 and 3 of HHD. Sand boils are indicators of the initiation of piping (underground flow paths for water caused by erosion, reference Section 1.3 of the Feb 2008 HHD Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Cutoff Wall Environmental Assessment (EA) with Addendum (Quarry) and Finding of No Significant Impact (FONSI)), which can lead to dike instability or erosion of levee materials along internal channels. Increased observances of these activities suggest that interim risk reduction measures (IRRM) are necessary. The DSAC (Dam Safety Action Classification) External Peer Review Panel has found that the U.S. Army Corps of Engineers Class I designation (Urgent and Compelling) for Herbert Hoover Dike under EC (Engineering Circular) 1110-2-6064 “INTERIM RISK REDUCTION MEASURES FOR DAM SAFETY” dated May 31, 2007 is appropriate. An IRRM is an immediate a project alteration or operational change that can be made immediately to the system while the final design for rehabilitation of the dike is being developed. The imperative objective is to reduce the probability of catastrophic failure and associated consequences to the extent reasonably possible.

The external peer review team believes that HHD has passed the initiation point on the seepage and piping failure continuum at certain locations, and is now in the continuation phase. The rate at which piping is occurring is dependent on lake level. It is clear that the seepage volume and distress indicators in certain reaches of the structure at reservoir levels above Elevation 17 feet (NGVD) are cause for concern. Failure is considered very likely when operating at or above these levels for any significant time. The higher the lake level, the shorter the time required for failure to occur. In this context, “failure” means an uncontrolled release of water resulting from a catastrophic breach of some portion of the HHD system.

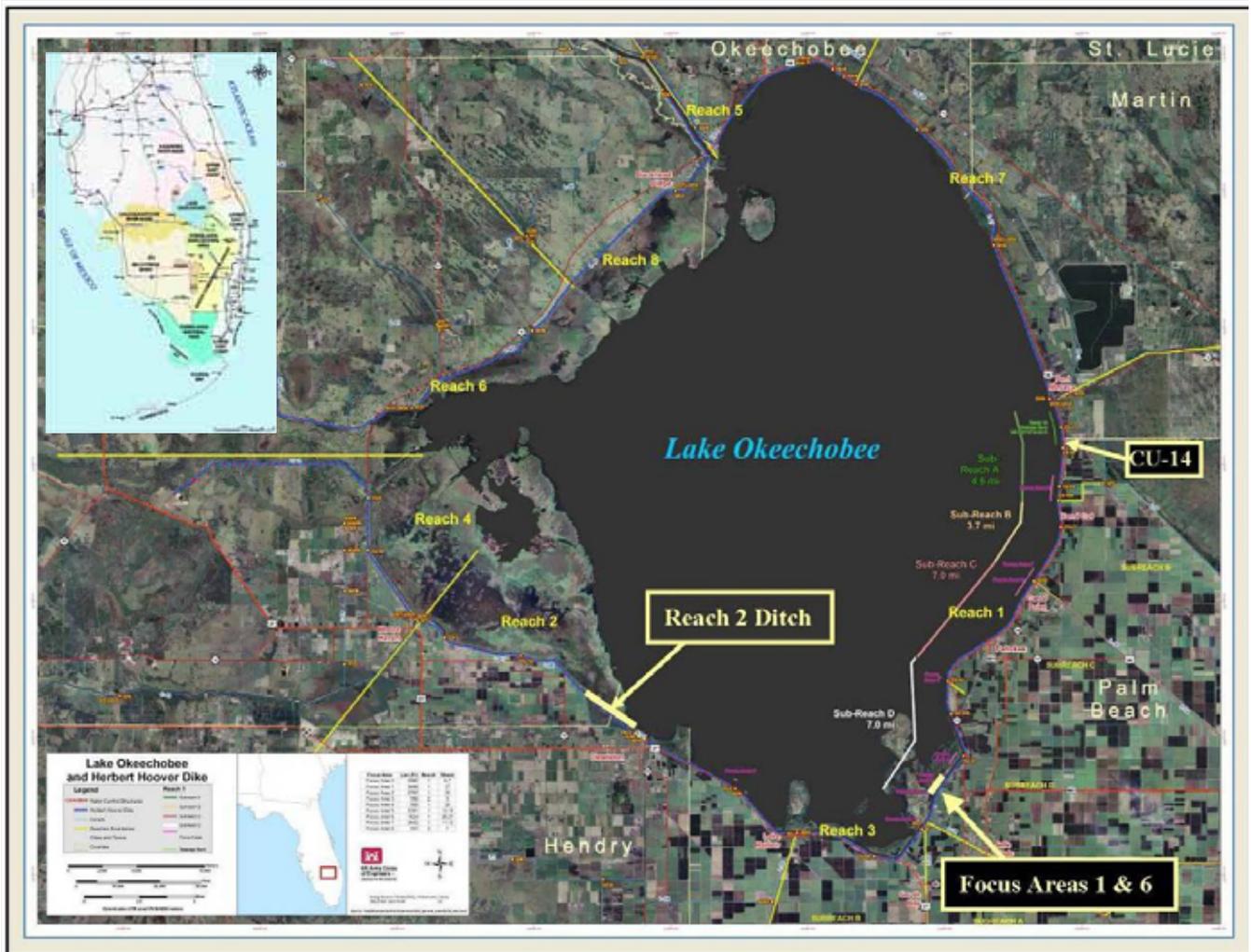
An unreliable embankment system could result in failure of the system to contain lake waters. Such a failure could be devastating, resulting in human suffering, loss of life, immense property damage (including residential, commercial and agricultural) and destruction of the natural habitat (Ref. Sect. 1.0 of the HHD EA, Jan 2007).

## **1.1 PROJECT AUTHORITY**

The Flood Control Act of 1948 authorizes levee operation and maintenance to ensure that the authorized level of protection is met. The standard project flood (SPF) corresponds to the authorized level of protection, which is a lake level of 26.4 ft (NGVD). (Ref. Sect 1.1 of the HHD EA, Jan 2007).

## 1.2 PROJECT LOCATION

The interim risk reduction measures discussed in this EA are located in Reaches 1 and 2 of HHD, which surrounds Lake Okeechobee (**Figure 1-1**). Focus Areas 1 and 6 are located in Reach 1D (**Figure 2-1**). Culvert 14 is located in Reach 1A (**Figure 2-3**). Reach 2 ditch repairs are located between Structure S-4 and Culvert CU-2 in Glades and Hendry Counties, Florida and will be approximately 8,277 feet in length (**Figure 2-2**).



**FIGURE 1-1: GENERAL LOCATION MAP**

### **1.3 RELATED ENVIRONMENTAL, PLANNING AND DESIGN DOCUMENTS**

Reference Section 1.5 of the Feb 2008 HHD Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Cutoff Wall EA with Addendum (Quarry) and FONSI for a complete list of related NEPA (National Environmental Policy Act), design, and planning documents.

- Herbert Hoover Dike Lake Okeechobee, Florida, Interim Risk Reduction Measures Plan, Appendix 2, Section 3.1 Seepage and Piping, USACE, August 2007.
- Categorical Exclusion (CX) for Repair or Removal of Culvert 15 in Levee D-2 of the HHD, 04 April 2008.
- Categorical Exclusion (CX) for Tree Removal and Ditch Clearing Within Right of Way in Reach 2 of the HHD, 07 March 2008.
- Categorical Exclusion (CX) for Construction of Access Road within Existing Right of Way of Levees L-D1 and L-D2 of the HHD, 30 April 2008.

### **1.4 DECISION TO BE MADE**

The purpose of this current EA is to evaluate impacts to the human environment as a result of the removal of Culvert 14 and ditch repairs in Reaches 1 and 2.

### **1.5 PREVIOUS INTERAGENCY COORDINATION**

Informal consultation is in progress. Emails were sent to the Environmental Protection Agency (EPA), Florida Department of Environmental Protection (FLDEP), United States Fish and Wildlife Service (USFWS), and South Florida Water Management District (SFWMD), on May 2, 2008 outlining the upcoming EA for HHD. Scoping letters were sent out on May 22, 2008. More information on previous interagency coordination can be found in Sect. 6.2 of the HHD EA, Feb 2008.

### **1.6 PERMITS, LICENSES, AND ENTITLEMENTS**

The proposed HHD repairs are evaluated consistent with Section 404 of the Clean Water Act and do require Water Quality Certification from the Florida Department of Environmental Protection (FDEP). A National Pollutant Discharge Elimination System (NPDES) permit will be required for construction activities that disturb more than 1 acre of land. This permit will be acquired prior to the start of construction. (Refer also to Section 4.10 Compliance with Environmental Requirements).

The Corps currently has the following water quality certificates (WQC) as of June 2008:

In Reach 1, the Corps has an Environmental Resource Permit (ERP) (serves as WQC) to construct emergency toe ditch backfilling repairs along 20,000 ft of high risk portions of Reach 1 (DEP File # 0234604-003), covered in previous EA.

In Reach 2, the Corps will apply for an Environmental Resource Permit (ERP) (serves as WQC) to construct emergency ditch backfilling repairs along 8,277 ft of portions of Reach 2 covered in this EA. This permit will also cover Culvert 14 removal in Reach 1.

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## 2.0 ALTERNATIVES

### 2.1 ALTERNATIVE DESCRIPTIONS FOR DITCHES

#### 2.1.1 No Action Alternative

The No Action Alternative is defined as not taking actions or making physical alterations to improve or repair the HHD. It would maintain the current condition of the dike. The No Action Alternative would not provide an acceptable level of risk with current regulation requirements of safety factors relative to dike stability. The No Action Alternative does not provide a long-term solution to the seepage and stability problems existing along Reaches 1 and 2.

#### Focus Area 1 & 6

Focus Area 1 & 6 are located in Reach 1D (**Figure 2-1**) and were identified as areas with increased seepage and piping. Without acceptable improvements to these areas, seepage, piping and boils will continue to occur in this area and will increase the risk of a failure of the dike (**Figure 2-3 and Figure 2-5**). The safety of the surrounding human and natural environment may be severely impacted, with subsequent effects upon the local and regional economies under this alternative. In the event of a total breach, significant impacts to human life (including human suffering and loss of life) and substantial impacts to existing soils, vegetation, water resources, habitat, threatened and endangered species, agriculture, and property would result.

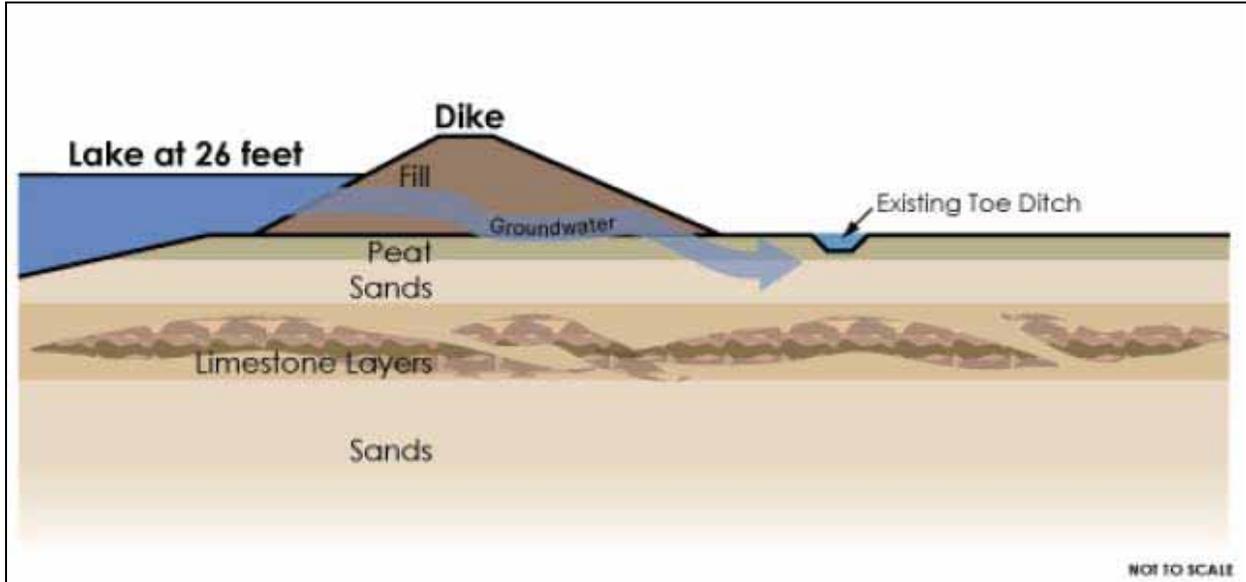
#### Reach 2 Ditches

There are sections along Reach 2 where a ditch exists as a result of fill that was removed and placed along the dike to decrease the slope of the embankment. These ditches run intermittently along Reach 2 and are not used for stormwater drainage or conveyance. Approximately 8,277 ft of ditch are located sporadically along a 14,000 ft stretch between Structure S-4 and Culvert CU-2. The ditches are located adjacent to dead Melaleuca trees on both the upstream and downstream sides of the ditch. The existing condition in this stretch is not conducive to inspection of the toe of the dike during normal and high lake stages. The early detection of seeps and boils is jeopardized by this condition. The Corps is now in the process of removing the Melaleuca trees to assist inspection and in maintenance of the dike, to restore the area to a more natural condition, and to prevent the further spread of this exotic tree. The northwestern section of Melaleuca is located in Glades and Hendry Counties (**Figure 2-2**).



**FIGURE 2-1: HERBERT HOOVER DIKE FOCUS AREAS 1 AND 6**





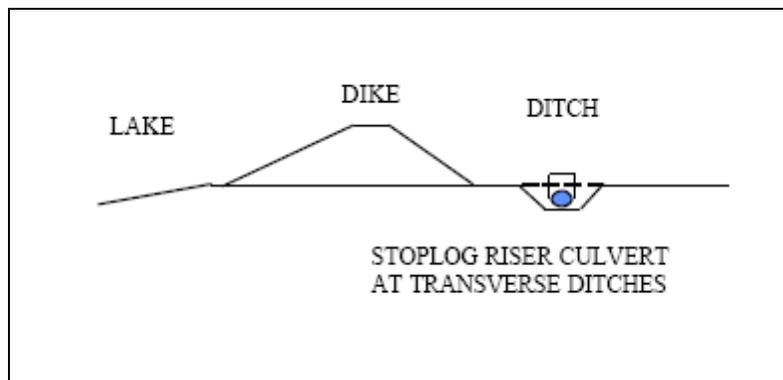
**FIGURE 2-3: NO ACTION ALTERNATIVE (EXISTING CONDITIONS)**



**FIGURE 2-4: SEEPAGE MANAGEMENT CONTROL IN TOE DITCH (1995)**

### 2.1.2 High Stages in Ditches Alternative

This alternative consists of improving existing drainage ditches in Focus Areas 1 & 6 by cleaning and grading of the existing drainage ditches. This would not apply to the Reach 2 ditches because they are intermittent throughout the area and are not used for conveyance or drainage. Culverts with automatic/manual gates will be installed to control the water level in the ditches. Pumps will be installed at various locations to control the water levels in the ditches. Approximately 3.85 acres of land acquisition would be required to stage water in the toe ditch and install the pumps. During high water lake levels, the water level in the ditches will be raised in order to limit the head differential across the levee. Reducing the head differential will reduce the likelihood of piping failures. However, there is no way to ensure that this alternative will provide the necessary factors of safety required by Corps criteria. Raising the water level in the ditches will increase the local flooding potential. Presently, most of these ditches are controlled by the local drainage districts and farmers.



**FIGURE 2-5: ALT 1 TYPICAL CROSS SECTION FOR TOE DITCH**

### 2.1.3 Backfilling of Ditches Alternative (Preferred Alternative)

#### Focus Areas 1 and 6

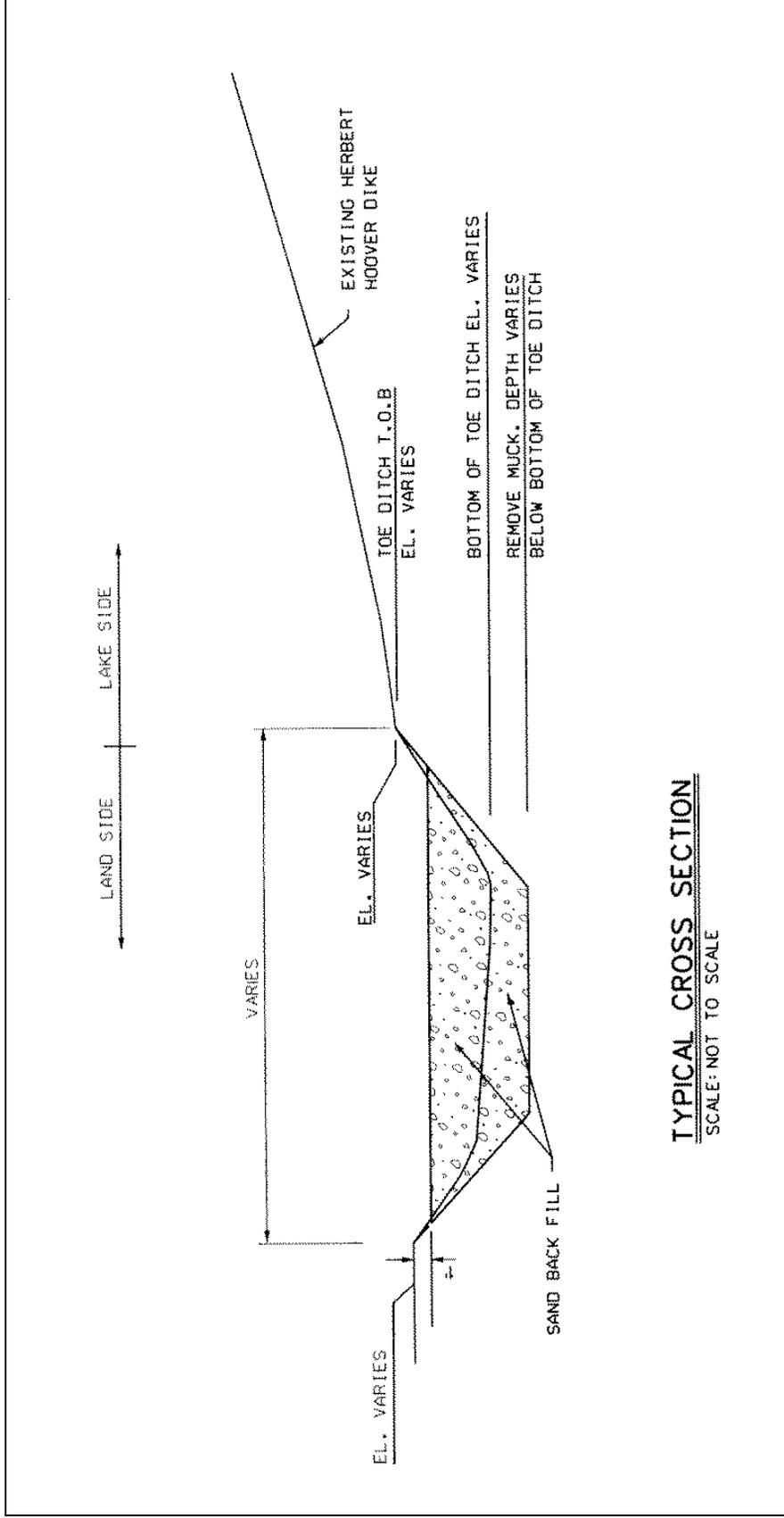
The Corps has identified nine Focus Areas where immediate repairs can be implemented. These areas were identified based on location of existing seeps and boils (above 15 ft. NGVD). Dike stability can be improved by backfilling the toe ditch. Backfilling the toe ditch will reduce potential of failure due to piping by preventing soil particles from being eroded from the dike or its foundation. Approximately 0.75 acres in Focus Area 1 and 0.84 acres in Focus Area 6 will be backfilled. Focus Areas 6 and a portion of Focus Area 1 are located in Reach 1D (**Figure 2-1**) and require additional land acquisition (3.85 acres). For more on the real estate requirements see **Section 4.1.1 Socio-Economics**.

The toe ditch backfill will begin with removal of muck using a backhoe/track hoe down to the top of the existing peat layer. The muck will be spread out along the landside of the levee. Clean sand from commercial sources will be placed in the ditch to within a one foot elevation of the top of the existing bank. This will allow the toe ditch to provide stormwater drainage. The select fill (sand, fine aggregate) shall be classified in accordance with USCS as either SP-SM, SW-SM,

SW or SP material with a maximum of no more than 12% material finer than the #200 sieve. Any fines passing the #200 shall be non-plastic. It will then be leveled and roller compacted. See **Figure 2-6** for cross-sectional detail.

### **Reach 2 Ditches**

The ditch will be backfilled along 8,277 feet within a 14,000 foot section of Reach 2 as an Interim Risk Reduction Measure. This ditch section is located between Structure S-4 and Culvert CU-2 and is located in Glades and Hendry Counties (**Figure 2-2**). The ditch backfilling in Reach 2 allows for multi-purpose objectives to be met. These objectives are stability of the dike, inspection of levee during high and low water events, access to Melaleuca removal sites and a cost savings of conducting backfill work and access road construction at the same time. Immediate stability can be provided to the dike by backfilling the ditch. Backfilling the ditch will reduce potential of failure due to piping by preventing soil particles from being eroded from the dike or its foundation. This section of ditch is the current site of two operation and maintenance projects. The first project is the Melaleuca tree removal and the second project is the construction of an access road within the Right of Way (ROW) for inspection of the levee during high water events. With the hurricane season upon us, it is advantageous to complete as many of these safety features as possible. The same methodology and materials will be used to backfill the Reach 2 ditch as listed above for Focus Areas 1 and 6.



**FIGURE 2-6: TYPICAL CROSS SECTION FOR TOE DITCH BACKFILL**

## 2.2 ALTERNATIVE DESCRIPTIONS FOR CULVERT 14

### 2.2.1 No Action Alternative

Culvert 14 is a single-barrel, ten-foot diameter, corrugated metal pipe culvert structure. The structure is equipped with manually operated slide gates located on the lakeside. An elliptical liner was installed in Culvert 14 in 1978 to strengthen the deformed pipe. The liner has a vertical axis of 7.1 feet and a horizontal axis of 8.9 feet. This structure has short sheet pile groins which extend into the lake. The pipe length is 96 feet and the overall length 147 feet. Culvert 14 is located in Levee L-D9 of the HHD at station 574+00 and is located north of Culvert 10A and south of Culvert 16. Culvert structures are weak points, and piping along the culvert pipe is probably the second most likely failure mode (HHD Interim Risk Reduction Measures Plan, Appendix 2, Section 3.1 Seepage and Piping, USACE, Aug. 2007). The culverts pose additional difficulties to work around with the implementation of the cutoff wall which is currently on going in Reach 1. Culvert 14 is no longer in use and does not appear to offer any prospect for future use. The existing situation will deteriorate and pose potential future maintenance and reliability/integrity issues for this portion of the Herbert Hoover Dike unless maintenance is continued. Boils have been previously noted when the Culvert was dewatered in the 1980's. This appears to be due to the short seepage path. It is an unacceptable alternative to leave CU-14 in its current condition.



FIGURE 2-7: CULVERT 14 LOCATION

### 2.2.2 Culvert 14 Abandonment

The C-14 abandonment alternative would partially uncover the culvert body, along with intake and discharge walls (concrete and steel sheet pile) as required for stable slope conditions. The intake and discharge walls would be removed, the culvert ends would receive a concrete seal, the culvert body would be filled with a cementitious material (flowable fill, grout), and filter material would be installed at the landside (discharge) end of the culvert. The culvert fill material would be compatible with the seepage cut-off to be installed, to prevent potential cracking of the wall. The filter material would preclude the potential for the migration of fine-grained soils from around the body of the culvert (seepage-related internal erosion). The embankment would then be restored with slopes matching the existing dike (1:6 lakeside and 1:4 landside) using select fill and compacted as required. Work would be performed within the limits of the current project. This option would require construction of a temporary substitute flood protection system that would likely include a cellular cofferdam (see **Figures 2-8 and 2-9**). Construction equipment would include standard material-handling and earthwork equipment.

After abandonment, a continuous seepage cut-off wall will be installed along the crest of the dike, perpendicular and through the location of the existing culvert.

To create stable temporary slopes in the dike, the excavation required to remove the culvert intake and discharge walls is not significantly less than that required to remove the culvert body. This alternative reduces the risk associated with Culvert 14. However, the potential failure modes associated with embedded culverts still exists. Therefore, abandonment of Culvert 14 is not the preferred plan.



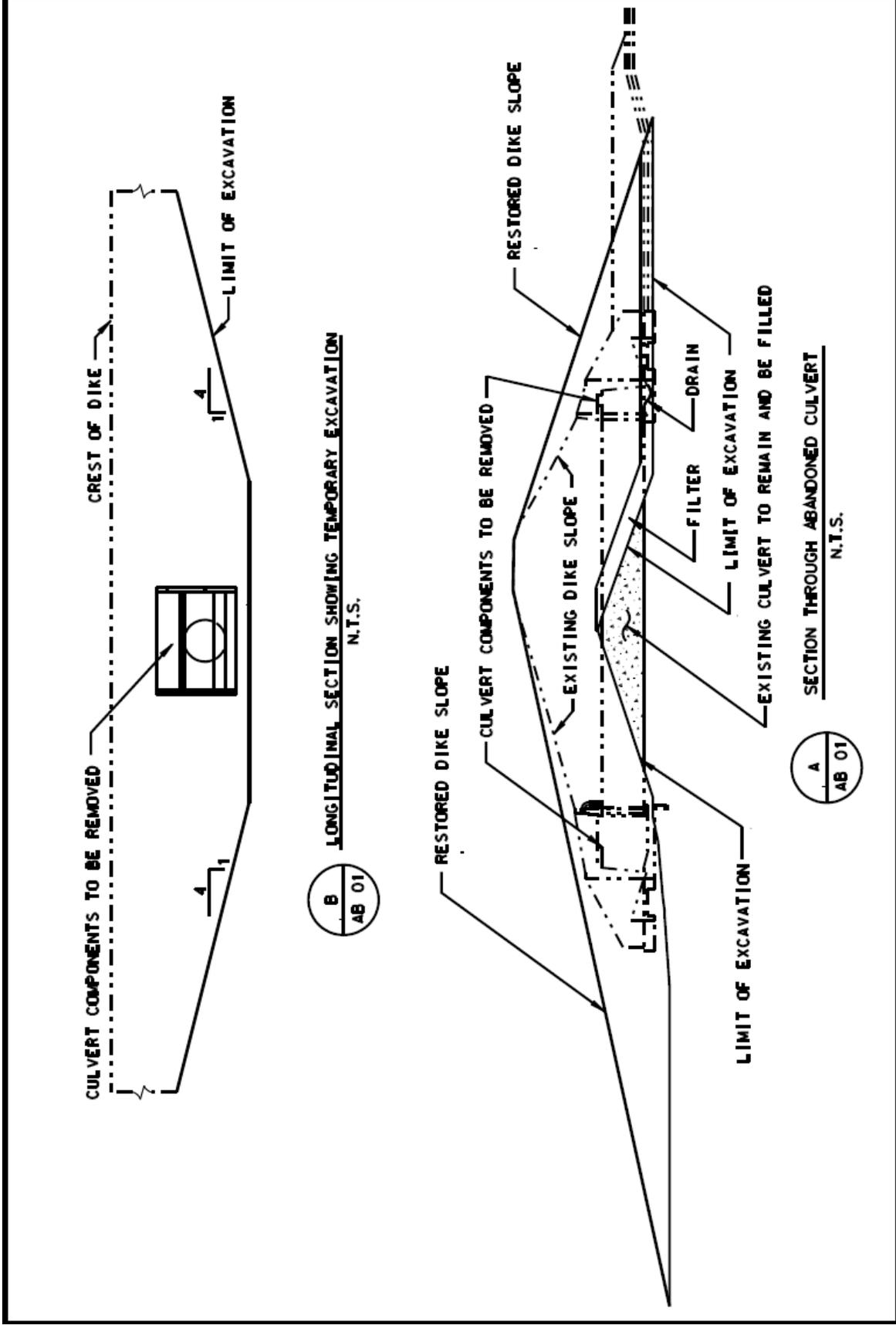


FIGURE 2-9: CULVERT 14 ABANDONMENT CROSS SECTION

### 2.2.3 Culvert 14 Removal (Preferred Alternative)

The C-14 removal alternative would uncover and remove the culvert body, along with intake and discharge walls (concrete and steel sheet pile). The embankment would then be reconstructed with slopes matching the existing dike (1:6 lakesides and 1:4 landside) using select fill, placed in lifts, and compacted as required. Work would be performed within the limits of the current project. This option would require construction of a temporary substitute flood protection system that would likely include a cellular cofferdam (see **Figures 2-10 and 2-11**). Construction equipment would include standard material-handling and earthwork equipment. Recovered culvert materials (steel, concrete) would be disposed of locally. The expected concrete debris (headwalls and grout between the original culvert and the elliptical liner) is estimated to be 200 to 400 cubic yards.

After removal, a continuous seepage cut-off wall will be installed along the crest of the dike, perpendicular and through the location of the removed culvert.

This alternative provides an opportunity to reconstruct a portion of the dike, in a controlled manner, with limited or no uncertainties. Concerns regarding potential seepage paths along exterior of the culvert body would be eliminated, and future required maintenance of the culvert would be precluded. This alternative requires a similar level of effort and cost as the abandonment alternative while providing a more reliable solution. Therefore removal of Culvert 14 is the preferred plan.



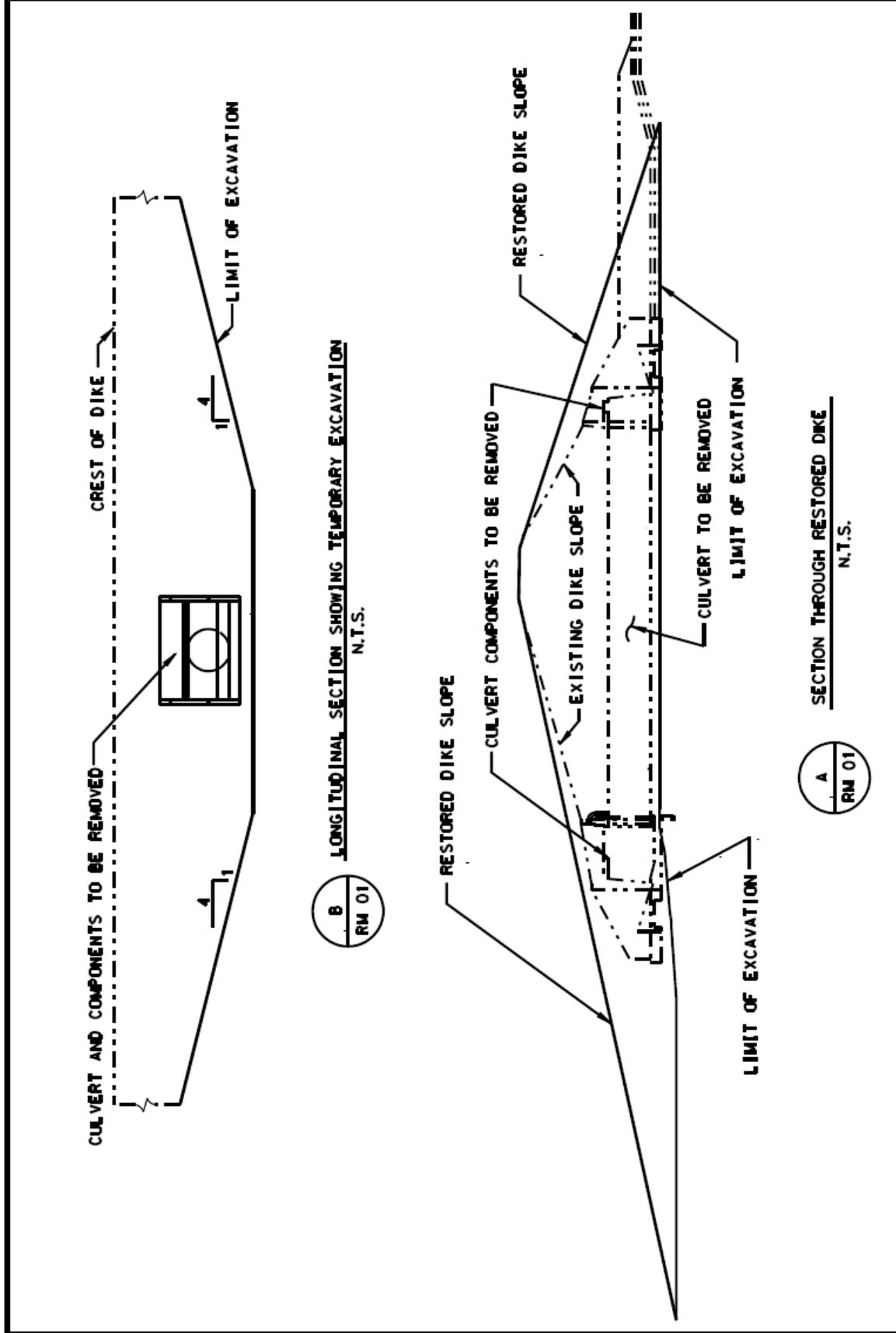


FIGURE 2-11: CULVERT 14 REMOVAL SCHEMATIC

### 3.0 EXISTING CONDITIONS

Water resources, wetlands, threatened and endangered species, state listed species, socio-economics, cultural resources, recreation, hazardous, toxic, and radioactive wastes (HTRW), noise, air quality and aesthetics are discussed in this section. It is anticipated that the project's impacts will be limited to these environmental resources. This section does not present effects, but puts forth the baseline environment for comparisons in **Section 4 – Environmental Effects**. For a more comprehensive, detailed discussion on the existing Reach 1 environmental conditions, reference Sect. 3.0 of the Sept 2005 HHD Major Rehabilitation Evaluation Report, Reach 1, Final Environmental Impact Statement, and Sect. 3.10 of the February 2008 HHD Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Cutoff Wall EA with Addendum (Quarry) and FONSI.

#### 3.1 CLIMATE

The most significant factor affecting the climate of the Lake Okeechobee area is its proximity to large water bodies. The maritime effects of the Gulf of Mexico and the Atlantic Ocean on this area result in a significantly modified climate. The lake stays cooler than the surrounding land during warm days and warmer than the land at night, affecting the local environment. The cooler lake temperatures during the day have a suppression affect on cloud formation over and near Lake Okeechobee. Consequently, there is generally a 30 percent reduction in annual rainfall over and west of the lake compared to surrounding areas (Henry *et al*, 1994).

#### 3.2 WATER RESOURCES AND HYDROLOGY

The major artesian aquifer underlying this region is the Floridan Aquifer, which occurs from about 1000 ft (300 m) below land surface (bls) to bedrock (Schroeder et al., 1954). Along Reach 1, there are eight gated culverts, two gated spillways, and one lock and spillway. Control of waters from these structures is primarily the responsibility of the Corps and SFWMD. However, eight private drainage districts assume control of water flow within the region of Reach 1. These are: 1) Mayaca Groves, 2) Palm Beach Groves, 3) Cloister Farms, 4) U.S. Sugar Corporation, 5) East Beach Drainage District, 6) Pahokee (or 715) Farms, 7) East Shore Drainage District, and 8) South Shore Drainage District. The Reach 1D toe ditch is connected in three places to a network of farm ditches in the agricultural areas adjacent to HHD. In Reach 1 there are eight gated culverts, two gated spillways, and one lock.

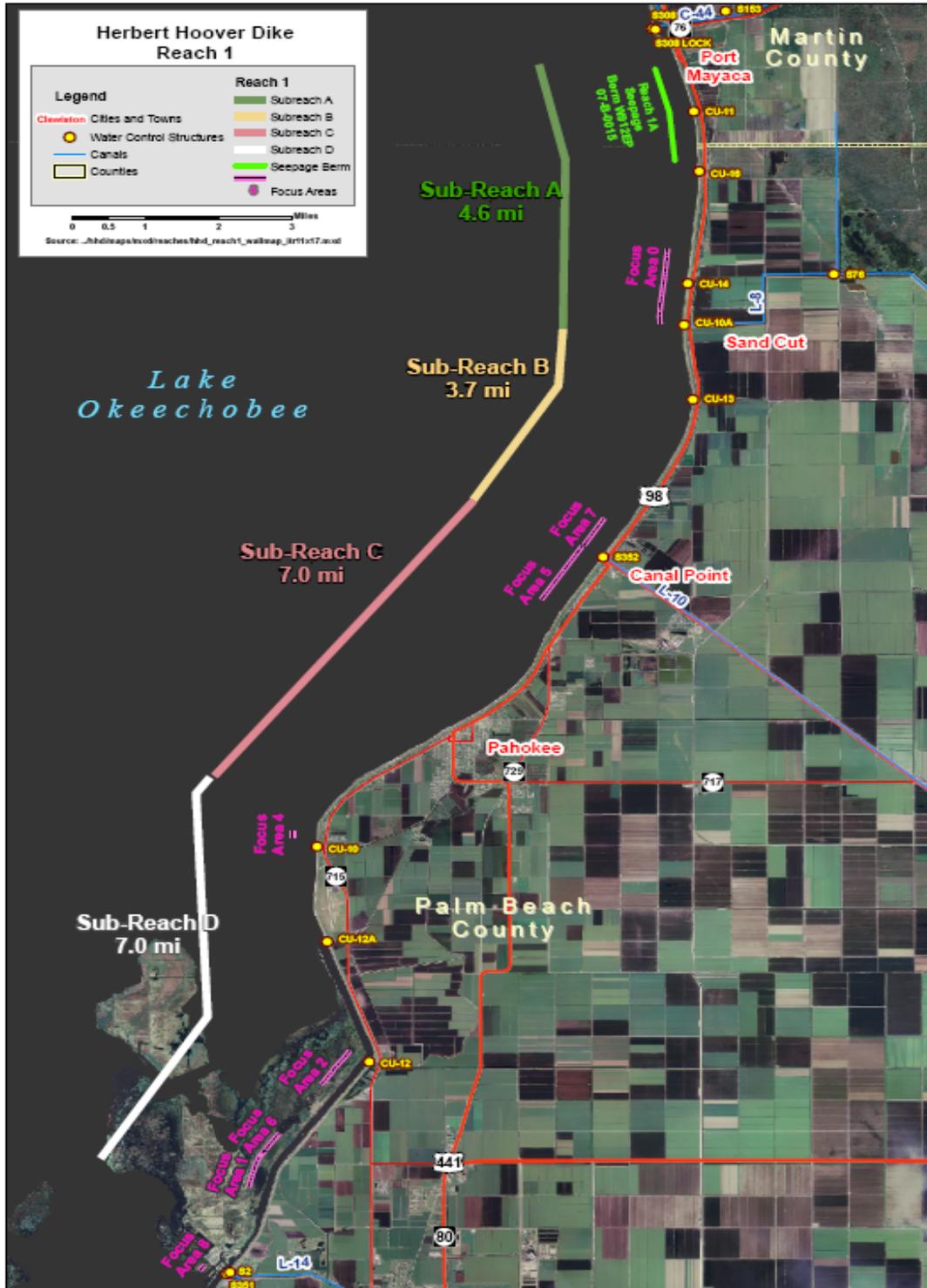


FIGURE 3-1: CANALS AND STRUCTURES AT REACH 1

### **3.3 WETLANDS IN REACHES 1 AND 2**

During HHD construction, fill was excavated along Lake Okeechobee. The toe ditch was created as a result of this fill removal. Over the years, rainwater and seepage from the Lake have collected in the toe ditch, establishing a wetland habitat for fish and wildlife. Descriptions of the wetlands in the toe ditch, as well as flora and fauna found in the wetlands can be found in Sect. 3.2, "Wetlands in Reach 1," of the Feb 2008 HHD Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Cutoff Wall EA with Addendum (Quarry) and FONSI. Typical vegetation observed in the toe ditch wetlands or wetlands beyond the toe ditch include Melaleuca, Brazilian pepper, cattails, cabbage palm, common reed, cypress, elderberry, hackberry, pennywort, primrose willow, royal palms, strangler fig, southern willow, water lettuce, and water hyacinth. Although wetlands present on the landward side of Reach 1 may not be considered high quality ecosystems, they host small fishes and invertebrates and provide usable foraging habitat for wading birds, alligators, and turtles.

### **3.4 THREATENED AND ENDANGERED SPECIES**

There is no critical habitat for listed endangered species along the outer toe of HHD. Protected species that might be observed in the region include the wood stork (E=endangered), snail kite (E; critical habitat inside HHD in Lake Okeechobee littoral zone), and eastern indigo snake (T=threatened). The bald eagle is protected by two other major federal laws: the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act (MBTA).

### **3.5 STATE LISTED SPECIES**

The burrowing owl is a species of special concern in Florida and may be present in the project vicinity.

### **3.6 SOCIO-ECONOMICS**

Agriculture, recreation and tourism all play an important role in socio-economics, which is the relationship between economic activity and social life.

### **3.7 CULTURAL RESOURCES**

The State Historic Preservation Officer (SHPO) has listed HHD as eligible for inclusion on the National Register of Historic Places for its historic significance. In a letter dated 3 July 2007, the SHPO concurred that the HHD historic properties will not be adversely affected by the proposed rehabilitation plans. Consultation with the SHPO and other interested parties will continue until completion of the project.

### **3.8 RECREATION**

The U.S. Department of Agriculture, Forest Service, produced the Florida National Scenic Trail Comprehensive Plan, 1986, which proposed a multi-use trail for the top of HHD by authority of the 1968 National Trails System Act (P.L. 90-543, 82 Stat. 9119). Designated as part of the Florida National Scenic Trail in 1993, the Lake Okeechobee Scenic Trail (LOST) is an

approximate 110 mile trail encircling Lake Okeechobee. Most of the trail consists of crushed gravel on top of the Herbert Hoover Dike. The LOST is open year-round for a variety of uses including hiking, bicycling, bird watching, fishing, and photography.

### **3.9 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTES (HTRW)**

During real estate procurement and project construction, further HTRW evaluations would be required.

### **3.9 AESTHETICS**

The designated Florida National Scenic Trail (FNST) runs atop the HHD around the entire lake, totaling approximately 115 miles (FDOT, 1998). Panoramic lake and surrounding landscape views vary depending on access and obstruction in the area. Moderate aesthetic values are experienced in this area from atop the levee crown dependent on the time of year and day.

### **3.10 NOISE**

Along Reach 1 there are a number of existing sources currently contributing to the overall ambient noise level. The more predominant of these sources include: vehicular traffic traveling along nearby highways; railroad traffic along the Florida East Coast Railway; single engine aircraft utilizing the Pahokee Airport; small industry (i.e., produce processing and distribution); boat traffic (including airboats) along the rim canal; urban activities in Pahokee and Belle Glade; agricultural equipment (tractors, trucks, etc.); and pumping stations. Rural areas typically have noise levels of 35-55 dB. Sound levels along transportation arteries are typically in the range of 70 dB.

### **3.11 AIR QUALITY**

Existing air quality in the affected environment is good to moderate. This project is in an area which has been designated by the Clean Air Act as a Prevention of Significant Deterioration (PSD) Class II area for U.S. Environmental Protection Agency (EPA) regulated air pollutants except ground level ozone. This project would not be subject to any PSD incremental requirements for these pollutants since the project would fall under the fugitive emissions exemption, as per Rule FAC 62-212.400(a) (b).

## 4.0 ENVIRONMENTAL EFFECTS

Lake Okeechobee is a major hydrologic feature of south Florida and the Everglades ecosystem; therefore, its waters play a critical role in the protection and enhancement of environmental resources. Fish and wildlife species are numerous and utilize the many natural areas around the lake. Implementation of the proposed interim risk reduction measures would cause short-term disturbances to, and displacement of, components of the human and natural environments. These impacts include minimal soil, vegetation, and wetland disruption during excavation and fill activities. Minimal effects to existing water resources and foraging habitat for wading birds and listed species are expected as well.

### 4.1 ENVIRONMENTAL EFFECTS OF THE ALTERNATIVES

This section discusses potential impacts to the existing environment, including direct and indirect effects that may result from implementation of the No Action vs. Culvert 14 Abandonment or Removal and No Action vs. Ditch High Stage or Backfill. This chapter is organized by resource topics, with the impacts of the alternatives discussed under each resource. Assessment of the No Action Alternative includes an increased probability of unsatisfactory performance of the dike system, or possible dike failure. A summary of environmental consequences is displayed in **Table 4-1 and Table 4-2**.

#### 4.1.1 Socio-Economics (Focus Areas 1 & 6 Backfill)

The SFWMD will be acquiring three tracts for the toe ditch repairs in Reach 1D. Two parcels totaling 2.9 acres will be acquired from the Ball Family Partnership and are part of a larger tract containing approximately 374.2 acres. The other parcel, comprising approximately 0.95 of an acre will be acquired from J.O. Schlechter and is part of a larger tract containing approximately 31.50 acres. Reference the Real Estate Appendix D for detailed information.

##### Ball Family Partnership Lands

The lands are vacant and consist of muck land currently cultivated with sugar cane. Improvements include dikes, ditches, and farm roads. The main parcel has access from SR 715 and Hooker Highway from the east and Hatcher Road from the north. All three of these roads are paved. Hooker Highway is paved up to the lands to be acquired where the pavement ends and the road becomes a private graded road that is part of the main parcel.

The main parcel has access from SR 715 and Hooker Highway from the east and Hatcher Road from the north. All three of these roads are paved. The main parcel is zoned AP (Agriculture Production District) and portions of parent tracks have a Glades Area Economic Development overlay. The Future Land Use is also Agriculture Production (AP), which conforms to the zoning. The AP zoning and future land use do not allow residential homes, unless they are ancillary to an agriculture operation. The proposed acquisitions will take away an existing toe ditch, farm road and a number of rows of existing sugar cane stubble/ratoon. The landowner will be compensated for the contributory value of the permanent loss in sugar cane stubble/ratoon.



**FIGURE 4-1: FACING NORTH ON PARCEL AT THE CORNER OF THE HERBERT HOOVER DIKE AND HOOKER HIGHWAY**

#### The J.O. Schlechter Lands

The J.O. Schlechter parcel is located northwest of Hooker Highway and SR 715 in Belle Glade, Palm Beach County, Florida. SR 15/US 441 is located just west of SR 715. The town of Pahokee is located just north of the property and West Palm Beach is located about 45 minutes to the east. The 0.95 of an acre owned by J.O. Schlechter is a part of a large parcel (31.5 acres) and is located along the west side of the large parcel adjacent to Herbert Hoover Dike. The site is farmland planted in sugarcane and improvements to these lands include dikes, ditches and farm roads. The acquisition of the parcel will require the toe ditch and farm road to be relocated to the east. This 50 feet relocation of the ditch and farm road will take about 10 feet of sugarcane to the east. Also located within the acquisition is a 24 inch culvert that measures about 30 foot long. Access to the parent tract is from farm roads along the perimeter of the property. Hooker Highway is located about  $\frac{1}{4}$  of a mile south of the main parcel and access is via a private road owned by the Ball Family Partnership. The main parcel is zoned AP (Agriculture Production District) and portions of parent Tracks have a Glades Area Economic Development overlay. The Future Land Use is also Agriculture Production (AP), which conforms to the zoning. The AP zoning and future land use do not allow residential homes, unless they are ancillary to an agriculture operation. The landowner will be compensated for the contributory value of the permanent loss in sugar cane stubble/ratoon.



**FIGURE 4-2: FACING SOUTHEASTERLY ONTO THE PARENT AND SUBJECT TRACT FROM THE HERBERT HOOVER DIKE**

**TABLE 4-1: ENVIRONMENTAL EFFECTS OF THE DITCH BACKFILL ALTERNATIVES**

RESOURCE	No Action	High Stage Ditch (Focus Area 1& 6)	Backfill Ditch (Focus Area 1& 6 and Reach 2) Preferred Alternative
PUBLIC HEALTH AND SAFETY	Decreased factor of safety at critical areas of dike, increased risk of a breach or failure leading to loss of life and property. Risk involved with mitigating seepage from piping and boils with sand bagging and other fill material.	Decreased factor of safety. Staging high water in canals is not a reliable solution.	<p>The imperative objective is to reduce the probability of catastrophic failure and associated consequences to the extent reasonably possible. This alternative is an immediate project alteration that can be made immediately to the system while the final design for rehabilitation of the dike is being developed.</p> <p>Public health and safety is increased by reducing sand boils and seepage which can lead to dike instability or erosion of levee materials along internal channels.</p>
SOCIO- ECONOMICS	Flooding could result in loss of property and life. This could also cause businesses to close and displacement of people from their homes.	<p>Beneficial impacts from local jobs created during construction.</p> <p>Must acquire 3.85 acres of land to install pumps and gates in toe ditches areas in Focus Areas 1&amp; 6. The landowners will be compensated to reconstruct the toe ditch and farm road. The landowner will also be compensated for the contributory value of the permanent loss in sugar cane stubble/ratoon.</p>	<p>Beneficial impacts from local jobs created during construction.</p> <p>Must acquire 3.85 acres of land for toe ditch fill in Focus Areas 1&amp;6. The landowners will be compensated to reconstruct the toe ditch and farm road. The landowner will also be compensated for the contributory value of the permanent loss in sugar cane stubble/ratoon.</p>

RESOURCE	No Action	High Stage Ditch (Focus Area 1 & 6)	Backfill Ditch (Focus Area 1 & 6 and Reach 2) Preferred Alternative
WATER RESOURCES	<p>The No Action would not decrease adjacent landowner water conveyance. However, this alternative could increase seepage and piping and cause a failure of the dike. If a breach were to occur, lake waters would flow to adjacent agricultural lands.</p> <p>Short-term alteration of current water management practices likely.</p>	<p>Holding stages in the toe ditch at higher elevations would be more reliable than existing conditions with the addition of pumps and gates. However, this would increase the potential for localized flooding. This is not a reliable solution because it is operationally dependent.</p> <p>Adjacent landowners have the ability to pump water in and out of the toe ditch reducing the hydraulic head and reliability of this alternative.</p>	<p>Adjacent landowners would lose agricultural conveyance produced by the toe ditch in Focus Area 1 and 6. Localized stormwater drainage for the Federal Project would still be provided.</p>
THREATENED AND ENDANGERED SPECIES	<p>No significant impacts to protected species expected.</p>	<p>No significant impacts to protected species are expected. A Final CAR was prepared by the USFWS and is available as Annex A of the HHD Reach 1 EIS, dated September 2005.</p>	<p>No significant impacts to protected species are expected. A Final CAR was prepared by the USFWS and is available as Annex A of the HHD Reach 1 EIS, dated September 2005. See Section 4.8 Environmental Commitments of this EA, for specifics on monitoring of endangered and threatened species within the project area. All previous and ongoing coordination with the USFWS is available in Annex A of the HHD Reach 1 Cutoff Wall EA dated Feb. 2008. The Corps determination for the ditch backfill is “no effect”.</p>
STATE LISTED SPECIES	<p>No significant impacts to the burrowing owl species expected.</p>	<p>No significant impacts to burrowing owl are expected. The USFWS concurs with their findings in the Final CAR, available as Annex A of the HHD Reach 1 EIS, dated September 2005.</p>	<p>No significant impacts to burrowing owl are expected. The USFWS concurs with their findings in the Final CAR, available as Annex A of the HHD Reach 1 EIS, dated September 2005. See Section 4.9 of this EA, Environmental Commitments, for specifics on monitoring of state listed species within the project area.</p>

RESOURCE	No Action	High Stage Ditch (Focus Area 1& 6)	Backfill Ditch (Focus Area 1& 6 and Reach 2) Preferred Alternative
FISH AND WILDLIFE RESOURCES	The implications to fish and wildlife landward of the HHD that may result from dike failure would be limited to the areas of the breach and surrounding habitats. In the area of Reach 1 and 2, fish and wildlife habitat is marginal. However, those animals most significantly affected by extensive flooding include those with limited mobility. Amphibians, reptiles, and small mammals would be impacted to a moderate degree.	No adverse effects to foraging habitat in ditch areas.  Periodic increase of landward waters may alter some wildlife habitat.	The toe ditch in Focus Area 1, 6 will be backfilled. The ditch in Reach 2 will be backfilled in along 8,277 feet. These activities would eliminate the foraging habitat for wading birds, reptiles, and amphibians, along the toe ditch backfill areas. However, Lake Okeechobee will more than adequately provide this foraging habitat.
WETLANDS	Selection of the No Action Alternative would lead to minimal wetland impacts if there should be a failure of the HHD system. These impacts would result from increased water levels due to flooding landward of the HHD.	No adverse effects to foraging habitat in ditch areas.	The backfilling of the ditch would eliminate the foraging potential along these ditches. Although these areas provide less than optimal habitat, a variety of wading birds, small fishes and invertebrates utilize the ditches. Impacts would require mitigative measures. The wetlands in the toe ditches are considered low quality. Approximately 3.5 acres of wetlands will be backfilled in Reach 2 and 0.6 acres in Focus Areas 1 and 6. The functional loss for these wetlands equals 1.5 in Reach 2 and 0.10 in Focus Areas 1 and 6 (Section 4.2.1 and 4.2.2 of this EA).
WATER QUALITY	Increased sediments in surface waters due to seepage, piping and flooding. Long-term inundation periods would cause a wide variety of impacts such as pesticides and biological contaminants (coliform) from adjacent agricultural lands contaminating the water supply.	Construction activities of the pumps and stop-log risers could result in short-term increased turbidity in the nearby surface waters. Silt screen will be used to minimize impacts.	Construction activities could result in short-term increased turbidity north of Focus Area 6. Silt screen will be used to minimize impacts. No impacts south of Focus Area 1 because the toe ditch ends.

RESOURCE	No Action	High Stage Ditch (Focus Area 1& 6)	Backfill Ditch (Focus Area 1& 6 and Reach 2) Preferred Alternative
RECREATION	<p>Moderate adverse impacts to recreation resources would be anticipated without major repairs to the dike. Piping and boils would continue, requiring emergency repairs to attempt to keep up with the frequency of breaches in the dike. Areas affected would be closed off during construction for safety purposes, with the inclusion of possibly damaged areas awaiting repairs.</p>	<p>No impacts to recreation</p>	<p>No impacts to recreation</p>
AESTHETICS	<p>Impacts to aesthetics are anticipated in the short term. Piping and sand boils ruin the integrity of the dike; patches and temporary emergency construction to these areas are ongoing. If these conditions continue without full scale repairs to the dike, aesthetics and safety would be compromised because emergency repairs will increase in frequency. Dust and noise around active construction areas are continual.</p>	<p>Temporary/short-term impacts to localized areas as a result of construction.</p>	<p>Temporary/Short-term impacts to localized areas as a result of construction.</p>

RESOURCE	No Action	High Stage Ditch (Focus Area 1 & 6)	Backfill Ditch (Focus Area 1 & 6 and Reach 2) Preferred Alternative
HISTORIC PROPERTIES	Potential significant adverse effects in event of dike failure.	<p>Coordination and consultation with the Florida State Historic Preservation Officer (SHPO), and other interested parties has been conducted in accordance with the National Historic Preservation Act, as amended (PL 890665); the Archeological and Historic Preservation Act, as amended (PL 93-29; Executive Order 11593 and appropriate Florida Statutes. The historic properties are unchanged since the last NEPA document, can be found in Table 4.2 of the Feb. 2008 HHD Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Cutoff Wall EA with Addendum (Quarry) and FONSI.</p> <p>Potential significant adverse effects in event of dike failure.</p>	<p>Coordination and consultation with the Florida State Historic Preservation Officer (SHPO), and other interested parties has been conducted in accordance with the National Historic Preservation Act, as amended (PL 890665); the Archeological and Historic Preservation Act, as amended (PL 93-29; Executive Order 11593 and appropriate Florida Statutes. The historic properties are unchanged since the last NEPA document, can be found in Table 4.2 of the Feb. 2008 HHD Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Cutoff Wall EA with Addendum (Quarry) and FONSI. Consultation with the SHPO and other interested parties will continue until completion of the project.</p>
VEGETATION AND COVER TYPES	Potential significant adverse effects in event of dike failure.	<p>No significant adverse impacts to the vegetation and cover types are likely to occur due to implementation of the higher stage in ditches. Minimal short-term impacts to vegetation as a result of construction and minor excavation for this alternative are expected.</p>	<p>No significant adverse impacts to the vegetation and cover types are likely to occur due to implementation of the ditch backfill. Minimal short-term impacts to vegetation as a result of construction and minor excavation for this alternative are expected. Vegetation will be removed in the ditch.</p>

#### **4.1.2 Water Resources (Culvert 14 Removal or Abandonment)**

There are no permitted users of CU-14 for water supply or drainage. Removal or abandonment of the culvert itself should not have an impact since the gate on this structure has not been operated during normal operations for multiple years, and it has no direct hydraulic connection to any conveyance other than the toe ditch (See **Figure 2-7** Culvert 14 Location).

Immediately to the east between the toe of the dike and the right of way of the Florida East Coast Railroad are lands owned by Betty Kelley and Roy Goodson with a life estate in Callie G. Terrell (deceased), which are scheduled for acquisition by SFWMD. Appraisals and environmental site assessments (e.g. HTRW) are being completed. The improvements on the above property are located immediately north of Culvert 10A, located south of Culvert 14. The landowner to the east of the Terrell, Goodson and Kelley property is Florida East Coast Railroad (FEC) and to the east of FEC is Highway 441. Lands to the east of Highway 441 are owned by U.S. Sugar Corporation. There are no connections under the FEC or Highway 441 to supply water or flood control to U.S. Sugar Corporation. There are no South Florida Water Management District regulatory permits issued in this area. We have met with adjacent landowners and no one appears to utilize Culvert 14.

**TABLE 4-2: ENVIRONMENTAL EFFECTS OF THE CULVERT 14 ALTERNATIVES**

RESOURCE	No Action	Abandon Culvert 14	Remove Culvert 14 (Preferred Alternative)
<b>PUBLIC HEALTH AND SAFETY</b>	Decreased factor of safety at critical areas of dike, increased risk of a breach or failure leading to loss of life and property. Risk involved with mitigating seepage from piping and boils with sand bagging and other fill material.	Abandonment in place of CU-14 does pose a risk for piping in the dike because water can travel along the outside of the pipe carrying sediment with it. It also poses a temporary risk during construction when the lake is contained by the upstream cofferdam.	<p>The imperative objective is to reduce the probability of catastrophic failure and associated consequences to the extent reasonably possible. This alternative is an immediate project alteration that can be made immediately to the system while the final design for rehabilitation of the dike is being developed.</p> <p>Removal of CU-14 would eliminate the risk of piping along the culvert.</p> <p>Removal of CU-14 poses a temporary risk during construction when the lake is contained by an upstream cofferdam. In the event of a storm, the cofferdam could be considered a weak point in the dike and could have a higher probability of failure.</p>
<b>SOCIO-ECONOMICS</b>	Flooding could result in loss of property and life. This could also cause businesses to close and displacement of people from their homes.	<p>Beneficial impacts from local jobs created during construction.</p> <p>The risk of piping still exists with this alternative, therefore flooding to local businesses and residents could occur. However, this risk is less than that of the no action alternative.</p>	Beneficial impacts from local jobs created during construction.

RESOURCE	No Action	Abandon Culvert 14	Remove Culvert 14 (Preferred Alternative)
<p><b>WATER RESOURCES</b></p>	<p>Culvert structures are weak points, and piping along the culvert pipe is probably the second most likely failure mode (HHD Interim Risk Reduction Measures Plan, Appendix 2, section 3.1 Seepage and Piping, USACE. Aug. 2007).</p> <p>This alternative could increase seepage and piping and cause a failure of the dike. If a breach were to occur, lake waters would flow to adjacent agricultural lands.</p> <p>Short-term alteration of current water management practices likely.</p>	<p>There are no permitted users of CU-14 for water supply or drainage. Abandonment of the culvert itself should not have an impact since the gate on this structure has not been operated during normal operations for multiple years, and it has no direct hydraulic connection to any conveyance other than the toe ditch.</p>	<p>There are no permitted users of CU-14 for water supply or drainage. Removal of the culvert itself should not have an impact since the gate on this structure has not been operated during normal operations for multiple years, and it has no direct hydraulic connection to any conveyance other than the toe ditch.</p>
<p><b>THREATENED AND ENDANGERED SPECIES</b></p>	<p>No significant impacts to protected species expected.</p>	<p>No significant impacts to protected species are expected. A Final CAR was prepared by the USFWS and is available as Annex A of the HHD Reach 1 EIS, dated September 2005. The Corps determination for the culvert abandonment is “no effect”.</p>	<p>No significant impacts to protected species are expected. A Final CAR was prepared by the USFWS and is available as Annex A of the HHD Reach 1 EIS, dated September 2005. See Section 4.9 Environmental Commitments of this EA, for specifics on monitoring of endangered and threatened species within the project area. All previous and ongoing coordination with the USFWS is available in Annex A of the HHD Reach 1 Cutoff Wall EA dated Feb. 2008. The Corps determination for the culvert removal is “no effect”.</p>

RESOURCE	No Action	Abandon Culvert 14	Remove Culvert 14 (Preferred Alternative)
STATE LISTED SPECIES	No significant impacts to the burrowing owl expected.	No significant impacts to burrowing owl are expected. The USFWS concurs with their findings in the Final CAR, available as Annex A of the HHD Reach 1 EIS, dated September 2005.	No significant impacts to burrowing owl are expected. The USFWS concurs with their findings in the Final CAR, available as Annex A of the HHD Reach 1 EIS, dated September 2005. See Section 4.9 of this EA, Environmental Commitments, for specifics on monitoring of state listed species within the project area.
FISH AND WILDLIFE RESOURCES	The implications to fish and wildlife landward of the HHD that may result from dike failure would be limited to the areas of the breach and surrounding habitats. In the area of Reach 1 and 2, fish and wildlife habitat is marginal. However, those animals most significantly affected by extensive flooding include those with limited mobility. Amphibians, reptiles, and small mammals would be impacted to a moderate degree.	The abandonment of Culvert 14 may temporarily impact turtles and snakes during construction in the vicinity of the project site.  Periodic increase of landward waters may alter some wildlife habitat.	The removal of Culvert 14 may temporarily impact turtles and snakes during construction in the vicinity of the project site.
WETLANDS	Selection of the No Action Alternative would lead to minimal wetland impacts if there should be a failure of the HHD system. These impacts would result from increased water levels due to flooding landward of the HHD.	A wetland assessment was completed for the lakeside portion of CU-14; this 0.2 acre site scored a wetland value of zero. No impacts to wetlands with this alternative.	A wetland assessment was completed for the lakeside portion of CU-14; this 0.2 acre site scored a wetland value of zero. No impacts to wetlands with this alternative.

RESOURCE	No Action	Abandon Culvert 14	Remove Culvert 14 (Preferred Alternative)
WATER QUALITY	Increased sediments in surface waters due to seepage, piping and flooding. Long-term inundation periods would cause a wide variety of impacts such as pesticides and biological contaminants (coliform) from adjacent agricultural lands contaminating the water supply.	Construction activities could result in short-term increased sediment load in the nearby surface waters. However, silt screens and other erosion and turbidity control devices will be used as well as the implementation of Best Management Practices (BMPs) to minimize the discharge of water containing excessive turbidity. These preventive measures will be included in an Environmental Protection Plan (EPP).	Construction activities could result in short-term increased sediment load in the nearby surface waters. However, silt screens and other erosion and turbidity control devices will be used as well as the implementation of Best Management Practices (BMPs) to minimize the discharge of water containing excessive turbidity. These preventive measures will be included in an Environmental Protection Plan (EPP).
RECREATION	Moderate adverse impacts to recreation resources would be anticipated without major repairs to the dike. Piping and boils would continue, requiring emergency repairs to attempt to keep up with the frequency of breaches in the dike. Areas affected would be closed off during construction for safety purposes, with the inclusion of possibly damaged areas awaiting repairs.	Temporary/short-term impacts to parks, bank fishing, and bike trail, access to select lake side locations may result from construction activities and/or access of construction site, equipment, and staging areas.  Specifically, impacts to the paved Lake Okeechobee Scenic Trail (LOST) atop the HHD may occur during project construction. Construction activities may limit access to certain parts of the trail, and parts of the trail may be removed.	Temporary/short-term impacts are anticipated to the bike trail and possible access to select lakeside locations as a result of construction activities and/or access of construction site, equipment, and staging areas.  Specifically, impacts to the paved Lake Okeechobee Scenic Trail (LOST) atop the HHD may occur during project construction. Construction activities may limit access to certain parts of the trail, and parts of the trail may be removed.

RESOURCE	No Action	Abandon Culvert 14	Remove Culvert 14 (Preferred Alternative)
AESTHETICS	<p>Impacts to aesthetics are anticipated in the short term. Piping and sand boils ruin the integrity of the dike; patches and temporary emergency construction to these areas are ongoing. If these conditions continue without full scale repairs to the dike, aesthetics and safety would be compromised because emergency repairs will increase in frequency. Dust and noise around active construction areas are continual.</p>	<p>Temporary/short-term aesthetics impacts to localized areas as a result of construction machinery and excavation on project site.</p>	<p>Temporary/short-term aesthetics impacts to localized areas as a result of construction machinery and excavation on project site.</p>
HISTORIC PROPERTIES	<p>Potential significant adverse effects in event of dike failure.</p>	<p>Coordination and consultation with the Florida State Historic Preservation Officer (SHPO), and other interested parties has been conducted in accordance with the National Historic Preservation Act, as amended (PL 890665); the Archeological and Historic Preservation Act, as amended (PL 93-29; Executive Order 11593 and appropriate Florida Statutes. The historic properties are unchanged since the last NEPA document, can be found in Table 4.2 of the Feb. 2008 HHD Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Cutoff Wall EA with Addendum (Quarry) and FONSI.</p> <p>Potential significant adverse effects in event of dike failure.</p>	<p>Coordination and consultation with the Florida State Historic Preservation Officer (SHPO), and other interested parties has been conducted in accordance with the National Historic Preservation Act, as amended (PL 890665); the Archeological and Historic Preservation Act, as amended (PL 93-29; Executive Order 11593 and appropriate Florida Statutes. The historic properties are unchanged since the last NEPA document, can be found in Table 4.2 of the Feb. 2008 HHD Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Cutoff Wall EA with Addendum (Quarry) and FONSI. Consultation with the SHPO and other interested parties will continue until completion of the project.</p>

RESOURCE	No Action	Abandon Culvert 14	Remove Culvert 14 (Preferred Alternative)
VEGETATION AND COVER TYPES	Potential significant adverse effects in event of dike failure.	<p>No significant adverse impacts to the vegetation and cover types are likely to occur due to implementation of the culvert abandonment.</p> <p>Minimal short-term impacts to vegetation as a result of construction and minor excavation for this alternative are expected.</p>	<p>No significant adverse impacts to the vegetation and cover types are likely to occur due to implementation of the culvert removal. Minimal short-term impacts to vegetation as a result of construction and minor excavation for this alternative are expected.</p>
INFRASTRUCTURE	Disruption and damages of roads and railway services in the event of dike failure.	<p>The respective contractors will obtain the required access permits from FDOT District Four to implement a safe Maintenance of Traffic plan to get the construction trucks off and on US 441-a high speed facility-without incident. The contractors will also coordinate with the Rail Line (U.S. Sugar) directly to ensure railroad safety standard practices are adhered to.</p>	<p>The respective contractors will obtain the required access permits from FDOT District Four to implement a safe Maintenance of Traffic plan to get the construction trucks off and on US 441-a high speed facility-without incident. The contractors will also coordinate with the Rail Line (U.S. Sugar) directly to ensure railroad safety standard practices are adhered to.</p>

## 4.2 UNIFORM MITIGATION ASSESSMENT METHOD

On November 7 and 8, 2006, and March 7, 2007, an interagency team of biologists from the USACE, USFWS, and USEPA used the Uniform Mitigation Assessment Method (UMAM) to evaluate the quality of wetlands potentially affected by the Recommended Plan in Reaches 1, 2 and 3. The UMAM is a standardized procedure for assessing the functions provided by wetlands and other surface waters, the amount that those functions are reduced by a proposed impact, and the amount of mitigation necessary to offset that loss. A full explanation of the UMAM procedure is available under the Florida Administrative Code, Chapter 62-345. The UMAM scoring sheets for each assessment area are available in Appendix C – Mitigation.

The first step in the UMAM process is to determine the assessment area(s). An assessment area is all or part of a wetland or surface water impact site, or a mitigation site that is sufficiently homogeneous in character, impact, or mitigation benefits to be assessed as a single unit.

### 4.2.1 Reach 2 UMAM

The overall area of potential impact was defined as land within 150 feet landward of the toe of the dike in eastern Reach 2. Where US 27 is located within the 150 feet of the dike, the assessment area was between the toe of dike and the edge of pavement. Western Reach 2 between S-77 and S-4 was not assessed because the toe of the dike borders a borrow canal that will not be affected during project construction. Additionally, John Stretch Park was not assessed because no wetlands are present. A total of 229.5 acres were assessed.

The UMAM scores three wetland parameters: (1) location and landscape support; (2) water environment; and (3) community structure for vegetation and/or benthic communities. The parameters are scored on a scale of 1 to 10, with 1 being “not present” and 10 being “optimal.” No jurisdictional determination was performed prior to the UMAM assessment. Therefore, the assessment acreage potentially includes non-wet areas.

The UMAM resulted in scores ranging from 1.0 to 6.0 for all three parameters. Therefore, the wetlands are of low to moderate quality.

The dominant plant species for the entire assessment area included Melaleuca (*Melaleuca quinquenervia*), Brazilian pepper (*Schinus terebinthifolius*), Australian pine (*Casuarina equisetifolia*), leather fern (*Acrostichum danaeifolium*), cattails (*Typha* sp.), duck potato (*Sagittaria* sp.), primrose willow (*Ludwigia peruviana*), common reed (*Phragmites australis*), giant foxtail (*Setaria magna*), sawgrass (*Cladium jamaicense*), water-lettuce (*Pistia stratiotes*), and royal palm (*Roystonea elata*).

Reach 2 West assessment area was dominated by Melaleuca. The stand was recently sprayed with a herbicide, but still had a visible understory of leather fern and sawgrass. The soils were hydric with a dark, organic layer, and there were areas of dark-colored, standing water within the assessment area. The assessment area had a moderate vegetated buffer between it and the road. Wildlife observed include cattle egrets, a red-shouldered hawk, cormorant, great blue heron, tri-colored heron, great egret, boat-tailed grackle, sunfish, mosquitoes, and butterflies as well as

deer and hog tracks. The assessment area was scored a five for location and landscape support, six for water environment, and two for community structure.

The Reach 2 West assessment area is 14,000 linear feet along the toe of the dike; approximately 2.6 acres of ditch wetlands will be backfilled. The functional loss for this area was assessed as -0.43; therefore, a relative functional loss of -1.1 acres will result for the Reach 2 ditch backfill (see **Table 4-3**). Note that only the portion of the ditch that is considered wetlands was included in the calculations and therefore scored by UMAM.

**TABLE 4-3: REACH 2 FUNCTIONAL LOSS CALCULATIONS**

<b>Reach 2 Assessment Area</b>	(A) Net Loss or Gain of Wetland Function*	(B) Acres of Wetlands Impacted by Project	Total Functional Loss (A x B)
West	-0.43	2.6	<b>-1.1</b>

\**Wetland function* is the expected value of the wetlands **after** project implementation minus the **current** value of the wetlands. The *value* of the wetlands was determined by an interagency team of scientists who qualitatively scored the wetlands based on three parameters: (1) location and landscape support, (2) water environment, and (3) community structure for vegetation and/or benthic communities. These parameters were scored on a scale of one to 10, with “1” being “wetlands not present” and “10” being “optimal wetlands.”

#### 4.2.2 Reach 1 - Focus Areas 1 & 6 and Culvert 14

Approximately 0.6 acres of wetlands occur within the Focus Areas 1 & 6 toe ditch. Using the UMAM, the functional loss is -0.166; therefore, the relative functional loss in acres is -0.1 (see **Table 4-4**). Note that only the portion of the toe ditch that is considered wetlands was included in the calculations and therefore scored by UMAM. Approximately 0.2 acres of open water will be filled adjacent to Culvert 14 (lakeside). A wetland assessment was completed for this area; the site scored a value of zero.

**TABLE 4-4: FOCUS AREA 1 & 6 FUNCTIONAL LOSS CALCULATION**

<b>Reach 1 Assessment Area</b>	(A) Net Loss or Gain of Wetland Function	(B) Acres of Wetlands Impacted by Project	Total Functional Loss Units (A x B)
Focus Area 6	-0.166	0.3	-.050
Focus Area 1	-0.166	0.3	-.050
Culvert 14	0.0	0.2	0.0
		0.8	<b>-0.1</b>

### 4.3 MITIGATION

Approximately -1.2 relative functional loss units of compensatory mitigation will have to be completed to offset the impacts of the ditch wetlands backfill in Reaches 1 and 2. Along the Reach 2 ditch, a dense bed of Melaleuca and Australian pine exists.



**FIGURE 4-3: REACH 2, WEST PRE-MELALEUCA REMOVAL**



**FIGURE 4-4: REACH 2, EAST 1 PRE-MELALEUCA**

#### **4.3.1 Exotic Vegetation Removal as the Mitigation Compensation Plan**

The mitigation compensation sites are located along the southwestern side of the Herbert Hoover Dike (HHD) in between the towns of Clewiston and Moore Haven, FL. Mitigation compensation will be accrued from clearing of exotic vegetation, primarily Melaleuca trees, from lands bordering the HHD to restore the area to a more natural condition. Approximately 9.2 acres of exotic vegetation will be removed from two compensation sites (see Appendix C for details of Mitigation Plan).

#### **4.4 CUMULATIVE IMPACTS**

Cumulative impacts are defined in 40 CFR 1508.7 as those impacts that result from:

*...the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*

##### **4.4.1 Past Actions**

The HHD Environmental Assessments have addressed impacts of backfilling low quality toe ditch wetlands within the Corps right of way along Reach 1, in addition to focus areas 8 and 3

located in Reaches 3 and 2, respectively. The purpose of the toe ditch backfill was to provide an interim risk reduction measure at the focus areas, as well as, implement a partial seepage berm within the ROW. The previous EAs have covered a total of 46.5 acres of toe ditch wetlands backfill. Applying the UMAM, the relative functional loss of these wetlands equated to 16.6 acres. Mitigation has been completed for these past actions. A seepage cutoff wall is being implemented in Reach 1 as part of the preferred solution for rehabilitation of the HHD. The landside rehabilitation fixes have not been completed yet. When these designs are complete, the impacts will be addressed in a subsequent EIS for Reach 1 and for Reaches 2 and 3. The past actions have remained unchanged since the last NEPA document and can be found in Sect. 4.3.1 of the Feb 2008 HHD Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Cutoff Wall EA with Addendum (Quarry) and FONSI.

#### **4.4.2 Incremental Effects of the Current Action**

##### **4.4.2.1 Human Environment**

Past actions have resulted in a dike system that, although state-of-the-art when it was completed, is now recognized as substandard. The incremental effect of the Preferred Alternative is a beneficial contribution to the protection of public health and safety. With implementation of the ditch backfill and removal of Culvert 14, agriculture lands, infrastructure (e.g. roads, railroads), and recreation (hiking, biking) will receive an increase in risk reduction from a failure of the dike.

Today the natural environment adjacent to Reach 1 of the HHD includes the Lake Okeechobee littoral zone, containing emergent vegetation in a diverse mosaic of native and exotic plants. It provides nesting habitat and food resources for economically important sport fish populations, wading birds, migratory waterfowl, alligators, and federally endangered Everglades snail kites. The structure of the littoral vegetation community largely determines the extent to which it can provide these habitat resources. Littoral vegetation structure is influenced both by hydroperiod and phosphorus loading from the lake's eutrophic pelagic region. The natural environment has remained unchanged since the last NEPA document and can be found in Sect. 4.2.2.2 of the HHD EA, Feb 2008.

#### **4.4.3 Current and Reasonably Foreseeable Future Actions**

The USACE anticipates completing rehabilitation of the HHD in the remaining reaches around Lake Okeechobee to ensure the authorized level of protection. The current and reasonably foreseeable future actions have remained unchanged since the last NEPA document and can be found in Sect. 4.2.3 of the HHD EA, Feb 2008.

##### **4.4.3.1 Related Projects**

The related projects have remained unchanged since the last NEPA document and can be found in Sect. 4.2.3.1 of the Feb 2008 HHD Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Cutoff Wall EA with Addendum (Quarry) and FONSI.

#### 4.5 IRRETRIEVABLE OR IRREVERSIBLE COMMITMENT OF RESOURCES

The USACE anticipates completing rehabilitation of the HHD in the remaining reaches around Lake Okeechobee to ensure the authorized level of protection.

#### 4.6 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

Unavoidable adverse effects that would result from implementation of the preferred alternative include the following:

##### Water Resources

Adjacent landowners would lose agricultural drainage conveyance produced by the toe ditch. The landowners will be compensated to reconstruct the toe ditch. Localized stormwater drainage for the Federal Project would still be provided. Removal of CU-14 poses a temporary risk during construction when the lake is contained by an upstream cofferdam. In the event of a storm, the cofferdam could be considered a weak point in the dike and could have a higher probability of failure.

##### Vegetation and Cover Types

No significant adverse impacts to the vegetation and cover types are likely to occur due to implementation of the ditch backfill and culvert removal. Minimal short-term impacts to vegetation as a result of construction and minor excavation for this alternative are expected.

##### Wetlands

Some unavoidable adverse impacts to existing wetlands are likely to occur due to implementation of the toe ditch backfill. Low quality wetlands will be lost in toe ditch areas; approximately 2.57 acres of wetlands will be backfilled in Reach 2 West and a total of 0.6 acres in Reach 1D (Focus Areas 1 & 6). The functional loss for these wetlands equals -1.1 relative functional loss (RFL) units for Reach 2 West and -0.1 RFL units in Focus Areas 1 & 6 (**Section 4.2** of this EA), for a total of -1.2 RFL. However, Lake Okeechobee provides abundant high quality wetlands. Mitigation will occur for any wetlands loss.

##### Fish and Wildlife

No significant adverse impacts to the foraging habitat for wading birds, reptiles, and amphibians are likely to occur. Foraging habitat within toe ditches would be impacted as a result of construction and minor excavation for this alternative. However, Lake Okeechobee provides abundant quality foraging habitat.

##### Threatened and Endangered Species

Adverse impacts to threatened and endangered (T&E) species are not likely to occur due to implementation of the culvert removal and ditch backfill. A previous survey was conducted for burrowing owls on Reach 1 and none were found on the project site.

The Corps Endangered Species determination is “no effect”. The Corps is in compliance with the Endangered Species Act of 1973.

### Noise

Minor localized noise related impacts during construction operations are expected to occur due to implementation of the culvert removal and ditch backfill.

### Air Quality

Minor and localized air quality impacts during construction operations are expected to occur due to implementation of the cutoff wall.

### Land Use

Some unavoidable adverse impacts to existing land use elements are likely to occur due to implementation of the preferred alternative. The preferred alternative will require 3.85 acres of land for toe ditch fill in Focus Areas 1 & 6. The landowner will also be compensated for the contributory value of the permanent loss in sugar cane stubble/ratoon.

### Aesthetic Resources

Limited, short-term adverse impacts associated with construction activities would be imposed on aesthetic resources within the project area.

### Recreation Resources

Temporary/short-term impacts to the bike trail and possible access to some lakeside locations as a result of construction activities and/or access of construction site, equipment, and staging areas are anticipated. Specifically, some effects to the paved Lake Okeechobee Scenic Trail (LOST) atop the HHD may occur during project construction. Construction activities may limit access to certain parts of the trail, and parts of the trail may be removed.

In Reaches 1C and 1D, the LOST is paved. For these sections the Corps will do the following:

1. The Corps will continue, consistent with its authority and funding, to seek to reduce and minimize impacts to the Lake Okeechobee Scenic Trail through design refinement.
2. The Corps will explore utilization of Section 111 authority of the 1958 River and Harbor Act, Public Law 85-500, to determine if it is appropriate to pay for the cost to remediate impacts to the Lake Okeechobee Scenic Trail out of project funds.

## **4.7 COMPATIBILITY WITH FEDERAL, STATE, AND LOCAL OBJECTIVES**

The objective of this project is implementation of interim risk reduction measures in order to reduce the probability of a breach due to seepage and boils. This project will provide a level of public safety for property owners and residents adjacent to Reaches 1 and 2; this is compatible with federal, state, and local objectives.

## **4.8 CONFLICTS AND CONTROVERSY**

The Sugar Cane Growers Cooperative of Florida had concerns on previous HHD environmental documents regarding unique farmland, benefits of the levee system, and project segmentation.

## **4.9 ENVIRONMENTAL COMMITMENTS**

The U.S. Army Corps of Engineers and its contractors commit to avoiding, minimizing or mitigating for adverse effects during construction activities by including the following commitments in the contract specifications: The Environmental Commitments have remained unchanged except for the bald eagle, FDOT District Four access permits, and the Rail Line coordination requirements (see below) since the last NEPA document, and can be found in Sect. 4.10 of the Feb 2008 HHD Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Cutoff Wall EA with Addendum (Quarry) and FONSI.

On June 28, 2007, the U.S. Fish and Wildlife Service (USFWS) announced the removal of the bald eagle from the list of threatened and endangered species under the Endangered Species Act. On August 9, 2007 the eagle was officially delisted. However, the bald eagle is still protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. As part of the protective measures, the Corps will conduct surveys to locate the nest trees ahead of construction and will avoid construction close to the nests during nesting season. The Service has developed the *Bald Eagle National Management Guidelines* <http://www.fws.gov/migratorybirds/> to provide recommendations to avoid adversely affecting the bald eagle, especially during the nesting season. The Corps will continue its commitment to avoid impacts on the nests.

The respective contractors will obtain the required access permits from FDOT District Four to implement a safe Maintenance of Traffic plan to get the construction trucks off and on US 441(a high speed facility) without incident. The contractors will also coordinate with the Rail Line (U.S. Sugar) directly to ensure railroad safety standard practices are adhered to.

## **4.10 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS**

### **4.10.1 National Environmental Policy Act of 1969**

Environmental information on the project has been compiled and this Environmental Assessment was prepared in compliance with the National Environmental Policy Act.

### **4.10.2 Endangered Species Act of 1973**

Consultation has been initiated and is ongoing, and will be completed upon coordination of the present Environmental Assessment. The Corps endangered species determination is “no effect”. No construction will occur until consultation is completed. This project is in compliance with the Act.

### **4.10.3 Fish and Wildlife Coordination Act of 1958**

This project has been coordinated with the USFWS. The Corps endangered species determination is “no effect”. This project is in compliance with the Act.

#### **4.10.4 National Historic Preservation Act of 1966, As Amended Through 2000**

The proposed action has been coordinated with the Florida State Historic Preservation Officer in accordance with the National Historic Preservation Act and the Archaeological and Historic Preservation Act. Consultation with the State Historic Preservation Officer (SHPO) was initiated August 20, 1999. In a response dated August 7, 2005, the SHPO concurred with the Corps' no adverse effect determination on Reach 1. In a response letter received on September 20, 2006 regarding rehabilitation of the HHD in Reaches 2 and 3, SHPO stated that the proposed rehabilitation activities will be consistent with the historic preservation laws of Florida's Coastal Management Program and the National Historic Preservation Act as long as continued consultation occurs with their office. The project will not have an adverse effect on any historic properties included in or potentially eligible for inclusion in the National Register of Historic places. Conditions to protect undiscovered resources will be implemented as follows: Language will be included in construction contract specifications outlining the steps to be taken in the event that undiscovered historical properties are encountered. An informational training session, developed by a professional archaeologist, will be conducted for the contractor's personnel to explain what kinds of archaeological/cultural materials might be encountered during construction of the impoundment, and the steps to be taken in the event these materials are encountered. A professional archaeologist will conduct periodic monitoring of the project area during construction to determine if activities are impacting unanticipated cultural resources. The proposed action is consistent with these Acts. Historic preservation compliance will be completed to meet all responsibilities under Chapter 267.

#### **4.10.5 Clean Water Act of 1972**

The proposed HHD repairs are subject to Section 404 of the Clean Water Act and would require Water Quality Certification from the FDEP. The Section 402(b) National Pollutant Discharge Elimination System (NPDES) permit will be required for construction activities that disturb more than 5 acres of land. This permit will be acquired prior to the initiation of construction.

The Corps currently has an Environmental Resource Permit (ERP) (serves as WQC) to construct emergency toe ditch backfilling repairs along 20,000 feet of high risk portions of Reach 1 (DEP File # 0234604-003), covered in previous EA.

#### **4.10.6 Clean Air Act of 1972**

No air quality permits would be required for this project. Per the EPA list, there are no air sheds in Florida that require source control or monitoring. Coordination with the EPA will be ongoing as detailed design information becomes available. This project is in full compliance with the Clean Air Act Section 176.

#### **4.10.7 Coastal Zone Management Act of 1972**

A federal consistency determination in accordance with 15 CFR 930 Subpart C is included in the FEIS report (dated September 2005) as Annex D. State consistency review was performed during the coordination of the draft and final EIS. The Corps has determined that the proposed

project is consistent with the Florida Coastal Zone Management Program. Continued concurrence is based on adequate resolution of issues identified by state agencies, specifically FDOT and FDEP coordination of impacts to the Lake Okeechobee Scenic Trail (LOST) and repairs. The Corps has determined that the modified plan is likewise consistent with the Florida CZMA program. The updated Florida CZMP Evaluation can be referenced in Appendix A of this report.

#### **4.10.8 Farmland Protection Policy Act of 1981**

No prime or unique farmland would be impacted by implementation of the ditch backfill or culvert removal.

#### **4.10.9 Federal Water Project Recreation Act**

The effects of the proposed action on outdoor recreation have been considered and are presented in this EA. There will be short-term impacts to the Lake Okeechobee Scenic Trail located on top of the dike at Culvert 14 during construction. Continued recreation planning will be performed during detailed project engineering and design. The project is in full compliance.

#### **4.10.10 Migratory Bird Treaty Act and Migratory Bird Conservation Act**

No migratory birds would be affected by project activities; however, the bald eagle has been identified in the project area (see **Section 4.9** for Environmental Commitments). The toe ditch wetlands provide very low quality habitat for migratory birds. Alternative and higher quality habitats are available along the Lake Okeechobee shoreline and in adjacent canals. The project is in compliance with these acts.

#### **4.10.11 E.O. 11990, Protection of Wetlands**

The backfilling of the toe ditch would eliminate the wetlands along these ditches. Although these areas provide less than optimal habitat, a variety of wading birds, small fishes and invertebrates utilize the ditches. Impacts would require mitigation measures. The wetlands in the toe ditches are considered low quality. Approximately 2.6 acres of wetlands will be backfilled in Reach 2 and 0.6 acres in Focus Areas 1 and 6. The functional loss for these wetlands equals -1.1 in Reach 2 and -0.10 in Focus Areas 1 and 6 (**Section 4.2** of this EA). This project is in compliance with the goals of this Executive Order.

#### **4.10.12 E.O. 11988, Flood Plain Management**

The study is in full compliance. While the considered alternative has no impact on avoidance of development in the flood plain, the recommended plan will directly support a reduction in hazards and risks associated with floods and will minimize the impact of floods on human safety, health and welfare. The recommended plan will have no impact on the restoration and preservation of the natural and beneficial values of the base flood plain.

**4.10.13 E.O. 12898, Environmental Justice**

Executive Order 12898 requires the Federal government to review the effects of their programs and actions on minorities and low income communities. The study area is known to contain a significant percentage of low income and minority individuals. The preferred alternative would help to ensure the safety of those communities within the study area in Glades, Hendry and Palm Beach Counties as well as residents living within the area anticipated to be impacted in the event of a dike failure. In addition to ensuring the safety and well-being of residents and their property, implementation of the recommended plan may have a beneficial effect on local communities through job creation, and the increased sale of construction materials and other goods necessary to sustain a construction force for the duration of the project. To implement the preferred alternative, 3.85 acres of agricultural lands must be acquired. This will affect two land owners located adjacent to Focus Areas 1 and 6. The project will not have disproportionate adverse effects on minority or low-income populations.

**4.10.14 E.O. 13112, Invasive Species**

Exotic and invasive plant species are found within drainage swales, connecting canals, wetlands, and some upland within the project area. However, the project will not contribute to nutrient loading, or otherwise foster the spread of invasive species. Exotic wildlife species are not anticipated to be affected. This project is in full compliance with the Executive Order.

## 5.0 LIST OF PREPARES AND REVIEWERS

**TABLE 5-1: LIST OF EA PREPARERS AND REVIEWERS**

<b>Name</b>	<b>Affiliation</b>	<b>Discipline/Expertise</b>	<b>Role in Preparing Document</b>
Nancy Allen	USACE (SAJ)	Biologist	Preparation of EA
Tien Ho	EPJV, Contractor	Biological Engineer	Preparation of EA
Angela Dunn	USACE (SAJ)	Biologist	Preparation of EA
Mark D. Shafer	USACE (SAJ)	Environmental Engineer	Water Quality and Permit Acquisition
Michael Rogalski	USACE (SAJ)	Project Manager	Review of the EA
Barbara Cintron	USACE (SAJ)	Chief of Environmental Branch, South Florida Section	NEPA Review
David Dollar	USACE (SAJ)	Engineering Technical Lead	Review of the EA
Martin Falmlen	USACE (SAJ)	Hydrology Engineer	Review Hydrology Portions of the EA
Natalie Garrett	USACE (SAJ)	Archeologist	Review of Cultural Resources
John Bretz	EPJV, Contractor	Project Manager	Consistency Review
Alan D. Shirey	USACE (SAW)	NEPA Specialist	External Independent Technical Review

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## 6.0 PUBLIC INVOLVEMENT

### 6.1 SCOPING AND ISSUES

The EA and proposed Finding of No Significant Impact (FONSI) for the Partial Reach 1 and 2 Ditch Backfill and Culvert 14 Removal were made available to the public by notice of availability dated July 16, 2008, pertinent correspondence regarding this proposed work is available in **Appendix E** of the final report.

Informal consultation is in progress. Interagency participation with USFWS, EPA, FDEP, and the Corps has been ongoing. A scoping letter was sent out on May 20, 2008. Consultation with the SHPO and other interested parties will continue until completion of the project. Concurrence is expected with Corps determination to endangered species of “no effect”.

A Culvert Coordination Meeting was held in Belle Glade on May 19, 2008 to discuss the nine culverts within Reach 1 of the HHD. As efforts continue to rehabilitate the HHD with construction of the cut-off wall and landside rehabilitation design in Reach 1, it is necessary to remove the original culverts from service, bring up to current safety standards, or replace with structures that are more appropriate to meet current hydrologic requirements. Prior to proceeding with design solutions for these culverts and required NEPA, each culvert will be evaluated to determine hydraulic capacity consistent with its current and/or future use. **Table 6-1** lists the meeting attendees.

**TABLE 6-1 CULVERT COORDINATION KICK-OFF MEETING ATTENDEES**

First	Last	Organization
Don	Nelson	USACE
Martin	Falmlen	USACE
Dave	Cook	SFCD
David	Davis	SFCD
Roger	Hatton	East Beach Drainage District
Matahel	Ansar	SFWMD
Jeff	Kivett	SFWMD
Bubba	Wade	US Sugar/SFWMD
Bill	Tarr	Florida Crystals Corp.
Kim	Taplin	USACE
Barbara	Miedema	Sugar Can Growers Coop.
Tom	MalVicar	MFL, Inc.
Jeff	Ward	Sugar Cane Growers Coop.
Pepe	Lopez	US Sugar Corp.
Nick	Landau	Florida Crystals Corp.

### 6.2 AGENCY COORDINATION

This EA was provided to all supporting agencies for review. Any comments received have been addressed in the final EA. Pertinent correspondence with agencies is available in **Appendix E** of this EA. All previous coordination with the USFWS can be found in Sect. 6.2, Table 6-1, of the

Feb 2008 HHD Major Rehabilitation, Martin and Palm Beach Counties: Reach 1 Cutoff Wall EA with Addendum (Quarry) and FONSI.

### **6.3 LIST OF RECIPIENTS**

The list of recipients has remained unchanged since the last NEPA document and can be found in Sect. 6.3, Table 6-2, of the Feb 2008 HHD EA, Feb 2008.

The EA is posted on the following websites:

- The Corps Environmental planning website, under Palm Beach and Martin Counties:  
<http://planning.saj.usace.army.mil/envdocs/envdocsb.htm>
- The HHD SAJ webpage, under HHD related information:  
<http://www.saj.usace.army.mil/cco/HHD/hhdike.htm>

### **6.4 RESPONSES**

**Table 6-2** summarizes the public / agency comments received and the USACE response. All public / agency correspondence is included in its entirety in **Appendix E – Pertinent Correspondence**.

**TABLE 6-2: AGENCY & PUBLIC COMMENTS AND RESPONSES**

Agency/Public	Comment	USACE
FEMA 10 June 2008	Thank you for keeping FEMA abreast of work on the HHD. Good luck with this urgent and compelling project.	Thank you and we will continue to provide updates to your agency as the rehabilitation of HHD continues.
EPA – 1 14 August 2008	Please include UMAM data sheets for the mitigation sites in the FEA.	The mitigation sites will not be scored until after the sites have had a chance to naturally re-establish native vegetation and/or be planted with the appropriate plants. At that time, the UMAM will be used to determine if there has been enough ecological lift to offsite the -1.2 functional loss units of the project impacts.
EPA - 2	The proposed mitigation plan should include hydrological success criteria and stipulate that no more than 2% exotic or 5% nuisance plants permitted.	Concur. This language will be added to the mitigation plan in the EA.
EPA - 3	Include success criteria (80% coverage with 10 different desirable plant species as listed in Table C-3).	The mitigation plan does not propose that all ten plant species will be planted. Table C-3 only proposes a list of species that may be used. Other native wetland species that are not on the list may regenerate naturally.
EPA - 4	The mitigation sites need to be monitored for a minimum of 5 years to insure success criteria.	Concur. This language will be added to the mitigation plan in the EA.
USFWS-1 22 August 2008	We consider the subject EA as a supplement to our previous coordination on this project under both the Fish and Wildlife Coordination Act and the Endangered Species Act.	Noted and Concur.

USFWS-2	No additional impacts on wetlands are anticipated; we have already participated in a team with the Corps, FDEP, and EPA to evaluate the wetland impacts and concur with the proposed mitigation plan.	Noted and Concur.
USFWS-3	Your informal consultation under the endangered Species act included provision to avoid adversely affecting two bald eagle nests. We note that your EA recognized that the eagle was officially removed from the list of threatened and endangered species. However, you continue your commitment to follow the previous agreements to avoid impacts to the nest.	Noted and Concur.
USFWS-4	We recommend that you adhere to the Guidelines to avoid take of bald eagles.	Noted and Concur.
USFWS-5	We recommend that the trees along the edge of the borrow pit be marked in advance of construction, instructing the contractors to modify construction techniques to leave as many of these trees stand as possible. The Corps has followed these recommendations.	Noted and Concur.

<p>FDOT District Four -1 18 August 2008</p>	<p>There is no mention in the document of any coordination with the rail owner.</p>	<p>Coordination with U.S. Sugar has been ongoing. U.S. Sugar owns the SCFE Rail Line. A copy of the draft EA has been sent to the U.S. Sugar Corporation and SCFE for their review and comments. The respective contractors will coordinate with the Rail Line (U.S. Sugar Corp.) directly (Section 4.9 Environmental Commitments). A letter was sent to the U.S. Sugar Corporation on June 30, 2008 from the Corps regarding the Reach 1 culvert meeting held on May 19, 2008 with U.S. Sugar and other interested parties. A copy of the letter is included in the correspondence section. A Culvert Coordination Meeting was held in Belle Glade on May 19, 2008; the US Sugar attended (Table 6-1).</p>
<p>FDOT-2</p>	<p>There is no section in this document that discusses the utilities and infrastructure adjacent to the proposed work and potential impacts to them.</p>	<p>An Infrastructure discussion section has been added to Table 4-2: Environmental Effects of the Culvert 14 Alternatives.</p>
<p>FDOT-3</p>	<p>Please add a commitment in this document that the respective contractors obtain the required access permits from FDOT District Four.</p>	<p>A commitment that respective contractors will obtain the required permits from FDOT District Four has been included in Section 4.9 Environmental Commitments. In the construction contract plans and specifications for Culvert # 14, it is a requirement that the contractor obtains all required state and local permits with respect, including FDOT District four. The contact information provided with respect to FDOT District 4 permit office will be included in the contract specification requirements.</p>
<p>SFWMD 21 Aug 2008</p>	<p>We have reviewed the above document and agree with the findings.</p>	<p>Thank you and we will continue to provide updates to your agency as the rehabilitation of HHD continues.</p>
<p>FDEP – 1 19 Aug 2008</p>	<p>FDEP was not part of UMAM scoring; FDEP will need to confirm team assessment.</p>	<p>FDEP did participate in the scoring of Focus Areas 1 and 6 (March 13, 2007). FDEP was invited to participate in the Reach 2 wetland ditch scoring but did not send a representative, (this interagency team consisted of USACE, EPA, and FWS). Since the Melaleuca removal has already been completed, FDEP will not be able to confirm the team assessment.</p>

FDEP – 2	The proposed mitigation lift was not submitted for mitigation.	The mitigation sites will not be scored until all of the exotic plant removal has been completed and after the sites have had a chance to naturally re-establish native vegetation and/or be planted with the appropriate plants. At that time, the UMAM will be used to determine if there has been enough ecological lift to offsite the -1.2 functional loss units of the project impacts.
FDEP – 3	Corps must coordinate Lake Okeechobee Scenic Trail (LOST) closure with FDEP.	Concur. The LOST closures will be coordinated with FDEP throughout the project.
Treasure Coast Regional Planning Council - Palm Beach & Martin County  18 Apr 2008	The proposed project is neither inconsistent nor in conflict with the Strategic Regional Policy Plan.	Noted. Thank-you for the review.
Southwest Florida Regional Planning Council  11 Aug 2008	We concur with the Finding by the USACOE that with the proposed mitigation plans and reasonable and prudent measures outlined in EA that the proposed action for the rehabilitation of HHD will not result in a significant adverse affect on the human environment.	Thank you.
Christian Davenport, Archaeologist, Palm Beach County  6 Aug 2008	I would expect there to be some artifacts in the “Ball Family Partnership Lands” and the “J.O. Schlechter Lands” ... Minimally, I think USACE will need a Certificate to Dig from Palm Beach County.	We are planning on filling the existing toe ditch that is on private property. We are not digging a toe ditch.

<p>Christian Davenport, Archaeologist, Palm Beach County</p> <p>12 Aug 2008</p>	<p>You do not need a Certificate to Dig to fill or add soil to an area.</p>	<p>The PB County archeologist has concurred that no permit would be required for a filling action, upon email coordination on 12Aug08 after the Corps received this comment.</p>
<p>City Commission of the City of Coconut Creek, FL</p> <p>23 Jul 2008</p>	<p>The City Commission requests the President of the United States and the members of the United States Congress to provide funds for the expedited repairs of the Herbert Hoover Dike that will precipitate the return of Lake Okeechobee to higher water levels.</p>	<p>Thank you for your support in the rehabilitation of the Herbert Hoover Dike.</p>
<p>Robert Norton (RN)-1</p> <p>26 May 2008</p>	<p>What kind of repairs are being done to Lake Okeechobee and the Herbert Hoover Dike?</p>	<p>A seepage cutoff wall is being installed in Reach 1A with 1C to follow. Future work includes a cutoff wall throughout all of Reach 1. Interim risk reduction measures such as toe ditch and quarry backfilling have started to take place and/or will be started in the next year. Tree removal and a maintenance road are being implemented along the dike in Reach 2. A seepage berm has been constructed in Reach 1A. This current EA covers the removal of Culvert 14, toe ditch backfilling in Focus Areas 1 &amp; 6 and ditch filling in 8,277 feet in Reach 2. The full rehabilitation design for HHD will be covered in an Environmental Impact Statement (EIS) for Reach 1 and an MRR/EIS for Reaches 2 &amp; 3.</p>
<p>RN-2</p>	<p>Can you send me an updated map of the Florida Central and Southern Florida Comprehensive Plan?</p>	<p>You can find the information that you are looking for at the following link.  <a href="http://www.evergladesplan.org/index.aspx">http://www.evergladesplan.org/index.aspx</a></p>
<p>RN-3</p>	<p>Can you update me on TMDL's for run-off water to Lake Okeechobee?</p>	<p>The following website has information on Lake Okeechobee's TMDL's.  <a href="http://www.dep.state.fl.us/water/wqssp/lakeo_tmdl.htm">http://www.dep.state.fl.us/water/wqssp/lakeo_tmdl.htm</a></p>
<p>RN-4</p>	<p>Can you show me on a map where new (stays) are in?</p>	<p>I am not familiar with the word "stays" but I believe that you are referring to water conveyance features. There are numerous maps within this EA and previous written</p>

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		<p>HHD documents that can provide this type of information. Please see the following two web sites for further information.</p> <p><a href="http://planning.saj.usace.army.mil/envdocs/envdocsb.htm">http://planning.saj.usace.army.mil/envdocs/envdocsb.htm</a></p> <p><a href="http://www.saj.usace.army.mil/cco/HHD/hhdike.htm">http://www.saj.usace.army.mil/cco/HHD/hhdike.htm</a></p>
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## 7.0 REFERENCES

Categorical Exclusion (CX) for Construction of Access Road within Existing Right of Way of Levees L-D1 and L-D2 of the HHD, 30 April 2008.

Categorical Exclusion (CX) for Repair or Removal of Culvert 15 in Levee D-2 of the HHD, 04 April 2008.

Categorical Exclusion (CX) for Tree Removal and Ditch Clearing Within Right of Way in Reach 2 of the HHD, 07 March 2008.

Herbert Hoover Dike Consensus Report, External Peer Review of DSAC-1 Projects, October 30, 2007.

Project Report, Herbert Hoover Dike (HHD) Phase 1A Groundwater Model, Hwai-Ping (Pearce) Cheng, Barbara P. Donnell, Earl V. Edris (Engineer Research and Development Center) and Stephen M. England (USACE, Philadelphia District), September 2007.

Herbert Hoover Dike Lake Okeechobee, Florida, Interim Risk Reduction Measures Plan, Appendix 2, Section 3.1 Seepage and Piping, USACE, August 2007.

Herbert Hoover Dike Major Rehabilitation, Martin and Palm Beach Counties, Environmental Assessment and Finding of No Significant Impact, Reach 1 Seepage Berm and Reach 1A Test Cutoff Wall, May 2007.

Herbert Hoover Dike Major Rehabilitation, Glades, Hendry, and Palm Beach Counties, Environmental Assessment and Finding of No Significant Impact, Modified Design in Reach 1 and Priority Toe ditch Repairs in Reaches 1, 2, and 3, January 2007.

Central and Southern Florida Project, Major Rehabilitation Evaluation Reports, Supplement-Draft, Herbert Hoover Dike, Reaches 2 and 3, December 2006.

Draft Herbert Hoover Dike Major Rehabilitation, Reaches 2 and 3, Environmental Impact Statement and Engineering Analysis, Palm Beach, Glades and Hendry Counties, Florida, December 2006.

Performance Evaluation of the New Orleans and Southwest Louisiana Hurricane Protection System, Draft Final Report of the Interagency Performance Evaluation Task Force (IPET), June 1, 2006.

Report of Expert Review Panel, Technical Evaluation of Herbert Hoover Dike Lake Okeechobee, Florida prepared by BCI Engineers & Scientists, Inc., April 2006.

Draft and Final Herbert Hoover Dike Major Rehabilitation Evaluation Report, Reach One, Final Environmental Impact Statement, September 2005.

Value Engineering Study, Herbert Hoover Dike Rehabilitation and Repair Reach 1, prepared by URS Group, Inc. March 2002.

Final Herbert Hoover Dike Major Rehabilitation Report, November 2000.

Herbert Hoover Dike Major Rehabilitation Evaluation Report, Draft Environmental Impact Statement, July 1999.

## **APPENDICES**

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**APPENDIX A**  
**CZMP EVALUATION**

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## **A.0 FLORIDA COASTAL ZONE MANAGEMENT PROGRAM FEDERAL CONSISTENCY EVALUATION PROCEDURES**

### **HERBERT HOOVER DIKE MAJOR REHABILITATION REACH 1**

1. Chapter 161, Beach and Shore Preservation. The intent of the coastal construction permit program established by this chapter is to regulate construction projects located seaward of the line of mean high water and which might have an effect on natural shoreline processes.

Response: The proposed work project is not seaward of the mean high water line and would not affect shorelines or shoreline processes.

2. Chapters 186 and 187, State and Regional Planning. These chapters establish the State Comprehensive Plan which sets goals that articulate a strategic vision of the State's future. Its purpose is to define in a broad sense, goals, and policies that provide decision-makers directions for the future and provide long-range guidance for orderly social, economic and physical growth.

Response: The proposed work has been coordinated with the State without objection.

3. Chapter 252, Disaster Preparation, Response and Mitigation. This chapter creates a state emergency management agency, with the authority to provide for the common defense; to protect the public peace, health and safety; and to preserve the lives and property of the people of Florida.

Response: The proposed project purpose is to strengthen and protect the existing lake levee system, thereby ensuring adequate flood control for residents of the region. No action may result in conditions which enhance the possibility of a project failure, resulting in an emergency situation and potentially causing significant damage to people and property. Therefore, this work would be consistent with the efforts of Division of Emergency Management.

4. Chapter 253, State Lands. This chapter governs the management of submerged state lands and resources within state lands. This includes archeological and historical resources; water resources; fish and wildlife resources; beaches and dunes; submerged grass beds and other benthic communities; swamps, marshes and other wetlands; mineral resources; unique natural features; submerged lands; spoil islands; and artificial reefs.

Response: The existing habitat within the project area is of marginal quality and has largely been developed for agriculture, urban, and residential uses. Wetland impacts in Reaches 1 and 2 will be compensated for.

5. Chapters 253, 259, 260, and 375, Land Acquisition. This chapter authorizes the state to acquire land to protect environmentally sensitive areas.

Response: Approximately 3.85 acres of agricultural land will need to be acquired for the implementation of the Interim Risk Reduction Measures (IRMM).

6. Chapter 258, State Parks and Aquatic Preserves. This chapter authorizes the state to manage state parks and preserves. Consistency with this statute would include consideration of projects that would directly or indirectly adversely impact park property, natural resources, park programs, management or operations.

Response: Portions of the LOST may be impacted or removed during removal of CU-14, however the unpaved areas of the trail would be returned to their pre-construction condition following completion of the project. Impacts will be avoided and minimized to the extent practicable throughout construction activities. The Corps will prepare a letter report requesting Section 111 authorization by the Chief of Engineer's to repair damages to the paved LOST caused by project implementation.

7. Chapter 267, Historic Preservation. This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities.

Response: The proposed action has been coordinated with the Florida State Historic Preservation Officer in accordance with the National Historic Preservation Act and the Archeology and Historic Preservation Act. Consultation with the State Historic Preservation Officer (SHPO) was initiated August 20, 1999. In a response dated August 7, 2005, the SHPO concurred with the Corps' no adverse effect determination on Reach 1. In a response letter received on September 20, 2006 regarding rehabilitation of the HHD in Reaches 2 and 3, SHPO stated that the proposed rehabilitation activities will be consistent with the historic preservation laws of Florida's Coastal Management Program and the National Historic Preservation Act as long as continued consultation occurs with their office. The project will not have an adverse effect on any historic properties included in or potentially eligible for inclusion in the National Register of Historic places. Conditions to protect undiscovered resources will be implemented as follows: Language will be included in construction contract specifications outlining the steps to be taken in the event that undiscovered historical properties are encountered. An informational training session, developed by a professional archaeologist, will be conducted for the contractor's personnel to explain what kinds of archaeological/cultural materials might be encountered during construction of the impoundment, and the steps to be taken in the event these materials are encountered. A professional archaeologist will conduct periodic monitoring of the project area during construction to determine if activities are impacting unanticipated cultural resources. The proposed action is consistent with these Acts. Historic preservation compliance will be completed to meet all responsibilities under Chapter 267.

8. Chapter 288, Economic Development and Tourism. This chapter directs the state to provide guidance and promotion of beneficial development through encouraging economic diversification and promoting tourism.

Response: Contribution of the study area to the State's tourism economy would not be compromised by project implementation. The project would be compatible with tourism for this

area and could potentially contribute to overall growth and development of the area. Therefore, the project would be consistent with the goals of this chapter.

9. Chapters 334 and 339, Transportation. This chapter authorizes the planning and development of a safe, balanced, and efficient transportation system.

Response: The proposed project would not impact the existing public transportation system of the area and therefore would be consistent with the goals of this chapter.

10. Chapter 370, Saltwater Living Resources. This chapter directs the state to preserve, manage and protect the marine, crustacean, shell and anadromous fishery resources in state waters; to protect and enhance the marine and estuarine environment; to regulate fishermen and vessels of the state engaged in the taking of such resources within or without state waters; to issue licenses for the taking and processing products of fisheries; to secure and maintain statistical records of the catch of each such species; and, to conduct scientific, economic, and other studies and research.

Response: The proposed HHD Major Rehabilitation project is located completely inland and would have no affect on saltwater resources either directly or indirectly through discharge downstream. The proposed project is therefore not applicable to chapter 370.

11. Chapter 372, Living Land and Freshwater Resources. This chapter establishes the Game and Freshwater Fish Commission and directs it to manage freshwater aquatic life and wild animal life and their habitat to perpetuate a diversity of species with densities and distributions which provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: The proposed project has been coordinated with the Florida Game and Fresh Water Fish Commission (GFC) without objection. In a letter dated November 12, 1998, the GFC concurred with findings and recommendations of the U.S. Fish and Wildlife Service for fish and wildlife protection as outlined in the Final CAR (see Final EIS, HHD Major Rehabilitation Report, Martin and Palm Beach Counties, Annex A, dated July 2005). The Corps has agreed to comply with these recommendations as outlined in Section 5.00 of the above listed EIS. Therefore, the work would comply with the goals of this chapter.

12. Chapter 373, Water Resources. This chapter provides the authority to regulate the withdrawal, diversion, storage, and consumption of water.

Response: The proposed project does not include any significant changes to the withdrawal, diversion, storage, or consumption of water. When requested by DEP, environmental resource permits or exemptions from such, have been, or are obtained in advance of construction.

13. Chapter 376, Pollutant Spill Prevention and Control. This chapter regulates the transfer, storage, and transportation of pollutants and the cleanup of pollutant discharges.

Response: This work does not involve the transportation or discharging of pollutants. Conditions will be placed in the contract to handle any inadvertent spill of pollutants. Therefore, the project would comply with this Act.

14. Chapter 377, Oil and Gas Exploration and Production. This chapter authorizes the regulation of all phases of exploration, drilling, and production of oil, gas, and other petroleum products.

Response: This work does not involve the exploration, drilling or production of gas, oil or petroleum product and therefore does not apply.

15. Chapter 380, Environmental Land and Water Management. This chapter establishes criteria and procedures to assure that local land development decisions consider the regional impact nature of proposed large-scale development. This chapter also deals with the Area of Critical State Concern program and the Coastal Infrastructure Policy.

Response: The work does not involve land development as described by this chapter; therefore, this chapter is not applicable.

16. Chapter 388 (Mosquito/Arthropod Control). Chapter 388 provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the state.

Response: The work would not further the propagation of mosquitoes or other pest arthropods.

17. Chapter 403, Environmental Control. This chapter authorizes the regulation of pollution of the air and waters of the state by the Florida Department of Environmental Protection.

Response: A Draft Environmental Assessment has been prepared and will be reviewed by the appropriate resource agencies including the Department of Environmental Protection.

18. Chapter 582, Soil and Water Conservation. This chapter establishes policy for the conservation of the state soil and water through the Department of Agriculture. Land use policies will be evaluated in terms of their tendency to cause or contribute to soil erosion or to conserve, develop, and utilize soil and water resources both onsite or in adjoining properties affected by the project. Particular attention will be given to projects on or near agricultural lands.

Response: Project implementation will include appropriate erosion control plans and measures to ensure compliance.

**APPENDIX B**  
**404 (b) EVALUATION**

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## **B.0 SECTION 404(B) EVALUATION**

### **HERBERT HOOVER DIKE MAJOR REHABILITATION PRIORITY TOE DITCH REPAIRS – REACHES 1 & 2 HENDRY AND PALM BEACH COUNTIES**

#### **I. Project Description**

a. **Location.** The existing Herbert Hoover Dike (HHD) system is approximately 143 miles (230 km) long, and comprises five counties: Glades, Hendry, Martin, Okeechobee, and Palm Beach. It is divided into eight segments or “Reaches” for planning purposes. Reaches 1 and 2 are the focus of this EA. Reach 1 is an approximately 22.4 mile (36 km) long segment of the HHD located along the southeast portion of the lake. This segment extends from the St. Lucie Canal at Port Mayaca, south to the Hillsboro Canal at Belle Glade. Reach 2 is the southwestern portion of the dike; the town of Clewiston is located adjacent to this reach.

b. **General Description.** The proposed project includes backfilling the ditches in Focus Area 1 and 6 within Reach 1 and 8,277 feet of ditch in Reach 2 as Interim Risk Reduction Measures (IRRM) and the removal of CU-14 in Reach 1A as a final solution feature.

c. **Authority and Purpose.** The Flood Control Act (Act), approved by Congress on 30 June 1948, authorized the first phase of a comprehensive plan to provide flood protection and other water control benefits in central and south Florida. The Act included measures for improving control of Lake Okeechobee by constructing or modifying the spillways and other structures, and enlarging the Lake Okeechobee levees to provide the intended flood protection, water storage and water supply. Levee seepage and stability have a direct effect on the capability of the levee to provide the authorized protection. The authorization for levee repairs and modifications of the Flood Control Act of 1948 justify the proposed renovation to the HHD.

The general goal of the HHD project is to provide a reliable embankment system around Lake Okeechobee to contain the lake waters for flood protection, water supply, and navigation. An unreliable embankment system, such as that which currently exists along the HHD, could allow for a failure of the system to contain lake waters. Such a failure could result in loss of life, property, and habitat. A reasonable and effective rehabilitative effort is required to eliminate this possibility.

#### **d. General Description of Dredged or Fill Material.**

(1) **General Characteristics of Material.** The toe ditch along Focus Areas 1 & 6 in Reach 1 will need to be backfilled with sand. The ditch along Reach 2 is approximately 8,277 feet in length, is adjacent to invasive trees (e.g. Melaleuca), and will need to be backfilled with fill material from adjacent TIFT and C-20 right of way (ROW) lands.

(2) Quantity of Material. The volume of material needed to backfill the identified toe ditch in Focus Area 1 and 6 as an IRRM is approximately 5,825 cubic yards (CY) of sand (Focus Area 6 = 3,370 yd<sup>3</sup>, Focus Area 1 = 2,456 yd<sup>3</sup>). The volume of material needed to backfill the ditch in Reach 2 as an IRRM is approximately 122,622 cubic yards of fill material. The volume of the muck removal is 61,311 cubic yards. For the removal of Culvert 14 the concrete volume is relatively small as it involves only the headwalls and grout from between the original culvert and the elliptical liner. It is estimated that approximately 200 to 400 cubic yards of concrete. Fill quantities for the removal and excavation of Culvert 14 total 52,322 cubic yards. Of this amount, 16,000 cubic yards of fill are on site. The remaining balance of 36,625 cubic yards of fill will be brought in from offsite.

(3) Source of Material. Focus Area 1 and 6. Sand (Fine Aggregate) - The select fill shall be classified in accordance with USCS as either SP-SM, SW-SM, SW or SP material with a maximum of no more than 12% material finer than the #200 sieve. Any fines passing the #200 shall be non-plastic. Sand can be either carbonate sand or silica sand. Reach 2. The fill material from TIFT and C-20 ROW lands is 95% Type SP poorly graded clean sand with 5% organic peat or top soil. A select graded fill material will come from a commercially licensed source.

e. Description of the Proposed Discharge Site.

(1) Location. See **Figure 2-1** (Focus Area 1&6), **Figure 2-2** (West)

(2) Size. The discharge sites total an approximate 11,527 feet of ditch along the toe of the dike. Project area is approximately 11.1 acres.

(3) Type of Site. The project site is an upland embankment composed primarily of fill material and vegetated by mixed grasses. The embankment toe is bordered by a toe ditch throughout most of Reach 1. There are sections along Reach 2 where a ditch exists as a result of fill that was removed and placed along the dike to decrease the slope of the embankment. These ditches run intermittently along Reach 2 and are not used for stormwater drainage or conveyance. These ditches contain mostly invasive or exotic vegetation, but provide some wetland habitat. Agricultural fields and residential development are adjacent to the HHD.

(4) Type of Habitat. The habitat consists of upland grasslands, invasive brush, inundated toe ditches, and residential back yard areas.

(5) Timing and Duration of Dredging. No dredging is specified for this work.

f. Description of Disposal Method. Muck removed from the ditches will be spread out along the landside of the levee. The muck will be spread out in a thickness of from 6 – 12 inches. Concrete would be disposed of locally by contractor, most likely through recycling or crushing.

## II. Factual Determinations

### a. Physical Substrate Determinations

(1) Substrate Elevation and Slope. . The HHD landward toe ranges in elevation from 12 to 14 feet NGVD of 1929. The fill areas are at the base of the back toe of the landward side of the dike. Specific information regarding topography may be found in Section 3.03 of the July, 2005 Herbert Hoover Dike Major Rehabilitation Evaluation Report Reach 1 Final Environmental Impact Statement (FEIS).

(2) Type of Fill Material. The select fill shall be classified in accordance with USCS as either SP-SM, SW-SM, SW or SP material with a maximum of no more than 12% material finer than the #200 sieve. Any fines passing the #200 shall be non-plastic. The proposed fill for toe ditch will be composed of Sand can be either carbonate sand or silica sand. The fill material for the ditch in Reach 2 will be taken from the fill material on the TIFT and C-20 ROW lands which are made up of 95% Type poorly graded clean sand with 5% organic peat or top soil. A select graded fill material will be used for the Culvert 14 removal.

(3) Dredged/Fill Material Movement. The fill material will be stabilized and should not be subject to erosion.

(4) Physical Effects on Benthos. Benthic organisms would be eliminated in the ditch due to backfilling.

b. Water Circulation, Fluctuation and Salinity Determinations

(1) Water Column Effects. Standing water and soils periodically inundated will be temporarily impacted during construction. Turbidity and erosion will be controlled during and post-construction.

(2) Current Patterns and Circulation. Removal of Culvert 14 and ditch filling should have minimal effect on current hydrologic circulation patterns.

(3) Normal Water Level Fluctuations and Salinity Gradients. Surface and ground water levels will not be affected. Salinity levels should not be affected by the proposed project.

c. Suspended Particulate/Turbidity Determinations.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site. There may be a temporary increase in turbidity levels in the project area during discharge. Turbidity will be short-term and localized and no significant adverse impacts are expected. State standards for turbidity will not be exceeded during construction.

(2) Effects on the Chemical and Physical Properties of the Water Column. There may be temporary impacts to the chemical and physical properties of nearby waters during construction activities. There are no acute or chronic chemical

impacts anticipated as a result of construction. An environmental protection plan, prepared during detailed design, will address concerns regarding monitoring of equipment, maintenance and security of fuels, lubricants etc.

(a) Light Penetration. Some decrease in light penetration may occur in the immediate vicinity of the construction area. This effect will be temporary, limited to the immediate area of construction, and will have no adverse impact on the environment.

(b) Dissolved Oxygen. Dissolved oxygen levels will not be altered by this project.

(c) Toxic Metals, Organics, and Pathogens. No toxic metals, organics, or pathogens are expected to be released by the project.

(d) Aesthetics. The aesthetic quality of the water in the immediate area of the project may be temporarily affected by turbidity during construction. This will be a short-term and localized condition.

(3) Effects on Biota.

(a) Primary Productivity and Photosynthesis. The filling of the ditches will adversely impact primary productivity and photosynthesis within the ditches.

(b) Suspension/Filter Feeders. The filling of the ditches will adversely impact burrowing invertebrate filter feeders within the ditches. However, no long term adverse impacts on filter feeders are anticipated.

(c) Sight Feeders. No significant impacts on these organisms are expected as the majority of sight feeders are highly motile and can move outside the project area.

d. Contaminant Determinations. Material which will be dredged from the proposed borrow site will not introduce, relocate, or increase contaminants at the fill area.

e. Aquatic Ecosystem and Organism Determinations.

(1) Effects on Plankton. Adverse impacts on autotrophic or heterotrophic organisms are anticipated due to filling of the toe ditch.

(2) Effects on Benthos. Adverse impacts to benthic organisms in the toe ditch are anticipated due to filling of the toe ditch.

(3) Effects on Nekton. Mostly small forage fish will be displaced by filling the toe ditch. No fish are expected to survive the fill action, .

(4) Effects on the Aquatic Food Web. Adverse impacts on aquatic organisms are anticipated due to filling of the toe ditch. There is expected to be a relatively minor effect on the aquatic food web due to construction activities, though the nearby Lake Okechobee is able to support a more diverse aquatic food web.

(5) Effects on Special Aquatic Sites.

(a) Hard ground and Coral Reef Communities. There are no hard ground or coral reef communities located within the proposed project site.

(6) Endangered and Threatened Species. There will be no significant adverse impacts on any threatened or endangered species or on critical habitat of any threatened or endangered species. Refer to Section 4.9 Environmental Commitments of this EA for measures that will be implemented to protect endangered and threatened species.

(7) Other Wildlife. No adverse impacts to small foraging mammals, reptiles, or wading birds, or wildlife in general are expected.

(8) Actions to Minimize Impacts. All practical safeguards will be taken during construction to preserve and enhance environmental, aesthetic, recreational, and economic values in the project area. Specific precautions are discussed in the in the Draft EA under Environmental Commitments.

f. Proposed Disposal Site Determinations.

(1) Mixing Zone Determination. No mixing zone is needed for this project.

(2) Determination of Compliance with Applicable Water Quality Standards. Because of the inert nature of the material to be used as fill, Class III water quality standards will not be violated.

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and Private Water Supplies. No municipal or private water supplies will be impacted by the implementation of the project.

(b) Recreational and Commercial Fisheries. Recreational and commercial fisheries should not be impacted by the implementation of the project.

(c) Water Related Recreation. No water recreation will be impacted.

(d) Aesthetics. The existing environmental setting may be temporarily impacted, in the vicinity of the construction. Construction activities will cause a temporary increase in noise and air pollution caused by equipment as well as some temporary increase in turbidity. These impacts are not expected to adversely affect the aesthetic resources over the long term and once construction ends, conditions will return to pre-project levels.

(e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. Some effects to the paved Lake Okeechobee Scenic Trail (LOST) atop the HHD may occur during project construction. Construction activities may limit access to

certain parts of the trail, and parts of the trail may be removed. The Corps will continue, consistent with its authority and funding, to seek to reduce and minimize impacts to the Lake Okeechobee Scenic Trail through design refinement.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. There will be no cumulative impacts that result in a major impairment of water quality of the existing aquatic ecosystem as a result of the placement of fill at the project site.

h. Determination of Secondary Effects on the Aquatic Ecosystem. There will be no secondary impacts on the aquatic ecosystem as a result of the construction.

### III. Findings of Compliance or Non-compliance with the Restrictions on Discharge.

a. No significant adaptations of the guidelines were made relative to this evaluation.

b. No practicable alternative exists which meets the study objectives that does not involve discharge of fill into waters of the United States.

c. The discharge of fill materials will not cause or contribute to, violations of any applicable State water quality standards for Class III waters. The discharge operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

d. The placement of fill materials for implementation of the proposed project will not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended.

e. The placement of fill material will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic species and other wildlife will not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values will not occur.

f. Appropriate steps have been taken to minimize the adverse environmental impact of the proposed action. Turbidity will be monitored so that if levels exceed State water quality standards, the contractor will be required to cease work until conditions return to normal.

g. On the basis of the guidelines, the proposed disposal of dredged material and fill of wetlands are specified as complying with the requirements of these guidelines.

**APPENDIX C**  
**MITIGATION**

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**C.0 MITIGATION**

**C.1 UNIFORM MITIGATION ASSESSMENT METHOD SHEETS**

**TABLE C-1: FOCUS AREAS 1 AND 6 UMAM**

PART II – Quantification of Assessment Area (impact or mitigation) (See Sections 62-345.500 and .600, F.A.C.)					
Site/Project Name Herbert Hoover Dike		Application Number		Assessment Area Name or Number Subreach 1D-6, Outside ROW	
Impact or Mitigation Impact		Assessment conducted by:		Assessment date: 13-Mar-07	
<b>Scoring Guidance</b> The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed		<b>Optimal (10)</b> Condition is optimal and fully supports wetland/surface water functions	<b>Moderate(7)</b> Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	<b>Minimal (4)</b> Minimal level of support of wetland/surface water functions	<b>Not Present (0)</b> Condition is insufficient to provide wetland/surface water functions
.500(6)(a) Location and Landscape Support  w/o pres or current      with 3                              0		Agriculture lands adjacent to dike.			
.500(6)(b)Water Environment (n/a for uplands)  w/o pres or current      with 1                              0					
.500(6)(c)Community structure  1. Vegetation and/or 2. Benthic Community  w/o pres or current      with 1                              0		Cattails, egret, Typha spp.			
Score = sum of above scores/30 (if uplands, divide by 20) current      with 0.166      0		If preservation as mitigation, Preservation adjustment factor = Adjusted mitigation delta =	For impact assessment areas  FL = delta x acres = -0.166x0.6 = -0.1		
Delta = [with-current] -0.166		If mitigation Time lag (t-factor) = Risk factor =	For mitigation assessment areas  RFG = delta/(t-factor x risk) =		
Form 62-345.900(2), F.A.C. [effective date 02-04-2004]					

**TABLE C-2: REACH 2, WEST**

PART II – Quantification of Assessment Area (impact or mitigation) (See Sections 62-345.500 and .600, F.A.C.)															
Site/Project Name Herbert Hoover Dike		Application Number	Assessment Area Name or Number Reach 2, West												
Impact or Mitigation Impact		Assessment conducted by: USACE, USEPA, USFWS, Interagency Team	Assessment date: 7-Nov-06												
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">Scoring Guidance</th> </tr> <tr> <td colspan="2">The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed</td> </tr> </table>		Scoring Guidance		The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 25%;">Optimal (10)</th> <th style="width: 25%;">Moderate (7)</th> <th style="width: 25%;">Minimal (4)</th> <th style="width: 25%;">Not Present (0)</th> </tr> <tr> <td>Condition is optimal and fully supports wetland/surface water functions</td> <td>Condition is less than optimal, but sufficient to maintain most wetland/surface water functions</td> <td>Minimal level of support of wetland/surface water functions</td> <td>Condition is insufficient to provide wetland/surface water functions</td> </tr> </table>		Optimal (10)	Moderate (7)	Minimal (4)	Not Present (0)	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions
Scoring Guidance															
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed															
Optimal (10)	Moderate (7)	Minimal (4)	Not Present (0)												
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions												
<p>.500(6)(a) Location and Landscape Support</p> <p>w/o pres or current                      with</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">5</td> <td style="width: 50%; text-align: center;">0</td> </tr> </table>		5	0	Assumption for "with" score = All 150' would be impacted and function altered.											
5	0														
<p>.500(6)(b) Water Environment (n/a for uplands)</p> <p>w/o pres or current                      with</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">6</td> <td style="width: 50%; text-align: center;">0</td> </tr> </table>		6	0	Presence of dark colored water. Growth of malaleuca, hydric soils, dark organic layer, understory strong (leather fern, sawgrass). Downed trees due to hurricane or spraying, most probably not disease.											
6	0														
<p>.500(6)(c) Community structure</p> <p>1. Vegetation and/or 2. Benthic Community</p> <p>w/o pres or current                      with</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">2</td> <td style="width: 50%; text-align: center;">0</td> </tr> </table>		2	0	<p><b>Plants:</b> common reed (<i>Phragmites australis</i>), primrose willow (<i>Ludwigia peruviana</i>), melaleuca* (<i>Melaleuca quinquinervia</i>), Brazilian pepper (<i>Schinus terebinthifolius</i>), cattails* (<i>Typha</i> sp.), leatherfern (<i>Acrostichum danaeifolium</i>), unknown palm tree, white vine (<i>Sarcostemma clausum</i>), elderberry (<i>Sambucus nigra</i> subsp. <i>canadensis</i>), shield fern (<i>Thelypteris</i> sp.), duck potato (<i>Sagittaria</i> sp.), sawgrass (<i>Cladium jamaicense</i>), royal palm (<i>Roystonea elata</i>), strangler fig (<i>Ficus aurea</i>), ragweed (<i>Ambrosia artemisiifolia</i>) Toe of Dike Zone Dominants: Ludwigia, cattail, palm Beyond Zone - Rest of 150 foot Dominants: Melaleuca, groundcover - leather fern <b>Animals:</b> Cattle egrets (<i>Bubulcus ibis</i>), red-shouldered hawk (<i>Buteo lineatus</i>), double-crested cormorant (<i>Phalacrocorax auritus</i>), great blue heron (<i>Ardea herodias</i>), anhinga (<i>Anhinga anhinga</i>), great egret (<i>Ardea alba</i>), boat-tailed grackle (<i>Quiscalus major</i>), hog (tracks), tricolored heron (<i>Egretta tricolor</i>), sunfish, deer tracks (scat), mosquitoes, butterflies *Dominant species Note: Sprayed recently so no native groundcover coming up yet</p>											
2	0														
<p>Score = sum of above scores/30 (if uplands, divide by 20)</p> <p>current                      with</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">0.43</td> <td style="width: 50%; text-align: center;">0</td> </tr> </table>		0.43	0	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>If preservation as mitigation,</td> </tr> <tr> <td>Preservation adjustment factor =</td> </tr> <tr> <td>Adjusted mitigation delta =</td> </tr> </table>	If preservation as mitigation,	Preservation adjustment factor =	Adjusted mitigation delta =	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>For impact assessment areas</td> </tr> <tr> <td>FL = delta x acres = -0.43 x 2.6 = -1.1</td> </tr> </table>	For impact assessment areas	FL = delta x acres = -0.43 x 2.6 = -1.1					
0.43	0														
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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Delta = [with-current]</td> </tr> <tr> <td style="text-align: center;">-0.43</td> </tr> </table>		Delta = [with-current]	-0.43	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>If mitigation</td> </tr> <tr> <td>Time lag (t-factor) =</td> </tr> <tr> <td>Risk factor =</td> </tr> </table>	If mitigation	Time lag (t-factor) =	Risk factor =	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>For mitigation assessment areas</td> </tr> <tr> <td>RFG = delta/(t-factor x risk) =</td> </tr> </table>	For mitigation assessment areas	RFG = delta/(t-factor x risk) =					
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-0.43															
If mitigation															
Time lag (t-factor) =															
Risk factor =															
For mitigation assessment areas															
RFG = delta/(t-factor x risk) =															
Form 62-345.900(2), F.A.C. [effective date 02-04-2004]															

## C.2 MITIGATION PLAN



**FIGURE C-1: SATELLITE VIEW OF COMPENSATION SITE ONE**

### Site Descriptions:

#### Compensation Site 1 (Figure C-1)

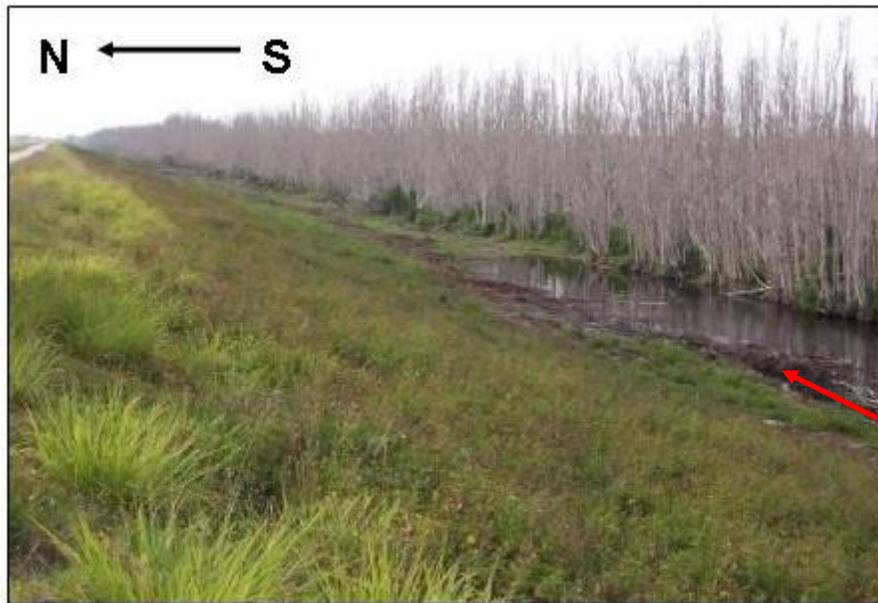
- In the early 1980s soil was dug from the project site and used for dike repairs. The soil removal created swales that subsequently held water from seasonal rains and dike leakage (**Figure C-3**). Exotic vegetation, primarily *Melaleuca*, has since become established on the north and south side of the swales.
- The compensation site is nearly linear and parallels the landward side of HHD. The site is 14,000' in length and 20' in width, encompassing 6.4 acres.
- Approximately 99% of the exotic vegetation located within the project site is comprised of *Melaleuca* trees with a negligible amount of Australian pines. Most of the vegetation is dead as a result of herbicide treatments conducted by the South Florida Water Management District in 2003-2004. Recent surveys have shown signs of re-sprouting.
- *Melaleuca* and Australian pine trees are FLEPPC Category 1 invasive species.



**FIGURE C-2: SATELLITE VIEW OF COMPENSATION SITE TWO**

**Compensation Site 2 (Figure C-2)**

- The compensation site is nearly linear and parallels the landward side of HHD. The site is 5,000' in length and 25' in width, encompassing 2.8 acres.
- Approximately 90% of the vegetation is exotic and is comprised primarily of Melaleuca trees and Brazilian pepper.
- Exotic vegetation will be removed by track hoe and ground in to mulch.



**FIGURE C-3: SWALE ALONG DIKE LOOKING EAST. ARROW POINTS TO MELALEUCA MULCH**

**Restoration Plan:**

- Approximately 6.4 acres of exotic vegetation will be removed from compensation site one and 2.8 acres from compensation site two.
- In compensation site one, a five-foot strip of exotic vegetation extending 14,000 feet will be cleared from the north side of the swales and a 15 foot strip spanning the same distance will be cleared south of the swales.
- In compensation site two, a 25-foot strip of exotic vegetation will be cleared along the HHD. The western edge begins approximately 750 feet from S-310 and extends southeasterly for 5000 feet.
- In compensation site one; exotic vegetation located on the north side of the swales will be removed by uprooting using a track hoe. Holes resulting from root removal will be filled with fill material.
- In compensation sites one and two, exotic vegetation will be ground into mulch and left in place (as shown in **Figure C-4**).



**FIGURE C-4: MELALEUCA TREES GROUND INTO MULCH WITH VIEW OF THE GRINDING APPARATUS.**

**Plan of Action:** The restoration process will be managed by the Environmental Stewardship Section (ESS) of the US Army Corps of Engineer's (USACE) South Florida Operations Office (SFOO). The ESS consists of a team for three biologists who work on various aspects of the Central and Southern Florida Flood Control Project, the Okeechobee Waterway Project, and Removal of Aquatic Growth Project.

The ESS will provide oversight for the restoration and rely on in-house labor and contracted equipment to complete the project.

**Site Maintenance/Monitoring:**

- The ESS recommends conducting annual surveys to monitor for re-establishment of exotic vegetation and assess the overall health of the compensation sites. If exotic vegetation were to re-establish at the sites, the ESS would conduct herbicide treatments in attempt to control or extirpate problematic species. The mitigation sites will be monitored for a minimum of 5 years to insure success criteria.
- During the duration of the HHD restoration, pasture grasses likely will become established at the compensation site as of result of the seed bank contained within fill material (located nearby) and by seeds windblown from adjacent lands.
- If grasses do not naturally re-establish, Bahia variety Pensacola, or other native variety of grass will be planted to stabilize the soil.

**Success Criteria**

No more than 2% exotic or 5% nuisance plants are permitted with at least 80% coverage with desirable plants. The mitigation sites will be monitored for at least five years. The site should be periodically checked to ensure it meets required wetland hydrology as defined in the 1987 Wetland Delineation Manual. The term "wetland hydrology" encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology

are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively. Such characteristics are usually present in areas that are inundated or have soils that are saturated to the surface for sufficient duration to develop hydraulic soils and support vegetation typically adapted for life in periodically anaerobic soil conditions. Hydrology is often the least exact of the parameters, and indicators of wetland hydrology are sometimes difficult to find in the field. However, it is essential to establish that a wetland area is periodically inundated or has saturated soils during the growing season.

**Suggested Planting List:**

The following species (**Table C-3**) could be incorporated into the planting regime as appropriate with water levels and soil type.

**TABLE C-3: SUGGESTED PLANTING LIST**

<b>Common Name</b>	<b>Scientific Name</b>
Arrowhead	<i>Sagittaria latifolia</i>
Bandana-of-the-Everglades	<i>Canna flaccida</i>
Climbing Aster	<i>Symphotrichum carolinianum</i>
Crinum	<i>Crinum americanum</i>
Duck Potato	<i>Sagittaria lancifolia</i>
Elliott's Lovegrass	<i>Eragrostis elliotii</i>
Fire Flag	<i>Thalia geniculata</i>
Leavenworth's Tickseed	<i>Coreopsis leavenworthii</i>
Lemon Bacopa	<i>Bacopa caroliniana</i>
Maidencane	<i>Panicum hemitomum</i>
Pickerelweed	<i>Pontedaria cordata</i>
Sand Cord Grass	<i>Spartina bakeri</i>
Sawgrass	<i>Cladium jamaicense</i>
Soft Stem Bulrush	<i>Schoenoplectus tabernaemontani</i>
Spikerush	<i>Eleocharis cellulosa</i> not in Martin County
White Water Lily	<i>Nymphaea odorata</i>

**APPENDIX D**  
**REAL ESTATE**

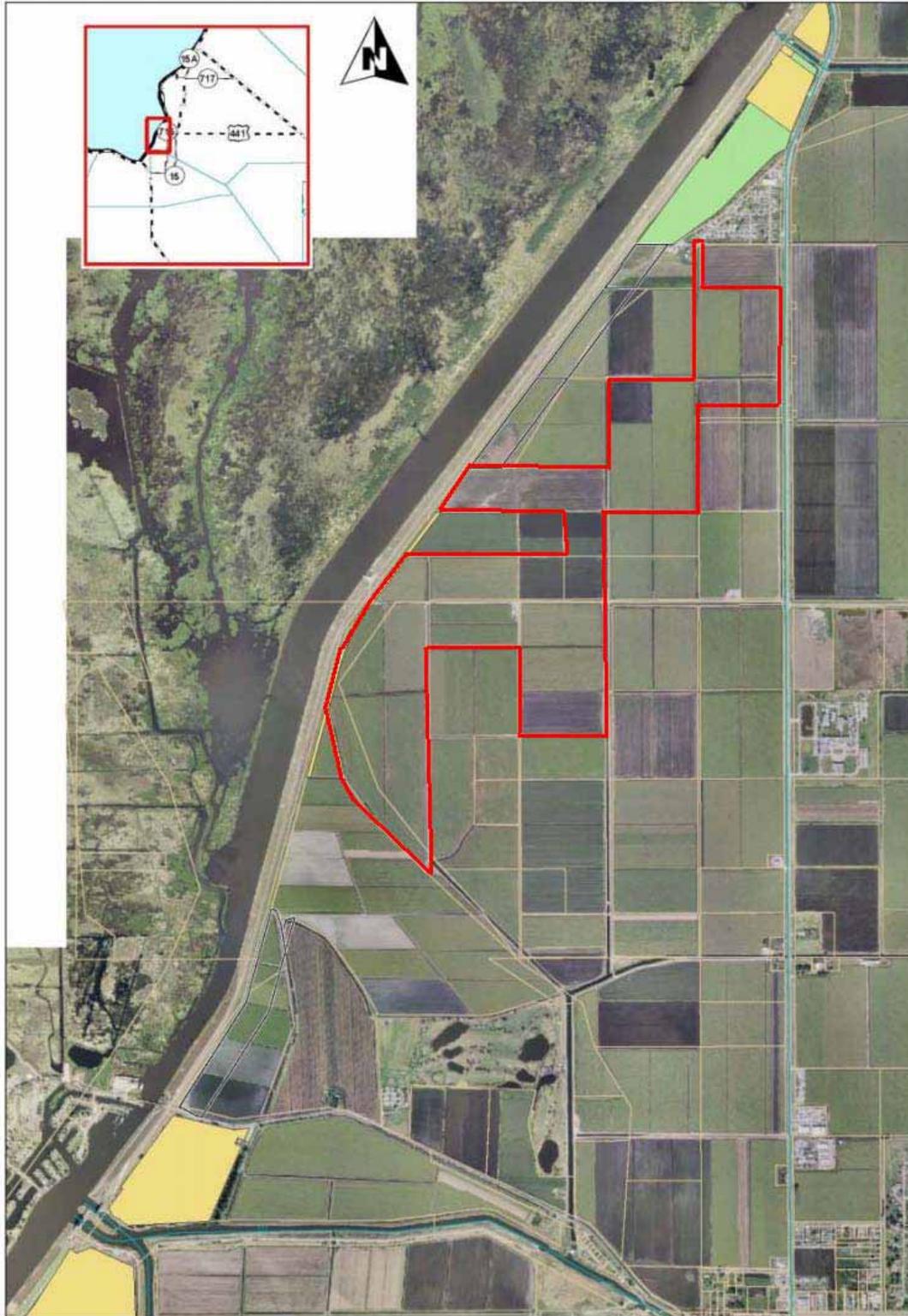
## **D.0 REAL ESTATE**

### **Toe Ditch Repairs in Reaches 1 and 2, Herbert Hoover Dike**

The SFWMD will be acquiring three tracts for the toe ditch repairs in Reach 1D. Two parcels will be acquired from the Ball Family Partnership and are part of a larger tract containing approximately 374.2 acres. The other parcel comprising approximately .95 of an acre will be acquired from J.O. Schlechter and is part of a larger tract containing approximately 31.50 acres.

### **Ball Family Partnership Lands**

In this area, the Ball Family Partnership owns approximately 374.2 acres comprised of nine combined parcels (Palm Beach County folios 00-36-43-13-01-000-0040, 00-36-43-13-01-000-0221, 00-36-43-13-01-000-0210, 00-36-43-23-00-000-3000, 00-36-43-23-00-000-0010, 00-36-43-24-01-000-0040, 00-36-43-24-01-000-0030, 00-36-43-14-00-000-7000, and 00-36-43-13-01-000-0240). The two parcels to be acquired approximately 2.82 acres and 0.08 of an acre are portions of Palm Beach County Folio 00-00-36-43-23-00-000-3000 and 00-36-43-13-01-000-0040, respectively. The lands are vacant and consist of muck land currently cultivated with sugar cane. Improvements include dikes, ditching and farm roads. The main parcel has access from SR 715 and Hooker Highway from the east and Hatcher Road from the north. All three of these roads are paved. Hooker Highway is paved up to the lands to be acquired where the pavement ends and the road becomes a private graded road that is part of the main parcel. The main parcel is zoned AP (Agriculture Production District) and portions of parent Tracts HH104-003 and -005 have a Glades Area Economic Development overlay. The Future Land Use is also Agriculture Production (AP), which conforms to the zoning. The AP zoning and future land use do not allow residential homes, unless they are ancillary to an agriculture operation. The proposed acquisitions will take away an existing toe ditch, farm road and a number of rows of existing sugar cane stubble/ratoon. The landowners will be compensated to reconstruct the toe ditch and farm road. The landowner will also be compensated for the contributory value of the permanent loss in sugar cane stubble/ratoon.



Not an Official Map  
Prepared by IT Planning  
for Planning Purposes Only

ip--HHD Reach 1-D aerial.pdf

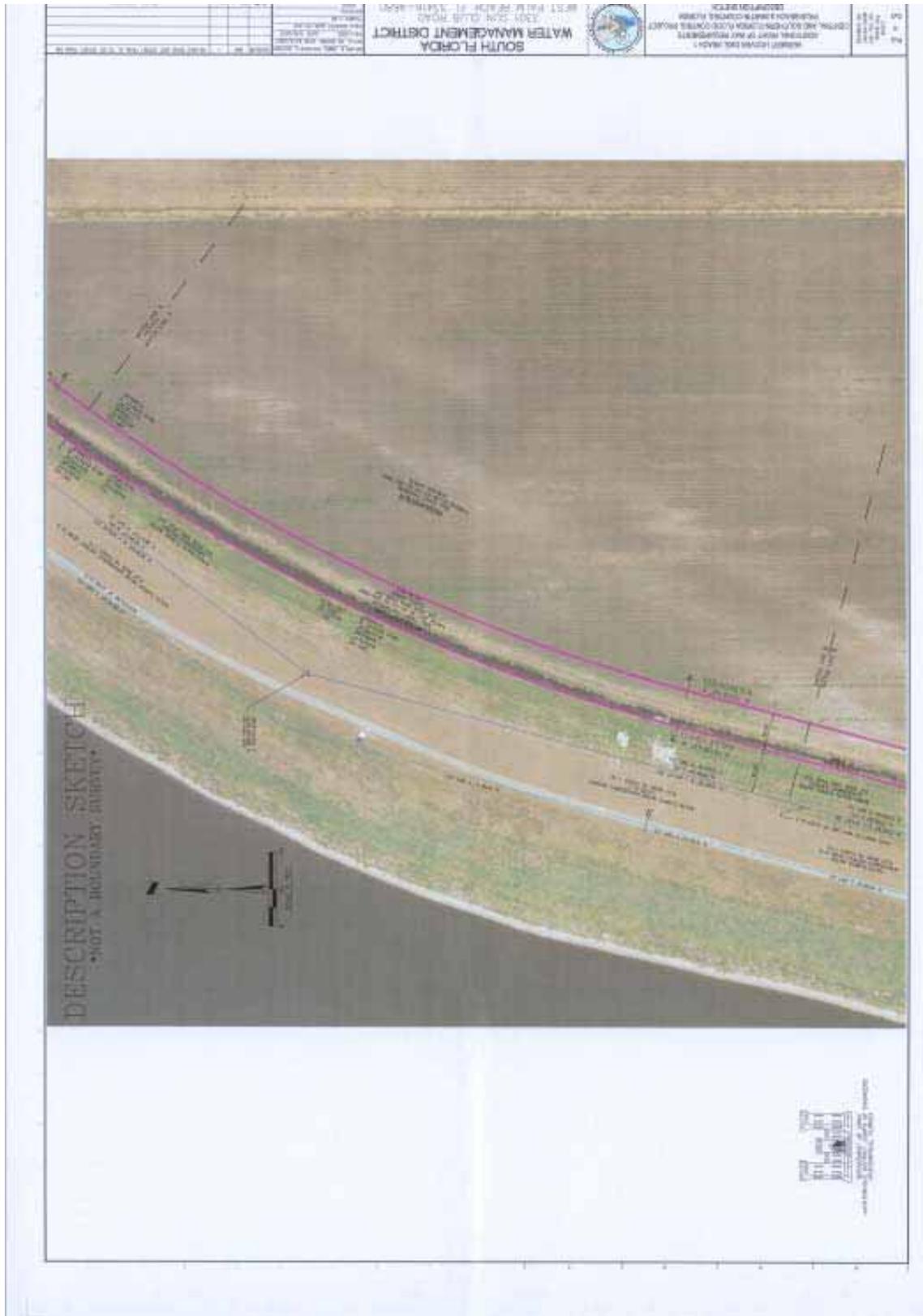
**Herbert Hoover Dike  
Restoration Project  
Reach 1-D Area**

0 200 400 600 800 1,000 1,100 Feet

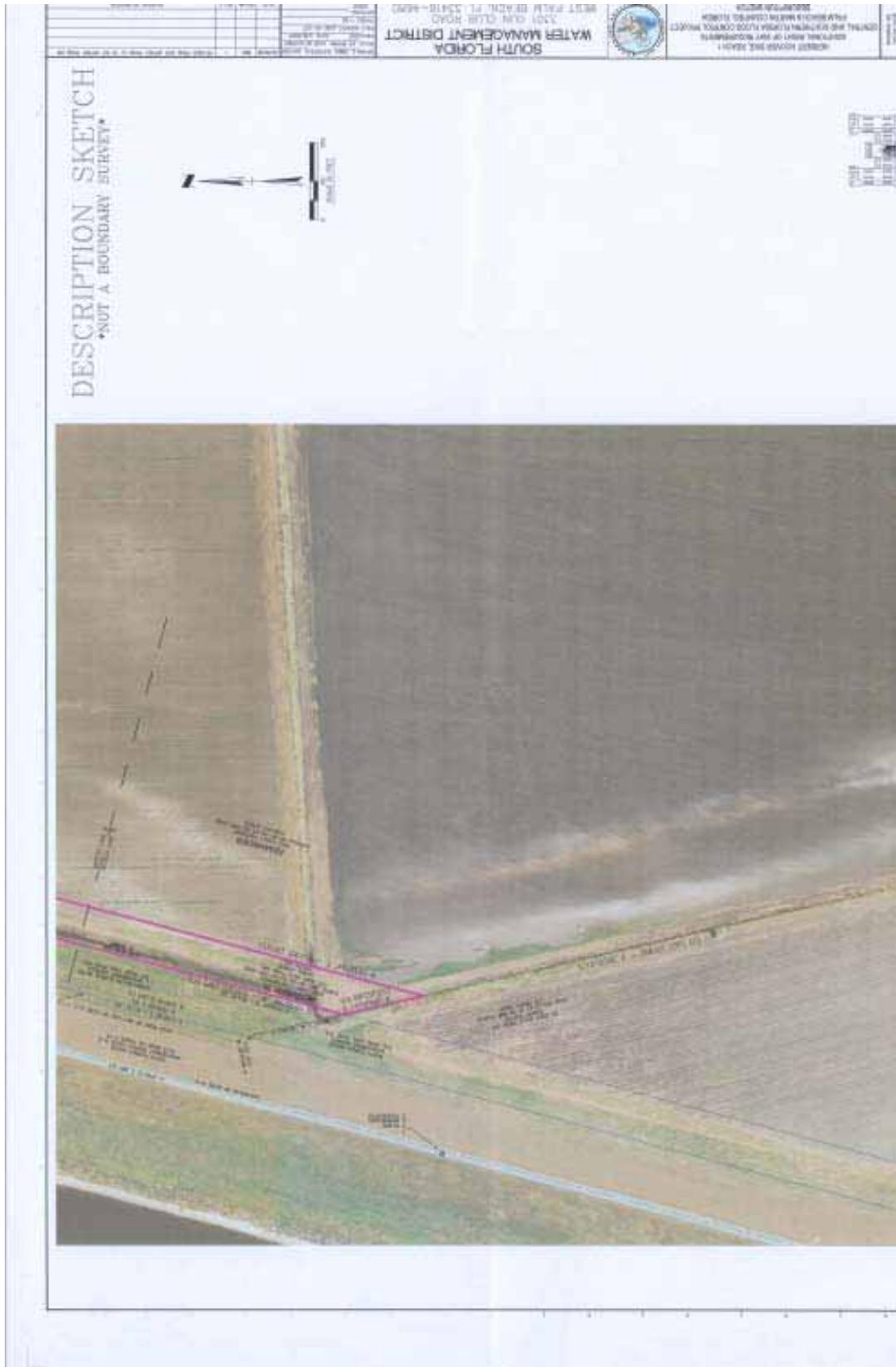
**MAP OF BALL FAMILY PARTNERSHIP TRACTS**



Ball Family Partnership Lands to be Acquired (1 of 3)



**Ball Family Partnership Lands to be Acquired (2 of 3)**



**Ball Family Partnership Lands to be Acquired (3 of 3)**

**PHOTOGRAPHS of LANDS OF BALL FAMILY PARTNERSHIP**

Facing north on parcel at the corner of the Herbert Hoover Dike and Hooker Highway



Facing east on Hooker Highway from its Intersection with the Herbert Hoover Dike



Facing south onto the parcel from the intersection of the Herbert Hoover Dike and Hooker Highway



View of Main and Tract facing east from the Herbert Hoover Dike – north of Hooker Highway



View of Main and Tract facing east from the Herbert Hoover Dike – south of Hooker Highway



### **J.O. Schlechter Lands**

The third parcel to be acquired is owned by J.O. Schlechter and is located northwest of Hooker Highway and SR 715 in Belle Glade, Palm Beach County, Florida. SR 15/US 441 is located just west of SR 715. Lake Okeechobee and the Herbert Hoover Dike are located adjacently west of the landst. The town of Pahokee is located just north of the property and West Palm Beach is located about 45 minutes to the east. The 0.95 of an acre owned by J.O. Schlechter is a part of a large parcel (31.5 acres Palm Beach County Folios 00-36-43-13-01-000-0200, 00-36-43-13-01-000-0191) and is located along the west side of the large parcel adjacent to Herbert Hoover Dike. The site is farmland planted in sugarcane and improvements include dikes, ditches and farm roads. Located within the tract to be acquired are a toe ditch and a farm road. The acquisition of the parcel will require the toe ditch and farm road to be relocated to the east. This 50 feet relocation of the ditch and farm road will take about 10 feet of sugarcane to the east. Also located within the acquisition is a 24" culvert that measures about 30' long. Access to the parent tract is from farm roads along the perimeter of the property. Hooker Highway is located about ¼ of a mile south of the main parcel and access is via a private road owned by the Ball Family Partnership. The main parcel is zoned AP (Agriculture Production District) and portions of parent Tracks HH104-003 and -005 have a Glades Area Economic Development overlay. The Future Land Use is also Agriculture Production (AP), which conforms to the zoning. The AP zoning and future land use do not allow residential homes, unless they are ancillary to an agriculture operation. The proposed acquisitions will take away an existing toe ditch, farm road and a number of rows of existing sugar cane stubble/ratoon. The landowners will be compensated to reconstruct the toe ditch and farm road. The landowner will also be compensated for the contributory value of the permanent loss in sugar cane stubble/ratoon .



Not an Official Map  
Prepared by R. Palmer  
for Planning Purposes Only

sp-HHD Reach 1-D aerial.pdf

**Herbert Hoover Dike  
Restoration Project  
Reach 1-D Area**

730 1460 2190

**MAP OF MAIN PARCELS OWNED BY J.O. SCHLECTER**



**PHOTOGRAPHS OF LANDS OWNED BY J.O. SCHLECTER**

Facing southeasterly onto the parent and subject tract from the Herbert Hoover Dike



Facing easterly onto the parent and subject tract from the Herbert Hoover Dike



**APPENDIX E**  
**PERTINENT CORRESPONDENCE**

**E.0            PERTINENT CORRESPONDENCE**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

August 14, 2008

Dr. Rebecca S. Griffith  
Chief, Planning Division  
U.S. Army Corps of Engineers  
Jacksonville District  
P.O. Box 4970  
Jacksonville, FL 32232-0019

ATTN: Ms. Nancy Allen  
Environmental Lead

Subject: EPA's NEPA Review for the Herbert Hoover Dike Major Rehabilitation for  
"Reach 1 and 2 Ditch Backfill and Culvert Removal"; COE Draft EA (7/08);  
Palm Beach, Glades and Martin Counties, Florida

Dear Dr. Griffith:

Consistent with our responsibilities under Section 309 of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has reviewed the subject Draft Environmental Assessment (DEA) dated July 2008. EPA has provided written review comments on several previous COE National Environmental Policy Act (NEPA) documents concerning the continued rehabilitation of the Herbert Hoover Dike (HHD).

EPA has limited our review comments for this DEA to waters of the US impacts. We offer the following comments for your consideration in the development of the Final EA (FEA):

4.3.1 Exotic Vegetation Removal as the Mitigation Compensation Plan (pg. 4-19) – The DEA states "[a]pproximately 9.2 acres of exotic vegetation will be removed from two compensation sites (see Appendix C for details of Mitigation Plan)." In reviewing Appendix C, Mitigation, EPA has the following comments:

- 1) The mitigation plan includes Uniform Mitigation Assessment Method (UMAM) data sheets for the impact sites but not for the mitigation sites. Please include UMAM data sheets for the mitigation sites in the FEA to demonstrate that the 9.2 acres of exotic plant removal will compensate for impacts to 3.2 acres of jurisdictional wetlands.
- 2) The mitigation plan consists of removal of exotic vegetation from a five-foot strip, extending 14,000 feet and a 25-foot strip, extending 5,000 feet. EPA believes that the proposed mitigation is insufficient to offset project impacts. We recommend that the COE consider enhancing a contiguous 9.2-acre parcel within the project area. This

This responds to your request for comments on the Draft Environmental Assessment (EA) for the Herbert Hoover Dike Major Rehabilitation for Partial Reach 1 and 2 Ditch Backfill and Culvert 14 Removal. This project is located in Martin and Palm Beach Counties, Florida. The purpose of partially backfilling the toe ditch in Reach 2 is to enhance the overall safety of the HHD levee by reducing the risk of levee failure. The toe ditch backfilling will be done by first excavating the accumulated much material and then backfilling with selected fill. However, the top of the backfill will be approximately one foot below the normal land elevation to allow the ditch to continue to provide storm water conveyance. The Service has commented on several previous environmental documents prepared by the Corps and has completed review under both the Fish and Wildlife Coordination Act and the Endangered Species Act. We consider the subject EA as a supplement to our previous coordination on this project under both of these authorities.

The work outlined in this EA does not substantially change the impacts on fish and wildlife resources, including threatened and endangered species, relative to our previous reports and letters. The revised work plan will be confined to the same area that was assessed before. No additional impacts on wetlands are anticipated; we have already participated in a team with the Corps, the Environmental Protection Agency, and the Florida Department of Environmental Protection to evaluate the wetland impacts and concur with the proposed mitigation plan. Your informal consultation under the Endangered Species Act included provisions to avoid adversely affecting two bald eagle (*Haliaeetus leucocephalus*) nests. We note that your EA recognizes that the eagle was officially removed from the list of threatened and endangered species. However, you continue your commitment to follow the previous agreements to avoid impacts on the nests. Figure 1 and Figure 2 show the general location of two nests, although the points may not be located precisely at the nest tree. As part of the protective measures, the Corps conducted surveys to locate the nest trees ahead of construction and will avoid construction close to the nests during the nesting season.

On June 28, 2007, the Service announced the removal of the bald eagle from the list of threatened and endangered species under the Endangered Species Act (ESA). On August 9, 2007, the bald eagle was officially delisted. After the official delisting, the permitting of incidental take under the ESA is no longer necessary. However, the bald eagle is still protected by the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act (MBTA). Both the Eagle Act and MBTA protect the species from a variety of harmful actions and impacts. The Service has proposed a similar permit structure under the Eagle Act to the permit structure that existed under the Endangered Species Act. The permit structure is not yet in place and the Service is still reviewing the



Figure 1 General location of bald eagle nest PB003 along Herbert Hoover Dike



Figure 2 General location of bald eagle nest PB014 along Herbert Hoover Dike. Trees between base of the dike and the borrow pit will be left in place, to the extent practicable.

. In addition, certain proposed design changes may result in restored wildlife habitat and an increased amount of aquatic habitat. Because construction would be confined to the existing footprint, environmental impacts would be minimal. Impacts caused by filling wetlands along the toe ditch have been mitigated on and off site. No other long-term adverse effects of the project are anticipated.

**Ho, Tien SAJ Contractor**

---

**From:** Allen, Nancy P SAJ  
**Sent:** Wednesday, June 11, 2008 7:40 AM  
**To:** Dunn, Angela E SAJ  
**Subject:** FW: comment received for EA

Angie,  
Please add this scoping comment from FEMA to the EA. See below. Thanks, Nancy

---

From: Beck, Charles [mailto:charles.beck@dhs.gov]  
Sent: Tue 6/10/2008 10:39 AM  
To: HHDEnvironment, SAJ  
Cc: Straw, William; Hinkson, Cecile  
Subject:

Nancy Allen:

Thank you for keeping FEMA abreast of work on the HHD. Good luck with this urgent and compelling project.

Charles Beck, Environmental Specialist  
FEMA Region IV

**Ho, Tien SAJ Contractor**

---

**From:** Allen, Nancy P SAJ  
**Sent:** Friday, August 22, 2008 8:44 AM  
**To:** Dunn, Angela E SAJ  
**Subject:** FW: HHD Major Rehabilitation

Nancy Allen  
Biologist  
Planning Division  
Environmental Branch  
701 San Marco Boulevard  
Jacksonville, FL 32232-0019  
904-232-3206  
nancy.p.allen@usace.army.mil

-----Original Message-----  
From: Horne, George [mailto:ghorne@sfwmd.gov]  
Sent: Thursday, August 21, 2008 4:08 PM  
To: HHDEnvironment, SAJ  
Subject: FW: HHD Major Rehabilitation

Sorry, I had a typo in the email address.

Diana Longhurst

For George Horne

---

From: Horne, George  
Sent: Thursday, August 21, 2008 4:05 PM  
To: 'HHDEnvironment@usace.army.mil'  
Cc: Weldon, Cledwyn; Carter, Larry; 'Rebecca.S.Griffith@usace.army.mil'  
Subject: HHD Major Rehabilitation

Ms. Nancy Allen  
Environmental Lead  
U.S. Army Corps of Engineers  
P. O. Box 4970  
Jacksonville, Florida 32232-0019

Dear Ms. Allen:

Subject : Herbert Hoover Dike Major Rehabilitation  
Hendry, Glades, and Palm Beach Counties, Florida



## Florida Department of Environmental Protection

Marjory Stoneman Douglas Building  
3900 Commonwealth Boulevard  
Tallahassee, Florida 32399-3000

Charlie Crist  
Governor

Jeff Kottkamp  
Lt. Governor

Michael W. Sole  
Secretary

August 19, 2008

Ms. Nancy P. Allen  
Jacksonville District, Planning Division  
U.S. Army Corps of Engineers  
P. O. Box 4970  
Jacksonville, FL 32232-0019

RE: Department of the Army, Jacksonville District Corps of Engineers – Draft  
Environmental Assessment for the Herbert Hoover Dike (HHD) Major  
Rehabilitation, Partial Reaches 1 and 2 Ditch Backfill and Culvert 14 Removal –  
Glades, Hendry, and Palm Beach Counties, Florida.  
SAI # FL200807184360C (Reference SAI # FL200612122959C)

Dear Ms. Allen:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16, U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4231, 4331-4335, 4341-4347, as amended, has coordinated a review of the Draft Environmental Assessment (EA).

The Florida Department of Environmental Protection (DEP) notes that DEP staff was not part of the interagency team that determined wetland functional losses using the Uniform Mitigation Assessment Method (UMAM); therefore, DEP will need to confirm/adjust the team's assessments by performing its own UMAM evaluations of the project sites. The mitigation plan presented in the Draft EA will need to be officially submitted to the DEP Southeast District Office in West Palm Beach for review and approval. UMAM calculations for the functional gain to be derived by the proposed mitigation were not provided. Please be advised that the functional gain provided by mitigation must be greater than or equal to the functional loss caused by the projects. Staff also notes that portions of the Lake Okeechobee Scenic Trail (LOST) may be temporarily closed or removed and the Army Corps of Engineers will coordinate with the DEP regarding those impacts. Please see the attached DEP memorandum and contact Stanley Ganthier at (561) 681-6759 or Erin Steurer at (850) 245-7534 for further information and assistance.

*"More Protection, Less Process"*  
[www.dep.state.fl.us](http://www.dep.state.fl.us)

Ms. Nancy P. Allen  
August 19, 2008  
Page 2 of 3

The Florida Department of Transportation's (FDOT) District Four Planning and Environmental Management Office offers the following comments:

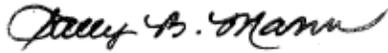
1. Culvert # 14 is immediately adjacent to the South Central Florida Express Rail Line and US 441 further to the east. Both of these facilities are designated on the Strategic Intermodal System (SIS) by FDOT for the critical movement of People and Freight Statewide. The plans for removal of this culvert propose work up against this rail line, but there is no mention in the document of any coordination with the rail owner. In fact, there is no section in this document that discusses the utilities and infrastructure adjacent to the proposed work and any potential impacts to them. Please update the document accordingly to address these potential impacts or at least show some coordination with the respective rail operator. Note that there are very strict requirements for the crossing of this active rail line for the construction work, which will require coordination with the rail operator. Please contact Sally Conley with South Central Florida Express at (863) 983-3163. Should this project require any railroad permits, there will need to be further coordination with Florida East Coast Railway as owners of the property. Please contact Leslie Schonder with Florida East Coast Railway at (904) 538-6056.
2. In order to complete the work at culvert # 14, the Contractor will need access to this site from US 441, an FDOT SIS facility. Please add a commitment in this document that the respective contractors obtain the required access permits from FDOT District Four. The FDOT's Permit Office can be reached at (954) 777-4377. This is the best way to ensure the future contractor will implement a safe Maintenance of Traffic plan to get the construction trucks off and on US 441 - a high speed facility - without incident.

Based on the information contained in the Draft EA and enclosed state agency comments, the state has determined that, at this stage, the proposed activities are consistent with the Florida Coastal Management Program (FCMP). The concerns identified by our reviewing agencies must, however, be addressed prior to project implementation. The state's continued concurrence with the project will be based, in part, on the adequate resolution of issues identified during this and subsequent reviews. The state's final review of the project's consistency with the FCMP will be conducted during the environmental permitting stage.

Ms. Nancy P. Allen  
August 19, 2008  
Page 3 of 3

Thank you for the opportunity to review the proposed project. Should you have any questions regarding this letter, please contact Mr. Chris Stahl at (850) 245-2169.

Yours sincerely,



Sally B. Mann, Director  
Office of Intergovernmental Programs

SBM/cjs  
Enclosures

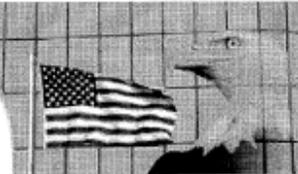
cc: John Outland, DEP, MS 45  
Ernie Marks, DEP, MS 3560  
Tim Gray, DEP, Southeast District  
Lisa Stone, FDOT  
Nichole Gwinnett, SWFRPC



# Florida

Department of Environmental Protection

"More Protection, Less Process"



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Project Information	
<b>Project:</b>	FL200807184360C
<b>Comments Due:</b>	08/18/2008
<b>Letter Due:</b>	08/29/2008
<b>Description:</b>	DEPARTMENT OF THE ARMY, JACKSONVILLE DISTRICT CORPS OF ENGINEERS - DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HERBERT HOOVER DIKE (HHD) MAJOR REHABILITATION, PARTIAL REACH 1 AND 2 DITCH BACKFILL AND CULVERT 14 REMOVAL - GLADES, HENDRY, AND PALM BEACH COUNTIES, FLORIDA.
<b>Keywords:</b>	ACOE - HERBERT HOOVER DIKE REHAB, REACH 1 & 2 DITCH BACKFILL & CULVERT 14
<b>CFDA #:</b>	12.106
<b>Agency Comments:</b>	
<b>SW FLORIDA RPC - SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL</b>	
The SWFRPC concurs with the finding by the USACE that with the proposed mitigation plans and reasonable and prudent measures outlined in the EA, the proposed activities associated with the rehabilitation of Herbert Hoover Dike will not result in a significant adverse effect on the human environment.	
<b>TREASURE COAST RPC - TREASURE COAST REGIONAL PLANNING COUNCIL</b>	
The proposed project is consistent with the Strategic Regional Policy Plan. It furthers Regional Goal 5.2 - reduced vulnerability to disasters.	
<b>GLADES - GLADES COUNTY</b>	
<b>HENDRY -</b>	
No Comments from the Hendry County Planning and Zoning Department.	
<b>PALM BEACH -</b>	
<b>FISH and WILDLIFE COMMISSION - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION</b>	
NO COMMENT BY JOE WALSH.	
<b>TRANSPORTATION - FLORIDA DEPARTMENT OF TRANSPORTATION</b>	
The FDOT District Four Planning and Environmental Management Office offers the following comments regarding the Herbert Hoover Dike Major Rehab Draft Environmental Assessment: 1. Culvert # 14 is immediately adjacent to the South Central Florida Express Rail Line and US 441 further to the east. Both of these facilities are designated on the Strategic Intermodal System (SIS) by FDOT for the critical movement of People and Freight Statewide. The plans for removal of this culvert propose work up against this rail line, but there is no mention in the document of any coordination with the rail owner. In fact, there is no section in this document that discusses the utilities and infrastructure adjacent to the proposed work and any potential impacts to them. Please update the document accordingly to address these potential impacts or at least show some coordination with the respective rail operator. Note that there are very strict requirements for the crossing of this active rail line for the construction work, which will require coordination with the rail operator. Please contact Sally Conley with South Central Florida Express at (863) 983-3163. Should this project require any railroad permits, there will need to be further coordination with Florida East Coast Railway as owners of the property. Please contact Leslie Schonder with Florida	

East Coast Railway at (904) 538-6056. 2. In order to complete the work at culvert # 14, the Contractor will need access to this site from US 441, an FDOT SIS facility. Please add a commitment in this document that the respective contractors obtain the required access permits from FDOT District Four. The FDOT's Permit Office can be reached at (954) 777-4377. This is the best way to ensure the future contractor will implement a safe Maintenance of Traffic plan to get the construction trucks off and on US 441 - a high speed facility - without incident.

**ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION**

DEP notes that DEP staff was not part of the interagency team that determined wetland functional losses using the Uniform Mitigation Assessment Method (UMAM); therefore, DEP will need to confirm/adjust the team's assessments by performing its own UMAM evaluations of the project sites. The mitigation plan presented in the Draft EA will need to be officially submitted to the DEP Southeast District Office in West Palm Beach for review and approval. UMAM calculations for the functional gain to be derived by the proposed mitigation were not provided. Please be advised that the functional gain provided by mitigation must be greater than or equal to the functional loss caused by the projects. Staff also notes that portions of the Lake Okeechobee Scenic Trail (LOST) may be temporarily closed or removed and the Army Corps of Engineers will coordinate with the DEP regarding those impacts. Please see the attached DEP memorandum and contact Stanley Ganther at (561) 681-6759 or Erin Steurer at (850) 245-7534 for further information and assistance.

**SOUTH FLORIDA WMD - SOUTH FLORIDA WATER MANAGEMENT DISTRICT**

Released Without Comment

For more information or to submit comments, please contact the Clearinghouse Office at:

3900 COMMONWEALTH BOULEVARD, M.S. 47  
TALLAHASSEE, FLORIDA 32399-3000  
TELEPHONE: (850) 245-2161  
FAX: (850) 245-2190

Visit the [Clearinghouse Home Page](#) to query other projects.

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## Memorandum



TO: Florida State Clearinghouse

THROUGH: Ernie Marks, Environmental Administrator

FROM: Stanley Ganthier and Erin Steurer

DATE: August 19, 2008

SUBJECT: Department of the Army, Jacksonville District Corps of Engineers - Draft Environmental Assessment for the Herbert Hoover Dike Major Rehabilitation, Partial Reaches 1 and 2 Ditch Backfill and Culvert 14 Removal - Glades, Hendry, and Palm Beach Counties, Florida

SAI #: FL08-4360C

### Background

The subject Draft Environmental Assessment (EA) evaluates the impacts associated with the proposed filling of portions of the landward toe ditch in Reaches 1 and 2 of the Herbert Hoover Dike (HHD) as well as the removal of Culvert 14. The toe ditch backfilling for Focus Areas 1 & 6 within Reach 1 was previously authorized by DEP Permit No. EI 0234604-003. On July 21, 2008, the Corps submitted separate environmental resource permit applications for the Reach 2 toe ditch backfilling and the Culvert 14 removal projects which are currently being processed as DEP Files No. EI 0234604-009 and ES 0234604-008, respectively. These projects will enhance the overall safety of the HHD levee by limiting potential levee seepage in these portions of the dike.

### Comments

The preferred HHD major repair alternative, No. 5, consists of an impermeable cutoff wall at the crest of the dike that extends 5-10 feet below the limestone layers and a landside seepage berm that may extend about 150 feet from the toe of the dike. A drainage swale would also be constructed along the landward toe of the berm. Note that this draft EA evaluated environmental effects of toe ditch backfilling and Culvert 14 removal which are considered interim risk reduction measures and that a future environmental impact statement will assess the effects of the seepage berm outside of the existing right-of-way for all of Reach 1. Additional right-of-way will need to be acquired to fully implement Alternative No. 5.

The wetland functional losses below were calculated by an interagency team of biologists who assessed the impacts using the Uniform Mitigation Assessment Method (UMAM). Since the DEP was not part of the interagency team, the DEP will need to confirm/adjust the team's assessments by performing its own UMAM evaluations of the project sites. The mitigation plan presented in this EA, involving the removal of about 9.2 acres of exotic vegetation from two compensation sites, will need to be officially submitted to the DEP Southeast District Office for review and DEP approval. Note that UMAM calculations for the functional gain to be derived

Florida State Clearinghouse  
August 19, 2008  
Page 2 of 2

by the proposed mitigation were not provided. The functional gain provided by mitigation must be greater than or equal to the functional loss caused by the projects.

- The toe ditch backfilling for Focus Areas 1 & 6 within Reach 1 will require the South Florida Water Management District to acquire about 3.85 acres of private property currently used for agriculture. The estimated area of wetlands that will be impacted by this project is 0.6 acres with an associated functional loss of -0.1 units.
- Approximately 8,277 ft. of toe ditch in Reach 2 near Clewiston will be backfilled. The estimated area of wetlands that will be impacted by this project is 2.6 acres with an associated functional loss of -1.1 units.
- The Culvert 14 removal project includes backfilling the entrance channel to the culvert. The Corps believes that the entrance channel has little to no wetland habitat value.

Landowners adjacent to Focus Areas 1 & 6 will lose the agricultural drainage conveyance that is currently provided by the toe ditch. The Corps has concluded that no one has used, or has permits to use, Culvert 14 for water supply or flood control for multiple years.

Adverse impacts to protected species (including the Eastern indigo snake, bald eagle, wood stork, Everglade snail kite, and burrowing owl) are not likely to occur. The Corps' Endangered Species determination is "no effect."

Minor short-term impacts to vegetation, noise level, air quality, and recreational resources are expected during construction. In particular, portions of the Lake Okeechobee Scenic Trail (LOST) may be temporarily closed or removed. The Corps will coordinate with the Department regarding impacts to the Lake Okeechobee Scenic Trail (LOST).

It is recommended that the Corps and the Department continue to communicate and work cooperatively to facilitate the Dike's rehabilitation while also protecting the environment.

The Department sincerely appreciates the opportunity to comment. Should you have any questions on the comments provided, please feel free to contact Stanley Ganthier at (561) 681-6759 or Erin Steurer at (850) 245-7534.

cc: John Outland  
Ernie Marks  
Stacey Feken  
Dianne Hughes  
Tim Gray  
Stanley Ganthier  
Katie Higgs  
Erin Steurer



## Southwest Florida Regional Planning Council

1926 Victoria Avenue, Fort Myers,  
(239)338-2550 FAX (239)338-2560 SUNCOM (239)748-2550

August 11, 2008

Ms. Lauren P. Milligan  
Florida State Clearinghouse  
Florida Department of Environmental Protection  
3900 Commonwealth Boulevard, Mail Station 47  
Tallahassee, Florida 32399-3000

RE: IC&R #2008-040  
SAI#FL 200807184360C  
Glades, Hendry and Palm Beach Counties, Draft Environmental Assessment (EA)  
for the Herbert Hoover Rehabilitation for partial Reach 1 and 2 Ditch Backfill and  
Culvert 14 Removal.

Dear Ms. Milligan:

The Southwest Florida Regional Planning Council (SWFRPC) has reviewed the Draft Environmental Assessment (EA) for the Herbert Hoover Dike (HHD) Rehabilitation for partial Reach 1 and 2 Ditch Backfill and Culvert 14 Removal, and has the following comments.

The request dated, July 16, 2008 was received for our review on July 18, 2008.

The proposed action, covered in this EA, includes toe ditch backfilling in Focus Areas 1 and 6 (1.6 acres) and ditch backfilling along 8,277 feet (9.5 acres) of Reach 2. In addition Culvert 14 will be removed. The Record of Decision for the Final EIS (September 2005) approved implementation within Reach 1 and the Potential Failure Modes Analysis for Herbert Hoover Dike and Lake Okeechobee Section 4.6, (August 2007) identified toe ditch filling as a potential risk reduction measure and the Interim Risk Reduction Measures Plan discussed culverts as weak points, Appendix 2, Section 3.1, Seepage and Piping, (August 2007) discussed the implementation of the selected plan features.

**RECEIVED**  
AUG 18 2008  
OIP / OLGA

TO: Ms. Lauren P. Milligan  
PAGE: 2  
DATE: August 11, 2008  
RE: IC&R #2008-040

The goal of the rehabilitation of the HHD is to reduce risk to public safety and health. Levee seepage and stability have a direct effect on the capability of the levee to provide authorized protection. The Flood Control Act of 1948 authorizes levee operation and maintenance as proposed in the interim risk reduction measure plan (ditch backfill) and final solution with Culvert 14 removal for the renovation of the HHD in Reach 1.

This EA was circulated with a proposed Finding of No Significant Impact (FONSI) for public and agency review and coordination in compliance with the National Environmental Policy Act. All public and agency comments have been addressed. Adverse impacts to protected species are not anticipated. There is no critical habitat for listed endangered species along the dike. Special measures will be incorporated during project construction to avoid or minimize adverse effects to any listed endangered, threatened, or species of special concern that may be present (see Environmental Commitments Section 4.9). The U.S. Army Corps of Engineers (USACE) and the South Florida Water Management District (SFWMD) agree to maintain an open and cooperative informal consultation process with the U.S. Fish and Wildlife Service (USFWS) and Florida Fish and Wildlife Conservation Commission (FWC) throughout the design, construction, and operation of this rehabilitation project. The proposed action is in compliance with the Endangered Species Act.

Approximately 3.2 acres of wetlands in the ditches will be removed. Although the quality of wetland in these man-made ditches is not considered high, a variety of wading birds, small fishes and invertebrates utilize the ditches. In the Final EIS for Reach 1 repairs (July 2005), the U.S. Fish and Wildlife Service (USFWS) suggested mitigation measures in the Coordination Act Report (CAR). The Corps has included a proposed mitigation plan for the removal of approximately 9 acres of exotic plants within Reach 2 to offset any wetland impacts.

The SWFRPC has the following summary recommendation:

**We concur with the Finding by the USACOE that with the proposed mitigation plans and reasonable and prudent measures outlined in EA that the proposed action for the rehabilitation of HHD will not result in a significant adverse effect on the human environment.**

TO: Ms. Lauren P. Milligan  
PAGE: 3  
DATE: August 11, 2008  
RE: IC&R #2008-040

Please call me if you have any questions regarding this letter or our recommendation. If you have specific questions about the content of this letter, please contact Mr. Jim Beever directly at (239) 338-2550 ext 224, e-mail [jbeever@swfipc.org](mailto:jbeever@swfipc.org).

Sincerely,

SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL



Ken Heatherington  
Executive Director

Cc: Ms. Rebecca S. Griffith  
Chief, Planning Division  
U.S. Army Corps of Engineers  
Jacksonville Distinct Corps of Engineers  
P.O. Box 4970  
Jacksonville, FL 32232-0019

U.S. Fish and Wildlife Service  
6620 Southpoint Drive South, Suite 310  
Jacksonville, Florida 32216-0912

Ms. Nancy Allen  
Environmental Lead  
U.S. Army Corps of Engineers  
Jacksonville Distinct Corps of Engineers  
P.O. Box 4970  
Jacksonville, FL 32232-0019  
[nancy.p.allen@saj2.usace.army.mil](mailto:nancy.p.allen@saj2.usace.army.mil)



**TREASURE COAST REGIONAL PLANNING COUNCIL**  
**INDIAN RIVER - MARTIN - PALM BEACH - ST. LUCIE**

April 18, 2008

Rebecca S. Griffith, Ph.D., PMP  
Chief, Planning Division  
Department of the Army  
Jacksonville Corps of Engineers  
P.O. Box 4970  
Jacksonville, FL 32232-0019

Subject: Environmental Assessment for the Herbert Hoover Dike Reaches 1 and 2 – Tow  
Ditch Repairs and Culvert 14 Removal and Abandonment  
TCRPC Reference 08-PB-05-01

Dear Dr. Griffith:

Council reviewed the above-referenced project consistent with the requirements of the Florida Intergovernmental Coordination and Review procedures. The comments as approved by Council at a regular meeting held on June 20, 2008 are attached.

Comments have also been solicited from potentially affected jurisdictions, agencies, and organizations. A copy of this letter, Council's review comments, and responses from affected agencies, if any, listed below should be attached to your application to the funding agency.

Sincerely,



Marlene Brunot  
Regional Planner/ICR Coordinator

MB:sh

Attachment

*"Bringing Communities Together" • Est. 1976*

421 S.W. Camden Avenue - Stuart, Florida 34994  
Phone (772) 221-4060 - Fax (772) 221-4067 - [www.tcrpc.org](http://www.tcrpc.org)

TREASURE COAST REGIONAL PLANNING COUNCIL  
INTERGOVERNMENTAL COORDINATION AND REVIEW LOG

TCRPC NUMBER: 08-PB-05-01

APPLICANT: U.S. Army Corps of Engineers

PROJECT DESCRIPTION: Environmental Assessment for the Herbert Hoover Dike Reaches 1 and 2 – Toe Ditch Repairs and Culvert 14 Removal and Abandonment

The Jacksonville District, US Army Corps of Engineers is gathering information to help define issues and concerns that will be addressed in a new National Environmental Policy Act document. The Environmental Assessment (EA) for the Herbert Hoover Dike (HHD) Reaches 1 and 2 will address the effects associated with toe ditch repairs and Culvert 14 removal or abandonment. The proposed actions would be considered Interim Risk Reduction Measures (IRRM) for the dike. An IRRM is an immediate repair that can be made to the system increasing the structural integrity of the HHD while the final design fix for rehabilitation of the dike is being developed.

The HHD is urgently in need of repairs. The Dam Safety Action Classification External Peer Review Panel has found that the Corps Class I designation for the HHD is considered “Urgent and Compelling” and that “Interim Risk Measures for Dam Safety” are appropriate. The Corps of Engineers has begun repairs such as backfilling the toe ditches, removal of trees on the dike and installation of a cutoff wall. This EA for toe ditch repairs in Focus Areas 1,6 and an 18,000 foot section in Reach 2 in conjunction with the Culvert 14 removal or abandonment, will provide additional protection and allow work to continue along the levee.

FUNDING AGENCY: None

PROJECT COSTS: N/A

RECOMMENDATIONS: The proposed project is neither inconsistent nor in conflict with the **Strategic Regional Policy Plan**.

AGENCIES CONTACTED: Palm Beach County  
Martin County

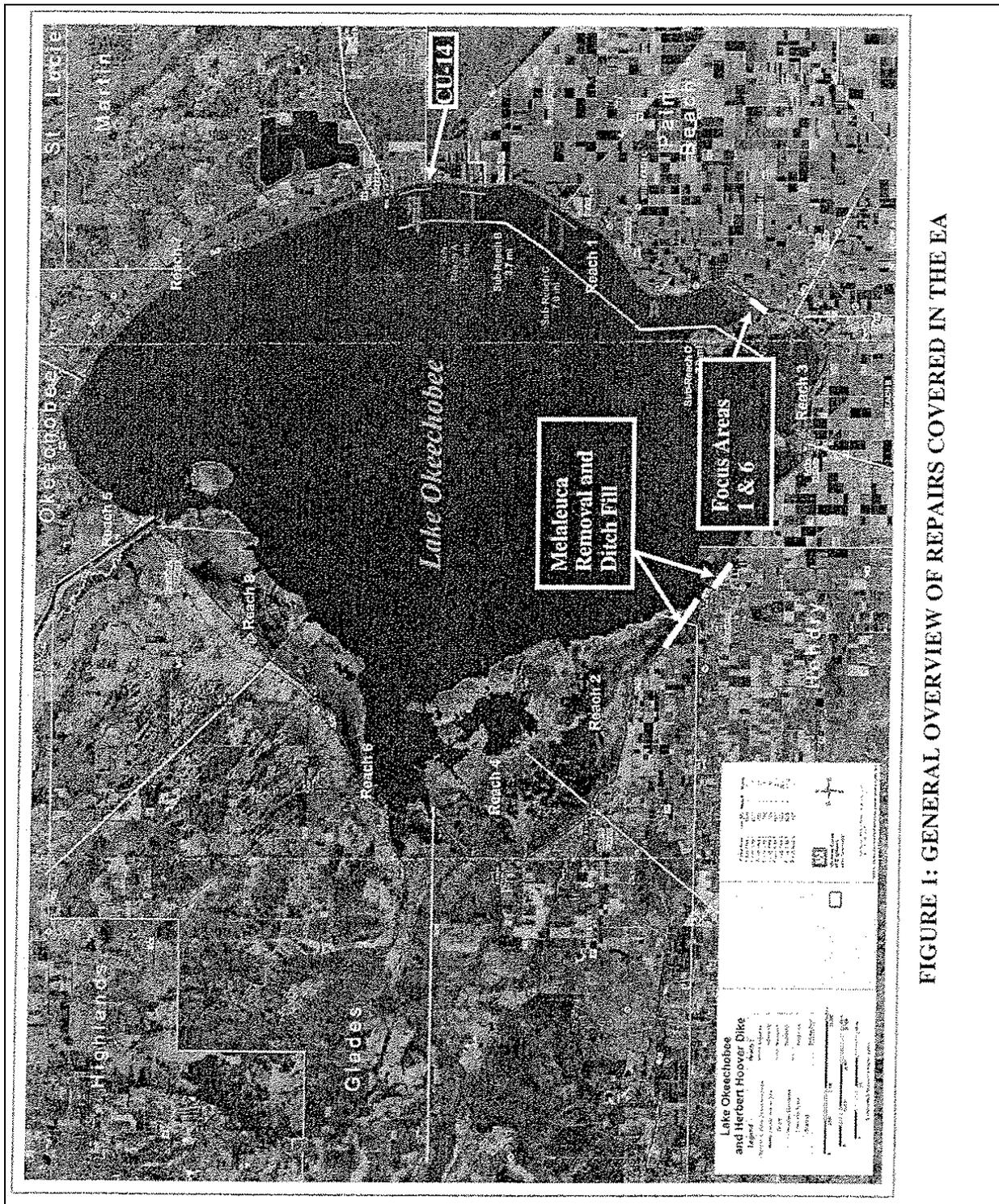


FIGURE 1: GENERAL OVERVIEW OF REPAIRS COVERED IN THE EA



**Coconut  
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COCONUT CREEK, FLORIDA 33063



**BARBARA S. PRICE**  
CITY CLERK

July 23, 2008

Colonel Paul L. Grosskruger, District Commander  
U.S. Army Corps of Engineers  
Jacksonville District  
701 San Marco Boulevard  
Jacksonville, FL 32207-8175

Dear Colonel Grosskruger:

Enclosed is a copy of Resolution No. 2008-55, which was adopted by the City Commission of the City of Coconut Creek on June 12, 2008. This resolution expresses concern regarding the Federal Government's new Lake Okeechobee regulation schedule and requests that the President and U.S. Congress provide funding for expedited repairs to the Herbert Hoover Dike at Lake Okeechobee.

Sincerely,



BARBARA S. PRICE, MMC  
City Clerk

Enclosure

PHONE (954) 973-6774

[www.coconutcreek.net](http://www.coconutcreek.net)

FAX (954) 973-6794

**RESOLUTION NO. 2008- 55**

**A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF COCONUT CREEK, FLORIDA, RECOGNIZING THE IMPORTANCE OF LAKE OKEECHOBEE TO THE RESIDENTS OF SOUTH FLORIDA AND EXPRESSING CONCERN REGARDING THE FEDERAL GOVERNMENT'S NEW LAKE OKEECHOBEE REGULATION SCHEDULE, WHICH MAY RESULT IN THE LOWERING OF THE LAKE LEVEL UNTIL SUCH TIME THAT THE INTEGRITY OF THE HERBERT HOOVER DIKE IS REHABILITATED; REQUESTING THAT THE PRESIDENT AND THE UNITED STATES CONGRESS PROVIDE FUNDING FOR EXPEDITED REPAIRS TO THE DIKE; ENCOURAGING OTHER MUNICIPALITIES IN BROWARD COUNTY TO JOIN IN THIS REQUEST; PROVIDING AN EFFECTIVE DATE**

**WHEREAS**, at close to 730 square miles, Lake Okeechobee is the second largest fresh water lake wholly within the continental United States; and

**WHEREAS**, the United States Army Corps of Engineers (Corps) is charged with operation of Lake Okeechobee and management of water levels within the lake; and

**WHEREAS**, the Corps, through coordination with the South Florida Water Management District (District) as the local sponsor, operates the structures that convey water to and from Lake Okeechobee within the Central and Southern Flood Control Project for flood control, water supply, environmental protection, and water quality purposes; and

**WHEREAS**, at the request of local community leaders, the Governing Board of the District commissioned an independent expert panel to evaluate the structural integrity of the 140 mile-long Herbert Hoover Dike surrounding Lake Okeechobee; and

**WHEREAS**, said report concluded that the dike does not meet current levee protection standards; and

**WHEREAS**, since the potential for breach of the dike increases as lake levels increase, the Corps has established a new Lake Okeechobee Regulation Schedule (LORS), which provides for operation of Lake Okeechobee at lower levels; and

**WHEREAS**, the new Lake Okeechobee Regulation Schedule will remain in effect until either the dike is repaired and its integrity strengthened by the Herbert Hoover Dike rehabilitation project or until the Corps approved a revised regulation schedule that fully considers the construction of other projects or initiatives designed and authorized to provide additional water storage capacity within and outside of the Lake Okeechobee watershed; and

**WHEREAS**, the Corps has recognized in the Final Supplemental Environmental Impact Statement (FSEIS) the interim nature of the Lake Okeechobee Regulation Schedule and the potential for operational flexibility and increased storage from dike rehabilitation and the construction of other new projects; and

**WHEREAS**, South Florida is currently enduring a multi-year water shortage and Lake Okeechobee serves as a back-up water supply for five million residents; and

**WHEREAS**, the current water shortage and resulting water restrictions are focusing attention upon the water level in Lake Okeechobee, which has set new record daily lows since July 2007; and

**WHEREAS**, all water users, including commercial, industrial, agricultural, institutional, hospitality, private citizens, and others can make positive contributions to reduce water use and protect Florida's water resources during water shortages and beyond; and

**WHEREAS**, the District, in collaboration and coordination with local governments, utilities, businesses, agriculture, environmental organizations, recreational, sports and lodging facilities, and other parties with an interest in water use, is developing a comprehensive and long-term water conservation programs for South Florida to instill a lasting culture of conservation in our communities; and

**WHEREAS**, the City Commission of the City of Coconut Creek recognizes the critical importance of Lake Okeechobee to the residents of South Florida.

**NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF COCONUT CREEK, FLORIDA:**

**Section 1:** That the above Whereas clauses are adopted as set forth herein.

**Section 2:** That the City Commission of the City of Coconut Creek, Florida, hereby requests the President of the United States and the members of the United States Congress to provide funds for the expedited repairs of the Herbert Hoover Dike that will precipitate the return of Lake Okeechobee to higher water levels and provide a back-up water supply for South Florida residents and hereby encourages other municipalities to join in this request.

**Section 3:** That the City Commission of the City of Coconut Creek hereby urges the Army Corp of Engineers to fully utilizes all opportunities to emphasize the interim nature of the LORS as noted in the FSEIS, and to adjust operations within LORS' operational flexibility or through schedule deviations to provide additional storage pending completion of dike rehabilitation in Reaches 1, 2, or 3 or other projects that provide increased water storage.

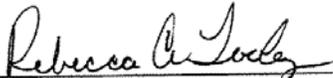
**Section 4:** That the City Clerk is hereby directed to distribute copies of this Resolution to the South Florida Water Management District, the United States Army Corps of Engineers, members of the Florida delegation to the United States Congress, the

President of the United States, the Governor of the State of Florida, and to municipalities located within Broward County.

**Section 5:** This Resolution shall become effective immediately upon its passage and adoption.

Adopted this 12th day of June, 2008, on a motion by Commissioner Sarbone and seconded by Vice Mayor Freund,

Ayes	<u>5</u>
Nays	<u>0</u>
Absent or Abstaining	<u>0</u>

  
 Rebecca A. Tooley, Mayor

Attest:

  
 Barbara S. Price, MMC  
 City Clerk

Tooley	<u>Aye</u>
Freund	<u>Aye</u>
Gerber	<u>Aye</u>
Sarbone	<u>Aye</u>
Aronson	<u>Aye</u>

City Clerk/2008 Resolutions

**Ho, Tien SAJ Contractor**

---

**From:** Allen, Nancy P SAJ  
**Sent:** Monday, August 11, 2008 9:02 AM  
**To:** Dunn, Angela E SAJ  
**Subject:** FW: HHDREACH1ColvertsEA.pdf

**Attachments:** USACE LAKE O.pdf



USACE LAKE O.pdf  
(4 MB)

Nancy Allen  
Biologist  
Planning Division  
Environmental Branch  
701 San Marco Boulevard  
Jacksonville, FL 32232-0019  
904-232-3206  
nancy.p.allen@usace.army.mil  
-----Original Message-----

From: Christian Davenport [mailto:cdavenpo@co.palm-beach.fl.us]  
Sent: Wednesday, August 06, 2008 11:35 AM  
To: Garrett, Natalie S SAJ; HHDEnvironment, SAJ  
Cc: FGaske@dos.state.fl.us  
Subject: HHDREACH1ColvertsEA.pdf

Hello,

I have some concerns about USACE plans for a toe ditch around portions of Lake O.

Per the EA, under the headings "The Ball Family Partnership Lands" and the "J.O. Schlechter Lands"

The USACE will be acquiring these lands or portions of these lands for the placement of the ditch.

Please know the noted properties would have been part of the original shore area of Lake O. In fact I think your aerials may very well show the footprint of the original muck dike that failed in 1928. Given what we found from the survey we did on Lake O I would expect there to be some artifacts in the areas mentioned above as well.

With all of that said will there be any archaeological monitoring in this area to ensure any unrecorded sites are not adversely effected by this undertaking? Minimally, I think USACE will need a Certificate to Dig from Palm Beach County as well.

Thank you for your time,

Chris

Christian D. Davenport MA, RPA.  
County Archaeologist  
Vista Center Complex  
2300 North Jog Road  
West Palm Beach, Fl 33411  
Phone: 561-233-5331  
Fax: 561-233-5365

**Ho, Tien SAJ Contractor**

**From:** Allen, Nancy P SAJ  
**Sent:** Tuesday, August 12, 2008 8:05 AM  
**To:** Garrett, Natalie S SAJ; Caulk, Grady H SAJ  
**Cc:** Dunn, Angela E SAJ; Ho, Tien SAJ Contractor  
**Subject:** FW: HHDREACH1ColvertsEA.pdf

All FYI,  
 Angie, Please include Chris's response to the EA. Nancy

Nancy Allen  
 Biologist  
 Planning Division  
 Environmental Branch  
 701 San Marco Boulevard  
 Jacksonville, FL 32232-0019  
 904-232-3206  
 nancy.p.allen@usace.army.mil  
 -----Original Message-----

From: Christian Davenport [mailto:cdavenpo@co.palm-beach.fl.us]  
 Sent: Tuesday, August 12, 2008 7:56 AM  
 To: Allen, Nancy P SAJ  
 Subject: RE: HHDREACH1ColvertsEA.pdf

Hello,

No, you do not need a CTD to fill or add soil to an area.

Chris

Christian D. Davenport MA, RPA.  
 County Archaeologist  
 Vista Center Complex  
 2300 North Jog Road  
 West Palm Beach, Fl 33411  
 Phone: 561-233-5331  
 Fax: 561-233-5365

>>> "Allen, Nancy P SAJ" <Nancy.P.Allen@usace.army.mil> 08/11/08 9:06 AM  
 >>> >>>

Chris,

We are planning on filling the existitng toe ditch that is on private property. We are not digging a toe ditch. So we shouldn't need a certificate to dig, would we? Sincerely,  
 Nancy Allen

Nancy Allen  
 Biologist  
 Planning Division  
 Environmental Branch  
 701 San Marco Boulevard  
 Jacksonville, FL 32232-0019  
 904-232-3206  
 nancy.p.allen@usace.army.mil  
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Thank you for your time,

Chris

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County Archaeologist  
Vista Center Complex  
2300 North Jog Road  
West Palm Beach, Fl 33411  
Phone: 561-233-5331  
Fax: 561-233-5365

PAGE #1

DEAR Sir

25 MAY 2008

I KNOW OF A BACK-PUMP STATION ON 441 SOUTH JUST BY SAND CUT. ALSO SEVERAL CULVERTS UNDER 441 IN THE SAME AREA. RUN-OFF OF SUGAR CANE FIELD ACROSS 441 TO RIM CANALS ALSO WATER FROM RIM CANAL BACK TO SUGAR CANE FIELD. THERE ALSO IS CATTLE IN CONTACT WITH RIM CANAL IN THE SAME AREA SOUTH OF JES CAMP (CU-14 AREA)

SOUTH FLORIDA WATER MANAGERS, WITH (TRUCKS) IN PLACE, MUST NOT LET CATTLE COME INTO CONTACT WITH FLOWING WATER TO LAKE OKEECHOBEE. SO (BMPs) ARE NOT TO GOOD HERE I GUESS. BACK PUMPING MUST STOP OR BE STOPPED IN THE CONSTRUCTION AREA THERE. THE TOE DITCH REPAIRS (1, 2 AND 3 REACHES) LOW QUALITY, TOE DITCHES ARE COMMON IN THIS AREA.

TO MUCH. MAN CONTACT WITH THIS AREAS OF REACH #8 REACH #6 REACH #4 AND REACH #2. ATV CONTACT, AIRBOAT CONTACT, HUNTER CONTACT IN AREAS ALSO DAMAGE PLANT-LIFE FISH HABITAT. ATV CONTACT ON DRY LAKE BOTTOM START FIRES ON LAKE OKEECHOBEE. CAMP FIRES FROM HOG HUNTERS ON INSIDE EXPOSED LAKE BOTTOM NOW ON GOING DESCRIBING LOW WATER TIMES DOOR-MAN (AND) ENFORCEMENT.

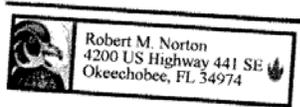
PAGE #2.

REACH #5, REACH #6, REACH #8 LAKE EXPOSED BOTTOM. HAS PEOPLE ON ATV, ON FOOT, AND AIRBOAT, DAMAGE TO LAKE BOTTOM IN THESE AREAS. CATTLE, HORSES. IN THESE AREAS, HAVE RUN-OFF WATER IN CONTACT WITH RIM CANALS. REACH #5 AREA. REACH AREA # REACH AREA #6. HIGH PHOSPHORUS RUN-OFF INTO LAKE OKEECHOBEE ALSO FROM THESE AREAS. POOR-POOR WATER MANAGEMENT THIS AREA.

WATER FLOWS ARE FROM NORTH OF LAKE TO SOUTH INTO AND AROUND LAKE OKEECHOBEE. THE AREAS OF WATER FEED TO LAKE OKEECHOBEE ARE, #1 KISSISSIMMEE RIVER, #2 INDIAN PRAIRIE CANAL, #3 HARNEY POND CANAL #4 FISH EATING CREEK. ALL OF THESE FEED HIGH IN PHOSPHORUS LEVELS TO LAKE OKEECHOBEE FROM THESE 4 AREAS. TRAILS ARE NOT ENFORCED IN THESE AREAS BY (FDEP) OR (SFWMD) POOR MANAGEMENT BY BOTH GROUPS HERE.

(TRAILS) NEED TO BE ENFORCED BY THE STATE OF FLORIDA, TO SAVE OUR LAKE OKEECHOBEE NOT, TAKE OF ACTION, BUT TO TAKE ACTION, TO CORRECT MAN MADE ERRORS DONE TO LAKE OKEECHOBEE SOON.

Robert M Norton  
ECOSYSTEM WATCH



PAGE #1

26 MAY 2008

DEAR MS NANCY ALLEN

I would like for you to SEND ME FUTURE (HHD) INFORMATION, IN PROJECT SITE PICTURES UP-DATE TO MY HOME ADDRESS. ALSO SEND ME UP-DATED MAPS OF AREAS AUNIT AND ALL REACH AREAS AROUND LAKE OKEECHOBEE. COPIES LIKE THE FIGURE #1 OVERVIEW OF REPAIRS COVERED IN THE (EA). WHAT KINDS OF REPAIRS ARE BEING DONE TO LAKE OKEECHOBEE, AND THE HERBERT HOOVER DIKE.

I AM ALWAYS ON THE LOOK-OUT FOR OUR ECOSYSTEM WATCH. FOR LAKE OKEECHOBEE. CAN YOU SEND ME UP DATED MAP OF FLORIDA CENTRAL AND SOUTHERN. FLORIDA COMPREHENSIVE PLAN. CAN YOU UP-DATE ME ON (FISH'S) FOR RUN-OFF WATER TO LAKE OKEECHOBEE. SUCH AS WATER QUALITY. STUDY AREA WITHIN THE KISSIMMEE/OKEECHOBEE/EVERGLADES/WATERSHED. ALSO SAVE OUR RIVERS STATUS MAPS. LAST DATED MAPS I HAVE ARE JULY 1995.

KISSIMMEE RIVER VALLEY IS WHERE WE GET OUR WATER SUPPLY TO LAKE OKEECHOBEE. RUN-OFF WATER, FULL OF PHOSPHORUS FROM AGRICULTURE OPERATIONS. ORANGE, SOY, DAIRY BEEF, HOG, SOME (STAGS) ARE BY PASSED BY DITCHES - STREAMS AND CANALS CUT IN BY AGRICULTURE ITSELF. NO PERMITS AT ALL.

PAGE #2

CAN YOU SHOW ME ON MAP  
WHERE NEW (STAYS) ARE IN KISSIMMEE  
RIVER VALLEY. I LIVE ON RIM CANAL  
EAST OF TAYLOR CREEK, I SEE WILD LIFE  
BIRD POPULATIONS, FISH AND WATER  
QUALITY EVERY DAY.

Robert M. Yonta  
ECOSYSTEM WATCH.

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**US Army Corps  
of Engineers®**

**Jacksonville District**