

**ENVIRONMENTAL ASSESSMENT
ON
ENVIRONMENTAL RESTORATION
LAKE TRAFFORD, CRITICAL PROJECT
COLLIER COUNTY, FLORIDA**

[\[Click here for more information on critical projects\]](#)

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ON
ENVIRONMENTAL RESTORATION
LAKE TRAFFORD, CRITICAL PROJECT
COLLIER COUNTY, FLORIDA
1 PROJECT PURPOSE AND NEED

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1.1 PROJECT AUTHORITY.

1.1.1 INITIAL AUTHORIZATION.

§528 of the Water Resources Development Act of 1996 (WRDA 96) authorizes the Secretary of the Army "to develop specific water quality related projects features which are essential to Everglades restoration." The section "authorizes an appropriation of \$75 million over three fiscal years for the construction of projects determined by the Secretary to be critical to the restoration of the Everglades."

1.1.2 LETTER REPORT.

The Letter Report for the Lake Trafford project was approved by Chief of Engineers by memorandum of June 17, 1998.

1.1.3 APPROPRIATION.

While WRDA 96 authorizes the "critical projects" it does not include appropriation of funds. Funding of the critical projects would come from annual appropriations from Congress to the Corps of Engineers.

1.2 PROJECT LOCATION.

The Lake Trafford critical project is located in southwest Florida, a few miles west of Immokalee in the northeastern portion of Collier County, Florida (see figure 1, location/vicinity map and plan view and figure 2, aerial photograph and plan view).

1.3 PROJECT NEED OR OPPORTUNITY.

Lake Trafford is a rather shallow freshwater lake which is highly eutrophic. It is suspected that a substantial level of nutrients enter the lake as surface runoff from agricultural lands in the watershed. Other sources of nutrients are also possible (septic

tank seepage or other effluents). As such the lake is very productive but at risk for depletion of oxygen and a massive fish kill. A massive fish kill was reported in April 1996. The lake has accumulated a substantial layer of dark sediment high in organic matter. In addition, a nearly perpetual bloom of phytoplanktonic algae is observed throughout much of the year. A high level of nutrient cycling and a high level of phytoplankton productivity could result in an extended period of oxygen depletion under certain climate conditions (i.e., warm sunny weather followed by low wind mixing; low rainfall or other freshwater input; and warm, still, and heavily overcast days). Also, continued accumulation of organic sediment could lead to further replacement of the open water of the lake with emergent aquatic vegetation and/or mud flats.

1.4 AGENCY GOAL OR OBJECTIVE.

The purpose of this restoration is to minimize the potential for fish kill, improve water quality, and enhance the ecological health and stability of the lake and the watershed.

[figure 1]

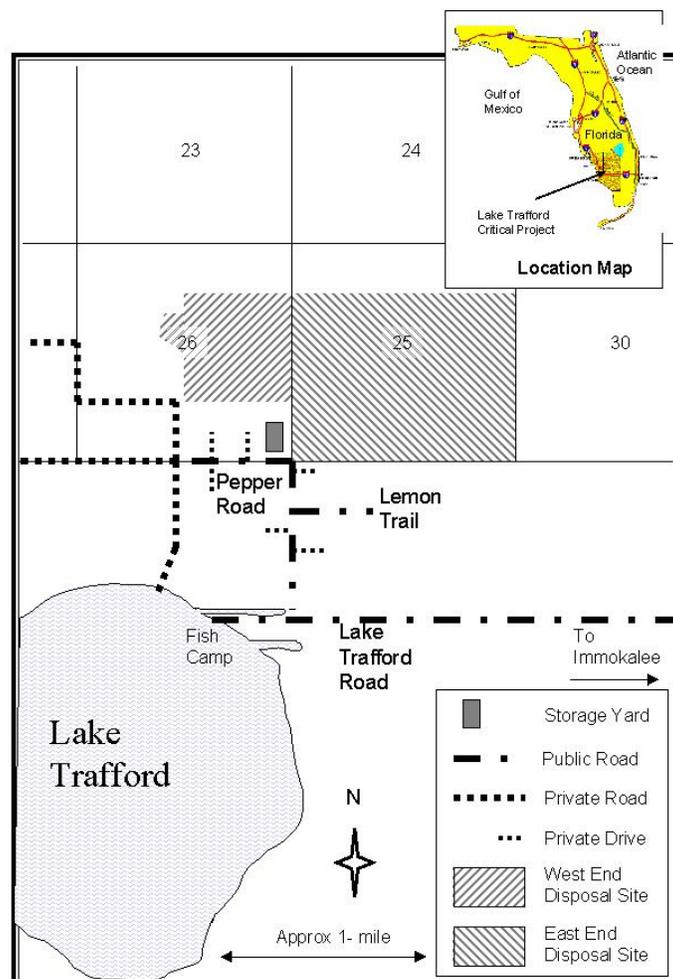


Figure 1: Location/Vicinity Map and Plan View, Conceptual Drawing

[figure 2]



Figure 2: Plan View and Aerial Photograph

1.5 RELATED ENVIRONMENTAL DOCUMENTS.

1.5.1 Nationwide Permits.

Some features of the proposed action may be authorized by one or more Nationwide Permits under the Corps regulatory permit program. The Nationwide permits were issued for a period of 5 years in accordance with Section 404(e) of the Clean Water Act. The Nationwide permits are issued by the Chief of Engineers for application throughout the United States. Since the Nationwide permits are valid for a period of 5 years, the Chief of Engineers must periodically reissue them. These actions are announced in the Federal Register (applicable announcement on December 13, 1996) and become part of the Code of Federal Regulations (33 CFR 330 and its Appendix A). The Nationwide permit reissuance is conducted in compliance with the National Environmental Policy Act (an Environmental Assessment is prepared by the Chief of Engineers). In addition, the nationwide permits must also comply with other applicable environmental requirements.

1.5.2 SW Florida EIS (IMPROVE REGULATORY PROCESS).

The Lake Trafford Critical Project is located within the geographic area of consideration of this EIS. The purpose of this EIS is to address impacts of the Corps' regulatory permit program and examine ways to improve the program for that area. The Draft EIS was released to the public on July 9, 1999.

1.5.3 C&SF Restudy Feasibility Report and EIS.

The Lake Trafford Critical Project is within the region being examined under this Feasibility Report and EIS. The purpose of the EIS is to re-examine the Central and Southern Florida project and what might be done to mitigate the impacts or enhance the benefits of the project.

1.5.4 FISH AND WILDLIFE COORDINATION ACT REPORT.

For this Critical Project, the Corps requested a Fish and Wildlife Coordination Act (CAR) pursuant to section 2(b) of the Act (copy in Appendix III).

1.6 DECISIONS TO BE MADE.

This Environmental Assessment will evaluate whether to improve or restore the lake and, if so, evaluate alternatives to accomplish that goal.

1.7 SCOPING AND ISSUES.

1.7.1 ISSUES EVALUATED IN DETAIL.

The following issues were identified as relevant to the proposed action and appropriate for detailed evaluation: (1) impacts to protected species occurring or potentially occurring within the project and affected area (i.e., Bald Eagle, Eastern Indigo Snake, Gopher Tortoise (State Listed), Florida Panther, Florida Black Bear, Scrub Jay, and Wood Stork); (2) impacts of any chemical and hydrologic manipulation of the lake (and of the disposal site and pipeline/canal corridor) on fish, wildlife, and other ecological resources; (3) potential presence and/or release of hazardous, toxic, or radioactive waste (HTRW); (4) socio-economic impacts to individuals, families, and businesses harmed or benefiting by the project; and (5) impacts to the regions hydrology, water quality, flood control, and ecological well-being.

1.7.2 IMPACT MEASUREMENT.

The following provides the means and rationale for measurement and comparison of impacts of the proposed action and alternatives: (1) degree and duration of water quality and habitat alteration of the lake, (2) kind and value of resources lost in construction and use of the disposal site, (3) ecological loss or modification by the construction and use of the pipeline and return water pipe (or canal), and (4) impacts to aesthetics, recreation, and local groundwater are also considered.

1.7.3 ISSUES ELIMINATED FROM DETAIL ANALYSIS.

The following issues were not considered important or relevant to the proposed action: The proposed action and alternatives would not likely impact historic resources, coral reefs, energy or mineral resources, wild and scenic rivers, or native Americans. The proposed action and alternatives would have only minor impact on climate, soils, air quality, noise, economic base, housing, or population dynamics. Also, we do not expect the dredging and disposal operation to have much impact on the water level in the lake itself (there would be impacts to the level of ground and surface water in and near the disposal site).

1.8 PERMITS, LICENSES, AND ENTITLEMENTS.

The lake and a portion of the disposal site consists of wetlands and other waters of the United States subject to Section 404 of the Clean Water Act. In addition, there would be a return water effluent from the disposal site. As such, certain activities require a permit from the Corps of Engineers (i.e., discharge of dredged or fill material in wetlands or other waters of the United States). In this case, the return water from the confined disposal site is considered subject to Section 404 of the Clean Water Act (instead of needing an NPDES permit pursuant to Section 402 of the Act). See 33 CFR 323.2(d) and U.S. EPA 1998. The Corps is the permitting agency. However, the Corps does not issue itself a permit but does undergo substantially the same evaluation process as would an applicant for a permit from the Corps. Also state approvals would be required for much of the proposed activity. This includes certification of water quality pursuant to Section 401 of the Clean Water Act and concurrence with the Coastal Zone Management plan of the state.

2 ALTERNATIVES

The alternatives section is the heart of this EA. This section describes in detail the no-action alternative, the proposed action, and other reasonable alternatives that were studied in detail. Then based on the information and analysis presented in the sections on the Affected Environment and the Probable Impacts, this section presents the beneficial and adverse environmental effects of all alternatives in comparative form, providing a clear basis for choice among the options for the decisionmaker and the public.

2.1 DESCRIPTION OF ALTERNATIVES.

Many of the alternatives mentioned below are further discussed in *The Lake and Reservoir Restoration Guidance Manual*, 1st Edition, U.S. Environmental Protection Agency (U.S. EPA 1988). This reference also discusses the relative advantages and disadvantages of various restoration methods.

2.1.1 Alternate methods of muck removal

Oxidation of the muck by air or oxygen injection could hasten decomposition of the organic muck. This effort would be complicated by the fact that the lake is rather shallow and horizontal mixing is somewhat limited (the aeration or oxygen injection would have to occur at a number of locations throughout the lake). However, oxidation would not do much to remove nutrients from the water column. It might in fact release certain nutrients into the water column. Similarly chemical oxidation or enzyme enhanced decomposition would not be effective in removal of nutrients.

2.1.2 CHEMICAL TREATMENT OF THE LAKE

Certain inorganic chemicals, organic polymers, and other substances may provide at least temporary improvement in water quality. These chemicals tend to either enhance sediment settling or the immobilization of nutrients. These do not very well solve the problem of gradual filling in of the lake with sediments and loss of depth or open water habitat. Some such chemicals may be harmful to desirable plant and animal life.

2.1.3 MECHANICAL OR CHEMICAL WEED CONTROL

Mechanical weed control has not been much practiced in the lake. However, chemical weed control (especially for the exotic weed hydrilla) has been practiced. It is suspected that the accumulation of these dead weeds has contributed to the organic sediment in the lake. Mechanical weed control is generally more expensive and a problem exist in finding a disposal site for the mechanically harvested weeds. Mechanical harvesting would have the benefit of also removing nutrients and organic material from the lake or at least preventing further accumulation. Chemical weed control does little to help remove nutrients from the system (especially phosphorus).

2.1.4 eliminate nutrient sources

Elimination of nutrient sources (if it were possible) would not eliminate the current muck buildup and nutrients would remain in the lake for years. Since a substantial portion of the surrounding lands are important agricultural areas and are likely to remain so, efforts to eliminate these nutrient sources would be limited.

2.1.5 Alternatives for muck disposal

The local sponsor has worked with land owners to find a disposal site that is large enough and close enough to the lake for practical use. The site selected has a willing seller, is largely agricultural, does not contain substantial ecological resources, and is within a reasonable distance (about a mile or less to the closest point). A disposal site must also have access for a pipeline to pump material into the site and a canal (or pipeline and pumps if needed) for the return water. This kind of access appears practicable for the selected site.

2.1.6 NO ACTION ALTERNATIVE (STATUS QUO)

If no action is taken to reduce organic sediment and nutrients in the lake, it would likely continue to decline in water quality and habitat value. In addition, the lake would be placed at increasing risk for a fish kill and open water areas would be more likely encroached by emergent aquatic vegetation.

3.2 ISSUES AND BASIS FOR CHOICE

The proposed project appears to have substantial support from local, regional, and state interest. There is some concern that a portion of the disposal site contains wetlands and other habitat for protected species or other fish and wildlife resources (see the Fish and Wildlife Coordination Act Report in Appendix III). Avoidance of these resources has been suggested. It is believed that this avoidance is possible. However, further site investigations and engineering design analysis will be conducted to insure that the project can function effectively and efficiently. In certain settings, a 500 acre, 25' to 40' high diked disposal site might have an impact on aesthetics. Also, there may be some impact on ground water quality and levels below the disposal site and nearby areas.

2.3 PREFERRED ALTERNATIVE(S)

The project would consist of the following features: (1) dredging of the organic sediment from the lake, (2) disposal of the material by pumping into the site indicated in figure 2, (3) return of decanted water to the lake by canal or pumping through a return pipeline, and (4) laying of pipeline along one or both of two possible corridors indicated in figure 2.

2.4 ALTERNATIVES ELIMINATED FROM DETAILED EVALUATION

Use of another disposal site (with the muck dredging alternative) is not considered practicable at this time. The selected site is suitable and we expect only minimal environmental impacts from its use. Use of any other potential site of sufficient size and practicable location would not likely be less environmentally damaging even if it was available. In fact most other potential sites of sufficient size and location would likely involve greater environmental resources (i.e., wetlands, forested habitat, protected species, floodplain, or watershed).

2.5 ALTERNATIVES NOT WITHIN JURISDICTION OF LEAD AGENCY

We have not identified any alternatives which might be within the jurisdiction of some other agency. The state's game and fish commission (Florida Fish and Wildlife Conservation Commission) has been involved in restoration of other lakes and has expressed a keen interest in this project.

2.6 COMPARISON OF ALTERNATIVES

Table 1 lists alternatives considered and summarizes the major features and consequences of the proposed action and alternatives. See section 4.0 Environmental Effects for a more detailed discussion of impacts of alternatives.

2.7 MITIGATION

While this project provides a net environmental benefit and compensatory mitigation is not required, we will take reasonable measures to avoid and minimize adverse impacts to environmental resources. We are currently investigating the feasibility of reducing the size of the disposal site to avoid certain ecological resources (wetlands, other habitat, and protected species, see Fish and Wildlife Coordination Act Report in Appendix III). There has been some concern about contaminants in the sediment and their impact on the disposal site and surface and ground water in the vicinity. The use of the upland disposal site would be subject to testing in accordance with the *Inland Testing Manual* by the U.S. EPA 1998. The material is a dark sediment with a high level of organic components. Since the lake's watershed includes agricultural and other developed lands, there is a potential for pesticides, heavy metals, and other contaminants. Tier II testing appears appropriate. This involves testing of dredged material and determination of concentration of contaminants which might occur in the discharge effluent from the disposal site. "Predicted contaminant concentrations based on the results of an effluent elutriate test can be used with applicable water quality standards to determine if the discharge is in compliance with the standards after consideration of mixing" (U.S. EPA 1998). Column settling tests may also be appropriate to determine disposal area design for retention of suspended solids and the amount of suspended sediment or turbidity in the effluent. See U.S. EPA 1998 for additional detail.

Other efforts to mitigate impacts to the human environment are discussed in sections 4.31 (environmental commitments) and 4.32 (compliance with environmental requirements).

Table 1: Summary of Direct and Indirect Impacts

ALTERNATIVE Environmental Factor	DREDGE SEDIMENT USE DISPOSAL SITE (Preferred Alternative)	ALTERNATIVE DISPOSAL SITES	ALTERNATIVE TO MUCK REMOVAL	CHEMICAL TREATMENT	WEED CONTROL (CHEMICAL OR MECHANICAL)	ELIMINATE NUTRIENT SOURCES	NO ACTION STATUS QUO
PROTECTED SPECIES	May impact Eastern Indigo Snake and Gopher Tortoise	Could affect habitat for a number of protected species in the area	May not be effective in preserving or restoring open water (Bald Eagle use)	May not be effective in preserving or restoring open water (Bald Eagle use)	Chemical control may worsen problem.	Would insure long term health of lake	Continued loss of open water, poor water quality, and risk of massive fish kill
FISH AND WILDLIFE	Improve lake habitat,	Other disposal sites may	If intensively applied may	Some chemicals	See above. Mechanical	Would insure long	Continued loss of

RESOURCES	water quality, and water depth	displace substantial habitat	bring about some improvement	are harmful to certain plants and animals	harvest of weeds could help lake.	term health of lake	habitat (open water)
VEGETATION	Stop or reduce spread of emergent vegetation	Other disposal sites may be wetlands or more natural	May slow spread of emergent vegetation	Some chemicals are harmful to certain plants and animals	Chemical control may reduce aquatic weeds but may hasten loss of open water	Reduce rampant growth of vegetation in lake	Continued spread of emergent plants into open water
WATER QUALITY	Removal of a major nutrient source in the lake	Removal of a major nutrient source in the lake	Would not remove nutrients. May release nutrients	Could immobilize nutrients into sediments	Chemical control could release nutrients. Mechanical control would remove nutrients	Would help reduce nutrients. With nutrient reservoir in sediment, may take years	Continued degradation
HISTORIC PROPERTIES	No impact expected at this time	Depends on the disposal site	No impact expected at this time	No impact expected at this time	No impact expected at this time	No impact expected at this time	No impact expected at this time
RECREATION	Help insure resource for fishing and wildlife viewing	Depends on disposal site impacts	Less effective in preserving fish and viewable wildlife	Less effective in preserving fish and viewable wildlife	Except for mechanical weed removal, less effective	Less effective in preserving fish and viewable wildlife	Threat of fish kill and loss of open water remain
AESTHETICS	Helps preserve open water and improve water quality. 35' to 40' high containment dikes	Help preserve open water & improve water quality, 500 to 640 acre disposal site with dikes	Less effective in preserving open water and water quality	Less effective in preserving open water and water quality	Mechanical control may compare with dredging sediment, chemical control may lessen open water	Less effective than dredging sediment but still may be less loss of open water than present condition	Continued loss of open water, poor water clarity, and risk of fish kill
FLOOD CONTROL	Little impact on flow way and flood plain and flooding. Dredging could alter hydrology of lake and lake bottom.	Depends on disposal site. Blockage or diversion of surface water flow possible	Little impact on flow way and flood plain and flooding	Little impact on flow way and flood plain and flooding	Little impact on flow way and flood plain and flooding	Little impact on flow way and flood plain and flooding	Over time hydrology of lake may change with loss of open water to emergent marsh and accumulation of sediments
OTHER SOCIO-ECONOMIC IMPACTS	Loss of about 400 acres of agricultural land. Improve fishing and wildlife observation in the lake.	Depends on disposal site. Agricultural or wooded land likely lost. Lakes fish and wildlife improved	Less effective for water quality, fish, and wildlife observation in lake. No lands for disposal site.	Less effective for water quality, fish, and wildlife observation in lake. No lands for disposal site.	Less effective for water quality, fish, and wildlife observation in lake. No lands for disposal site (except for mechanical weed control).	Less effective for water quality & habitat. May take lands out of agriculture or development and/or construct	Continued risk of fish kill and loss of open water for fishing, boating, and nature tours.

						treatment ponds or facilities.	
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3 AFFECTED ENVIRONMENT

The Affected Environment section succinctly describes the existing environmental resources of the areas that would be affected if any of the alternatives were implemented. This section describes only those environmental resources that are relevant to the decision to be made. It does not describe the entire existing environment, but only those environmental resources that would affect or that would be affected by the alternatives if they were implemented. This section, in conjunction with the description of the "no-action" alternative forms the base line conditions for determining the environmental impacts of the proposed action and reasonable alternatives.

3.1 GENERAL ENVIRONMENTAL SETTING

The project is located a few miles west of Immokalee, Collier County, Florida. As with much of south Florida the area is characterized by low flat land with an abundance of seasonal wetlands and other seasonally flood prone areas. Flat sandy areas slightly elevated above surrounding areas offer less flood prone sites suitable for agriculture (citrus and row crops) or other development. Much of the land in and around Lake Trafford is, however, low flat wetlands either wooded or herbaceous. Most of the area developed for agriculture or other uses is afforded additional flood protection through a network of ditches, canals and berms. Lake Trafford is part of a larger watershed which includes not only "upstream" natural, agricultural, and residential lands to the north and east but a vast area "downstream" through Corkscrew Swamp to Bonita Springs to the west and Camp Keais Strand and the Big Cypress Swamp to the south. Much of this area is in preservation or otherwise undeveloped. A portion of the area has been invaded by exotic vegetation, especially *Melaleuca* (*Melaleuca quinquenervia*) and Brazilian Pepper (*Schinus terebinthifolius*) and virtually all of it is hydrologically altered by roads, ditches, berms, wells, pumping, or other features.

3.2 VEGETATION

A variety of natural and unnatural vegetation occurs under different land uses for the lake and watershed area. For more detailed discussion of the various plant communities common in South Florida, see Craighead 1971 and other references cited in this EA and the Fish and Wildlife Coordination Action Report in Appendix III.

3.3 THREATENED AND ENDANGERED SPECIES

A number of protected species are located within the vicinity of the lake and throughout the watershed. These include bald eagle, Florida panther, Florida scrub jay, and eastern indigo snake. In addition, the wood stork may have roosting or feeding areas nearby.

The gopher tortoise (state listed as a species of special concern) uses the sandy dikes and berms around the disposal site. The American alligator (listed as threatened only by similarity in appearance to the American Crocodile) is abundant in the lake. For more detailed discussion see the Fish and Wildlife Coordination Act Report in Appendix III.

3.4 OTHER FISH AND WILDLIFE RESOURCES

The project area supports or potentially supports a number of other species including fish, other aquatic organisms, and a variety of wading and migratory birds. For more detailed discussion see the Fish and Wildlife Coordination Act Report in Appendix III.

3.5 COASTAL BARRIER RESOURCES

Project lands are located several miles inland. No designated coastal barrier resource would be directly impacted.

3.6 WATER QUALITY

Current water quality in the area is affected by agricultural and residential use of the project land. These activities tend to add pollutants and decrease retention time for surface waters. The quality and amount of sub-surface waters is also affected. Waters in the lake contain a level of nutrients that supports a high concentration of phytoplankton. A massive fish kill was reported in April 1996. The lake remains in jeopardy of periodic fish kills.

3.7 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE

There are no known sources of hazardous, toxic, or radioactive waste on the project lands. The preliminary assessment indicated no evidence of hazardous, toxic or radioactive waste (HTRW) on the project lands. During land procurement and project construction further HTRW awareness should be practiced.

A portion of the property considered for this project was agricultural land. Agricultural activities are exempt from Resource Conservation Recovery Act (RCRA) as section 40 CFR 261.4 (b)(2)(ii) provides an exclusion. Therefore, the handling, storage and reporting requirements established by RCRA are not applicable. Farm chemical storage and mixing sites are regulated by Federal Insecticide, Fungicide and Rodenticide ACT (FIFRA). The chemicals typically used by farmers are pesticides, fuels and herbicides. Spills or problems associated with farm spill sites are not documented on the HTRW database search conducted during this assessment did not reveal their existence. See also section 2.7 concerning testing of sediment for potential release of harmful substances.

3.8 AIR QUALITY

The project area is in compliance with ambient air standards.

3.9 NOISE

Frequent air boat tours on the lake do contribute to noise levels as does outboard motor boat traffic. There is no other significant source of noise in the area. The recreational/tour boat noise and noise associated with agricultural, residential, and other human activity may be sufficient to disturb certain wildlife in the area.

3.10 AESTHETIC RESOURCES

Lake Trafford is a picturesque water body. Tour boats use the lake to show tourist the wildlife (especially alligators) on the lake. Much of the lake is open water and it is largely surrounded by areas of herbaceous marsh (with some pond apple and willow trees also) and wooded lowlands. The proposed disposal site is mostly agricultural in either citrus or row crops. A portion is more natural with wetland and woody areas.

3.11 RECREATION RESOURCES

In addition to wildlife watching mentioned above, the lake is reported to provide a substantial recreational fishery.

3.12 NAVIGATION

Project lands and waters are typically shallow providing little opportunity or potential for commercial navigation.

3.13 HISTORIC PROPERTIES

One recorded archeological site is located near the project area on the east shore of Lake Trafford (Dickel 1991). The site is on a small sand mound rising above the surrounding marsh. Sand-tempered ceramics were the only cultural material observed. The project area has not been subjected to a systematic cultural resources survey, and unrecorded historic properties may be located in the disposal area. The Corps will assess, in consultation with the Florida State Historic Preservation Officer (SHPO), if further cultural resources investigations are necessary.

3.14 FLOOD CONTROL

This area had some influence on the severe flooding which occurred in 1995 in the Bonita Springs Area. The proposed dredging and sediment disposal would not much impact the overall watershed and flood hazard.

4 ENVIRONMENTAL EFFECTS

This section is the scientific and analytic basis for the comparisons of the alternatives. See table 1 in section 2.0 Alternatives, for summary of impacts. The following includes

anticipated changes to the existing environment including direct, indirect, and cumulative effects.

4.1 GENERAL ENVIRONMENTAL EFFECTS

The overall purpose of the proposed activity is to improve water quality of the lake, sustain a healthy productive ecosystem, and reduce potential for fish kill.

4.2 VEGETATION

4.2.1 PROPOSED ACTION, DREDGE SEDIMENT AND USE DISPOSAL SITE

The dredging would remove sediments and nutrients. This would tend to slow the encroachment of the emergent woody and herbaceous vegetation into open water.

4.2.2 CHEMICAL TREATMENT OF THE LAKE

Chemical treatment to settle out or immobilize nutrients may slow growth of vegetation and phytoplankton.

4.2.3 MECHANICAL OR CHEMICAL WEED CONTROL

Treatment with herbicide would kill or inhibit growth of certain species. Mechanical control would physically remove emergent and/or submerged aquatic vegetation.

4.2.4 ELIMINATE NUTRIENT SOURCES

Elimination of nutrient sources would reduce growth and spread of vegetation but with natural sources of nutrients and the large reserve of nutrients this would not be fast and the effectiveness would be limited.

4.2.5 ALTERNATIVES FOR MUCK DISPOSAL.

The current disposal site is largely row crops and citrus. Other sites in the area may contain more natural vegetation that would be eliminated by the disposal or construction of the disposal site.

4.2.6 NO ACTION ALTERNATIVE (STATUS QUO)

Without any of the measures above, we would expect continued phytoplankton blooms (with threat of fish kill) and continued encroachment of open water by emergent vegetation.

4.3 THREATENED AND ENDANGERED SPECIES

The letter of July 10, 1998, from the U.S. Fish and Wildlife Service (copy in Appendix IV) indicates the following protected species as a concern: Florida Panther, Scrub Jay, and Bald Eagle. In addition, subsequent site inspection indicates the presence of Gopher Tortoise (State listed) and the probability of associated Eastern Indigo Snakes.

4.3.1 PROPOSED ACTION, DREDGE SEDIMENT AND USE DISPOSAL SITE

The dredging would remove sediments and nutrients. This would tend to slow the encroachment of the woody and herbaceous vegetation into open water. This would tend to benefit the Bald Eagle which would use the open water for obtaining fish for food. We do not expect to impact active habitat for scrub jay. Site inspection by or with the U.S. Fish and Wildlife Service revealed no evidence of use of the disposal site by the Florida Panther. Gopher tortoises on the disposal site would either be relocated or some other arrangement with the state for a take. Since the Eastern Indigo Snake may be associated with the gopher tortoise burrows, we plan to take precautions to protect this species of snake. We do not expect to adversely impact any Federally listed species other than the Eastern Indigo Snake. See also, the Coordination Act Report and other correspondence with the U.S. Fish and Wildlife Service in Appendices III and IV.

4.3.2 CHEMICAL TREATMENT OF THE LAKE

There would be no disposal site needed for this option. However, this option would not involve removal of accumulated muck in the lake which could continue to threaten the open water with encroachment by emergent vegetation (thus reducing potential feeding area for the Bald Eagle).

4.3.3 MECHANICAL OR CHEMICAL WEED CONTROL

Mechanical weed removal would require a disposal site for the weeds. As such the impacts would be similar to use of the proposed (or some other) disposal site. Chemical weed control would not require a disposal site. However, the weeds killed would add to the accumulation of muck in the lake.

4.3.4 ELIMINATE NUTRIENT SOURCES

In order to do this there may be any number of impacts depending on how the nutrient source is eliminated or reduced. This alternative might involve construction of runoff treatment cells or ponds. It is unlikely that agriculture would be eliminated in the watershed but this could reduce nutrient input if it were possible. Purchase of agricultural or other developed lands to eliminate the nutrient source would be costly.

4.3.5 ALTERNATIVES FOR MUCK DISPOSAL.

Other muck disposal sites in the area are possible. However, impacts to protected species would be likely on almost any land large enough to handle the dredged material.

4.3.6 NO ACTION ALTERNATIVE (STATUS QUO)

Without any of the measures above, the open water habitat for the Bald Eagle and the food source would continue to be threatened.

4.4 FISH AND WILDLIFE RESOURCES

Generally, the impact of the various alternatives on fish and wildlife resources would be similar to that for threatened and endangered species (see discussion above). Alligators are abundant in the lake. However, their habitat would diminish as open water is replaced with emergent vegetation.

4.5 HISTORIC PROPERTIES

No historic properties are recorded within the project area. In consultation with the SHPO, the Corps will assess if further cultural resources investigations are necessary. If a cultural resources survey is found to be necessary, it will be completed prior to initiation of any ground disturbing activities on the project. The Corps will apply the criteria of effect and adverse effect for any historic properties that meet the criteria of eligibility to the National Register of Historic Places and will be affected by the proposed project. For those historic properties that will be adversely affected, mitigation plans will be developed by the Corps, in consultation with your office, to mitigate adverse effects. The Corps will implement the mitigation plans prior to any ground disturbing activities being initiated. Based on this information, it is the Corps' preliminary determination, at this stage of planning, that the proposed Lake Trafford Critical Project will not affect significant historic properties. This determination is made according to the guidelines established in 36 CFR Part 800 and in compliance with Section 106 of the National Historic Preservation Act.

4.6 SOCIO-ECONOMIC

Any effort to protect the wildlife and fish resources of the lake would benefit recreational fishing and wildlife observation related industry for the lake. In addition, protection of downstream water quality in the Corkscrew Swamp and Big Cypress Swamp would benefit these resources and associated tourist and recreational industries.

4.7 AESTHETICS

Any efforts that would result in protection of the open water, prevention of fish kills, and support wildlife would benefit aesthetics.

4.8 RECREATION

Recreational fishing and wildlife observation are recreational activities practiced in the lake and other affected areas of the watershed. See section on impacts to water quality, protected species, and fish and wildlife resources.

4.9 WATER QUALITY

4.9.1 PROPOSED ACTION, DREDGE SEDIMENT AND USE DISPOSAL SITE

The dredging would remove sediments and nutrients. This would tend to slow the encroachment of the woody and herbaceous vegetation into open water. See also Section 2.7 on application of the "Inland Testing Manual" to insure water quality standards are met.

4.9.2 CHEMICAL TREATMENT OF THE LAKE

Chemical treatment could reduce nutrients and suspended sediments in the water column.

4.9.3 MECHANICAL OR CHEMICAL WEED CONTROL

Mechanical removal of aquatic weeds to a disposal site would also remove nutrients along with the plant material. Chemical treatment would result in the killing of the plants and possible release of nutrients into the water column.

4.9.4 ELIMINATE NUTRIENT SOURCES

This would help reduce nutrient and sediment content of the water column to the extent that nutrient sources could be eliminated.

4.9.5 ALTERNATIVES FOR MUCK DISPOSAL.

Other disposal sites, if properly designed and operated, would impact water quality in the same manner as the preferred plan.

4.9.6 NO ACTION ALTERNATIVE (STATUS QUO)

Without any of the measures above, the waters of the lake would remain high in nutrients and the lake ecosystem would change as open water is replaced with emergent vegetation and muck. At some point the filling of lake with muck and vegetation would result in shorter water retention capacity and possibly diminished nutrient uptake capacity.

4.10 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

The majority of the proposed disposal site is used for agriculture. Agricultural activities are exempt from Resource Conservation Recovery Act (RCRA) as section 40 CFR 261.4 (b)(2)(ii) provides an exclusion. Therefore, the handling, storage and reporting requirements established by RCRA are not applicable. Pesticides and herbicides used at on these farms is regulated by the Federal Insecticide, Fungicide and Rodenticide ACT (FIFRA).

These chemicals if not detected during the site assessment, may be disturbed or released by increasing the water level and hydroperiod in the disposal site or by removing/disturbing the lake bottom's sediment.

It is possible that some contaminants in the sediments would be introduced to the disposal site or that some contaminants would be introduced into the return water. It is unlikely that toxic substances would be introduced. See also section 2.7 on mitigation.

4.11 AIR QUALITY

At the present time, the activities on the project site do not much contribute to air pollution. During construction of the containment dikes or working of the confined disposal site, there would be some release of dust from current soils and/or sediments placed in the site. If this becomes a serious problem, wetting of the surface may be appropriate to minimize dust.

4.12 NOISE

There would be some noise associated with the dredge pumps and outflow pumping from the disposal site if needed. There are a few residences in the area which might be affected by the noise, especially for night operations. There would be less noise associated with the alternatives not involving dredging and disposal.

4.13 PUBLIC SAFETY

As with all such activities, there would be certain risk to public safety with a construction project of this nature. Precautions will be required of the contractor to minimize the potential for accidents and other threats to public safety.

4.14 ENERGY REQUIREMENTS AND CONSERVATION

Some of the cost for the proposed action is related to land purchase. Some energy consumption would be associated with the dredging activity, with laying pipeline, with pumping the dredged material or return water, and with the construction and maintenance of the disposal site.

4.15 NATURAL OR DEPLETABLE RESOURCES

No depletable resources would be used other than fossil fuels to power equipment and produce materials or equipment needed for dredging, disposal site construction, and pipeline construction. Agricultural lands would be taken out of production (about 450 acres or so).

4.16 SCIENTIFIC RESOURCES

The project would tend to enhance the lake habitat and possibly provide additional wildlife encounters for educational purposes in the area. The success of the restoration effort will be monitored and provide additional scientific information on lake ecosystem restoration.

4.17 NATIVE AMERICANS

The project should not impact Native Americans or any tribal lands.

4.18 REUSE AND CONSERVATION POTENTIAL

Opportunity for re-cycling or use of re-cycled or re-cyclable materials is limited. Use of the dredged muck as a soil amendment or some other beneficial use may be considered if it is determined suitable and economical.

4.19 URBAN QUALITY

The project is expected to contribute to water quality and reduction of flood hazard potential for the developed areas downstream of the project.

4.20 SOLID WASTE

There would not be much solid waste associated with the proposed activity or the alternatives (dredged material is not normally considered solid waste). We do not expect much construction or demolition debris with this project. In the mechanical harvest alternative, plant material harvested would have to be disposed or some beneficial use found (i.e., soil amendment, compost). Disposal in a land fill may be required. Drying out or incineration may reduce the bulk of material to be disposed.

4.21 DRINKING WATER AND WATER SUPPLY

Surface waters in the lake are not used as a drinking water source. However, there are wells, well fields, and surface water intakes in the downstream watershed. There may be some minor influence on surface or subsurface water supplies. Quality of these waters is not expected to be much affected except that nutrients should be removed from the lake with the dredging of sediments or mechanical plant removal alternatives.

4.22 CUMULATIVE IMPACTS

Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (40 CFR 1508.7). Individually, the proposed action and alternatives would tend to benefit water quality in the lake, wildlife, and other ecosystem values. Together with other similar ecosystem restoration activities (which are existing or being considered in the area) even greater benefit could be expected. This project would be an important element of a larger on-going effort to reduce degradation or improve water

quality and other ecological values in Southwest Florida (see Fish and Wildlife Coordination Act Report in Appendix III for additional discussion).

4.23 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

4.23.1 IRREVERSIBLE

An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever. One example of an irreversible commitment might be the mining of a mineral resource. The proposed action would likely improve water quality and enhance fish and wildlife resources. It is likely that the development of the disposal site would result in the permanent loss of these lands for agriculture. Other irreversible commitment of resources would be use of fuel, equipment, and supplies.

4.23.2 IRRETRIEVABLE

An irretrievable commitment of resources is one in which, due to decisions to manage the resource for another purpose, opportunities to use or enjoy the resource as they presently exist are lost for a period of time. An example of an irretrievable loss might be where a type of vegetation is lost due to road construction. During the construction of the disposal site and pipeline corridor, there would be a temporary disturbance of vegetation. This would quickly recover.

4.24 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

During and following dredging operation for several months, the disposal site would not have much vegetation cover. This would replace agricultural lands. Displacement of more natural areas would be only a few acres of the site and may be avoidable altogether depending on construction/engineering constraints.

4.25 LOCAL SHORT-TERM USES AND MAINTENANCE/ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The project would involve the utilization of minimal resources. In the long run, fish and wildlife habitat and water quality would benefit from the project.

4.26 INDIRECT EFFECTS

Additional visitation of the lake by anglers and tourist can be expected. Also, other similar activities in the watershed may benefit from overall improvement of water quality and other ecological resources throughout the watershed.

4.27 COMPATIBILITY WITH FEDERAL, STATE, AND LOCAL OBJECTIVES

The project has been identified as a priority "critical project" by a task force representing a number of agencies and other stakeholders. The project will also be coordinated with the state and area clearinghouse.

4.28 CONFLICTS AND CONTROVERSY

This project appears to have considerable local support. We have not received any statements of objection or opposition. The construction activities and 24-hour dredging may be objectionable to some nearby residents.

4.29 UNCERTAIN, UNIQUE, OR UNKNOWN RISKS

We have identified only minimal uncertain, unique, or unknown risks (see discussions above and below in this EA). With the proposed environmental commitments (section 4.31) and measures to mitigate impacts (section 2.7), risk to the environment are minimal.

4.30 PRECEDENT AND PRINCIPLE FOR FUTURE ACTIONS

While the concept of "critical projects" is somewhat new for the Corps of Engineers, the practice of this and other means of lake restoration is not unusual (U.S. EPA 1988).

4.31 ENVIRONMENTAL COMMITMENTS

The U.S. Army Corps of Engineers and contractors commit to avoiding, minimizing or mitigating for adverse effects by taking the following actions:

1. Construct (and encourage the sponsor to operate and maintain) the project to further the goals of ecosystem restoration, water quality, water supply, and avoid unacceptable impacts to flooding of private land.
2. With respect to protected species, take the following measures: (1) follow "guidelines" for protection of the Eastern Indigo Snake, (2) coordinate with the state to attempt to relocate Gopher Tortoises in the disposal site or otherwise attempt to mitigate for impacts, and (3) active habitat for the Scrub Jay would not be impacted.
3. Most, if not all, of the fill material would be obtained on site. The fill material would be essentially free of contaminants such as liquid petroleum products, heavy metals, toxic or radioactive waste, or any other active substance which might harm the environment or pose a threat to health and safety. If additional material is needed, it would come from an upland or approved commercial source similarly free from contaminants and cultural resources.
4. The contract specifications will prohibit the contractor from dumping oil, fuel, or hazardous wastes in the work area and will require that the contractor adopt safe and

sanitary measures for the disposal of solid wastes. A spill prevention plan will be required.

5. The contractor would be required to monitor and control dust from the working of the disposal site. Dust would be controlled to minimize threat to health, safety, or welfare of nearby properties.

Additional actions have been or will be taken to comply with environmental requirements as discussed in the following section.

4.32 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

4.32.1 National Environmental Policy Act of 1969

Environmental information on the project has been compiled in this Environmental Assessment. A Preliminary Finding of No Significant impact was prepared and is being coordinated with the public. The project is in compliance with the National Environmental Policy Act.

4.32.2 Endangered Species Act of 1973

Consultation was initiated with USFWS by letter dated 27 July 1999 (copy in Appendix IV). In the letter, we indicated that the "guidelines" for the Eastern Indigo Snake (a federally listed species) would be followed and that we will coordinate with the state concerning relocation or other provisions for impacts to the Gopher Tortoise (state listed).

4.32.3 Fish and Wildlife Coordination Act of 1958

This project has been coordinated with the U.S. Fish and Wildlife Service (USFWS). A draft Coordination Act Report (CAR) dated May 20, 1999, was submitted by the USFWS. A final CAR will be provided following release of the EA and preliminary FONSI. At that time, this project is in full compliance with the Act.

4.32.4 NATIONAL HISTORIC PRESERVATION ACT OF 1966 (INTER ALIA)

(PL 89-665, the Archeology and Historic Preservation Act (PL 93-291), and executive order 11593) The Corps has determined that this project will have no adverse effect on historic properties. Consultation with the SHPO is ongoing.

4.32.5 Clean Water Act of 1972

A Section 401 water quality certification will be required from the Florida Department of Environmental Protection. All State water quality standards would be met. A Preliminary Section 404(b) evaluation is included in this EA as Appendix I. The final 404(b) evaluation would be after public coordination of the preliminary EA and FONSI.

4.32.6 Clean Air Act of 1972

No air quality permits would be required for this project.

4.32.7 Coastal Zone Management Act of 1972

A federal consistency determination in accordance with 15 CFR 930 Subpart C is included in this report as Appendix II. State consistency review will be initiated during the coordination of preliminary EA and FONSI.

4.32.8 Farmland Protection Policy Act of 1981

We have initiated coordination with the Natural Resources Conservation Service concerning impacts to prime or unique farmland (see letters of April 28, 1999, and June 2, 1999, in Appendix IV). A portion of this project is agricultural lands (citrus and row crops). Approximately 398 acres of the project site have been determined "unique" farmlands. The reporting and coordination requirements of this act have or are being met.

4.32.9 Wild and Scenic River Act of 1968

No designated Wild and Scenic river reaches would be affected by project related activities. This act is not applicable.

4.32.10 Marine Mammal Protection Act of 1972

No marine mammal would be impacted by this project.

4.32.11 Estuary Protection Act of 1968

No designated estuary would be affected by project activities. This act is not applicable.

4.32.12 Federal Water Project Recreation Act

The principles of the Federal Water Project Recreation Act, (Public Law 89-72) does not apply to this project.

4.32.13 Fishery Conservation and Management Act of 1976

No fishery resource subject to this act would be affected.

4.32.14 Submerged Lands Act of 1953

The project (dredging) would occur on submerged lands of the State of Florida. The sponsor would obtain the necessary real estate interests from the state in association with obtaining the necessary state and Federal permits.

4.32.15 Coastal Barrier Resources Act and Coastal Barrier Improvement Act of 1990

There are no designated coastal barrier resources in the project area that would be affected by this project. These acts are not applicable.

4.32.16 Rivers and Harbors Act of 1899

The proposed action does not occur in or affect navigable waters of the United States and is not subject to this act.

4.32.17 Anadromous Fish Conservation Act

Anadromous fish species would not be affected.

4.32.18 Migratory Bird Treaty Act and Migratory Bird Conservation Act

No migratory birds would be affected by project activities. The project is in compliance with these acts.

4.32.19 Marine Protection, Research and Sanctuaries Act

The project does not directly involve marine waters. However, the affected watershed provides flow towards the west and south eventually reaching coastal waters (see section 3.1). No regulatory provision of this act applies to the project.

4.32.20 UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION ACT OF 1970

The project would be in compliance with this law (PL 91-646). At this time the project involves only purchase of lands from a willing seller.

4.32.21 E.O. 11990, Protection of Wetlands

Only minimal wetland impact would occur (i.e., inhibition of the encroachment of emergent aquatic plants into the open water of the lake and filling of up to a few acres wetlands in the disposal site. Considering the nature of the surrounding area along with the size and location of the disposal site required, wetland impacts have been avoided to the extent practicable. This project is in compliance with the goals of this Executive Order.

4.32.22 E.O. 11988, Flood Plain Management

The project is in the base flood plain (100-year flood) and has been evaluated in accordance with this Executive Order. The project would not obstruct a flow way and would not increase flooding of private property.

4.32.23 E.O. 12898, environmental justice

The proposed action would not result in adverse human health or environmental effects. Any impacts of the action would not be disproportionate towards any minority. The activity does not (a) exclude persons from participation in, (b) deny persons the benefits of, or (c) subject persons to discrimination because of their race, color, or national origin. The activity would not impact "subsistence consumption of fish and wildlife".

4.32.24 E.O. 13089, CORAL REEF PROTECTION

No coral reef or coral reef organism would be impacted by this project.

5 LIST OF PREPARERS

5.1 PREPARERS

Preparer	Discipline	Role
Kenneth Dugger	Biologist	Principal Author
Paul Stevenson	Landscape Architect	Aesthetics and Recreation
David McCullough	Archeologist	Historic Properties
Peter Besrutschko	Environmental Engineer	HTRW Site Visit and Report
John Zediak	Civil Engineer	Engineering & Hydrology

5.2 REVIEWERS

Reviewer	Discipline
Elmar Kurzbach	Biologist
John Pax	Legal Counsel
Frank Grant	Project Manager

6 PUBLIC INVOLVEMENT

6.1 SCOPING AND DRAFT EA

A Notice of Availability of a preliminary Finding of No Significant Impact and Environmental Assessment (FONSI/EA) is being sent to agencies having jurisdiction or expertise, to interested or affected groups and private parties, to affected property owners, and other stakeholders.

6.2 AGENCY AND PUBLIC COORDINATION

The proposed action has been coordinated pursuant to the Fish and Wildlife Coordination Act. A draft Fish and Wildlife Coordination Act Report (CAR) was provided by the U.S. Fish and Wildlife Service by letter dated May 20, 1999. The Florida Fish & Wildlife Conservation Commission (a part of which was formerly the Florida Game and Fresh Water Fish Commission) concurred with the findings and recommendations of the draft CAR by letter of June 24, 1999 (copy in Appendix IV).

6.3 LIST OF RECIPIENTS

A list of recipients of the Notice of Availability of the preliminary FONSI/EA (see section 6.1 above) has been placed in Appendix IV.

6.4 COMMENTS RECEIVED and response

Comments and other information received will be considered before finalizing the FONSI. If appropriate, this EA would be revised also.

REFERENCES

Craighead, F. C. Sr. 1971. *Trees of South Florida. Volume I, The Natural Environments and Their Succession.*

Dickel, David N. 1991 *An Archaeological Survey of Collier County, Florida: Phase I.* Archaeological and Historical Conservancy, Miami Technical Report #38

Johnson Engineering, Inc. (Revised) March 1996. *Bonita Springs – Summer 1995, Imperial River Area, Flood Reconnaissance, Evaluation and Recommendations for South Florida Water Management District*

U.S. Army Corps of Engineers. April 1999, *Integrated Feasibility Report and Programmatic Environmental Impact Statement, Central and Southern Florida Project, Comprehensive Review Study*

U.S. Army Corps of Engineers. July 1999. *Draft EIS, Southwest Florida, Regulatory Program*

U.S. EPA, February 1988. *The Lake and Reservoir Restoration Guidance Manual, 1st Edition*

U.S. EPA, February 1998. *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual, Inland testing Manual*

(see also list of references in Appendix III)

APPENDIX I - SECTION 404(B) EVALUATION**SECTION 404(b) EVALUATION****LAKE TRAFFORD****CRITICAL PROJECT****COLLIER COUNTY, FLORIDA****I. Project Description**

a. Location. See section 1.2 of the EA.

b. General Description. See section 2.3 of the EA.

c. Authority and Purpose. See sections 1.1, 1.3, and 1.4 of the EA.

d. General Description of Dredged or Fill Material.

(1) General Characteristics of Material. See item (3) below.

(2) Quantity of Material. Approximately 8.5 million cubic yards of muck would be dredged from the 1500 acre lake and placed into a confined upland disposal site 450 to 640 acres in size.

(3) Source of Material. See above.

e. Description of the proposed Discharge Site.

(1) Location. See section 1.2 of the EA.

(2) Size. 1500 acre lake and 450 to 640 acre disposal site.

(3) Type of Site. See section 2.0 of the EA.

(4) Type of Habitat. See section 2.0 of the EA

(5) Timing and Duration of Discharge. The project may take about 3 years to complete. Year-round and 24-hour operation would be preferred. If this is not possible or other operational problems arise the project may take longer than 3 years.

f. Description of Disposal Method. Various types of heavy equipment would be used to work the disposal site. This might include earth moving equipment and loaders for dump trucks. A pipeline dredge is the most likely method of muck removal. Dredged material

would be pumped through a pipeline to the disposal site. It may be necessary to pump return water through a return pipe (or through an open ditch)

II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The natural topography of the area is nearly flat. Unnatural features such as berms, roadways, house pads, ditches, etc. are among the more prominent topographic features.

(2) Sediment Type. Sediments would be primarily silty or sandy organic muck. While the sediment may contain nutrients and organic matter, we do not expect it to contain any significant amount of any other contaminant or harmful substance. The material would be subject to Tier II testing in accordance with the Inland Testing Manual (U.S. EPA 1998).

(3) Dredge/Fill Material Movement. Once in place in the confined upland disposal site, we would not expect much movement of the fill material.

(4) Physical Effects on Benthos. The actual dredging would remove muck and any associated benthic organisms from the bottom. However, the resulting bottom with less muck and more sandy bottom substrate would support a more natural benthic community.

b. Water Circulation, Fluctuation and Salinity Determination.

(1) Water Column Effects. The removal of the muck would increase depth. However, the lake would remain fairly shallow.

(2) Current Patterns and Circulation. Removal of the muck may slightly decrease water column mixing but increase horizontal mixing. The hydrologic interaction between the lake water and ground water under the lake may be altered by removal of the muck layer between the two.

(3) Normal Water Level Fluctuations and Salinity Gradients. Salinity is not an issue since this is a fresh water system. The removal of the muck may change the hydrology of the lake by increasing its volume, depth, and connection to ground water under the lake.

c. Suspended Particulate/Turbidity Determinations. Some increase in particulate and turbidity can be expected in the vicinity of the dredge during its operation. Overall particulate and turbidity should decrease as sediments are removed and as nutrients and phytoplankton blooms decrease.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site. During construction there may a potential for increased particulate and turbidity. The in-place project should provide less particulates and turbidity in the lake.

(2) Effects on the Chemical and Physical Properties of the Water Column.

(a) Light Penetration. With reduced sediments and phytoplankton the water clarity along with light penetration should improve.

(b) Dissolved Oxygen. The dissolved oxygen levels would become more like that of the natural lake system. Long periods of anoxic conditions and threat of fish kill should be less.

(c) Toxic Metals, Organics, and Pathogens. We do not expect a release of harmful levels of toxic or organic substances or any pathogenic organisms. Tier II testing under the Inland Testing Manual will be conducted.

(d) Aesthetics. To many people, the open water condition and increased water clarity is more aesthetic. Removal of the muck would reduce the encroachment of emergent vegetation and mud flats into the open water area.

(3) Effects on Biota.

(a) Primary Productivity and Photosynthesis. The removal of the muck or other measures that would reduce nutrient levels would decrease the primary productivity of the lake. However, the excessive productivity jeopardizes the ecosystem with excessive productivity and threat of fish kill and encroachment of open water with mud flats and emergent vegetation.

(b) Suspension/Filter Feeders. The current extent of filter feeders (i.e., clams or mussels) is unknown. It is likely that a less mucky and more sandy bottom would be more favorable to such organisms.

(c) Sight Feeders. Sight feeders (such as certain fish and wading birds) would be helped by clearer water. Some organisms are not so much sight feeders as dependent on poor visibility to obtain food or avoid being eaten.

d. Contaminant Determinations.

e. Aquatic Ecosystem and Organism Determinations.

(1) Effects on Plankton. The planktonic organisms would be reduced to a more natural level but remain an important component of the ecosystem.

(2) Effects on Benthos. Much of the benthic community is currently smothered by the muck. Removal of the muck would provide more sandy substrate for benthic organisms.

(3) Effects on Nekton. The "nekton" (free swimming) component would change as the water depth clarity, chemistry, physical characteristics, and biology change.

(4) Effects on the Aquatic Food Web. A more natural trophic state and food web would result.

(5) Effects on Special Aquatic Sites.

(a) Hardground and Coral Reef Communities. No hardground or coral reef community would be impacted.

(b) Sanctuaries and Refuges. The project would benefit Corkscrew sanctuary and some other nearby wetland habitats.

(c) Wetlands. See item above.

(d) Mud Flats. No mud flats (as defined by this regulation) are involved. The exposed muck areas are not mud flats as defined by regulations on "special aquatic sites".

(e) Vegetated Shallows. There are no "vegetated shallows" (communities of rooted submerged aquatic vegetation) in the lake at this time. Removal of the muck and improved water clarity may result in development of some rooted submerged aquatic vegetation.

(f) Riffle and Pool Complexes. No riffle pool complexes would be involved.

(6) Endangered and Threatened Species. See section 4.3 of the EA.

(7) Other Wildlife. See section 4.4 of the EA.

(8) Actions to Minimize Impacts. See sections 4.31 and 4.32 of the EA.

f. Proposed Disposal Site Determinations.

(1) Mixing Zone Determination. During the dredging operation, there would be some introduction of sediment and turbidity to nearby waters. Improved water quality is expected as the project progresses.

(2) Determination of Compliance with Applicable Water Quality Standards. See section 4.32.5 of the EA.

(3) Potential Effects on Human Use Characteristics.

- (a) Municipal and Private Water Supplies. See section 4.21 of the EA.
- (b) Recreational and Commercial Fisheries. The area does support recreational fisheries. This would benefit from reduced risk of fish kill and preservation of open water. Improved downstream water quality may benefit such uses downstream also.
- (c) Water Related Recreation. See section 4.8 of the EA.
- (d) Aesthetics. See section 4.7 of the EA.
- (e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. The Corkscrew Sanctuary and other similar habitats in the area would benefit from the project (see sections 4.3, 4.4, 4.8, 4.22, and 4.26 of the EA).
- g. Determination of Cumulative Effects on the Aquatic Ecosystem. See section 4.22 of the EA.
- h. Determination of Secondary Effects on the Aquatic Ecosystem. See section 4.26 of the EA.
- 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. After consideration of disposal site dilution and dispersion, 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 proposed action with the requirements resulting from consultation with the U.S. Fish and Wildlife Service, 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. On the basis of the guidelines, the proposed disposal site for the discharge of dredged material is specified as complying with the requirements of these guidelines.

APPENDIX II - COASTAL ZONE MANAGEMENT CONSISTENCY

FLORIDA COASTAL ZONE MANAGEMENT PROGRAM

FEDERAL CONSISTENCY EVALUATION PROCEDURES

LAKE TRAFFORD

CRITICAL PROJECT

COLLIER COUNTY, FLORIDA

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 action does not involve activity on the beach or any coastal shoreline.

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. It's 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 an orderly social, economic and physical growth.

Response : The proposed project is being coordinated with various Federal, State and local agencies during the planning and/or regulatory permit process. The project would provide for ecosystem restoration and improvement in water quality, and water supply.

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 would have little or no impact on disaster preparation, response or mitigation.

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 proposed action would provide for ecosystem restoration and associated benefits. The activity would be appropriate use of state land and consistent with their management.

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

Response: The project may involve the purchase of about 640 acres of private lands as a disposal site.

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: The proposed project area does not contain any state parks or aquatic preserves. There are some such areas in the vicinity which may benefit from the proposed action. The project is consistent with this chapter.

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

Response: This project is being coordinated with the State Historic Preservation Officer (SHPO) through the planning process.

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: The proposed would not adversely impact beneficial development, economic diversification, or tourism. While some agricultural lands would be lost, the improved lake habitat and water quality would benefit tourism, recreational fishing, and the local economy.

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

Response: No public transportation systems would be impacted by this project. Pipelines for dredged material and return water would cross roads in a manner to minimize disruption of traffic or harm to the roadway.

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 action would not adversely impact saltwater living resources. The project is consistent with the goals of this chapter.

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 project will have no adverse effect on freshwater aquatic life or wild animal life. Benefits to wildlife, freshwater aquatic life, and water quality are expected.

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

Response: This project may benefit the quality and quantity of surface and ground water resources as described by this chapter.

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: The contract specifications will prohibit the contractor from dumping oil, fuel, or hazardous wastes in the work area and will require that the contractor adopt safe and sanitary measures for the disposal of solid wastes. A spill prevention plan will be required.

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 project does not involve or affect the exploration, drilling or production of gas, oil or petroleum product and therefore, this chapter 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.

Response: The proposed action does not impact any large scale development.

16. Chapter 388, Arthropod Control. This chapter provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the state.

Response: The project will 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 Regulation (now a part of the Florida Department of Environmental Protection).

Response: The project will be reviewed by the Florida Department of Environmental Protection. Environmental protection measures will be implemented to ensure that no lasting adverse effects on water quality, air quality, or other environmental resources will occur. Water Quality Certification will be sought from the State prior to construction. The project complies with the intent of this chapter.

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: Some agricultural lands would be lost to the disposal site (see section 4.32.8 of the EA).

APPENDIX III – FISH AND WILDLIFE COORDINATION ACT REPORT

[Not available on this document]

APPENDIX IV - PERTINENT CORRESPONDENCE

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Created: August 9, 1999