

**CENTRAL AND SOUTHERN FLORIDA PROJECT
COMPREHENSIVE EVERGLADES RESTORATION PLAN**

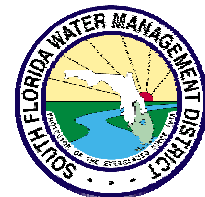


**APPENDIX A: PLAN FORMULATION
A.4 FINAL ALTERNATIVE PLAN
SCREENING CRITERIA**

**EVERGLADES AGRICULTURAL AREA
STORAGE RESERVOIRS - PHASE 1**



**US Army Corps of Engineers
Jacksonville District**



**South Florida Water
Management District**

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(SFWMD Consultant Task 5.2.2)

Abstract

This Final Alternative Plan Screening Criteria document was prepared by the Everglades Agricultural Area (EAA) Storage Reservoirs (SR) - Phase 1 Project Delivery Team (PDT), with assistance from the consultant team headed by Kimley-Horn and Associates, Inc. (KHA). Screening Criteria are measures that will be used during the planning process to qualitatively evaluate the various alternative plans in order to narrow the number of alternatives that will undergo full evaluation under the Evaluation Criteria Hierarchy. The screening criteria include a sub-set of the evaluation criteria and were selected with a primary focus on the project goals and objectives. Additional screening criteria that address project constraints, “show-stoppers”, and other potential major opportunities and adverse impacts have also been identified and included.

Each Screening Criteria Fact Sheet includes a description of the criterion, the rationale for selection, and a description of the method by which the criterion will be used to screen the alternative components.

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ATTACHMENT 1 - Table of Screening Criteria and Screening Criteria Fact Sheets

A.4.1 Introduction

This Final Alternative Plan Screening Criteria document is intended to address and define the screening criteria that will be utilized for the Everglades Agricultural Area (EAA) Storage Reservoirs (SR) - Phase 1 project. The goals and objectives of the EEA SR project are to improve the timing of environmental deliveries to the Water Conservation Areas by:

- Reducing the regulatory releases from Lake Okeechobee to the estuaries;
- Reducing backpumping from the EAA into Lake Okeechobee by routing the water to the south and into the storage reservoirs;
- Improving environmental releases through the storage of water and release to the Everglades during the dry season demand;
- Improving flood protection and regional water supply for the agricultural community currently served by the EAA canals and other areas served by Lake Okeechobee; and
- Flow equalization and optimization of treatment performance of STA-2, STA-3/4, STA-5, and STA-6 by capturing peak storm event discharges within the reservoirs for slow release to the STAs.

A.4.2 Screening Criteria

A.4.2.1 Definition and Selection of Screening Criteria

The alternative plan selection process will include the development and screening of alternative components and the development and evaluation of alternatives. Therefore, the alternatives developed may be evaluated in their entirety or based on the proposed components consisting of the features, facilities, management measures and other parameters that would be combined to develop a full alternative. By developing a wide range of components and then screening them, the process produces a variety of viable and applicable tools from which to construct alternatives.

As a result of the alternative plan selection process, two sets of criteria are needed, the screening criteria and the evaluation criteria. Both sets of criteria need to address the goals and objectives of the project for which they are specifically developed. In addition, both sets of criteria need to assist in selecting alternatives that will pass the Corps' four primary criteria tests:

1. Completeness
2. Effectiveness
3. Efficiency
4. Acceptability

Screening Criteria are measures that will be used during the planning process to qualitatively

evaluate the various alternative plans in order to narrow the number of alternatives that will undergo full evaluation under the Evaluation Criteria Hierarchy.

The primary difference between the screening criteria and evaluation criteria is that the screening criteria are best used to address the goals and objectives of the project and identify constraints or “show-stoppers” (fatal flaws) of the alternative components being considered. This assures that alternative components with these problems are not included in the final set of alternatives. Furthermore, the screening of alternative components can take place without specific designs, costs or modeled outputs.

The development of screening criteria should consider how to assess the various alternative components without the benefit of the more quantitative modeling tools that will be available later for the evaluation of alternatives.

The screening criteria include a sub-set of the evaluation criteria and were selected by the PDT through an interactive and iterative process. These criteria are based on the project goals and objectives, project constraints, “show-stoppers”, and other potential major opportunities and adverse impacts.

A.4.2.2 Application of Screening Criteria – Screening Values

Each alternative component will be assigned a quantitative screening value. The PDT collectively developed the methodologies for each screening criterion. The methodologies for determining screening values may include arithmetic calculations, analyses of maps or graphics, monitoring data, and estimations/qualitative assessments based on the best professional judgment of those PDT members with expertise in a relevant field.

Incremental screening values not specified in the screening criteria fact sheets may need to be established or refined by the experts who will participate in the scoring of the various alternative components.

As an additional (optional) step, the screening values may then be modified as appropriate based on the sensitivity of specific screening criteria. In this step, those screening criteria that have been deemed more important in the screening process, as determined by the PDT, can be weighted.

Once the alternative components are screened, the second step is to create alternatives that best utilize the alternative components that received a favorable screening value.

A.4.3 Recommended Screening Criteria

The following nine screening criteria were developed and are recommended for use during the screening process for this project:

1. Storage Capacity
2. Connection to Water Source
3. Discharge Connections to STAs
4. Flood Protection
5. Acquisition of Additional Land
6. Protected Species/Habitats
7. Wetland Habitat
8. Cultural Resources
9. Environmental Justice

A.4.4 Individual Screening Criteria Fact Sheets

Individual Screening Criterion Fact Sheets were developed for each of these criteria. Each Fact Sheet describes the criterion, provides the rationale for selection, and gives a description of the method by which the criterion will be used to screen alternative components. More specifically, each Fact Sheet includes the following information:

- **Rationale** – A brief description of what the criterion will measure or quantify including the reason why it was selected and identification of attributes and/or issues for which this criterion could serve as a surrogate.
- **Information needed to apply the criterion** – A brief explanation of what types of data will be needed to apply the criterion. Information needed could possibly include arithmetic calculations, maps, graphics, monitoring data, etc.
- **Application Methodology** – A description of precisely how the criterion will be applied in a consistent manner across the suite of alternative components.

Throughout the following screening criteria fact sheets, the terminology for “alternative components” and “alternatives” has been simplified to improve legibility. The term “alternatives” is used for both.

ATTACHMENT 1

Table of Screening Criteria and Screening Criteria Fact Sheets

Table of Screening Criteria

Criteria Title	Criteria No.
Storage Capacity	SC-1.0
Connection to Water Source	SC-2.0
Discharge Connections to STAs	SC-3.0
Flood Protection	SC-4.0
Acquisition of Additional Land	SC-5.0
Protected Species/Habitats	SC-6.0
Wetland Habitat	SC-7.0
Cultural Resources	SC-8.0
Environmental Justice	SC-9.0

Screening Criterion 1.0: Storage Capacity
<p>Rationale:</p> <p>What will this criterion measure/quantify? The volume of useable storage capacity provided by each alternative.</p> <p>Why was it selected? Water storage is the most important means to achieve all of the goals and objectives of the EAA SR project.</p> <p>What other attributes/issues does this criterion cover? This criterion will likely be tied to decreases in flood releases to the WCA's, decreases in Lake Okeechobee releases to the estuaries, meeting the EAA's water demands, reducing backpumping to Lake Okeechobee and meeting the Everglades' water demands.</p>
<p>Screening Value:</p> <p>(10): Storage capacity of 360,000 ac-ft. or greater (Yellow Book Value for Phase 1 and Phase 2) (9): Storage capacity of 340,000 to 360,000 ac-ft. (8): Storage capacity of 320,000 to 340,000 ac-ft. (7): Storage capacity of 300,000 to 320,000 ac-ft. (6): Storage capacity of 280,000 to 300,000 ac-ft. (5): Storage capacity of 260,000 to 280,000 ac-ft. (4): Storage capacity of 240,000 to 260,000 ac-ft. (240,000 ac-ft. = Yellow Book Value) (3): Storage capacity of 220,000 to 240,000 ac-ft. (2): Storage capacity of 200,000 to 220,000 ac-ft. (1): Storage capacity of 160,000 to 200,000 ac-ft. (0): Storage capacity of 160,000 ac-ft. or less</p>
<p>Information/Data needed to apply the criterion:</p> <ul style="list-style-type: none"> • Map showing the footprint likely to be impacted by each alternative. • Size and description of the structures associated with each alternative (e.g. levee height, design pool depth, live storage depth, minimum pool elevation, etc.).
<p>Application Methodology:</p> <ul style="list-style-type: none"> • Based on the type of facility and the conceptual layout/design proposed for each alternative, calculate the permanent storage volume available. If more than one reservoir is proposed in an alternative, estimate the combined capacity for all reservoirs. • Assign a screening value to each alternative based on the storage capacity provided (see above).

Screening Criterion 1.0: Storage Capacity – CONTINUED

Comments/Recommendations:

- Although the increments in storage capacity may not be equivalent between screening values, each value above (0) represents an increase in storage capacity from the value below it.
- The effects of existing topography on potential storage capacity should be considered.

Screening Criterion 2.0: Connection to Water Source
<p>Rationale:</p> <p>What will this criterion measure/quantify? Both the proximity of the reservoir to the available source(s) of water (i.e. drainage from the EAA subbasins and the primary canals) and the ability of the alternative to maximize the use of existing SFWMD facilities (canals and pump stations) to capture source water for the reservoirs.</p> <p>Why was it selected? This criterion is applicable to the acceptability and efficiency criteria of the Corps' planning process. The project should maximize the use of available land for storage features rather than for conveyance. A potential fatal flaw could be identified for an alternative if the acceptability and efficiency criteria are not met.</p> <p>What other attributes/issues does this criterion cover? This criterion will likely be associated with construction costs, long-term O&M costs, water loss during discharge from the source(s) to the project site, and head maintenance.</p>
<p>Screening Value: Based on relative costs of improvements</p> <p>(10): Utilize only existing canals and pumps with minimum improvements, primarily by deepening or constructing within existing disturbed right of way. (8): Minor large canal improvements or few distribution canals. (5): Construction requirements similar to Yellow Book. (2): Major construction with 1 or 2 minor additional pumps. (0): Major construction of canal network with additional pumps more than that in Yellow Book.</p>
<p>Information/Data needed to apply the criterion:</p> <ul style="list-style-type: none"> • Maps showing the footprint likely to be impacted by each alternative. • Map showing the locations of the existing SFWMD facilities.
<p>Application Methodology:</p> <ul style="list-style-type: none"> • Assess the location and relationship of the proposed reservoir limits in relation to the existing SFWMD facilities, such as canals, control structures and pump stations. • Evaluate each alternative with regard to the need for additional facilities. • Assign a screening value to each alternative based on the alternative's proximity to the water source and its requirements for improvements (see above).
<p>Comments/Recommendations:</p> <p>Screening value for this Criterion may be a composite score to account for each of the proposed reservoirs and their intended use.</p>

Screening Criterion 3.0: Discharge Connections to STAs
<p>Rationale:</p> <p>What will this criterion measure/quantify? The proximity of each alternative to existing and/or proposed stormwater treatment areas (STAs).</p> <p>Why was it selected? Improving the timing and distribution of water for environmental deliveries is a goal and objective of the EAA SR project.</p> <p>What other attributes/issues does this criterion cover? This criterion will likely be linked to construction costs, long-term O&M costs, water loss during discharge from the reservoir(s) to the STAs, and STA efficiency (controlled timing, volume and stage of deliveries).</p>
<p>Screening Value:</p> <p>(10): Reservoir has a direct connection to an STA. (0): Reservoir is not directly connected to an STA.</p>
<p>Information/Data needed to apply the criterion:</p> <ul style="list-style-type: none"> • Map showing the footprint likely to be impacted by each alternative. • Map showing the locations of the existing SFWMD facilities and STAs.
<p>Application Methodology:</p> <ul style="list-style-type: none"> • For each alternative, estimate the construction requirements to connect reservoirs to STAs. Evaluate the ability of the alternative to use existing SFWMD facilities and identify location for additional facilities for each alternative. • Assign a screening value to each alternative based on the alternative's proximity to the water source (see above).
<p>Comments/Recommendations:</p> <p style="text-align: center;">Intermediate screening values may not be applicable to this screening criterion.</p>

Screening Criterion 4.0: Flood Protection
<p>Rationale:</p> <p>What will this criterion measure/quantify? The ability of each alternative to provide flood protection for the EAA.</p> <p>Why was it selected? Improvement of the EAA's existing flood protection is a goal and objective of the EAA SR project.</p>
<p>Screening Value:</p> <p>(10): Proposed improvements result in the primary system's capacity being equal to existing permitted secondary system.</p> <p>(5): Proposed improvements include additional capacity that is at least equivalent to that currently provided by pump stations S-2 and S-3, thereby potentially contributing to the ability to minimize or eliminate backpumping into Lake Okeechobee.</p> <p>(0): Proposed improvements maintain existing level of flood protection provided by post-Everglades Construction Project (ECP) conditions.</p>
<p>Information/Data needed to apply the criterion:</p> <ul style="list-style-type: none"> • Map showing the footprint likely to be impacted by each alternative. • Size and description of the structures associated with each alternative (e.g. levee height or design pool depth). • Maps of basin service areas, including structures (bridges, roads, buildings, etc.). • Rainfall frequency analysis.
<p>Application Methodology:</p> <ul style="list-style-type: none"> • Estimate the capacity of each alternative for potential flood protection (based on basin service areas). • Assign a screening value to each alternative based on the alternative's flood protection potential (see above).
<p>Comments/Recommendations:</p> <p>Base condition assumes the completion and implementation of the ECP.</p>

Screening Criterion 5.0: Acquisition of Additional Land
<p>Rationale:</p> <p>What will this criterion measure/quantify? The amount of additional land acquisition that would be required for each alternative.</p> <p>Why was it selected? Acquiring additional land may be necessary for some alternatives. A non-willing seller of a parcel needed for construction of a facility could potentially be a fatal flaw. The more land that is necessary for an alternative, the higher the likelihood that there will be a non-willing seller.</p> <p>What other attributes/issues does this criterion cover? Related to land acquisition costs.</p>
<p>Screening Value:</p> <p>(10): No additional land acquisition is required. (5): Proposed site is comprised primarily of Talisman, Woerner, and other SFWMD property, but some additional land acquisition is required. (0): Significant land acquisition would be required for the proposed site.</p>
<p>Information/Data needed to apply the criterion:</p> <ul style="list-style-type: none"> • Map showing the footprint likely to be impacted by each alternative. • Map of the property in the EAA under SFWMD ownership (including the Talisman land exchange and the Woerner South property acquisition (1999)).
<p>Application Methodology:</p> <ul style="list-style-type: none"> • Estimate the amount of additional land (land not under SFWMD ownership) that would need to be acquired for each alternative. • Assign a screening value to each alternative based on the alternative's addition land acquisition needs (see above).
<p>Comments/Recommendations:</p> <ul style="list-style-type: none"> • Include timing of available lands in addition to footprints.

Screening Criterion 6.0: Protected Species/Habitats
<p>Rationale:</p> <p>What will this criterion measure/quantify? Potential impacts on protected species and their habitats.</p> <p>Why was it selected? Significant adverse impacts to protected species and their habitats could potentially be a fatal flaw.</p>
<p>Screening Value:</p> <p>(10): Alternative has the potential to provide improved or increased habitat for protected species. (6): Alternative has no impact on protected species or their habitat. (3): Alternative has low impact on protected species or their habitat. (0): Alternative has high impact on protected species or their habitat.</p>
<p>Information/Data needed to apply the criterion:</p> <ul style="list-style-type: none"> • GIS materials and information provided by USFWS, FWC, FNAI and other sources. This may include, but is not limited to, information associated with South Florida Multi-Species Recovery Plan, Southwest Florida Regional Wildlife Habitat Plan, Closing the Gaps in Florida’s Wildlife Habitat Conservation System, Habitat Conservation Needs of Rare and Imperiled Wildlife in Florida, FNAI databases, and wildlife and plant studies. • Map showing the footprint likely to be impacted by each alternative.
<p>Application Methodology:</p> <ul style="list-style-type: none"> • Identify those protected species and their habitats that may potentially be impacted by the alternative. • Assess the impacts (direct and secondary) of each alternative on the identified species and their habitats. This assessment will be qualitative and will rely on best professional judgment. • Assign a screening value to each alternative based on the alternative’s impact on protected species and their habitats (see above).
<p>Comments/Recommendations:</p> <p>Protected species are those animal and plant species:</p> <ul style="list-style-type: none"> • Listed by federal and/or state regulations to be endangered, threatened or species of special concern • In addition to protected species, impacts on those species considered “rare” and their habitat will be taken into consideration. “Rare” species will be identified based on a combination of published documents [e.g. Cox et al. (1994)**] and best professional judgment. <p><small>**Cox, James, Randy Kautz, Maureen MacLaughlin, and Terry Gilbert. 1994. Closing the Gaps in Florida’s Wildlife Habitat Conservation System. Florida Game and Fresh Water Fish Commission, Tallahassee, Florida.</small></p>

Screening Criterion 7.0: Wetland Habitat
<p>Rationale:</p> <p>What will this criterion measure/quantify? Potential impacts on existing wetlands within the limits of the EAA and their habitat value.</p> <p>Why was it selected? Significant adverse impacts to existing wetlands could create a complicated permitting process. This is relevant to the Corps' planning process's acceptability criterion.</p>
<p>Screening Value:</p> <p>(10): Alternative has a low impact on wetlands within the EAA SR footprint. (5): Alternative has a moderate impact on wetlands within the EAA SR footprint. (0): Alternative has high impact on existing wetlands within the EAA SR footprint.</p>
<p>Information/Data needed to apply the criterion:</p> <ul style="list-style-type: none"> • Maps showing the isolated and interconnected wetland systems located within the limits of the EAA. • Information on the functional value of these wetlands. • Map showing the footprint likely to be impacted by each alternative.
<p>Application Methodology:</p> <ul style="list-style-type: none"> • Identify both isolated and interconnected wetland systems and their habitat values. • Assess the impacts (direct, secondary and cumulative) of each alternative on the identified wetlands and their habitat value. This assessment will be qualitative and will rely on best professional judgment. • Assign a screening value to each alternative based on the alternative's impact on wetlands and their habitat value (see above).
<p>Comments/Recommendations:</p> <ul style="list-style-type: none"> • Avoidance and minimization of wetland impacts is a requirement under the National Environmental Policy Act (NEPA). Under Section 404(b)(1) Guidelines of the Clean Water Act, the project must minimize impacts to waters of the U.S. • Wetlands are those areas defined by federal and/or state regulations to be wetlands, in accordance with the regulation-prescribed hydrology, vegetation and soils criteria. • According to FAC Chapter 40E-4.021, Definitions, "wetlands" means those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils. Soils present in wetlands are generally classified as hydric or alluvial, and possess characteristics that are associated with reducing soil conditions.

Screening Criterion 7.0: Wetland Habitat - CONTINUED

Comments/Recommendations (continued):

- The prevalent vegetation in wetlands generally consists of facultative or obligate hydrophytic macrophytes that are typically adapted to areas having soil conditions described above. These species, due to morphological, physiological, or reproductive adaptation, have the ability to grow, reproduce, or persist in aquatic environments or anaerobic soil conditions.
- The wetland maps shall be generated based on a combination of infrared aeriels, topographic maps, soil maps and National Wetlands Inventory maps. For the purposes of the wetland maps, those depressional areas that are farmed will not be considered "wetlands".

Screening Criterion 8.0: Cultural Resources
<p>Rationale:</p> <p>What will this criterion measure/quantify? Potential impacts on cultural resources.</p> <p>Why was it selected? Required by Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR 800.</p> <p>What other attributes/issues does this criterion cover? Environmental Justice (in part).</p>
<p>Screening Value:</p> <p>Section 106 of the National Historic Preservation Act of 1966, has defined three criteria for effect and adverse effect:</p> <p>a. <u>No Effect</u>: There is no effect of any kind (neither harmful nor beneficial) on the historic properties.</p> <p>b. <u>No Adverse Effect</u>: There could be an effect, but the effect would not be harmful to those characteristics that qualify the property for inclusion in the National register.</p> <p>c. <u>Adverse Effect</u>: There could be an effect and that effect could diminish the integrity of such characteristics.</p> <p>(10): No cultural resources recorded within EAA (8): Project has "No Effect" to cultural resources within EAA (5): Project has "No Adverse Effect" to cultural resources within EAA (0): Project has an "Adverse Effect" to cultural resources within EAA.</p>
<p>Information/Data needed to apply the criterion:</p> <ul style="list-style-type: none"> • Probability Mapping for below-ground resources • Maps showing the boundaries of archaeological sites, historic structures/districts and engineering works, and sites of traditional cultural significance to Native American tribal organizations. • Map showing the footprint likely to be impacted by each alternative.
<p>Application Methodology:</p> <ul style="list-style-type: none"> • Use the results of Probability Mapping for below-ground resources to evaluate the probability of potential impact to cultural resources. • Evaluate the maps showing location of proposed structures and plans of each alternative against the maps showing known areas of cultural resources. • Assess the impacts of each alternative on the identified cultural resources. This assessment will rely on best professional judgment. • Assign a screening value to each alternative based on the alternative's impact on cultural resources (see above).

Screening Criterion 8.0: Cultural Resources - CONTINUED

Comments/Recommendations:

- Cultural resources are: any prehistoric or historic district, site, building, structure, or object found in, or eligible for inclusion in the National Register of Historic Places (NRHP) (as defined by the National Historic Preservation Act of 1966-as amended).
- Any action by the USACE will have an effect on cultural resources.
- Even NO ACTION, which would result in “No Effect”, has the potential to have an indirect impact on cultural resources. Both time and seasonal changes in the environmental have an impact, usually adverse.

Screening Criterion 9.0: Environmental Justice
<p>Rationale:</p> <p>What will this criterion measure/quantify? Disproportional impacts to low income and minority populations.</p> <p>Why was it selected? This criterion is required by USACE planning guidance, Executive Order 12898.</p>
<p>Screening Value:</p> <p>(10): Alternative results in least impacts or most benefits to low income and/or minority population economic or social conditions. (5): Alternative results in moderate amount of impacts or benefits to low income and/or minority population economic or social conditions. (0): Alternative results in most impacts or least benefits to low income and/or minority population economic or social conditions.</p>
<p>Information/Data needed to apply the criterion:</p> <ul style="list-style-type: none"> • Census data related to jobs, housing and home ownership, land ownership, population education, income and other parameters as well as information from the District’s public outreach program. • Map showing the footprint likely to be impacted by each alternative.
<p>Application Methodology:</p> <ul style="list-style-type: none"> • The displacement of families from homes and jobs will be evaluated for each alternative, along with the number of construction jobs and permanent O&M jobs created (the status of home ownership and the temporary nature of construction jobs will be considered). • Best professional analysis by team members with environmental justice expertise will be used to determine the net effect of each alternative, based on both impacts due to job and home displacement and benefits due to potential job creation. Although programs that help socially and economically disadvantaged people will be produced, it cannot necessarily be assumed that those impacted are those receiving the jobs created. Therefore, the net effect of displacement versus potential job opportunities must be considered. • Quantify the net effect by placing the alternatives on a number line. The alternatives with the most positive/least negative effect receive 10s, the alternatives with the least positive/most negative effect receive 0s, and those alternatives in the middle receive 5s. • Assign a screening value to each alternative based on the alternative’s impacts to low income and minority populations (see above).

Screening Criterion 9.0: Environmental Justice - CONTINUED

Comments/Recommendations:

- This criterion evaluates the different alternatives as related to each other and produces a net effect on home and job displacements.
- Staging areas for construction and O&M will be included in the evaluation
- Evaluation should include scoping methods and comments received to determine possible impacts.
- The area to be evaluated should consider including those who live, frequent or rely on the resources of the project area.