APPENDIX A – CENTRAL AND SOUTHERN FLORIDA PROJECT OPERATIONAL STRATEGY FOR WATER CONSERVATION AREA 3 DECOMPARTMENTALIZATION (DECOMP) AND SHEET FLOW ENHANCEMENT PROJECT – PHYSICAL MODEL PHASE 2

JACKSONVILLE DISTRICT
U.S. ARMY CORPS OF ENGINEERS

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OPERATIONAL STRATEGY FOR WATER CONSERVATION AREA 3 DECOMPARTMENTALIZATION (DECOMP) AND SHEET FLOW ENHANCEMENT PROJECT - PHYSICAL MODEL PHASE 2

1 GENERAL OVERVIEW

The Comprehensive Everglades Restoration Plan (CERP) was authorized by Congress in 2000. The main objective of the plan is hydrologic restoration which will be achieved by increasing water storage capacity and redistributing water to reestablish ecologically desirable patterns of depth, distribution, and flow in the freshwater wetlands and salinity regimes in estuaries. CERP contains multiple elements, designed to restore ecosystem function and ensure adequate water supply (storage and distribution) while other efforts are designed to address water quality. The Water Conservation Area 3 Decompartmentalization and Sheet Flow Enhancement (Decomp) Project aims to reestablish sheet flow in the Everglades by decompartmentalization (i.e., removing barriers to flow and unnatural preferential flow paths provided by canals). The goal of Decomp is to hydrologically reconnect a significant component of the Everglades peatland: Water Conservation Area (WCA) 3A, WCA-3B, and Northeast Shark River Slough (NESRS). The Decomp effort will require a significant amount of engineering and deconstruction activities which will result in dramatic alteration to the ecosystem. The Decomp components originally proposed under CERP entails the full or partial removal of several levees, the full or partial backfilling of canals, and alteration of a major roadway, Tamiami Trail. This operational strategy for the DPM was developed to help guide operations of the temporary design-test structure (S-152) consistent with the April 2010 Installation, Testing and Monitoring of a Physical Model for the Water Conservation Area 3 Decompartmentalization and Sheet Flow Enhancement Project Final Environmental Assessment and Design Test Documentation Report (2010 EA) and with the science objectives stated in the 2010 DPM Science Plan. The 2010 EA included a Finding of No Significant Impact (FONSI). Information on the Decomp Physical Model (DPM) design test, a field-scale test, can be found in the 2010 EA. The 2010 EA anticipated operational testing of the DPM to begin in early 2011 and continue until late 2014. Construction of the DPM was delayed. Two operational periods of DPM testing were performed from 5 November 2013 to 30 December 2013 and from 4 November 2014 to 29 January 2015. A Supplemental FONSI was signed on 8 July 2015 to address potential effects of two additional operational periods in 2015 and 2016, not proposed in the 2010 EA. The Supplemental FONSI concluded that two additional operational periods starting in 2015 (October 2015 – January 2016) and 2016 (October 2016 – January 2017) would not result in a significant effect on the human environment. Two additional operational periods of DPM testing were performed from 16 November 2015 to 28 January 2016 and from 17 October 2016 to 31 January 2017.

The physical features of the DPM (see DPM Overview map in **Figure 1** and DPM Location map in **Figure 2**) are temporary and are expected to be removed at the end of the field test. The DPM includes four phases: pre-installation monitoring, installation, operations/testing, and disbandment/return to pre-test conditions. The project site would be returned to original conditions at the conclusion of the test. The DPM has been a large-scale field test designed to address hypotheses about reintroducing flow with marsh velocities thought to be representative of those that occurred historically from WCA-3A to WCA-3B. The physical features and operations are designed to mimic historic flow conditions in a controlled and predictable manner that will enable scientifically relevant investigations. The information gained from this field test has provided critical information for 1) assessing various canal backfilling options that will likely be evaluated in the Decomp Project and 2) understanding the extent to which the magnitude and direction of sheetflow is necessary to maintain the landscape characteristics of the Everglades. All elevations in this document are in feet, North American Vertical Datum of 1988 (ft., NAVD) unless otherwise noted. To convert elevations at S-152 from ft., NAVD to ft., NGVD, the conversion is: ft., NAVD + 1.52 ft = ft., NGVD.

The Corps is proposing a fifth year of testing in 2017, with the potential for additional years of testing through the year 2021 for purposes of gaining information to further address scientific, hydrologic and water management uncertainties that require clarification prior to the design of decompartmentalization features within WCA 3, included in CERP. Water flow, stage, sediment movement, water quality and ecological parameters will continue to be measured consistent with the DPM EA and FONSI (dated April 13, 2010). Extension of DPM operations from the previously evaluated October-January (end of the wet season through the early dry season) time frame to a year-round operational window subject to conditions, as well as additional years of DPM field test operations, will provide greater confidence in the overall reliability of the data collected and will allow the opportunity to more accurately address uncertainties associated with decompartmentalization of WCA 3. Continued operation of the DPM will also increase the likelihood of capturing a wider range of hydrologic events to substantiate lessons learned to date.

Furthermore, additional operation of the DPM beyond the October 2016-January 2017 time frame is being pursued to address the mandated Reasonable and Prudent Alternative (RPA) of the July 22, 2016 Everglades Restoration Transition Plan (ERTP) Biological Opinion by the United States Fish and Wildlife Service (FWS). The RPA requires that the Corps, in partnership with the SFWMD and subject to the successful completion of National Environmental Policy Act and other environmental requirements, continue to operate the field test, pursuant to State Water Quality Certification, for purposes of obtaining additional information through fiscal year 2017 and fiscal year 2018 (October through September). The RPA acknowledged that continued utilization of the DPM during the time limited effort is expected to provide direct and incidental benefits to the Cape Sable Seaside Sparrow by shifting additional water east concurrent with the ongoing incremental field tests conducted under the Modified Water Deliveries to Everglades National Park (MWD) Project.

Phase 2 of the DPM field test will begin early in the 2017-2018 dry season via the opening of all gates of S-152 and may continue, subject to constraints as noted in this Operational Strategy (including Section 4.1 OPERATIONAL WINDOW), through 2021. Because of the short duration (up to four years) of Phase 2 of the DPM, a Project Operating Manual is not necessary. However, an operational strategy is necessary for successful implementation and completion of the DPM Phase 2.

DPM Science Team:

The primary purpose of Phase 2 of the DPM is to conduct scientific tests and obtain scientific data related to the ecological effects of backfilling canals and modifying levees. The scientific tests have been carefully designed by the DPM Science Team and the test results are of significant value to future Everglades restoration efforts. The DPM Science Team is comprised of scientists and hydrologists from the U.S. Army Corps of Engineers (USACE), South Florida Water Management District (SFWMD), U.S. Geological Survey (USGS), FWS, and Everglades National Park (ENP). Prior to Phase 2 of the DPM, the DPM Science Team will review existing hydrologic, ecologic, and water quality data of canals, marshes, and tree islands in WCA-3. Based on review of the data and conditions, and consideration of the operational constraints, the DPM Science Team will exchange information relevant to the optimal time and duration to operate S-152 in order to meet project objectives. The DPM Science Team will coordinate with USACE Water Management Section staff (OD-MW) regarding gate operations of S-152.

2 DPM SITE LOCATION AND FEATURES DESCRIPTION

The DPM is situated between WCA-3A and WCA-3B (**Figure 2**) in a region referred to as the "pocket". The pocket is approximately 1.2 miles in width and is bounded on the upstream (northwest) by the L-67A and downstream (southeast) side by the L-67C canal and levee system. The DPM will focus its efforts in a region in the pocket referred to as the flow-way. The flow-way is oriented along an apparent historic flow-path from approximately north-northwest to south-southeast. The flow-way is approximately 1.8 miles in length and is not oriented perpendicular to the existing L-67A and L-67C. The flow-way contains several large sloughs and sawgrass ridges; however, no tree islands are contained within the flow-way.

The L-67A canal is both a borrow canal and conveyance canal, receiving waters from the Miami Canal, S-9 pump station, and WCA-3A. The L-67A canal is bounded on the east by the L-67A levee and on the west by a spoil mound due to placement of soil sidecast during the excavation of the L-67A borrow canal. A series of gaps in the spoil mound allows mixing of canal water with WCA-3A marsh water. The L-67C levee and the associated L-67C borrow canal were constructed to reduce seepage under the eastern perimeter levees of WCA-3, L-33 and L-30, by providing a step down of the water level difference between WCA-3A and WCA-3B, thereby providing flood protection for the developed communities east of WCA-3B. The

L-67C borrow canal does not directly receive discharges from control structures nor is it used for conveyance. The L-67C canal is bounded to the southeast by the L-67C levee and to the west by a small discontinuous spoil mound created during the excavation of the L-67C borrow canal. Inflow into the pocket occurs through seepage, from WCA-3A, and direct rainfall. Under pre-DPM conditions, water leaves the pocket through a combination of evaporation, seepage, and surface discharge through an approximately 1,000 feet (ft) long gap in the L-67C levee located about eight miles southwest of the Miami Canal (C-304) within WCA-3B.

During Phase 2 of DPM operations, flow will be manipulated by allowing water to pass from WCA-3A through the L-67A canal into the pocket through ten gated 60-inch diameter high density polypropylene culverts (S-152) with a combined maximum flow rate of 750 cubic feet per second (cfs). The ten culverts with vertical slide gates have been installed side-by-side and will discharge directly into sloughs within the flow-way. The S-152 culvert structure will not be remotely operated but will be manually operated on-site. In order to establish sheet flow and evaluate canal back filling options, a 3,000 ft long gap has been opened in the L-67C levee downstream of S-152. Levee material was deposited in the L-67C canal to create a 1,000 ft long completely full backfill segment and a 1,000 ft long partially full backfill segment. The remaining 1,000 ft long segment of the L-67C canal within the DPM flow-way was left unaltered. The S-152 gated culverts and L-67C backfill treatments are unchanged from the features originally constructed for Phase 1 of the DPM. Following completion of the DPM Phase 2, it is expected that S-152 will no longer be operated and the L-67C canal and levee will be reconstructed to pre-construction (or better) conditions. **Figure 3 and Figure 4** contain a depiction of the schematic layout of the DPM at L-67A and L-67C, respectively.

3 DPM CONSISTENCY WITH EXISTING OPERATING CRITERIA

The U.S. Army Corps of Engineers (USACE) is responsible for conducting water management operations at the S-12s and S-355s, as well as working closely with the South Florida Water Management District (SFWMD), in ensuring that the current WCA-3A Interim Regulation Schedule and South Dade Conveyance System (SDCS) operations are implemented. Water levels in WCA-3A are currently managed according to the WCA-3A Interim Regulation Schedule and a temporary deviation to the MWD Increment 1.1 and 1.2 Operational Strategy. Increment 1.1 and 1.2 includes the WCA-3A regulation schedule and SDCS operations. The WCA-3A regulation schedule stipulates that the L-67A Borrow Canal stage should not be drawn down below 7.5 ft., NGVD unless water is supplied from another source. When WCA-3A water levels are in Zones D/E/E1 of the WCA-3A regulation schedule, releases from WCA-3A are determined by the Rainfall Plan (WCA-3A Surface Water Deliveries to Everglades National Park). The WCA-3A regulation schedule relies on the Rainfall Plan for determining the amount, timing, and distribution of surface water flows from WCA-3A to SRS. When WCA-3A water levels are in Zone A, releases from WCA-3A are to be made up to maximum practicable. The SFWMD is responsible for operation and maintenance of S-333 which releases water from WCA-3A to the L-29 Canal, which distributes these inflows into

NESRS through existing culverts and the MWD 1-mile eastern bridge across the Tamiami Trail roadway.

The current WCA-3A regulation schedule and Increment 1.1 and 1.2 (including the temporary deviation until it ends) will continue to be used during the DPM unless replaced by subsequent authorized operating criteria documented through NEPA. Operation of the S-355A and S-355B structures are included within Increment 1.1 and 1.2. Florida Department of Environmental Protection (FDEP) permit (FDEP Permit Number 0246512-003) has been issued to USACE for operation of S-355A and S-355B. Total surface water deliveries to NESRS during the DPM are anticipated to increase under the current Increment 1.1 and 1.2 operations. In addition, deliveries to meet water supply demands in the Lower East Coast will be maintained.

The USACE will be responsible for operation and maintenance of S-152. S-152 discharges initiated during Phase 2 of the DPM are intended to proceed until scientific objective(s) of the DPM Science Plan are met or until constraint(s) are anticipated to be exceeded. If either the WCA-3A interim regulation schedule or Increment 1.1 and 1.2 is modified or replaced prior to or during implementation of the DPM, the modified or new operations and associated constraints, where applicable, will be in effect. The USACE water management section will exchange information with the DPM science team regarding whether and how the changes might affect DPM scientific objectives.

4 CONSTRAINTS

A number of operational constraints are described in Section 5.2.

4.1 OPERATIONAL WINDOW

Phase 2 of the DPM field test may include year-round operation of S-152, with all of the S-152 gates open full, subject to constraints as noted in Section 5.2, from as early as November 2017 through 2021. Water quality operational rules for year round operations provided in Appendix B of the EA have been developed to guide initiation of DPM testing within a given year and to determine the continuation of operations once S-152 is opened in addition to the above criteria. Collection of canal water Total Phosphorus (TP) data from the L67A Canal during prior DPM operations has enabled robust statistical analyses for forecasting when canal water TP is sufficiently low and flow can occur as needed to maintain oligotrophic conditions within the downstream marsh. Information regarding the operational rules for year round operations are defined in Appendix B of the EA. Operational rules for year round operations are based on the forecasted geometric mean for TP concentrations at S-151, as well as biweekly data collection to ensure low inflow TP concentrations into WCA 3B. These rules are anticipated to be included in the FDEP authorization by modifying the existing FDEP Permit Number 0304879, prior to the start of DPM Phase 2 operations. During Phase 2 of the DPM, operation

of S-152 will be consistent with the FDEP Permit for DPM Phase 2 (including any modifications of the permit) to reflect year round operations and will be consistent with the FWC WCA 3B operational guidance, to the maximum extent practical.

4.2 WCA-3B STAGE

The current level of flood protection east of the L-30 and L-31N levees must be maintained. Increased water levels within WCA-3B may result in increased seepage to the east as well as potential impacts to the protective levee system. This may occur when the stage at SRS-1 and/or Site 71 in WCA-3B rises to 8.5 ft., NGVD or higher.

4.3 FISH AND WILDLIFE

Adverse impacts to protected fish and wildlife species are not expected, consistent with the conclusions identified in the 2010 EA. Should an adverse impact be anticipated or occur, the field test will be halted. The U.S. Fish and Wildlife Service (FWS) and Florida Fish and Wildlife Conservation Commission (FWC) will be consulted and the test adjusted accordingly. FWS and FWC staff will have the opportunity to participate in approximately bi-weekly sharing of information mentioned in Section 5.1 of this Operational Strategy.

4.4 L-67A BORROW CANAL

The WCA-3A regulation schedule stipulates that the L-67A Borrow Canal stage should not be drawn down below 7.5 ft., NGVD unless water is supplied from another source.

4.5 SOUTH DADE CONVEYANCE SYSTEM

Typically the SDCS conveys water that includes seepage from WCA-3B. The SDCS must have available capacity to effectively manage the increased seepage volume that could occur if stages within WCA-3B rise to 8.5 ft., NGVD or higher at SRS-1 and/or Site 71.

4.6 WATER QUALITY OF DISCHARGES TO WCA'S AND ENP

The DPM will include control measures to ensure that there are no unanticipated adverse impacts to water quality as a result of this test. If water quality monitoring data indicates the potential for an adverse effect on water quality, the DPM operations will be suspended or adjusted to minimize or eliminate the potential effect. Any discharges through S-355A and B will continue to be monitored in accordance with the FDEP monitoring requirements. It is anticipated that this test will include operation of the S-355A and B structures in accordance with FDEP permit conditions and DPM objectives and constraints. The DPM field test is not dependent on operation of the S-355A and B structures.

Water Quality Operational Rules:

Water Quality Operational Rules provided in Appendix B of the EA have been developed using S-151 water quality data and marsh stage data (Eden 8) for determining a recommendation on whether, in the permitted Phase 2 of the DPM, discharges through S-152 may be performed. These rules, or updated versions of them, if applicable, will have been incorporated into the FDEP Permit for DPM Phase 2, prior to the start of Phase 2 of the DPM. It is possible that this permit will be modified in the future, thereby incorporating changes and/or additions to water quality operational rules. During Phase 2 of the DPM, operation of S-152 will be consistent with the FDEP Permit for DPM Phase 2 (including any modifications to the permit).

Prior to Phase 2 of the DPM, an interagency team (different than the Science Team), which would consist of interested members from each stakeholder agency such as the Corps, SFWMD, FWS, FWC, FDEP, ENP, USGS and appropriately Federally recognized Tribes will be assembled to review data and exchange information related to the latest site specific sampling and relevant Science Team work. The Corps, in consultation with the SFWMD, will determine S-152 operations using the Water Quality Operational Rules described above and consideration of interagency team information; also the Corps may consider any additional information obtained at the S-152 sampling site.

4.7 L-29 BORROW CANAL

The Tamiami Trail transportation corridor must remain functional during operation of the DPM. The high water constraint for the Tamiami Trail L-29 Borrow Canal will initially remain consistent with Increment 1.1 and 1.2 or with the current temporary deviation to Increment 1.1 and 1.2, whichever is applicable, for the duration of the DPM Phase 2. The current temporary deviation raises the L-29 stage maximum operating limit to 8.5 ft NGVD. Under Increment 1.1 and 1.2, S-333 discharges are typically discontinued if L-29 canal levels exceed 7.5 ft., NGVD under Increment 1.1 and 7.8 ft., NGVD under Increment 1.2. If the L-29 stage maximum operating limit is modified again prior to or during implementation of Phase 2 of the DPM (anticipated for the planned 2018 Increment 2 of the MWD field test), the modified constraint will replace the previous high water constraint.

In addition, there has been a history in which the tailwater at the S-355s has exceeded the headwater. During the DPM, consistent with Increment 1.1 and 1.2, the S-355s will remain closed when there is no head or a reverse head across the S-355s.

4.8 G-3273

The G-3273 constraint of 6.8 ft., NGVD has been relaxed and will not be modified from the current Increment 1.1 and 1.2 for the purposes of the DPM Phase 2. During the DPM Phase 2, operation of S-333 will follow the Increment 1.1 and 1.2 criteria. If the G-3273 constraint is

re-established or otherwise modified prior to or during implementation of the DPM, the modified constraint will be in effect.

4.9 WEATHER/CLIMATE CONDITIONS

Phase 2 of the DPM field test may include year-round operation of S-152, with all of the S-152 gates open full, subject to constraints as noted in this Operational Strategy, from as early as November 2017 through 2021. However, DPM (S-152) operations will be consistent with the FDEP Permit for DPM Phase 2 (including any modifications to the permit; see section 4.1 OPERATIONAL WINDOW). Tropical storm events or unusually dry or wet conditions can occur prior to or during this timeframe. Any of these conditions may require modification of this timeframe with appropriate review and approval from FDEP and coordination with the DPM science team to ensure operations can achieve scientific objectives of this project.

5 OVERALL PLAN FOR WATER MANAGEMENT

The operational window is anticipated to be November 2017 through 2021 subject to constraints as noted in this Operational Strategy (see section 4.1 OPERATIONAL WINDOW) and will consist of one or more cycles of opening/closing S-152. S-152 may discharge up to 750 cfs to facilitate the DPM Phase 2 field test, until either DPM objective(s) are met or S-152 is closed subject to the constraints. DPM (S-152) operations will be consistent with the FDEP Permit for DPM Phase 2 (including any modifications to the permit; see section 4.1 OPERATIONAL WINDOW).

Water will flow from S-152 across the pocket towards the 3,000-foot gap in the L-67C levee and into WCA-3B. An FDEP permit (FDEP Permit Number 0246512-003) has been issued to USACE for operation of S-355A and S-355B. Any discharges through S-355A and/or S-355B will be in accordance with this permit. WCA-3B will be managed by targeting to convey S-152 discharges through WCA-3B to the L-29 borrow canal via S-355A and B. S-152 releases will be determined based upon several conditions including but not limited to: Rainfall Plan, DPM test objectives, WCA-3B water level, L-29 borrow canal water level, and SDCS status.

During Phase 2 of the DPM, the S-355A and S-355B structures are anticipated to be used to the maximum extent practicable for providing the surface water deliveries to NESRS specified by the Rainfall Plan and the WCA-3A regulation schedule. Closure of the S-355s may be initiated during high water conditions in WCA-3A to maximize regulatory releases from S-333. During periods of WCA-3A regulatory releases to the SDCS, the capability to continue operation of the S-355s will be assessed. S-333 is the primary structure for releasing the Rainfall Plan target discharge. S-355A and S-355B or S-12 structures may be used as secondary structures for releasing the Rainfall Plan target discharge. Operational adjustments

of the S-355s will be determined with consideration of test conditions and system conditions which include S-152 discharges.

5.1 IMPLEMENTATION OF RAINFALL PLAN.

During Phase 2 of the DPM field test, frequent exchange of information is expected to occur between USACE Jacksonville District Water Management Section staff (OD-MW) and member(s) of the DPM Science Team regarding gate operations. Before the start of DPM Phase 2, a conference call or meeting will occur between the DPM Science Team and OD-MW to discuss communication regarding operations during Phase 2. Science Team and OD-MW points of contact (POCs) will be established and contact information may be exchanged. It is expected that on an approximately bi-weekly basis throughout Phase 2, the Rainfall Plan target discharge amount(s) to NESRS will be shared with OD-MW and Science Team POC(s). It will be the responsibility of USACE Jacksonville District Environmental Branch (PD-E), not the operator or OD-MW, to make decisions that affect project compliance regarding fish and wildlife and water quality constraints. Science Team POC(s) will share information with OD-MW staff regarding the target discharge at S-152 on an approximately bi-weekly basis throughout Phase 2. The Corps will develop assurances that fish and wildlife and water quality constraints are met for the S-152 target discharge for the week(s) of S-152 discharge being considered. A compliance determination that fish and wildlife and water quality constraints are met for the S-152 target discharge that week(s), based on the assurances, will be made by PD-E. Should an adequate compliance determination not be provided to OD-MW for an S-152 target discharge, then S-152 will be closed.

Based on the above information, OD-MW will operate the S-355s and coordinate with SFWMD on their operation of S-333 to achieve the Rainfall Plan target discharge amount to NESRS.

5.2 S-152 OPERATING CRITERIA.

During each cycle S-152 may discharge up to 750 cfs to facilitate the DPM field test, until either DPM objective(s) are met or S-152 is closed as outlined below.

1. When WCA-3B stages (at SRS-1 and/or Site 71) equal or exceed 8.5 ft., NGVD, S-152 releases may be discontinued unless the 8.5 ft., NGVD criteria has been modified under subsequent NEPA and required approvals.

2. When S-355A and B are closed due to high water in L-29 Borrow Canal, S-152 releases may be reduced or discontinued before the 7.5 ft., NGVD (Increment 1.1) or 7.8 ft., NGVD (Increment 1.2) or 8.5 ft NGVD (current temporary deviation) stage limit is reached. If the L-29 stage maximum operating limit is modified again prior to or during

implementation of Phase 2 of the DPM, the modified constraint will replace the previous high water constraint. This is scheduled to happen by March 1, 2018.

3. When water quality constraint criteria per the FDEP Permit for DPM Phase 2 (including any modifications to the permit) are exceeded, S-152 releases may be reduced or discontinued.

4. When the L-67A Borrow Canal stage is below 7.5 ft., NGVD and water is not available from another source, S-152 releases will be discontinued as no water is available from WCA-3A.

Also, operation of S-152 will be consistent with the FDEP permit for the S-355s (FDEP Permit Number 0246512-003).

6 DATA COLLECTION AND ANALYSIS.

Headwater, tailwater, flow, and precipitation data pertinent to the DPM will be made available at an OD-MW website. During testing within Phase 2 of the DPM, headwater and tailwater stages will be frequently monitored (e.g., one reading per fifteen to 60 minutes) as will water quality (per the FDEP Permit for DPM Phase 2 including any modifications to the permit). DPM Science Team staff will be monitoring and interpreting data. A Water Control Data Acquisition System Plan (WCDASP) can be found in Annex B.

7 WCA-3B SCHEDULE OF MAXIMUM ALLOWABLE STAGES.

Implementation of the Rainfall Plan may include the use of a schedule for WCA-3B water levels. Due to the intra-annual variability of water levels within WCA-3, increased operational flexibility may be expected during the dry season and following the end of the hurricane season (i.e., November 30). A schedule of maximum allowable stages at Site 71 and/or SRS-1 may be developed by OD-MW in coordination with the DPM Science Team and approved by USACE and SFWMD water managers. The weekly values of this schedule would be developed based on the state of the system just before the test. However, the DPM Phase 2 test can be implemented without this schedule.

8 STANDING INSTRUCTIONS TO S-152 OPERATOR.

Culvert structures can have four possible flow regimes resulting from the effects of gates and tailwater effects. The flow regimes are:

1. Uncontrolled Free Flow. The gates are fully opened and the discharge is unaffected by the tailwater stage.

2. Uncontrolled Submerged Flow. The gates are fully opened and the discharge is reduced by tailwater conditions.

3. Controlled Free Flow. The gates are partially opened and the discharge is unaffected by the tailwater stage.

4. Controlled Submerged Flow. The gates are partially open and the discharge is reduced by the tailwater conditions.

The S-152 discharge rating curve that is being used must be applicable to the particular flow regime encountered. Discharge rating curves for S-152 for anticipated flow regimes at S-152 (controlled/uncontrolled submerged flow) are found in Annex A, Figures A-1 through A-4. The gates should be opened and closed gradually to provide an even transition to the new flow regime and to minimize hydraulic effects downstream. Figure A-5 (Annex A) shows the S-152 maximum gate opening for the design discharge of 800 cfs.

9 DEVIATION FROM NORMAL REGULATION.

The USACE Jacksonville District Water Management Section is responsible for handling deviation requests and transmitting them through the USACE Jacksonville District Commander to the South Atlantic Division (SAD) Engineer for final decision. The USACE Jacksonville District Commander is occasionally requested to deviate from normal regulation schedules. Prior approval for a deviation is required from the SAD Engineer except as noted in subparagraph "9.1" below. Deviation requests usually fall into the following categories:

9.1 EMERGENCIES.

Examples of some emergencies that may potentially occur at a project are: drowning and other accidents, failure of the operation facilities, chemical spills, treatment plant failures and other temporary pollution problems. Water control actions necessary to abate the problem are taken immediately unless such action would create equal or worse conditions. USACE Districts must inform their Division office as soon as practicable, prepare written confirmation of the deviation and description of the cause and furnish it to the USACE Division water control manager. Divisions may develop forms to facilitate the reporting of emergency deviations.

9.2 UNPLANNED MINOR DEVIATIONS.

There are unplanned instances that create a temporary need for minor deviations from the normal regulation plan, although they are not considered emergencies. Construction accounts for the major portion of these incidents and typical examples include utility stream crossings, bridge work, and major construction contracts. Deviations are sometimes necessary to carry out maintenance and inspection of facilities. Requests for changes in release rates generally

involve time periods ranging from a few hours to a few days. Each request is analyzed on its own merits. In evaluating the proposed deviation, consideration must be given to upstream watershed conditions, potential flood threat, and alternative measures that can be taken. In the interest of maintaining good public relations, requests generally are complied with providing there are no foreseen adverse effects on the overall regulation of the project (or projects) for the authorized purposes. Approval for these minor deviations normally will be obtained from the SAD office by telephone. Written confirmation explaining the deviation and its cause will be furnished to the SAD water control manager.

9.3 PLANNED DEVIATIONS.

Each condition should be analyzed on its own merits. Sufficient data on flood potential, watershed conditions, possible alternative measures, benefits to be expected, and probable effects on other authorized and useful purposes, together with the USACE Jacksonville District recommendation, will be presented by letter or telefacsimile to SAD for review and approval.

FIGURES

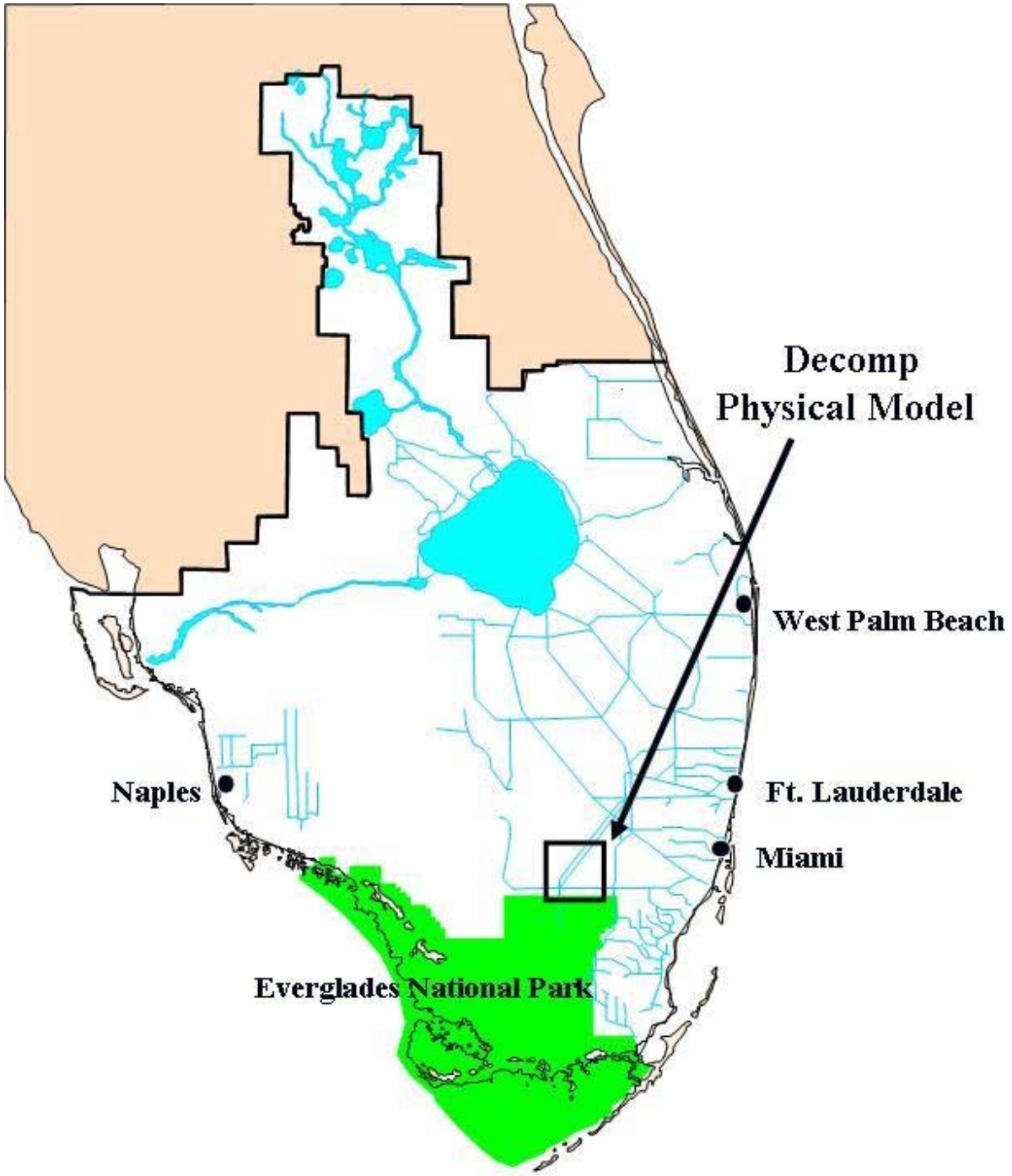

FIGURE 1: DECOMP PHYSICAL MODEL OVERVIEW

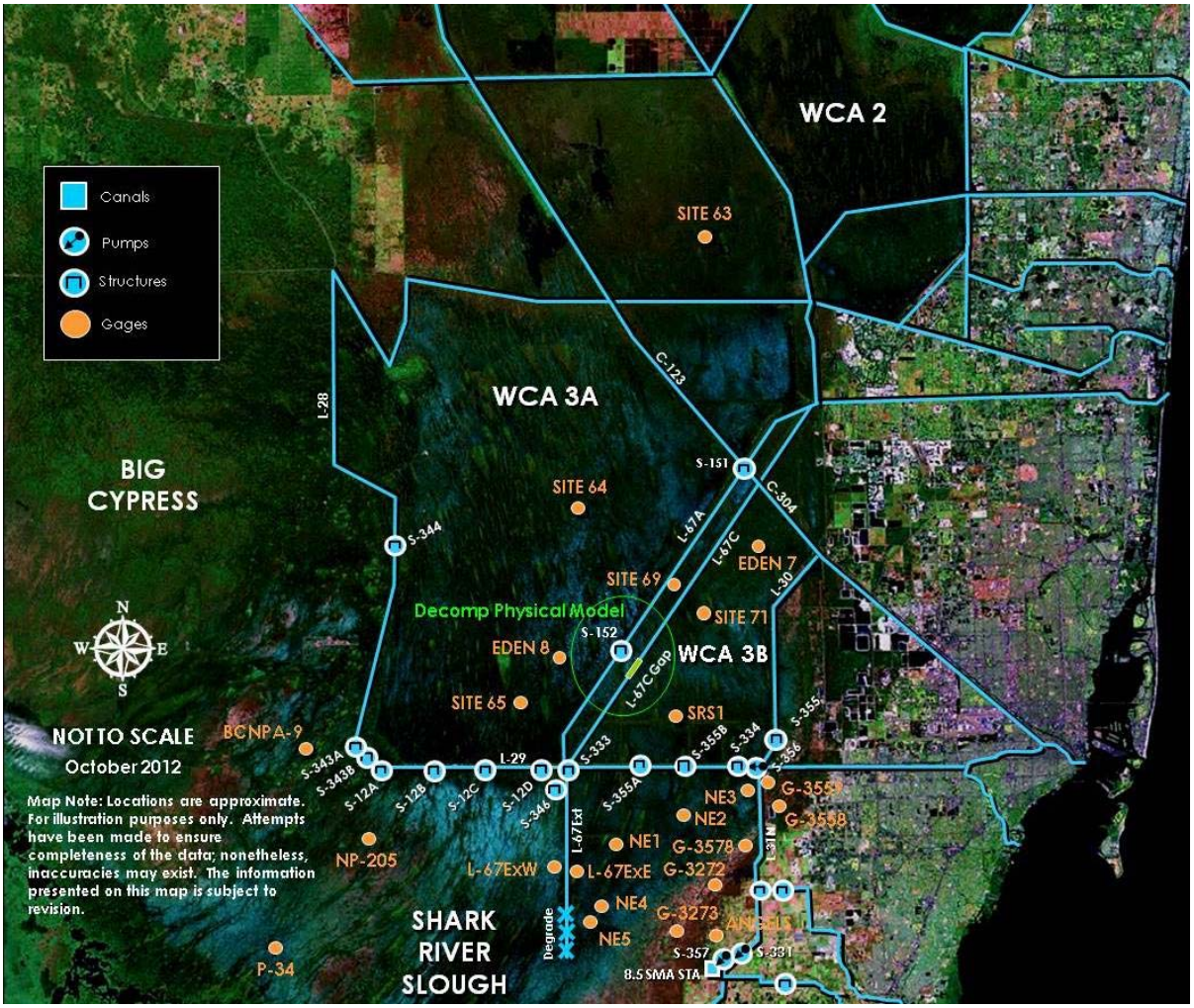

FIGURE 2: DECOMP PHYSICAL MODEL LOCATION

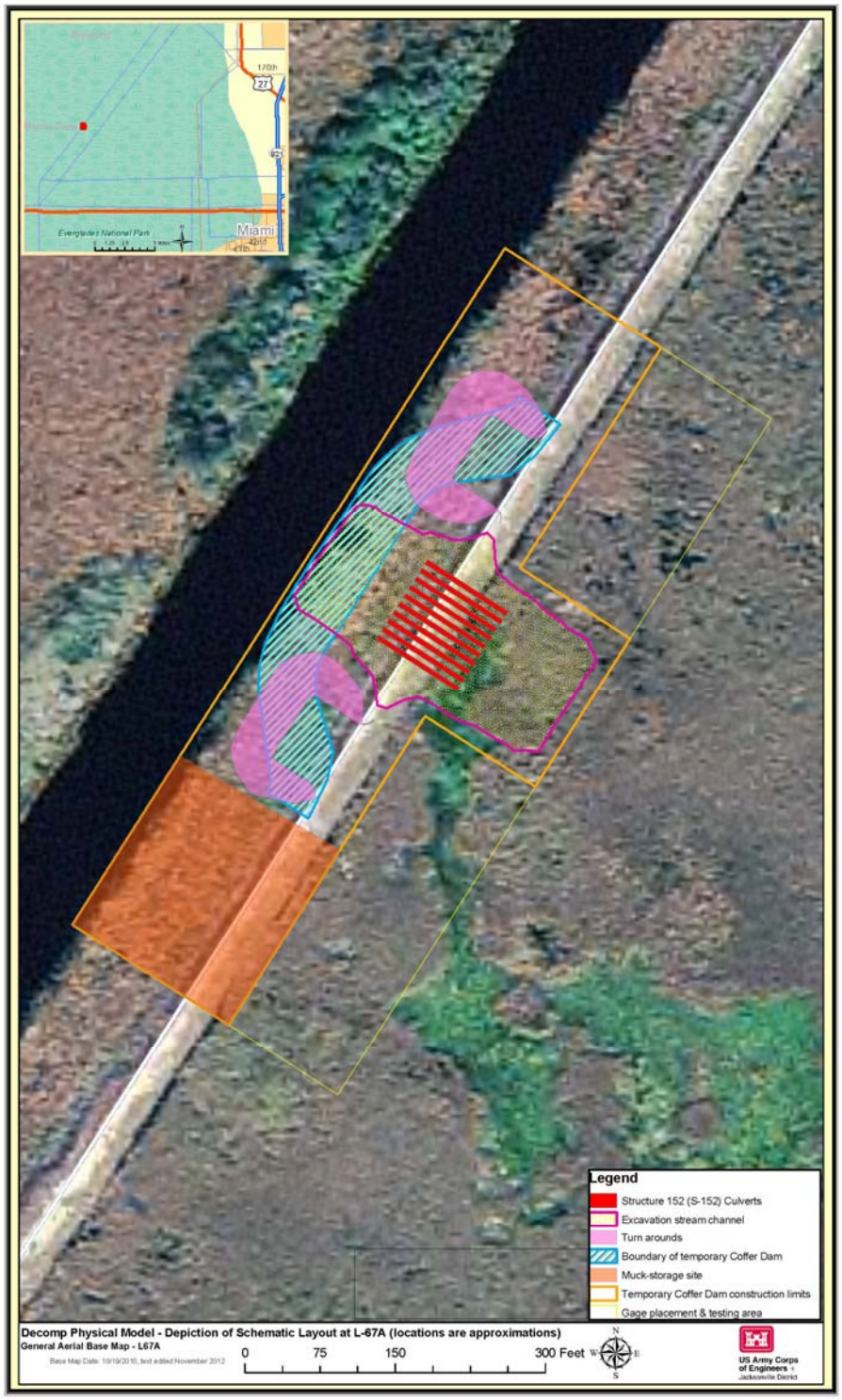

FIGURE 3: DECOMP PHYSICAL MODEL - DEPICTION OF SCHEMATIC LAYOUT AT L-67A

FIGURE 4: DECOMP PHYSICAL MODEL - DEPICTION OF SCHEMATIC LAYOUT AT L-67C

APPENDICES

ANNEX A

STRUCTURE DESCRIPTION

Structure 152 (S-152)

Location. This culvert structure is located in the L-67A levee at NAD 1983 coordinates x = 780,838.878 y = 556,457.152.

Description. S-152 consists of ten High Density Polypropylene (HDPP) 60 inch diameter barrels with discharge controlled by vertical slide gates.

Purpose. S-152 will control flows from WCA-3A through the pocket to WCA-3B for the DPM field test.

Operation. See Section 5 Overall Plan for Water Management.

TABLE A-1: S-152 HYDRAULIC DESIGN DATA SHEET

Location (NAD 1983): L-67A Levee x = 780,838.878 y = 556,457.152

Design Conditions	Discharge (CFS)	800	cfs
	Headwater Elevation	7.20	ft., NAVD 88
	Tailwater Elevation	6.70	ft., NAVD 88
SPF Conditions	Discharge (CFS)	NA	cfs
	Headwater Elevation	13.1	ft., NAVD 88
	Tailwater Elevation	11.1	ft., NAVD 88
Culvert Data	Number of Barrels	10	
	Barrel Type	HDPE	
	Culvert Diameter	60	inches
	Culvert Length	100	ft
	Upstream Pipe Invert	1.0	ft., NAVD 88
	Downstream Pipe Invert	1.0	ft., NAVD 88
	Upstream Headwall	No	
	Downstream Headwall	No	
	Type of Control	Vertical Slide Gate	
Culvert Entrance/Exit Data	Side Slopes (Vert. on Hor.)	1 on 3	
	Upstream Bottom Width	108.0	ft
	Upstream Bottom Elevation	0.0	ft., NAVD 88
	Downstream Bottom Width	108.0	ft
	Downstream Bottom Elevation	0.0	ft., NAVD 88
Energy Dissipation	**Riprap Requirements**		
	Rip Rap Design Velocity	7.50	fps
	Upstream Length	10.00	ft
	Upstream Protection Elevation	13.00	ft., NAVD 88
	Downstream Length	20.00	ft
	Downstream Protection Elevation	11.00	ft., NAVD 88
	Energy Dissipator	No	

Note: To convert elevations at S-152 from ft., NAVD to ft., NGVD, the conversion is:

ft., NAVD + 1.52 ft = ft., NGVD. This is based on NGS monument reports on the following established benchmarks: PID AC4780, AC4779, AC4421, AC4776, and AC4775.

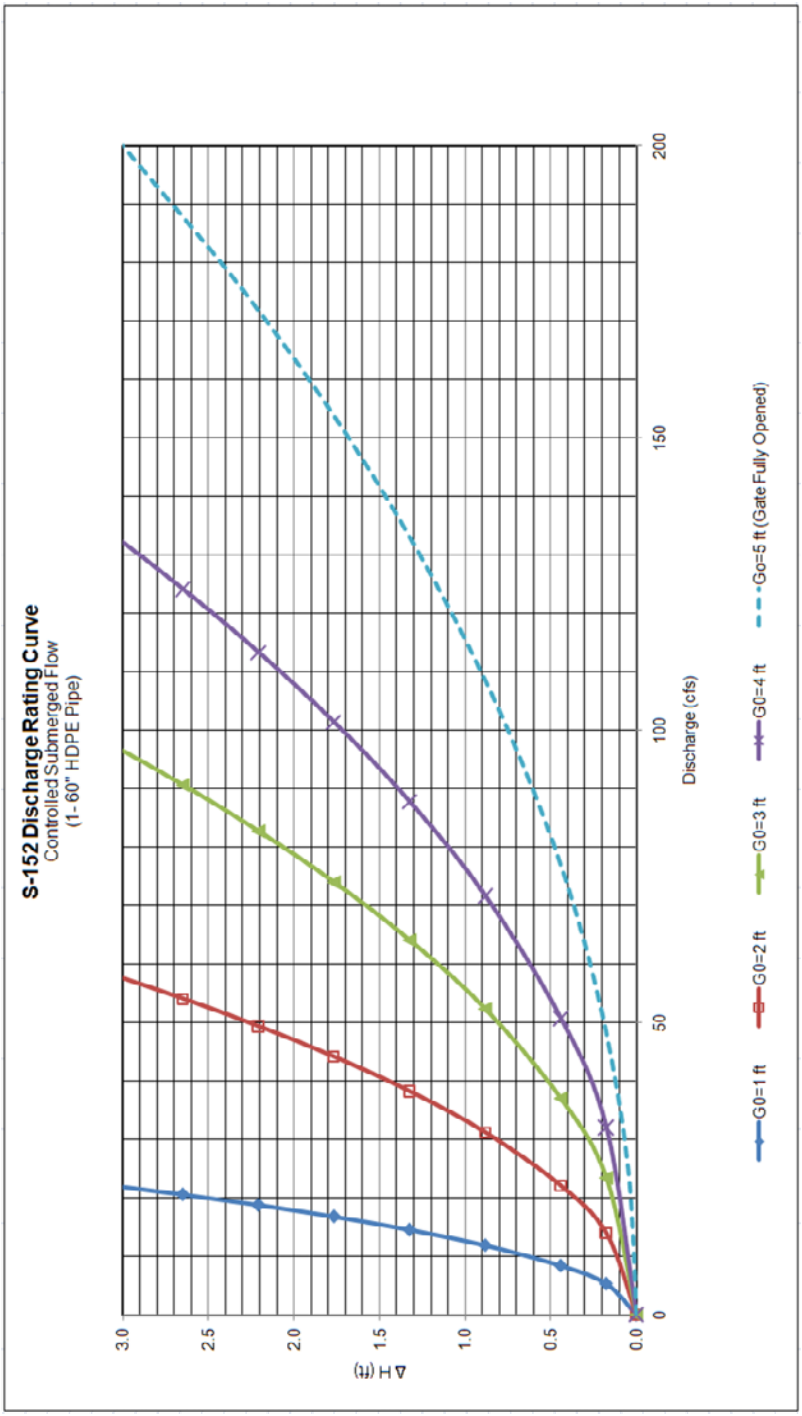

FIGURE A-1: S-152 DISCHARGE RATING CURVE – CONTROLLED FLOW (1 PIPE)

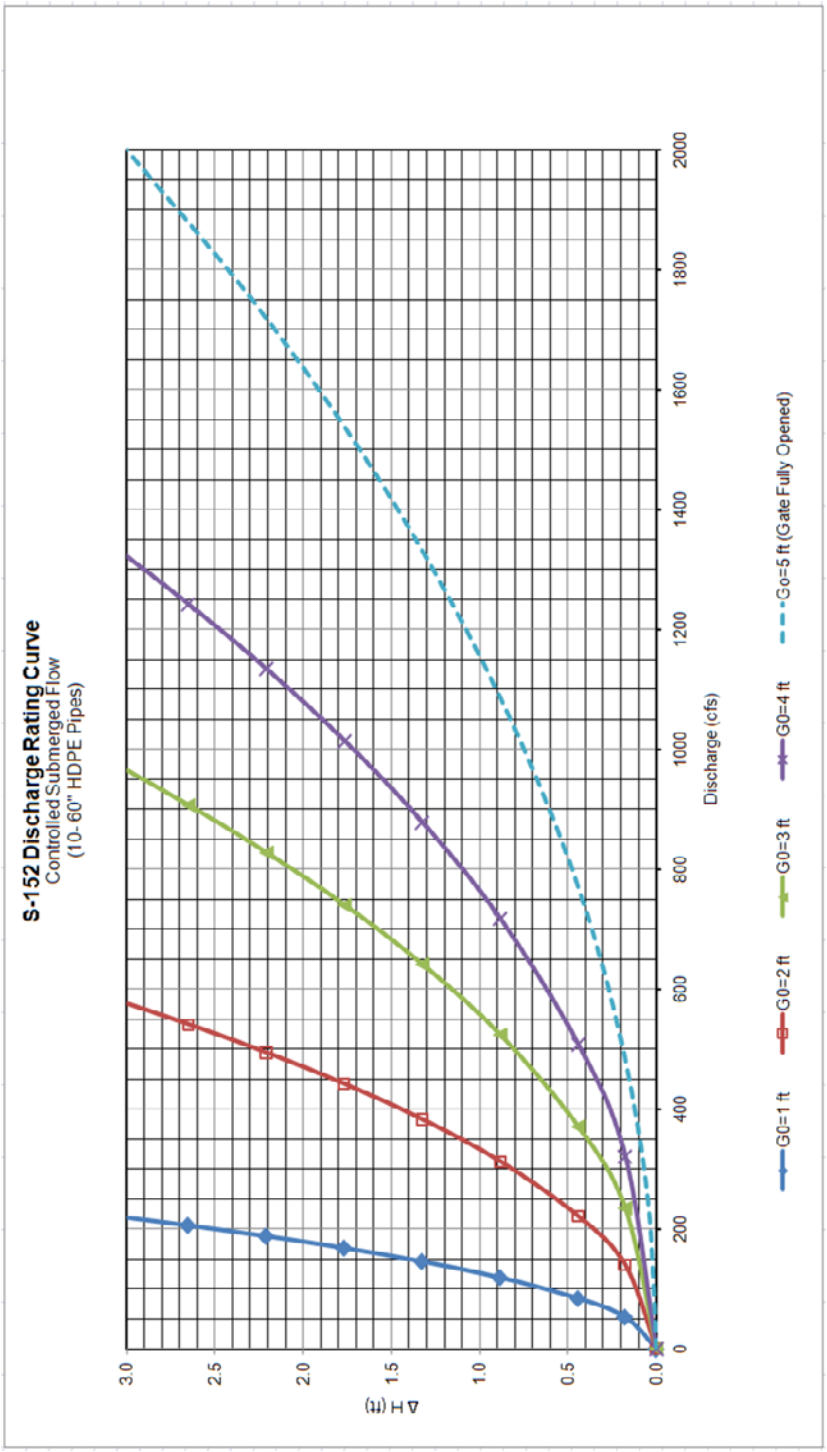

FIGURE A-2: S-152 DISCHARGE RATING CURVE – CONTROLLED FLOW (10 PIPES)

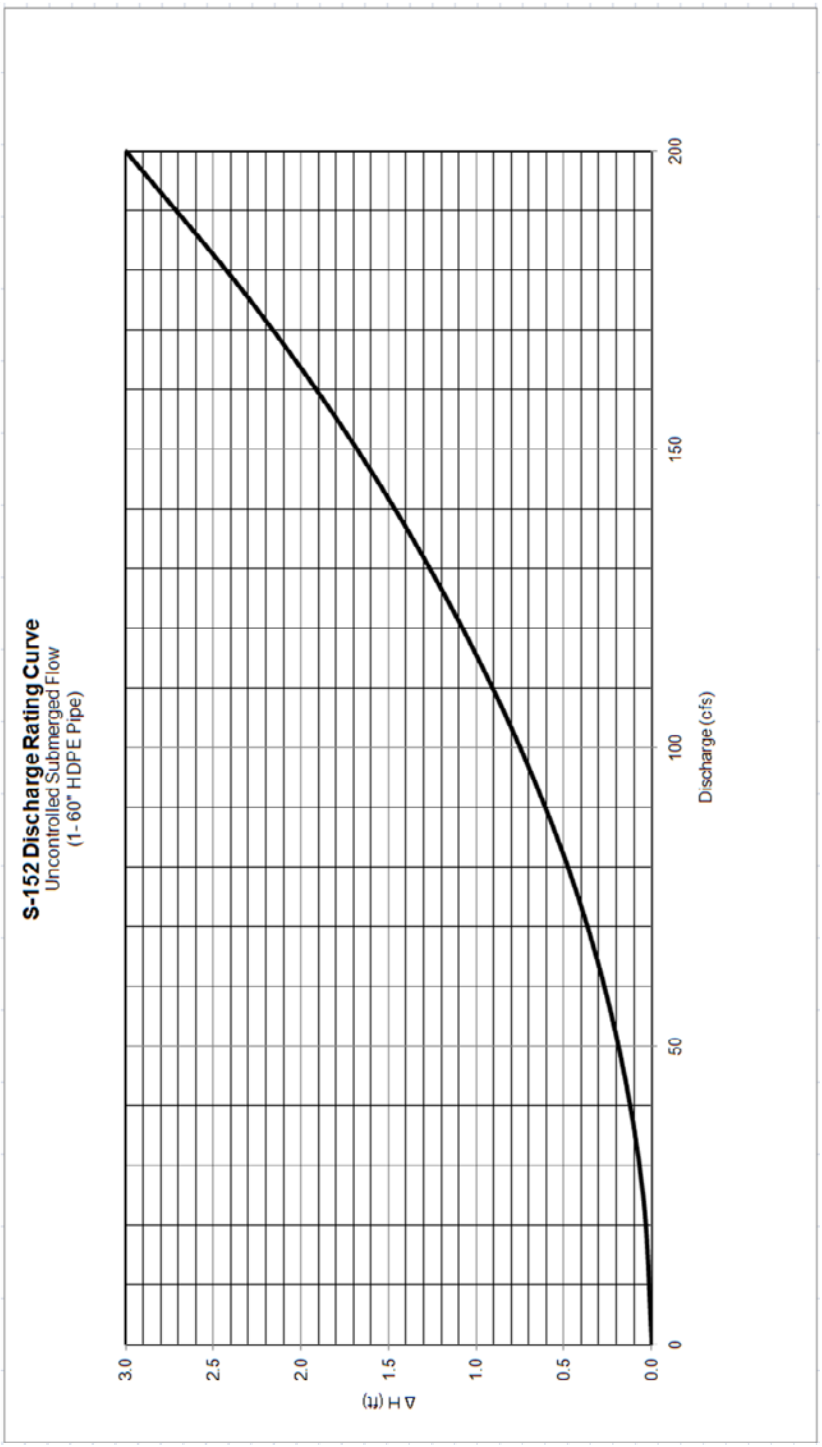

FIGURE A-3: S-152 DISCHARGE RATING CURVE – UNCONTROLLED FLOW (1 PIPE)

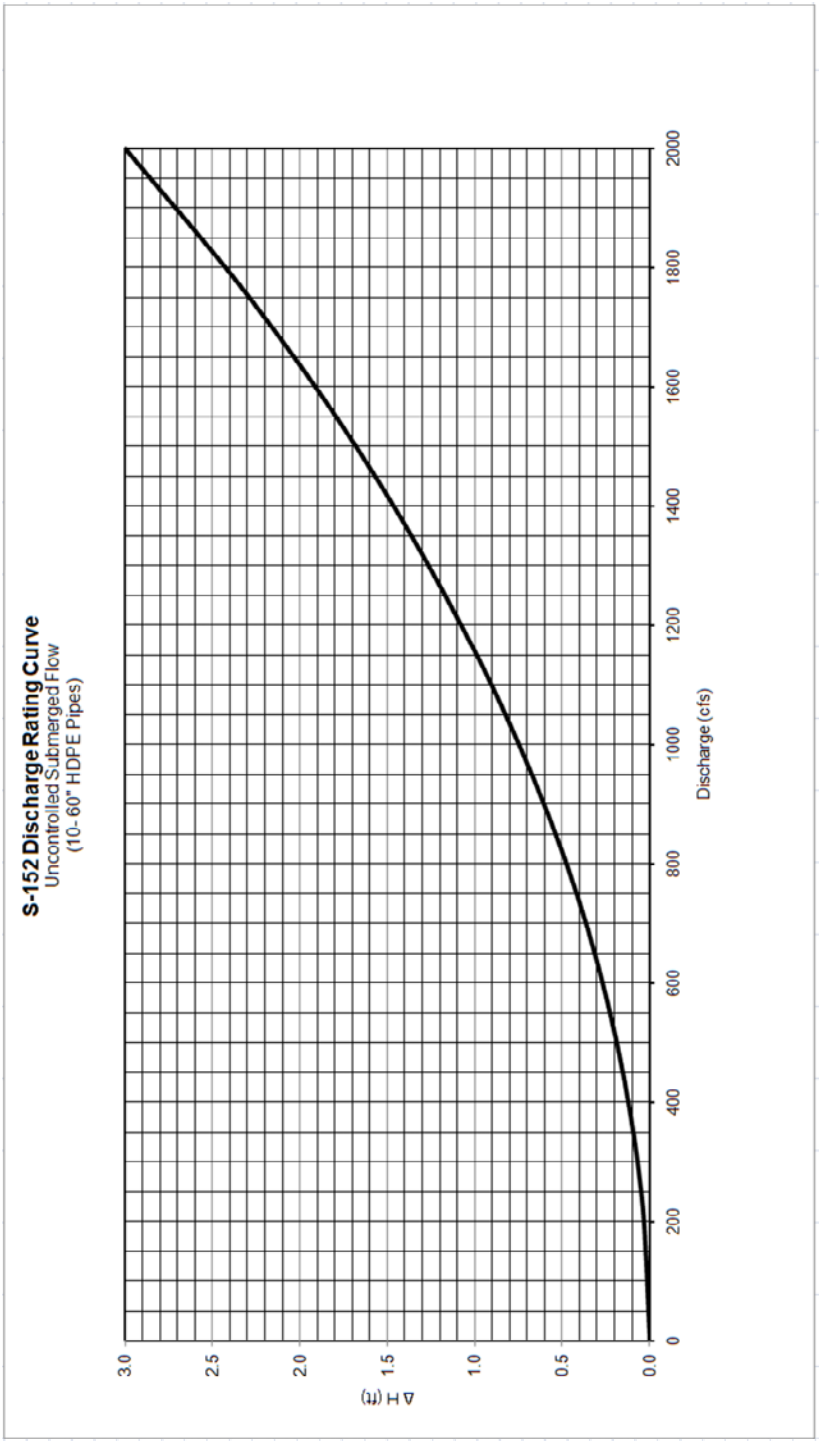

FIGURE A-4: S-152 DISCHARGE RATING CURVE – UNCONTROLLED FLOW (10 PIPES)

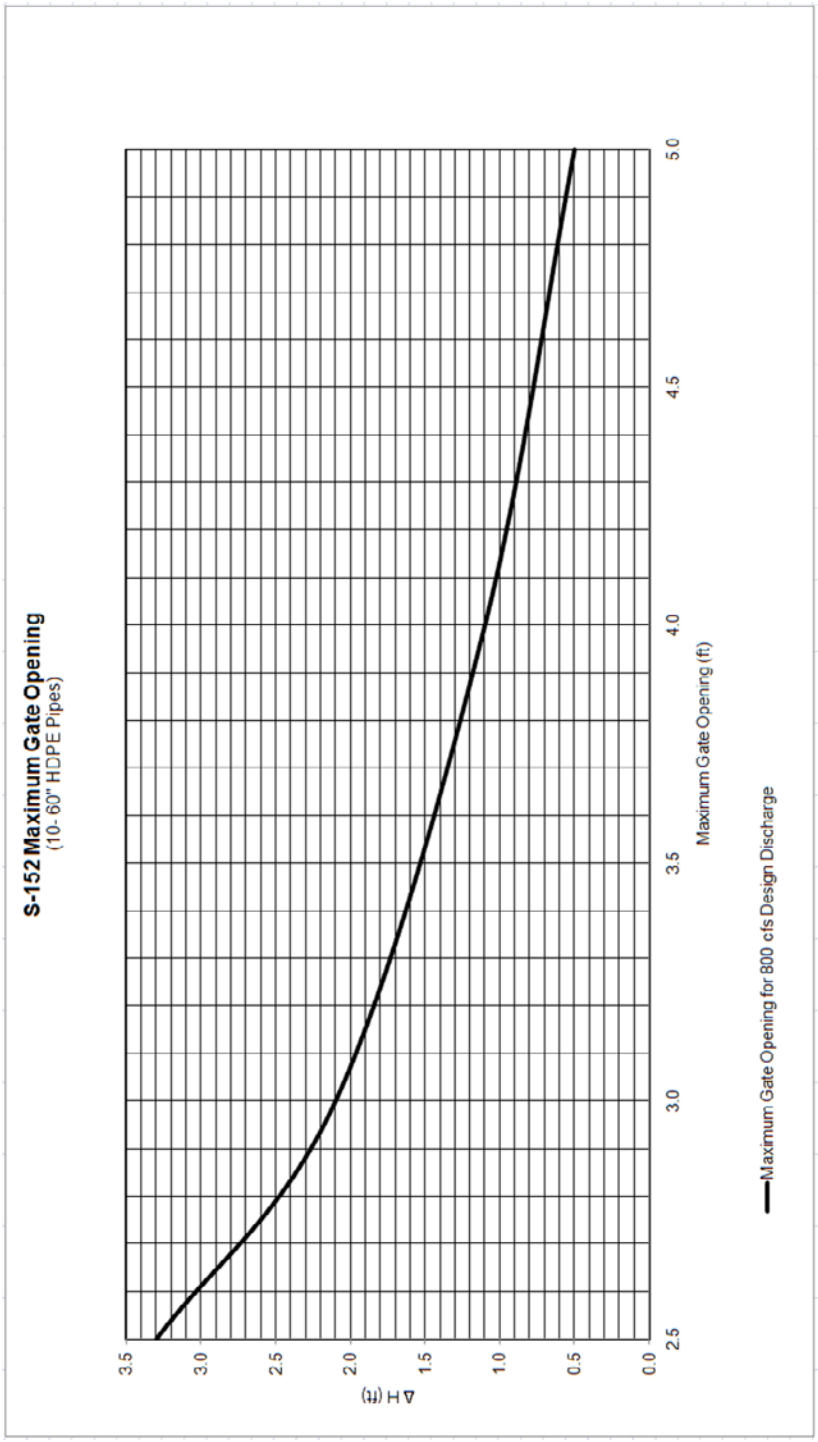

FIGURE A-5: S-152 MAXIMUM GATE OPENING

ANNEX B

WATER CONTROL DATA ACQUISITION SYSTEM PLAN (WCDASP)

ANNEX B

WATER CONTROL DATA ACQUISITION SYSTEM PLAN (WCDASP)

The S-152 is a manually operated gated culvert structure (Annex A). S-152 will be equipped for remote monitoring of the headwater stage, tailwater stage, and point velocity meters if required. This Water Control Data Acquisition System Plan discusses data acquisition essential to the water control management function. This WCDASP will be a subset of the Water Control Data System specific to CERP.

Real time stage information will be available from stage recorders on the headwater and tailwater sides of S-152, and from existing gages in the project area including the SRS-1 and Site 71 gages in WCA-3B. Headwater, tailwater, and flow data from S-152 will be sent to the SFWMD operation center and to the Water Management Section, Jacksonville District, USACE via radio telemetry and/or Geostationary Operational Environmental Satellite telemetry and/or interagency data exchange procedures.

Stage, flow, and precipitation data for the DPM would be maintained in SFWMD and USACE databases. Data from the SFWMD operated data acquisition system such as stage, flow, and rainfall data will be available at a frequency of one reading per hour.

During testing within DPM Phase 2, headwater and tailwater stages will be frequently monitored (e.g., one reading per fifteen to 60 minutes) as will water quality per the FDEP Permit for DPM Phase 2 (including any modifications to the permit).