

For the first half of calendar year 2005, the western flow-way of STA-1W (Cells 2 and 4) was taken off line and drained for the construction of the new interior levee and associated structures as recommended in the 2003 Long-Term Plan. Once the cells were drained, it became apparent that there were significant maintenance issues requiring attention. The G-254 culverts and spreader canals associated with the levee separating Cells 2 and 4 were filled with sediment which needed to be removed to ensure proper flow through the flow-way. In addition, five of the G-254 culverts which were part of the original ENR project (and by 2005 were 10 years old), were deteriorated to the point that they required replacement. Through adaptive implementation, this unscheduled maintenance work was completed using funds that were budgeted but not needed for the Long-Term Plan enhancements projects that were underway at that time.

After completion of the new Cell 2 interior levee and the extensive maintenance activities described above, the western flow-way was re-flooded to allow vegetation grow-in. For the last half of 2005 and most of 2006, the western flow-way was kept hydrated and vegetation re-establishment was monitored. The Long-Term Plan recommendation included establishing emergent vegetation in the new Cell 2A, re-establishing SAV in Cell 4, and converting the new Cell 2B to an SAV cell. During this time, the emergent vegetation was starting to grow in Cell 2A and becoming well established, but the SAV was not starting to grow in Cell 2B nor was it reestablishing in Cell 4. Small quantities of SAV were placed in corrals in these cells, but after a short time, the plants died, and any small areas of SAV that did start to grow eventually died off. It was thought that the reason for the poor SAV grow-in was the extremely loose sediment, referred to as floc, which was easily re-suspended in the water column and was preventing light penetration needed for the vegetation to survive.

It was then proposed to plant rice in Cells 2B and 4 to help stabilize the sediments, and in turn promote favorable conditions for SAV grow-in, similar to the use of rice in Cell 5 earlier in 2006. In late 2006, rice was planted in Cells 2B and 4. The rice was planted aerially because the cells could not be dried out enough to allow the use of tractors as was done in the Cell 5 rice planting effort. Late 2006, a large SAV inoculation effort was completed in Cells 2B and 4. The rice and SAV in these two cells were then monitored for the next couple months. The SAV at some inoculation sites in Cell 4 was showing some promise, but for the most part, the SAV was not surviving. There have been some small areas of SAV growth in Cell 2B; the rice planted late last year did not survive. The continued high turbidity levels in the water caused by high levels of suspended floc material is thought to be the cause of the poor growing conditions for both the rice and SAV.

It is now proposed to re-drain Cells 2B and 4 to remove the floc/accrued material, re-plant with rice, re-flood, and inoculate with SAV. Because the work will be completed at the same time as the Cells 1 and 3 enhancements and associated dry-out, it will be easier to dry out Cells 2B and 4. If the cells can be thoroughly dried out, conventional earthmoving equipment can be used to remove the floc and haul it to a nearby parcel of District-owned land. This method will be less expensive, more effective and faster than removing the sediment from the cell while it is flooded; hydraulic dredging could cost 4

to 5 times as much and the efficiency is highly uncertain considering the extremely loose nature of the floc material. Performing the rice planting in dry conditions should be more effective than planting it in wet conditions as was done in these two cells late last year. The Cell 5 rice planting effort was completed in dry conditions, and continues to appear to have been a very successful method for stabilizing the sediment and creating favorable conditions for SAV grow-in.

Before starting to drain Cells 2B and 4, bulkheads will be built and installed in the eight G-249 culverts in the new Cell 2 levee. This will allow the storage of the water currently in Cell 2A to sustain the existing emergent vegetation, and will minimize the amount of discharge water. The Cell 4 outflow structures (G-307 and G-309) will be opened to allow gravity discharge of water from Cells 2B and 4 into the Discharge Canal. It is estimated that the volume of water to be discharged from Cells 2B and 4 is about 400-500 acre-feet and the available storage in the Discharge Canal is about 100-200 acre-feet. Once the available storage in the Discharge Canal has been used, in order to drain more water from the cells, temporary pumps will be used to pump water from the Discharge Canal to the adjacent landowner's farm canal. It is estimated that initially about 200-400 acre-feet of water will be discharged in this manner. Additional pumping to maintain water levels may also be necessary throughout the completion of the earthwork and rice planting. The actual volume and quality of water discharged to the adjacent landowner's farm canal will be monitored and reported to the District's Everglades Regulation Division. Other required monitoring and reporting will be addressed with FDEP to ensure compliance with permit requirements. Once the cells have been drained, and the floc/accrued material has been removed, rice will be planted with tractors using a similar method to what was used in Cell 5 last year. Once the rice planting is complete, the bulkheads in the Cell 2 levee can be removed to hydrate Cells 2B and 4. If no water is available in the upstream basin, the temporary pumps can be used to hydrate the rice with water from the Discharge Canal.

In order to implement the above, the District is seeking concurrence with the FDEP and is also discussing this plan with the Refuge. The District is also entering into an agreement with the adjacent landowner for the acceptance of the discharge water. Water samples are currently being collected to characterize the quality of the water in Cells 2B and 4 that is proposed to be discharged. A similar process was followed in early 2006 to implement the Cell 5 draining and rice planting effort. An agreement between the District and Gladeview Water Control District was signed to allow the District to pump the discharge water to Gladeview's canal. On January 30, 2006, FDEP issued a modification to the master dewatering permit for the cell 5 dewatering activity. A Long-Term Plan revision was requested by the District and approved by the FDEP.

It is estimated that approximately 100,000 cubic yards of material will need to be removed and hauled. In order to complete the work within the plan timeframe, the procurement must be complete by early to mid-April.

STA-1W Cells 2B and 4 Rehabilitation Plan – February 23, 2007

Approximate Plan Timeline:

Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	
build bulkheads, earthwork and hauling procurement, Gladeview agreement, start water quality monitoring	install bulkheads in 2A/2B levee, start draining cells 2B and 4	continue draining and pumping	earthwork and hauling ongoing (2 simultaneous contracts)		finish hauling	plant rice	Re-hydrate cells, turn off pumps, and SAV inoculation	monitor SAV grow-in	