

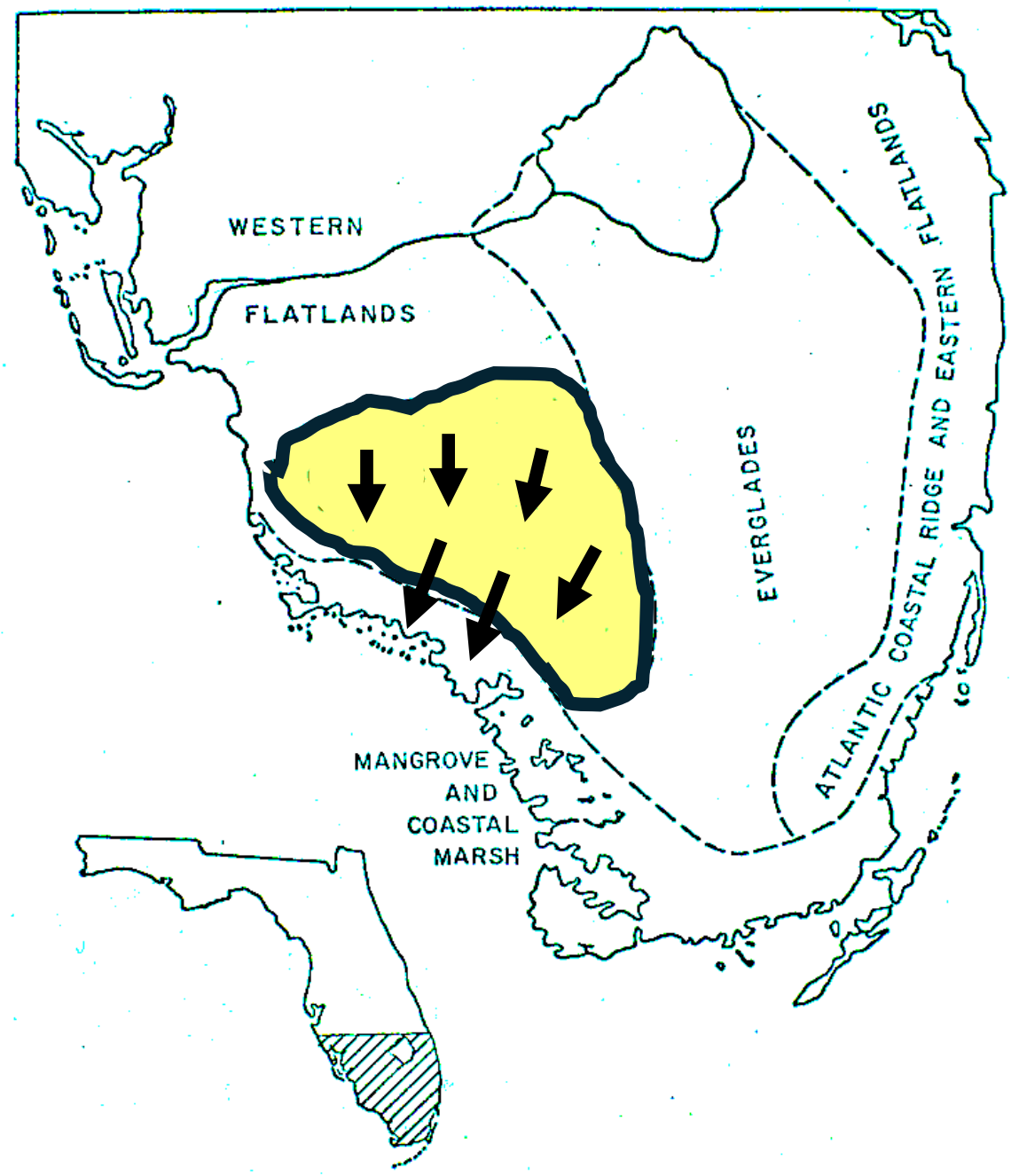
# **Lessons Learned from 23 Years Restoring a 55,000 Residential Development in Southwest Florida**

**Michael Duever  
Natural Ecosystems**

**2024 National Conference on Ecosystem Restoration**



# BIG CYPRESS SWAMP



**Top of  
Watershed  
20 ft Above MSL**

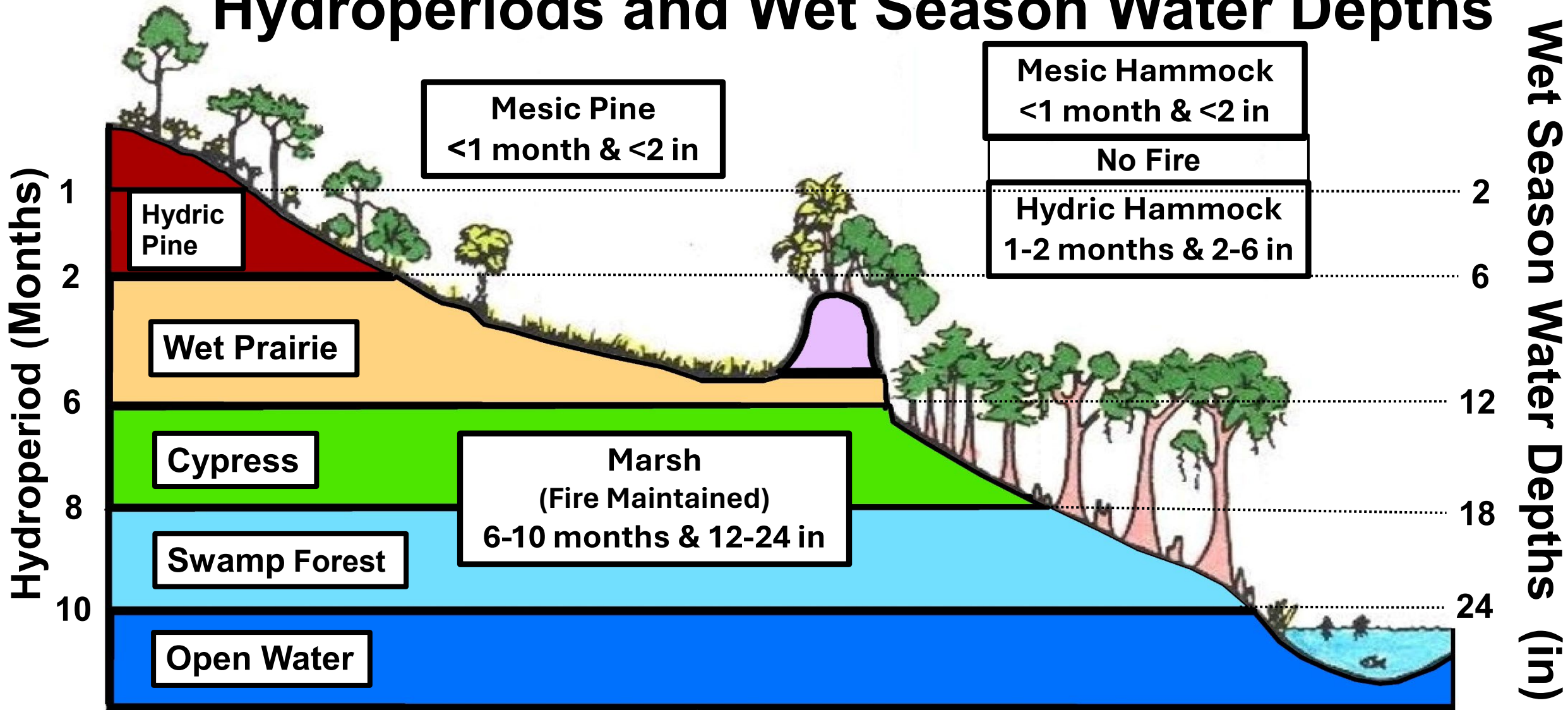
**Flows  
40 Miles to Coast**

**Gradient  
6 in / mile**







# Pre-Drainage Picayune Plant Community Hydroperiods and Wet Season Water Depths




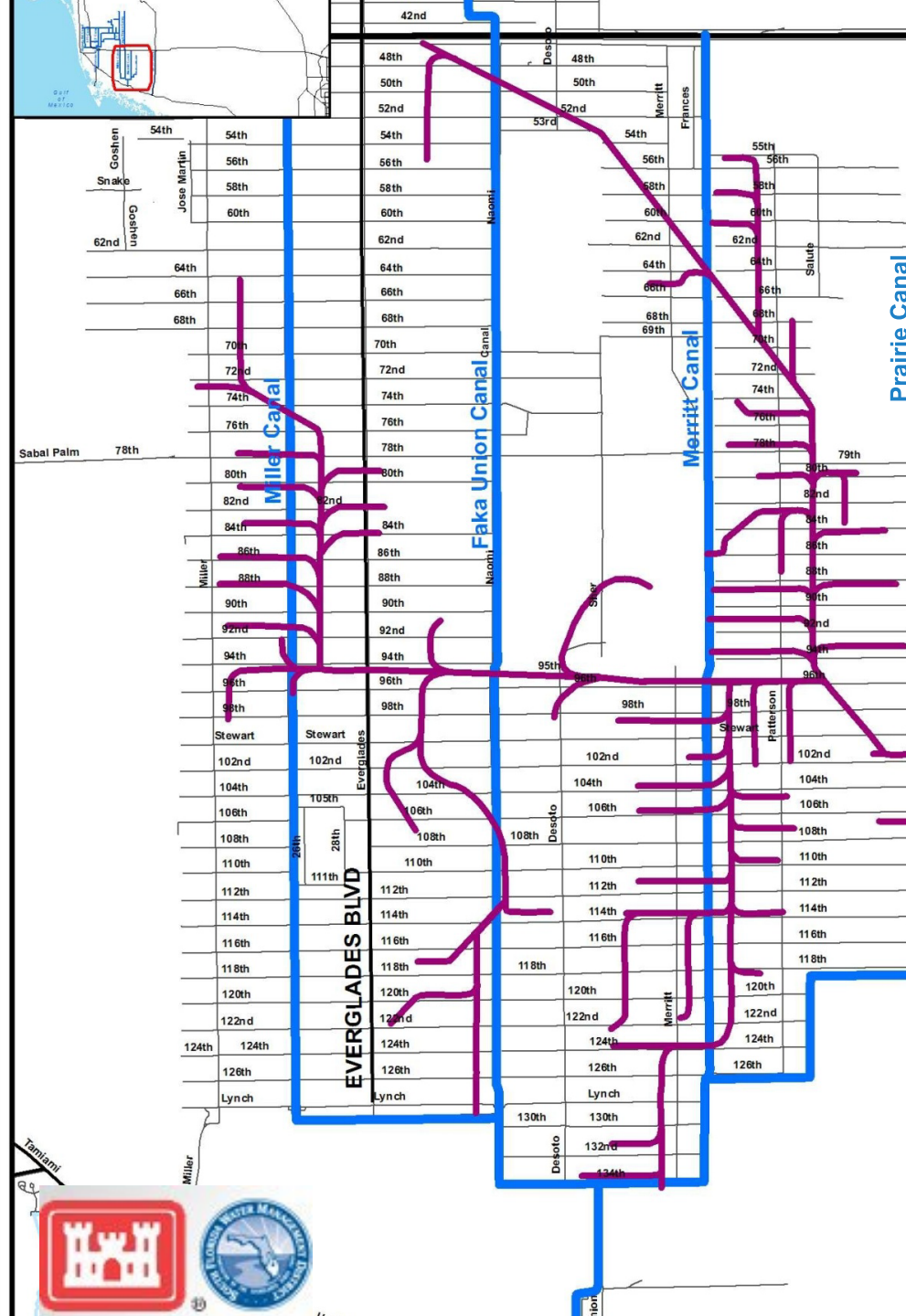
# Southern Golden Gate Estates

Constructed from 1963 to 1971

Canals  (50 miles)  
Roads  (285 miles)

Constructed in 1940s and 1950s

Logging Trams  (62 miles)



Overland Flow to Gulf of Mexico



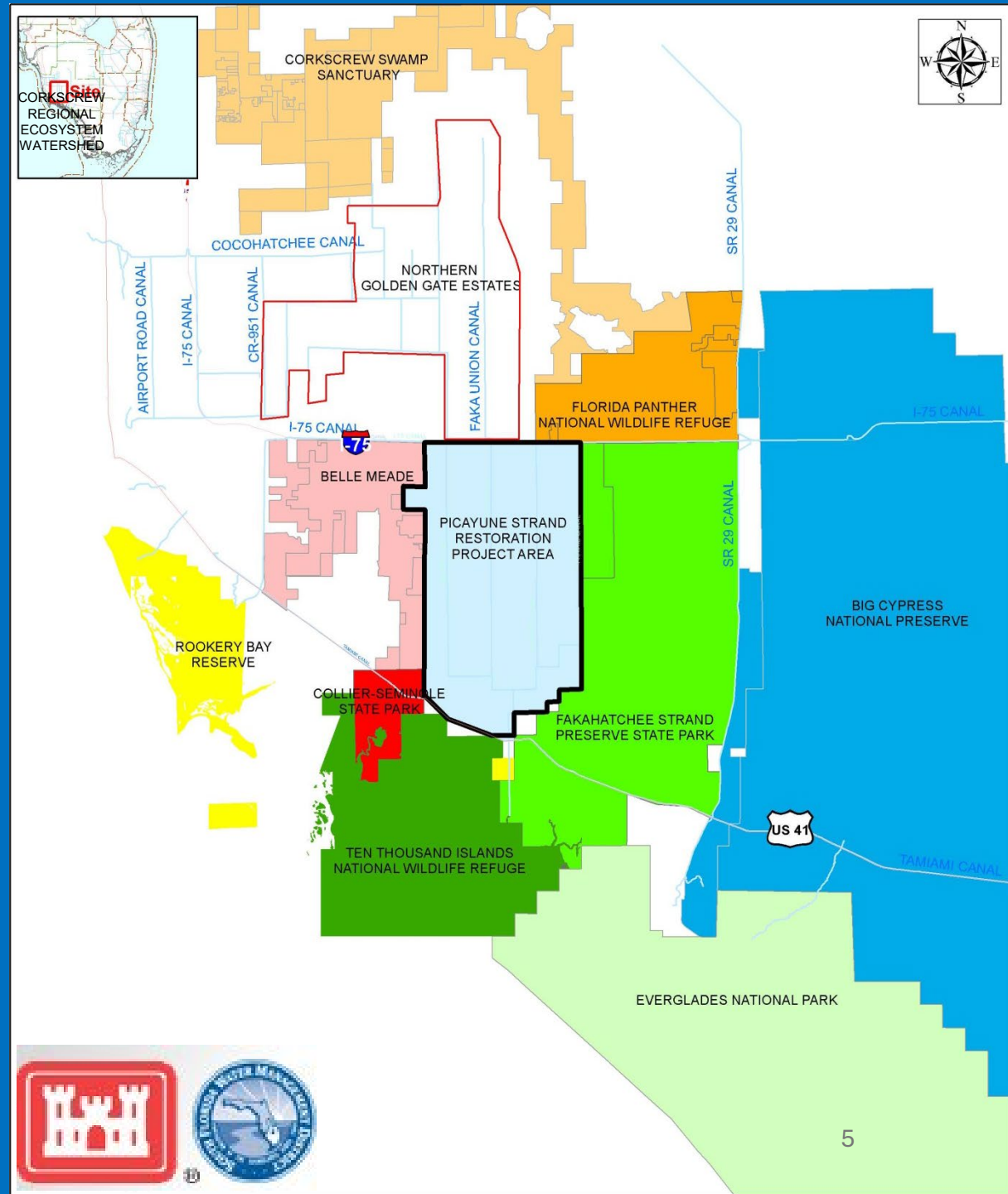


# Picayune Strand Restoration Project

2004-2025?

PSRP  
55,000 Acres

Total Restoration Area  
~100,000 Acres



# Restore Natural Overland Flow

- Remove 50 Years of Woody Vegetation Growth from Road, Logging Tram, and Canal Footprints to Expose Elevated Spoil
- Plug Canals and Level All Elevated Spoil to **within  $\pm$  3 inches of Adjacent Natural Grade**
- Minimize Area Impacted to Minimize Exotic Vegetation on Construction Footprints







**Elevated Roads**



**Elevated Logging Tram**



**±3 in of Natural Grade**

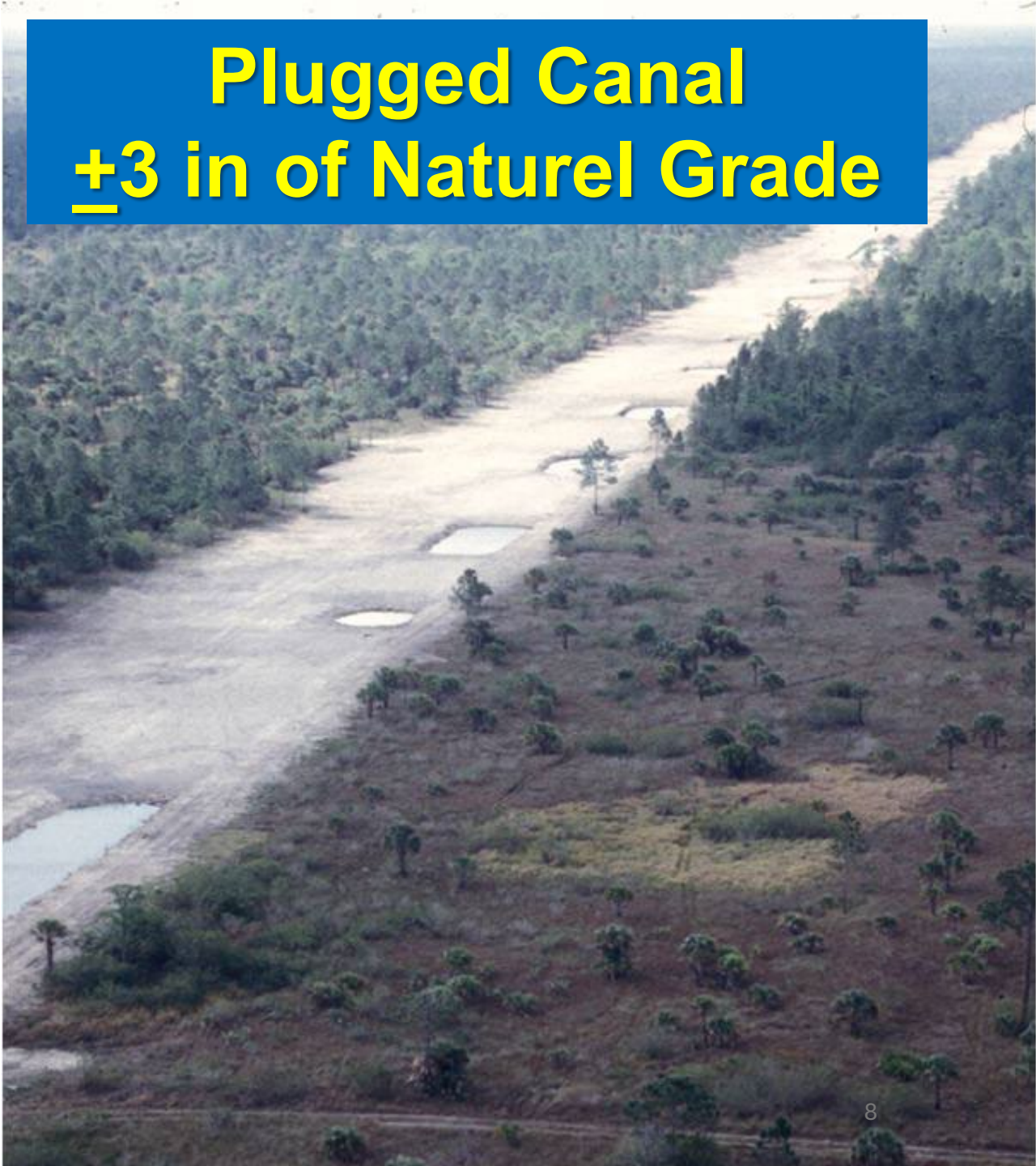
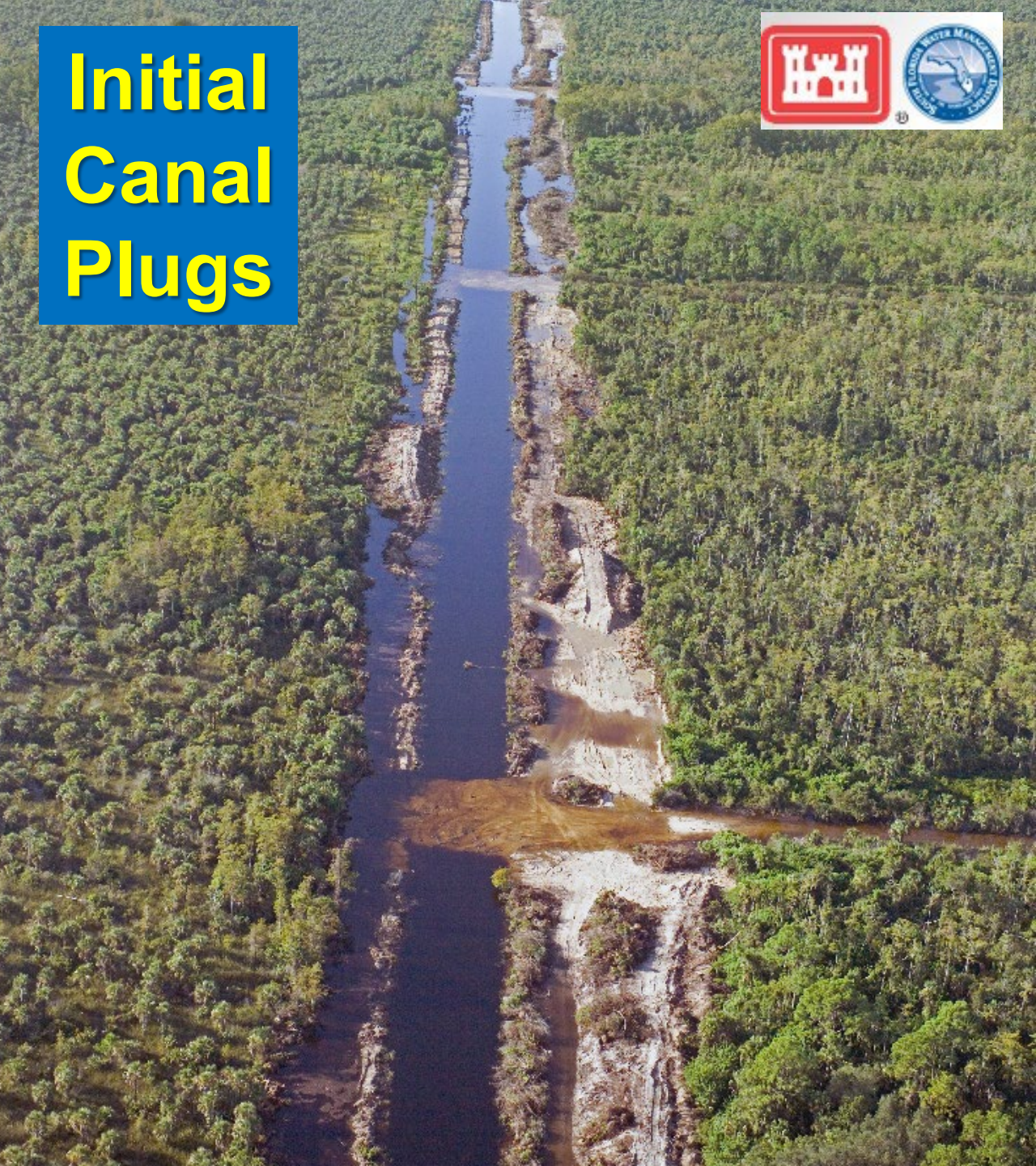




# Initial Canal Plugs



# Plugged Canal ±3 in of Naturel Grade





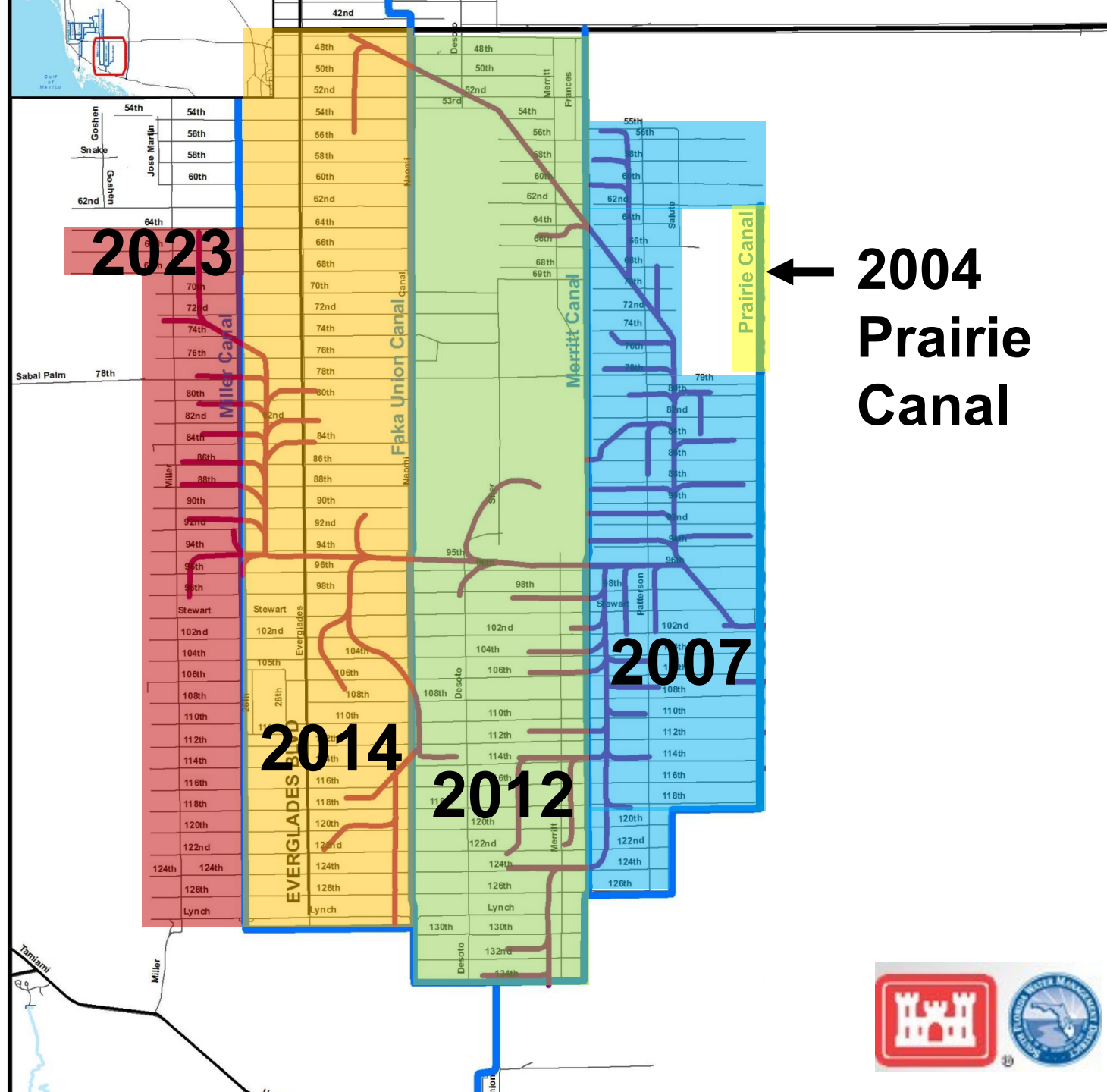
# Prairie Canal 1<sup>st</sup> Wet Season Post-Restoration





# PSRP Restored in Four Phases

Each Phase Included Major North-South Canal And Roads to West of That Canal



# PSRP Has Involved Many People with a Wide Variety of Expertise

## Planning

- Planners
- Modelers
- Scientists
- Engineers
- Real Estate

## Design & Implementation

- Project Managers
- Engineers
- Heavy Equipment Operators
- Quality Control???
- **Experienced Ecologists?**



# Width of Road Removal

- Started with **100 ft from Road Centerline**
  - Surveys Rarely Got Close to Spoil
  - Spoil **Not Always Centered** on Road
- -----
- Extent of Clearing Roads **250 ft Wide**
  - Varies as a Function of **Far Edge of Spoils**







**Clearing Width to  
Remove All Spoil**





Road



Smaller Spoil Piles along Roads





**Larger Spoil Piles along Roads**





**Find Natural Grade!!!!**  
**Clear All Woody Vegetation from Spoil.**



115 ft

140 ft

200 ft

245 ft

**Variable Extent of Clearing as a Function of Far Edge of Spoil**

600 ft





F

**Level Footprint to Natural Grade ( $\pm 3$  in)  
Just Looking vs Surveying  
Quality Control While Equipment is Nearby**



# Reviewed Contractors' Construction Schedule During Kick- off Meeting



**PURPOSE OF THE WORK**

THE PICAYUNE STRAND RESTORATION PROJECT (PSRP), FORMERLY THE SOUTHWEST COUNTY DATE ESTATES (SCDE) ECOSYSTEM RESTORATION PROJECT, WILL RESTORE APPROXIMATELY 55,000 ACRES OF SENSITIVE ENVIRONMENTAL LAND LOCATED IN SOUTHWESTERN COLLIER COUNTY, FLORIDA TO ITS ORIGINAL CONDITION.

THE OBJECTIVE OF THE MERRITT PUMPING STATION LEVEES, SPREADER BERM CONSTRUCTION AND PLUGGING OF THE MERRITT CANAL PROJECT IS TO COLLECT THE WATER FROM THE NORTHERN PORTION OF THE MERRITT CANAL AREA, AND PUMP IT OVER THE SPREADER BERM, IN ORDER TO REESTABLISH SHELF FLOW IN THE AREA SOUTH AND EAST OF THE MERRITT CANAL.

CERTAIN ROADS WITHIN THE PROJECT AREA HAVE SPECIFIC REWORK REQUIREMENTS, SUCH AS ASPHALT REPAIR, DEGRADING AND REGRADING, ETC. SEE NOTES UNDER WORK DESCRIPTION SECTION FOR SPECIFIC DETAILS.

**GENERAL**

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES, REGULATIONS, CRITERIA AND ORDINANCES HAVING JURISDICTION OVER THE PROJECT.
- ALL WORK FOR THIS PROJECT SHALL CONFORM TO STANDARDS PUBLISHED BY RECOGNIZED PROFESSIONAL AND INDUSTRY ORGANIZATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE PRIOR TO BIDDING AND FAMILIARIZING HIMSELF WITH ALL EXISTING CONDITIONS AFFECTING THE WORK, INCLUDING BUT NOT LIMITED TO PRIVATE AND PUBLIC UTILITIES, ON AND OFF SITE, ACCESS ROADS, AND OTHER SUPPORT FACILITIES.
- CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE CONTRACTING OFFICER PRIOR TO ANY CHANGES OR DEVIATION FROM CONTRACT DOCUMENTS.
- CONTRACTOR SHALL PREPARE AND MAINTAIN ALL CONSTRUCTION AREAS, AS WELL AS SURROUNDINGS, FREE OF DEBRIS OR HAZARDOUS MATERIALS AT ALL TIMES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND/OR REPLACEMENT OF ANY ITEMS DAMAGED DURING CONSTRUCTION OR CLEAN UP. CONSTRUCTION SHALL BE CONFINED TO THE LIMITS OF THE CONSTRUCTION AREA. ALL OSHA REGULATIONS FOR CONSTRUCTION AREAS SHALL BE STRICTLY FOLLOWED.
- DISCREPANCIES**
  - THESE DRAWINGS SHALL BE UTILIZED IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS. REGARDING DISCREPANCIES OR CONFLICTS IN DRAWING AND/OR CONSTRUCTION, THE MORE STRINGENT REQUIREMENTS WILL APPLY, UNLESS OTHERWISE DIRECTED BY THE CONTRACTING OFFICER.
  - THE CONTRACTOR SHALL HAVE ALL ITEMS OR DETAILS CLARIFIED WITH THE CONTRACTING OFFICER PRIOR TO SUBMITTING A BID, OTHERWISE THE CONTRACTING OFFICER'S INTERPRETATION WILL BE FINAL.
  - CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND SITE CONDITIONS RELATED TO THIS WORK. ANY DISCREPANCIES IN DIMENSIONS OR CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE CONTRACTING OFFICER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CHANGES TO THE WORK MADE IN THE FIELD WITHOUT PRIOR NOTIFICATION OR AUTHORIZATION FROM THE CONTRACTING OFFICER.

- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SUBCONTRACTORS WORKING ON THE JOB SITE AND FOR ALL COORDINATION OF WORK AMONG THEM. THE SUBCONTRACTORS SHALL COORDINATE THEIR WORK WITH THE OTHER TRADES. THE CONTRACTORS SHALL BE RESPONSIBLE FOR THE FINAL GATHERING OF ALL INFORMATION NOT FURNISHED BY THEM BUT REQUIRING THE SAME FOR THE PROJECT.**
- ALL MATERIALS SHALL BE DIMENSIONED IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN THE PROJECT SPECIFICATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL THE NECESSARY PERMITS AND INSPECTIONS FOR THE PROJECT.
- ALL DIMENSIONS SHALL BE CONSIDERED NOMINAL UNLESS NOTED OTHERWISE. WRITTEN DIMENSIONS SHALL GOVERN. USE THE DRAWINGS.
- CONTRACTOR IS TO STAGE EQUIPMENT AND OTHER RESOURCES NECESSARY TO PERFORM THE WORK WITHIN THE CONSTRUCTION LIMITS AT LOCATIONS CONSISTENT WITH HIS WORK PLAN AND AS APPROVED BY THE CONTRACTING OFFICER. THESE STAGING AREAS CANNOT INTERFERE WITH DEDICATED STOCKPILE/STAGING AREAS ASSOCIATED WITH ADJACENT AND CONCURRENT WORK.
- CONTRACTOR IS TO STOCKPILE DEBRIS WITHIN THE CONSTRUCTION LIMITS AT LOCATIONS CONSISTENT WITH HIS WORK PLAN AND AS APPROVED BY THE CONTRACTING OFFICER. THESE STOCKPILE AREAS CANNOT INTERFERE WITH DEDICATED STOCKPILE/STAGING AREAS ASSOCIATED WITH ADJACENT AND CONCURRENT WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND PROPER DISPOSAL ACCORDING TO APPLICABLE STANDARDS AND PROJECT SPECIFICATIONS ALL NON VEGETATIVE DEBRIS, TRASH AND GARBAGE, FROM THE PROJECT SITE. CONTRACTOR SHALL CLASSIFY AND STOCKPILE MATERIAL TO BE REMOVED FROM THE STOCKPILE SITE PER PROJECT SPECIFICATIONS AND IN SUCH A WAY AS TO NOT CROSS CONTAMINATE MATERIAL, OR CONTAMINATE UNCLASSIFIED MATERIALS AND REMOVAL FROM SITE SHALL BE COORDINATED WITH, AND APPROVED BY, THE CONTRACTING OFFICER. CONTRACTOR SHALL CLEAR AND GRADE TO PROJECT DRAWING AND SPECIFICATION REQUIREMENTS ALL AREAS PRIOR TO FINAL ACCEPTANCE BY THE CONTRACTING OFFICER.
- COLLIER COUNTY AERIAL PHOTOGRAPHY (2005) WAS USED FOR OVERLAY.

16. ALL EXISTING INFORMATION HAS BEEN OBTAINED FROM THE BEST AVAILABLE SOURCES. THE LOCATIONS OF THE CANALS, ROADWAYS, TRAMS AND UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE INFORMATION DETERMINED BY THE CONTRACTOR PRIOR TO DEMOLITION AND/OR CONSTRUCTION.

17. CONTRACTOR SHALL CLEAR ALL VEGETATION WITHIN THE LIMITS SHOWN ON THESE PLANS, ACCORDING TO REQUIREMENTS OF THE PROJECT SPECIFICATIONS. BURNING IS PERMITTED AS DETAILED IN THE SPECIFICATIONS.

18. FORTY EIGHT (48) HOURS PRIOR TO DIGGING, CALL SUNSHINE STATE ONE CALL OF FLORIDA, TELEPHONE NO. 1-800-423-4770 AND UTILITIES DIVISION TO REQUEST UTILITY LOCATIONS. A CONTRACTOR'S REPRESENTATIVE MUST BE PRESENT WHEN UTILITY COMPANIES LOCATE THEIR FACILITIES.

19. UTILITY COMPANIES - NO KNOWN OPERATING UTILITY SERVICES WITHIN WORK AREA. SOME POLES AND TELEPHONE LINE EXIST ALONG 96TH AVE, BUT ARE NOT CONTINUOUS AND BE OPERATIONAL. CONTRACTOR SHALL CONTACT LOCAL AREA UTILITIES TO DETERMINE STATUS AND ARRANGE FOR TEMPORARY SERVICE AS REQUIRED.

20. ALL EXISTING DRAINAGE STRUCTURES WITHIN THE LIMITS OF DEMOLITION AND/OR CONSTRUCTION ARE TO REMAIN, UNLESS OTHERWISE NOTED.

21. ANY PUBLIC LAND CORNER AND CONTROL MONUMENT WITHIN THE LIMITS OF DEMOLITION AND/OR CONSTRUCTION IS TO BE PROTECTED. THE CONTRACTOR SHALL VERIFY MONUMENT LOCATIONS PRIOR TO THE START OF DEMOLITION AND/OR CONSTRUCTION. IF ANY OF THESE MONUMENT TYPES ARE IN DANGER OF BEING DESTROYED AND HAVE NOT BEEN PROPERLY REFERENCED, THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER.

22. THE COORDINATES SHOWN REFER TO THE FLORIDA STATE PLANE COORDINATE SYSTEM, NAD 83, A SECONDARY ROAD SHALL PARALLEL EAST ZONE, NORTH AMERICAN DATUM OF 1983, REVISION 1990.

23. THE SECTION LINES SHOWN ARE APPROXIMATE, AND WERE TAKEN FROM THE S.F.W.M.D. GEOGRAPHIC INFORMATION SYSTEM (GIS) SECTIONAL COVERAGE OF COLLIER COUNTY, WHICH WERE DIGITIZED FROM THE UNITED STATES GEOLOGICAL SURVEY QUADRANGLE MAPS.

24. GRADES SHOWN ARE FINISHED GRADES, UNLESS OTHERWISE NOTED.

25. RESTORE ANY PORTIONS OF THE EXISTING ROADWAYS THAT ARE TO REMAIN, WHICH ARE DISTURBED UNDER THE LIMITS OF DEMOLITION AND/OR CONSTRUCTION, TO THEIR ORIGINAL CONDITION. RESTORATION SHALL BE AT THE CONTRACTOR'S EXPENSE.

26. ALL GROUNDWATER MONITORING WELLS THAT NEED TO BE DISTURBED SHALL BE REPLACED OR ABANDONED IN ACCORDANCE WITH DISTRICT AND FDEP REQUIREMENTS AT THE CONTRACTOR'S EXPENSE. COORDINATE WITH THE CONTRACTING OFFICER.

27. IMMEDIATELY NOTIFY THE CONTRACTING OFFICER UPON DISCOVERY OF CONTAMINATION OR SUSPECTED CONTAMINATION NOT ALREADY IDENTIFIED IN THESE DRAWINGS. FURTHER ACCESS IS TO BE DIRECTED BY THE CONTRACTING OFFICER. NOTIFY THE CONTRACTING OFFICER TO COMMENCEMENT OF REMEDIATION OF THE CONTAMINATION OR SUSPECTED CONTAMINATION. RETURN TO THE CONTAMINATED AREA ONLY AFTER FOLLOWING REMEDIATION OR DETERMINATION OF NO CONTAMINATION AND AS DIRECTED BY THE CONTRACTING OFFICER.

28. CONTRACTOR SHALL USE STAKED SILT FENCE, AS NECESSARY TO PROTECT EXISTING DITCHES, CANALS AND ADJACENT PROPERTIES, AS SHOWN ON THE PLANS OR AS DIRECTED BY THE CONTRACTING OFFICER. SEE SPECIFICATION 31 32 11 FOR REQUIREMENTS.

29. THE WEIRS ALONG THE SPREADER BERM SHALL BE LINED WITH CONCRETE ARMORED OR ARTICULATING CONCRETE BLOCK OR APPROVED EQUAL LINING. THE WEIRS SHALL BE LINED ALONG THEIR TOTAL LENGTH, ON BOTH SIDES, AND FROM THE BOTTOM OF THE BERM OVER THE WEIR AND CONTINUING ON THE OUTSIDE OF THE BERM AS SHOWN ON THE CONSTRUCTION DRAWINGS. CONTRACTOR IS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR THE INSTALLATION OF THE PRODUCT.

30. KEEP EXISTING AND NEW DRAINAGE STRUCTURES CLEAN OF PAVEMENT MATERIAL, AGGREGATE, DEBRIS, ETC. DURING DEMOLITION AND/OR CONSTRUCTION AT NO ADDITIONAL COST. EROSION CONTROL AND MONITORING SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR CONSTRUCTION ACTIVITIES OR AS DIRECTED BY THE CONTRACTING OFFICER.

31. REFER TO SHEET 630.00 FOR EROSION CONTROL BENCHMARKS.

33. THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION.

34. ALL CONTOUR ELEVATIONS WERE OBTAINED BY LODAR SURVEY AND IS ACCURATE WITHIN APPROXIMATELY 6 INCHES IN LOW VEGETATION AREAS AND PLUS OR MINUS 2 FEET IN HEAVILY VEGETATED AREAS. THE TIE-BACK LEVEES AND SPREADER BERMS ARE BASED ON FIRST ORDER SURVEY.

**DESCRIPTION OF WORK:**

1. THE CONTRACTOR SHALL CONSTRUCT THE PUMPING STATION, TIE-BACK LEVEES, SPREADER BERM, WEIRS, CANAL PLUGS AND ROAD REWORK AS DESCRIBED IN THE SPECIFICATIONS AND AS SHOWN ON THE CONSTRUCTION DRAWINGS. SPECIFICALLY, CONTRACTOR IS TO:

1.1 CONSTRUCT BORROW CANAL.  
CONTRACTOR SHALL CONSTRUCT BORROW CANAL STARTING AT THE EAST SIDE OF THE PUMP STATION, ALONG THE NORTH SIDE OF 55TH AVE. SE, THIS BORROW CANAL WILL BE DISCONTINUED WITH THE BEGINNING AND ENDING COORDINATES SPECIFIED IN THE CONSTRUCTION DRAWINGS.

AN ADDITIONAL BORROW CANAL WILL BE EXCAVATED SOUTH OF THE TIE-BACK LEVEE AT A DISTANCE SPECIFIED IN THE CONSTRUCTION DRAWINGS. THIS BORROW CANAL WILL BE CONTINUOUS AND WILL BEGIN AND END AT COORDINATES SPECIFIED IN THE DRAWINGS.

THE WEST REACH BORROW CANAL (WEST OF THE PUMP STATION) WILL BE DISCONTINUED. THIS BORROW CANAL WILL BE ON THE WEST SIDE OF MERRITT BLVD AND WILL BEGIN AND END AT LOCATIONS SPECIFIED IN THE CONSTRUCTION DRAWINGS. IT WILL FOLLOW SOUTH ALONG MERRITT BOULEVARD AND WILL TURN WEST AT 66TH AVE SE.

1.2 CONSTRUCT TIE-BACK LEVEE.

CONSTRUCT TIE-BACK LEVEE ON EAST SIDE OF THE PUMP STATION, ALONG SOUTH SIDE OF 55TH AVE SE, FROM PUMP STATION AT STA. 115+88.36, EAST AND NORTH TO STA. 0+00.00. A SECONDARY ROAD SHALL PARALLEL THE NORTH SIDE OF THE LEVEE FOLLOWING THE ROUTE OF SE 55TH AVE, AS SHOWN ON THE CONSTRUCTION DWGS.

CONSTRUCT TIE-BACK LEVEE ON WEST SIDE OF THE PUMP STATION, ALONG THE EAST SIDE OF MERRITT BOULEVARD, FROM PUMP STA. 129+58.82 WEST AND SOUTH TO STA. 236+59.27. A SECONDARY ROAD SHALL PARALLEL THE WEST SIDE OF THE LEVEE FOLLOWING THE ROUTE OF MERRITT BOULEVARD AND 66TH AVE SE.

CONSTRUCTION OF THE LEVEES SHALL FOLLOW SPECIFICATION SECTION 31 23 00.00 20.

1.3 CONSTRUCT SPREADER BERM AND WEIRS.

CONSTRUCT A SPREADER BERM STARTING FROM STA. 95+00 WHERE IT MEETS THE TIE-BACK LEVEE WEST TO STA. 130+00 WHERE IT MEETS THE TIE-BACK LEVEE FOLLOWING THE ROUTE SHOWN ON THE CONSTRUCTION DRAWINGS. A BORROW CANAL WILL BE EXCAVATED STARTING AT N 655879.57 E 4688053.53 AND ENDING AT N 656473.09 E 464281.56.

1.4 CONNECT BERSON AVENUE TO THE TIE-BACK LEVEE.

REWORK 52ND AVE SE (BERSON AVENUE) TO PRIMARY ROAD CATEGORY, FROM COORDINATE N 657703.00, E 491551.00 AS SHOWN ON THE CONSTRUCTION DRAWINGS TO ITS INTERSECTION WITH FRANCES STREET. THE CONTRACTOR SHALL SCARP 12 IN. OF MATERIAL AND RE-COMPACT TO A STABLE SUB-GRADE, THEN ADD 8 INCHES OF COMPACTED LIMESTONE BASE OVER THE STABILIZED SUBGRADE ACCORDING TO SPECIFICATIONS AND THE CONSTRUCTION DRAWINGS.

REALIGN AND REWORK FRANCES STREET FROM ITS INTERSECTION WITH 52ND AVE SE, BERSON AVENUE, TO THE PUMP STATION TO PRIMARY ROAD CATEGORY, AS SHOWN ON THE CONSTRUCTION DRAWINGS.

1.5 CONNECT TIE-BACK LEVEE TO PUMP STATION ROAD.

CONNECT EAST SIDE TIE-BACK LEVEE AND ROAD TO PUMP STATION LEVEE AND ROAD AT STA. 115+88.36, AND WEST SIDE TIE-BACK LEVEE AND ROAD TO PUMP STATION LEVEE AND ROAD AT STA. 129+58.82, AS DETAILED IN THE CONSTRUCTION DRAWINGS.

1.6 PLUG CANALS

INSTALL CANAL PLUGS ON MERRITT CANAL AT THE FOLLOWING LOCATIONS:

56TH AVE. S.E.	92ND AVE. S.E.	126TH AVE. S.E. & PATTERSON BLVD
58TH AVE. S.E.	94TH AVE. S.E.	128TH AVE. S.E. (PRRARE CANAL#1)
60ND AVE. S.E.	96TH AVE. S.E.	128TH AVE. S.E. (PRRARE CANAL#2)
62ND AVE. S.E.	98TH AVE. S.E.	128TH AVE. S.E. (PRRARE CANAL#2)
64TH AVE. S.E.	100TH AVE. S.E.	128TH AVE. S.E. (PRRARE CANAL#2)
66TH AVE. S.E.	102ND AVE. S.E.	130TH AVE. S.E.
68TH AVE. S.E.	104TH AVE. S.E.	130TH AVE. S.E.
69TH AVE. S.E.	106TH AVE. S.E.	130TH AVE. S.E.
70TH AVE. S.E.	108TH AVE. S.E.	134TH AVE. S.E.
72ND AVE. S.E.	110TH AVE. S.E.	N 603487.48 E 493803.74
74TH AVE. S.E.	112TH AVE. S.E.	N 603426.67 E 490043.69
76TH AVE. S.E.	114ND AVE. S.E.	N 614014.77 E 504992.97
78TH AVE. S.E.	116TH AVE. S.E.	N 603457.48 E 49121.80
80TH AVE. S.E.	118TH AVE. S.E.	N 613978.88 E 501951.59
82ND AVE. S.E.	120TH AVE. S.E.	N 613865.80 E 502668.84
84TH AVE. S.E.	122ND AVE. S.E.	N 612906.48 E 500552.51
86TH AVE. S.E.	124TH AVE. S.E.	N 611577.32 E 500550.47
88TH AVE. S.E.	126TH AVE. S.E.	N 610268.33 E 500034.88
90TH AVE. S.E.	128TH AVE. S.E.	N 608860.73 E 50030.30

FILL FOR CANAL PLUGS SHALL BE OBTAINED FROM BERM AND ROAD DEGRADING. SEE CONSTRUCTION DRAWINGS FOR PLUG DETAILS AND ACTUAL GRID LOCATIONS. CONTRACTOR SHALL DEGRADE ALL SPILL PILES ALONG CANAL. THIS MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CANAL PLUGS.

1.7 REWORK AND REGRADE ROADS.

CERTAIN ROADS, AS IDENTIFIED IN THESE DOCUMENTS, ARE TO REMAIN, OR BE REGRADED AS PRIMARY, SECONDARY OR TERTIARY ROADS. THESE ROADS HAVE SPECIFIC DEGRADING REQUIREMENTS. THE CONTRACTOR SHALL FILL THE ADJACENT SWALES AND ROAD DITCHES TO UNDISTURBED GROUND (+/- 3") USING SUITABLE MATERIAL RECOVERED FROM THE ADJACENT EXISTING ROAD AND BERMS. ANY SURPLUS FILL MATERIAL SHALL BE BACKFILLED INTO CANAL. ALL MATERIALS FROM ROAD DEGRADING SHALL BE USED TO FORM PLUGS. ANY EXCESS MATERIAL FROM ROAD DEGRADING OR EXISTING SPILL PILES SHALL BE BACKFILLED INTO CANAL. ALL VEGETATION ASSOCIATED WITH CLEAR AND GRUBBING ACTIVITIES SHALL BE PILED, ALLOWED TO DRY, THEN BE BURNED, AND ANY REMAINING LARGE WOODY DEBRIS PLACED IN OPEN SECTIONS OF THE CANAL THAT ARE NOT TO BE FILLED WITH PILED MATERIAL.

1.8 DEMOLISH THE MERRITT CANAL CONTROL WEIRS. CONTRACTOR IS TO DEMOLISH AND REMOVE THE MERRITT CANAL CONTROL LUCKY LAKE WEIR LOCATED AT THE END OF THE EXISTING 52ND AVE SE, AT COORDINATES 826833.47 E 491292.18, AND THE MERRITT NO. 1 WEIR LOCATED APPROX. 100FT. NORTH OF STEWART BLVD. AT COORDINATES N 260319.60 E 812924.55. SEE NOTES AND DETAILS ON CONSTRUCTION DRAWINGS.

1.9 INSTALL COMMUNICATION DUCT BANKS.

INSTALL TWO (2) COMMUNICATION DUCT BANKS EACH WITH 4-2" IN. DIA CONDUITS AND ASSOCIATED PULL BOXES AND MANHOLES ALONG EACH SHOULDER OF BERSON BOULEVARD (52 AVE SE) STARTING AT STA 0+00 AND TERMINATING AT STA 34+81.41, AS DETAILED IN THE CONSTRUCTION DRAWINGS.

THESE DUCT BANKS SHALL BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE DUT STANDARDS, AND ARMY CORPS OF ENGINEERS DESIGN AND CONSTRUCTION OF LEVEES, ENGINEERING DESIGN MANUAL EM-1110-2-1913, APRIL 2000.

1.10 ACCESS RAMPS

CONSTRUCT ACCESS RAMPS FROM THE WEST SIDE OF THE WEST TIE-BACK LEVEE TO ACCESS THE LEVEE AT THE FOLLOWING LOCATIONS: 58TH AVE SE, 66TH AVE SE, AS INDICATED IN THE CONSTRUCTION DRAWINGS.

1.11 ACCESS GATES

INSTALL ACCESS GATES ON THE ROADS, AT THE FOLLOWING LOCATIONS, STA 33+00; 1+52.44; 116+52.10, AND 220+33.15 AS SHOWN ON THE CONSTRUCTION DRAWINGS.

CONTRACTOR IS TO CLEAR LINES OF SIGHT ALONG THE ALIGNMENT OF THE VARIOUS LEVEES, SPREADER BERM, CANAL PLUG LOCATIONS, ROADS, ETC. TO PERFORM A SURVEY BEFORE START OF CONSTRUCTION TO ESTABLISH THE ELEVATION OF THE UNDISTURBED GROUND IN THE AREAS WHERE CONSTRUCTION IS TO TAKE PLACE.

AFTER COMPLETION OF WORK, THE CONTRACTOR SHALL PERFORM A SURVEY OF THE FINISHED FACILITIES, LEVEES, SPREADER BERM, CANAL PLUGS AND ROADS TO ESTABLISH THEIR FINISHED ACTUAL ELEVATIONS IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 31 23 00.00 20 OF THE TECHNICAL SPECIFICATIONS, AND AS NOTED IN THE DRAWINGS.

3. THE RESULTS OF THE SURVEYS SHALL BE PRESENTED IN TABULAR FORMAT AND AUTOCAD FORMAT DRAWINGS.

4. SUITABLE EXCAVATION MATERIAL THAT IS REMOVED SHALL BE REUSED AS FILL MATERIAL FOR THE CANAL PLUGS, SWALES, LEVEES, ETC.

5. ANY EXCESS MATERIAL SHALL BE TEMPORARILY STOCKPILED FOR FUTURE USE ON SITE AS PLUG MATERIAL AT A LOCATION SPECIFIED BY THE CONTRACTING OFFICER.

6. STAGING AREAS - 58TH AVENUE SE WEST OF MERRITT BOULEVARD IS THE DESIGNATED STAGING AREA FOR THE MERRITT CANAL PUMP STATION WORK AND IS TO REMAIN AS SUCH UNTIL COMPLETION OF THE WORK. AT THAT TIME 56 TH AVENUE SE SHALL BE REWORKED TO THEIR FINAL CONFIGURATION ACCORDING TO SPECIFICATION AND CONSTRUCTION DRAWING REQUIREMENTS.

7. THE FOLLOWING BRIDGES ARE TO BE REMOVED: 68TH AVE SE, STEWART BLVD AND 118TH AVE SE.

8. THE FOLLOWING ROADS ARE TO HAVE ANY EXISTING ASPHALT AND REWORKED AS FOLLOWS: BERSON AVENUE WILL HAVE ASPHALT REMOVED FROM COORDINATE N 657702.73 E 491550.94 TO FRANCES ST.

9. ASPHALT THAT IS STRIPPED FROM THE EXISTING ROADS SHALL BE GRADEN AND STOCK PILED FOR USE BY THE FLORIDA DIVISION OF FORESTRY. THE GROUND ASPHALT SHALL BE STOCK PILED IN WINDROWS ADJACENT TO THE HARBY PIT WITHIN THE AREA DESIGNATED ON R301.02. THE WINDROW SHALL NOT BE HIGHER THAN 10 FT ABOVE UNDISTURBED GROUND ELEVATION, AND SHALL BE INCLINED AT THE NATURAL ANGLE OF REPOSE FOR THE MATERIAL. THE CONTRACTOR SHALL REMOVE ANY VEGETATION WITHIN THE STOCKPILE AREA BEFORE LAYING DOWN THE STOCKPILE.

10. THE FOLLOWING ROADS ARE TO BE REWORKED OR DEGRADED AS FOLLOWS: 56TH AVENUE SE, 58TH AVENUE SE, 60TH AVENUE SE, 62ND AVENUE SE, 64TH AVENUE SE, 66TH AVENUE SE, AND 68TH AVENUE SE. THE ASPHALT WILL BE REMOVED FROM THESE ROADS 50 FEET FROM TOP OF BANK OF BORROW CANAL ALONG MERRITT BOULEVARD. MERRITT BOULEVARD FROM BERTSON AVE TO 150' SOUTH OF 66 AVE. WILL BE DEGRADED AND COMPACTED TO SECONDARY ROAD CONDITIONS. 55TH AVENUE SE. WILL BE DEGRADED TO TERTIARY CONDITIONS. THE FOLLOWING ROADS ARE TO BE DEGRADED AND BACKFILLED INTO CANAL AS PLUG MATERIAL: 56TH AVE SE, 58TH AVE SE, 60TH AVE SE, 62ND AVE SE, 64TH AVE SE, AND 66TH AVE SE FROM MERRITT BOULEVARD TO MERRITT CANAL. EXISTING ASPHALT SHALL BE REMOVED AND STOCKPILED AT THE LOCATION SHOWN ON SHEET R301.02 (MERRITT ROAD REMOVAL).

11. CONTRACTOR WILL HAVE THE OPTION TO BRING IN CRUSHED LIMESTONE TO THE SITE OR CHANGE THE SIZE OF THE BORROW CANAL AND OBTAIN THE CRUSHED LIMESTONE FROM THE BORROW CANAL. APPROXIMATE FDOT STANDARDS FOR LIMESTONE BASE. FDOT STANDARDS SPECIFY THAT AT LEAST 97% (BY WEIGHT) OF THE MATERIAL SHALL PASS A 3 1/2 INCH SIEVE AND THE MATERIAL SHALL BE GRADED UNIFORMLY DOWN TO DUST.

12. CONTRACTOR IS TO MAINTAIN ACCESS TO PUBLIC ROADS DURING CONSTRUCTION.

13. INSTALL STILLING INTO WEIRS AT I-75 AND LUCKY LAKE.

**TYPICAL DETAILS**

TYPICAL DETAILS APPLY TO ALL APPROPRIATE LOCATIONS UNLESS OTHERWISE NOTED ON THE DRAWINGS. TYPICAL DETAILS MAY BE MODIFIED TO SUIT FIELD CONDITIONS WITH THE REVIEW AND APPROVAL OF THE CONTRACTING OFFICER.

**MEANS AND METHODS**

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF DEMOLITION AND/OR CONSTRUCTION. DRAWINGS SHOW FINISHED PRODUCT IN-PLACE AND DO NOT IN ANY WAY SUGGEST OR OTHERWISE PRESCRIBE A MEANS AND/OR METHOD OF DEMOLITION, INSTALLATION OR CONSTRUCTION.

REVISION DESCRIPTION

NO.	DATE	BY	APP.	DESCRIPTION
0				FOR ADVERTISING
1				FOR ADVERTISING
2				FOR ADVERTISING
3				FOR ADVERTISING
4				FOR ADVERTISING
5				FOR ADVERTISING
6				FOR ADVERTISING
7				FOR ADVERTISING
8				FOR ADVERTISING
9				FOR ADVERTISING
10				FOR ADVERTISING
11				FOR ADVERTISING
12				FOR ADVERTISING
13				FOR ADVERTISING

ENGINEER: SBE  
DRAWING: DM/KW  
CHECKED: DM/KW  
DATE: 09/20/07  
SCALE: AS SHOWN

DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT  
JACKSONVILLE, FLORIDA  
US ARMY CORPS OF ENGINEERS  
CONTRACT NO. W9127P-06-R-0032  
SHEET NO. L310.01

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15000 NW 27th Avenue, Suite 200, Fort Lauderdale, FL 33309  
PHONE: (954) 556-4370  
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PARSONS  
WATER & INFRASTRUCTURE INC.  
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AUTHORIZATION NO. 9834

CONTRACT NO. W9127P-06-R-0032  
SHEET NO. L310.01  
SHEET 5 OF 314  
The consultant, contractor or other parties associated with this project shall comply with Florida Statutes 110.07 (6) (a). These plans are the property of the United States Army Corps of Engineers and must be secured and maintained in a confidential manner. Review by any unauthorized individual or outside/3rd party not performing work necessary for this project is prohibited.

# Merritt Canal Phase Plans

**CONTRACTOR SHALL DEGRADE  
ALL SPOIL PILES ALONG CANAL.**

**THE MATERIAL SHALL BE USED  
FOR THE CONSTRUCTION OF  
CANAL PLUGS.**





JEEP



**Spoil Pile along Merritt Canal**







**Plugging Merritt Canal  
Spring Dry Season 2015**







**Merritt Canal Early Wet Season June 2015**



# Everything Being Done on the PSRP is Being Done to Restore Overland Flow to Create a Naturally Functioning Picayune

- Acquiring 55,000 Acres ~\$300 Million
- Building Three Pump Stations ~\$200 Million
- -----
- Leveling 270 Miles of Roads, 62 Miles of Logging Trams and 42 Miles of Canals ~\$120 Million
  - To ± 3 inches of Natural Grade





**Understood Experienced Ecologists  
Were Needed During Project Planning**

**Not Understood Regular Presence of  
Experienced Ecologists Was Crucial  
During Design and Implementation of  
Picayune Strand Restoration Project**





# Questions

