

APPENDIX A

FOR

ENGINEERING

STEVENSON CREEK
CLEARWATER, FLORIDA

**STEVENS ON CREEK
CLEARWATER, FLORIDA
SECTION 206 – ENVIRONMENTAL RESTORATION REPORT (ERR)**

**APPENDIX A
ENGINEERING**

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**STEVENSON CREEK
CLEARWATER, FLORIDA
SECTION 206 – ENVIRONMENTAL RESTORATION REPORT (ERR)**

**APPENDIX A
ENGINEERING**

A. INTRODUCTION

1. General. The project is located in Pinellas County and the city of Clearwater on the West Coast of Florida approximately 15 miles west of the city of Tampa and just east of U.S. Highway 19 (North Fort Harrison Avenue). The project plan and location map are shown on Plate A-1.
2. Restoration Plan. The restoration plan would involve removing muck from portions of Stevenson Creek , dewatering the muck, and then hauling it to the permanent disposal area located in Hillsborough County approximately 20 miles northeast of the project area. A discussion of the features of the restoration plan is provided in the main report and in the paragraphs that follow.

B. HYDROLOGY AND HYDRAULICS

3. Hydraulic Considerations. A numerical hydrodynamic model of the Stevenson Creek estuarine system was developed to assess potential improvements to circulation and tidal exchanges associated with the various project alternatives. As stated in the introductory paragraph to this hydraulic study, the overall goal was to assess project–related changes in general tidal velocity, water surface elevation circulation, and flow conveyance characteristics to help determine the recommended optimum environmental restoration plan.

The detailed description of the model study and the results of the analysis are provided in the report “Hydrodynamic Model Alternative Assessments.” The report is included as an Appendix to this ERR.

4. Optimum Restoration Plan. As stated in the report’s conclusion, “ Alternative 9 provides the optimum restoration plan for Stevenson Creek based on a hydrodynamic and engineering perspective and the above modeling results.” This plan would include dredging the area between the North Fort Harrison Street Bridge and the Pinellas Street Bridge (Reach1) to an average elevation of –3.5 feet NGVD, and also dredging the area between the Pinellas Street Bridge and the Douglas

Avenue Bridge (Reach 2) to an average elevation of -2.5 feet NGVD. Plan views of Reach 1 and Reach 2 are shown on Plates A-2 and A-3, respectively.

GEOTECHNICAL INVESTIGATIONS

5. Investigations Performed. Subsurface investigations were performed in the creek in Reach 1 between the North Fort Harrison Avenue Bridge and the Pinellas Trail Bridge.

a. Core Borings. A total of 12 split spoon drilling and sampling holes were taken to identify both the depth and thickness of the muck and to obtain samples of the materials encountered. The bottom of the muck layer corresponded to the top of the underlying sand layer. The depth of the borings ranged from 7.5 feet to 10 feet.

b. Probing. A total of 25 probings were taken throughout the project area to provide a more detailed determination of the depth of the muck. Results of the probings are included in Attachment A to this Appendix.

6. Laboratory Analyses. Representative samples of unconsolidated materials from the core logs were sent to the Corps of Engineers South Atlantic Division Laboratory. The applicable logs, and laboratory reports of gradation curves, moisture content, organic content and Atterberg limits testing are included in Attachment A to this Appendix.

7. Geotechnical Evaluation. Reach 1. The geotechnical data indicates that the material to be removed above elevation -3.5 NGVD consists of approximately 44 percent sand and 56 percent muck. The total muck thickness ranges between 1.5 feet to 4.5 feet with an organic content between 10 and 21 percent.

Reach 2. Geotechnical data for the area between the Pinellas Trail Bridge and the Douglas Avenue Bridge is limited to the data included in the reports prepared by BCI Engineers and Scientists, Inc. and PPB Environmental Laboratory. The average solids content (ratio of dry solids/sand to total sample weight) reported on page 16 of the BCI Report states that east of Pinellas Trail (Reach 2) it is approximately 73 percent and west of Pinellas Trail (Reach 1) it is approximately 40 percent.

It is anticipated that additional geotechnical investigations would be required in Reach 2 during preparation of contract plans and specifications. The current cost estimate is approximately \$20,000 and includes 3 borings and 10 probings. This cost is included in the Project Cost Estimate.

D. CONSTRUCTION

8. General. This is an environmental restoration project to remove sediments and enhance water quality, and there are no specific navigation design requirements to be satisfied. Elements of design, design assumptions, and anticipated methods for construction are presented in the paragraphs that follow.

9. Excavation. Reach 1. The muck would be removed in Reach 1 to an elevation of -3.5 feet NGVD by a small hydraulic dredge and pumped to the interim disposal area for separation and drying before being hauled to the permanent disposal area. The interim disposal area is located near the east end of the project area. See Plate A-4. Typical sections in Reach 1 are provided on Plate A-5.

Reach 2. The muck and sand material in Reach 2 would be removed to an elevation of -2.5 feet NGVD. Typical sections in Reach 2 are provided on Plate A-6.

10. Disposal Area. For cost estimating purposes, it is assumed that the dredged material would be processed through a hydrocyclone located at the interim disposal area to separate the sand from the fined grained silt and organics. The effluent would then be pumped into geobags for drying. When sufficiently dry, the bags would be placed in trucks and hauled to the permanent disposal area which is located approximately 20 miles to the northeast of the project area and is the site of an abandoned sludge farm previously used by the City of Clearwater.

The interim disposal area would be graded to drain to a sump area where the runoff would be returned to the creek. The contractor would be responsible for maintaining adequate water quality of the return water. No special containment would be anticipated for the permanent disposal area.

11. Construction Procedure. A detailed discussion of the construct methods and procedures is provided in the Project Cost Estimate included as Table A-1 to this appendix. The discussion includes the types of equipment and the anticipated production rates used in developing the construction cost estimate.

E. RELOCATIONS

12. General. The project sponsor would be responsible for providing all the lands easements, rights-of-way, relocations, and disposal (LERRD) as required for construction of the proposed project features.

13. Access Roads. Access to the project area and both the interim and permanent disposal area would be provided along existing local, state, and federal roadways.

F. OPERATION AND MAINTENANCE

14. General. The contractor would be responsible for all maintenance during the construction contract. After completion of the construction contract, the project sponsor would assume the responsibility for maintaining the project. A discussion of Operation and Maintenance is presented in the main report.

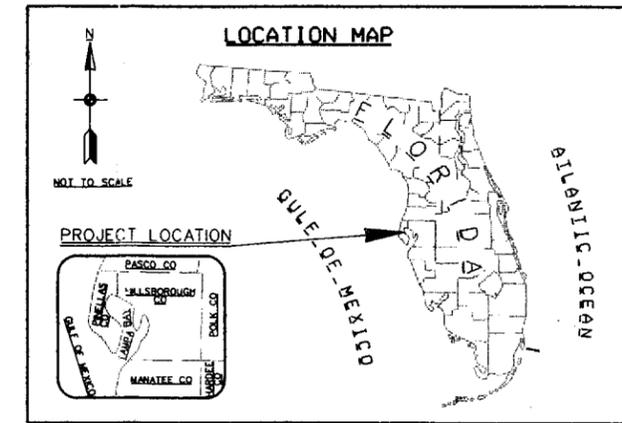
G. QUANTITIES AND COST ESTIMATE

15. Summary of Costs. The estimates of first cost for construction of the alternative plans listed below were prepared using M-CACES software and are presented in Table A-1. The estimate includes a narrative, a summary cost, and a detailed cost showing quantity, unit cost, and the amount for contingencies for each cost item.

The costs have been prepared for an effective date of August 2002



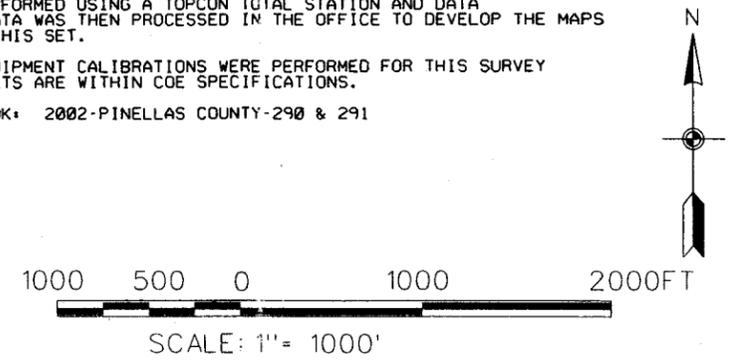
CLEARWATER, FLORIDA
 SECTION 206
 ENVIRONMENTAL RESTORATION REPORT
 STEVENSON CREEK



INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	INDEX, LOCATION AND VICINITY MAP
2-3	PLAN VIEW OF PROJECT
4	BOUNDARY PLAT OF TRIANGLE LOT
5-6	TYPICAL SECTIONS

SURVEY CONTROL			
DATUM: NAD 27 FLORIDA WEST U.S. SURVEY FEET			
DESCRIPTION	EASTING 'X'	NORTHING 'Y'	ELEVATION 'Z'
DP1	243831.7000	1337547.8257	6.1766
IWPI15	240831.3930	1324235.5520	5.2000
PC01	243139.2272	1329850.2017	7.0500
PC02	244489.7748	1329036.1372	11.8504
PC03	245513.2999	1327180.1429	12.9167
PC04	246966.4953	1327067.5906	22.1200
OFST	243578.4503	1332486.5900	7.6269
TEMP	240383.0702	1320647.6305	5.9800

- SURVEY NOTES:**
- REFER TO SURVEY NO. 01-196.
 - THIS SURVEY WAS PERFORMED FROM 7 SEPTEMBER 2001 TO 23 OCTOBER 2001.
 - ELEVATIONS ARE IN FEET AND TENTHS AND ARE REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 1929).
 - ALL ELEVATIONS ARE BELOW THE REFERENCE PLANE UNLESS PRECEDED BY A (·) SIGN.
 - PLANE COORDINATES ARE BASED ON THE TRANSVERSE MERCATOR PROJECTION FOR THE WEST ZONE OF FLORIDA AND REFERENCED TO NORTH AMERICAN DATUM OF 1927 (NAD27).
 - ALL AZIMUTHS ARE GRID; RECKONED CLOCKWISE FROM SOUTH.
 - THE SURVEY WAS PERFORMED USING A TOPCON TOTAL STATION AND DATA COLLECTOR. THIS DATA WAS THEN PROCESSED IN THE OFFICE TO DEVELOP THE MAPS CONTAINED WITHIN THIS SET.
 - STANDARD FIELD EQUIPMENT CALIBRATIONS WERE PERFORMED FOR THIS SURVEY AND ACCURACY RESULTS ARE WITHIN COE SPECIFICATIONS.
 - REFER TO FIELD BOOK: 2002-PINELLAS COUNTY-290 & 291





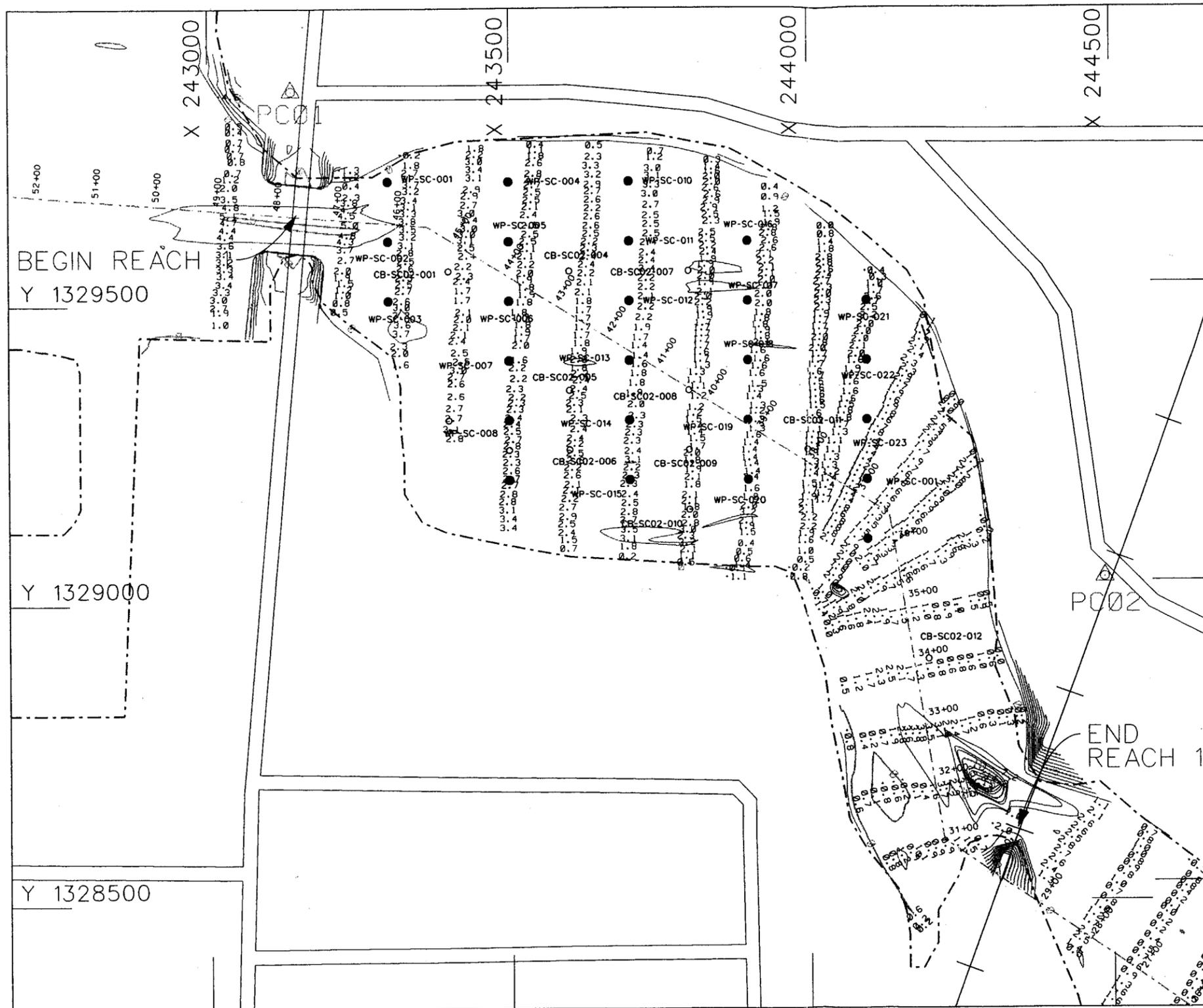
US Army Corps of Engineers
Jacksonville District

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JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

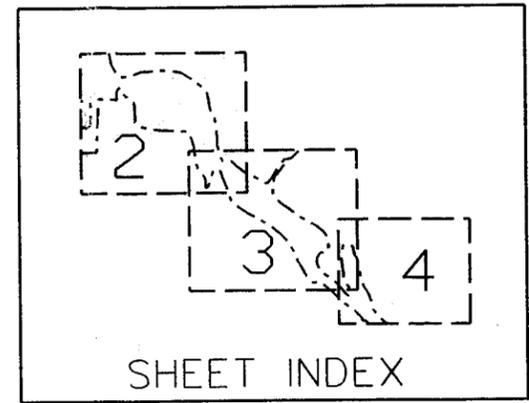
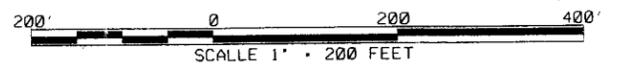
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STEVENSON CREEK - CLEARWATER, FLORIDA
 PROJECT PLAN AND LOCATION MAP
 SECTION 206 - ENVIRONMENTAL RESTORATION

PLATE
A-1



SURVEY CONTROL			
DATUM: NAD 27 FLORIDA WEST U.S. SURVEY FEET			
DESCRIPTION	EASTING 'X'	NORTHING 'Y'	ELEVATION 'Z'
PC01	243139.2272	1329850.2017	7.0500
PC02	244489.7748	1329036.1372	11.8504



STEVENSON CREEK - CLEARWATER, FLORIDA

PROJECT PLAN

SECTION 206 - ENVIRONMENTAL RESTORATION

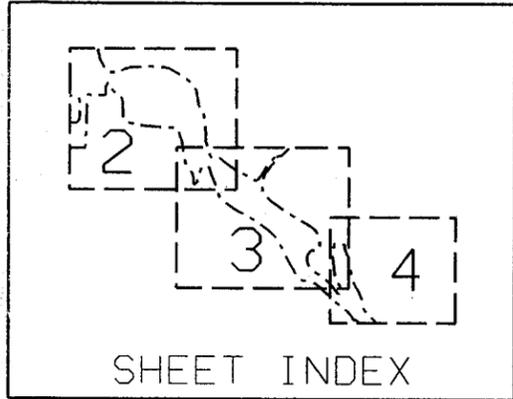
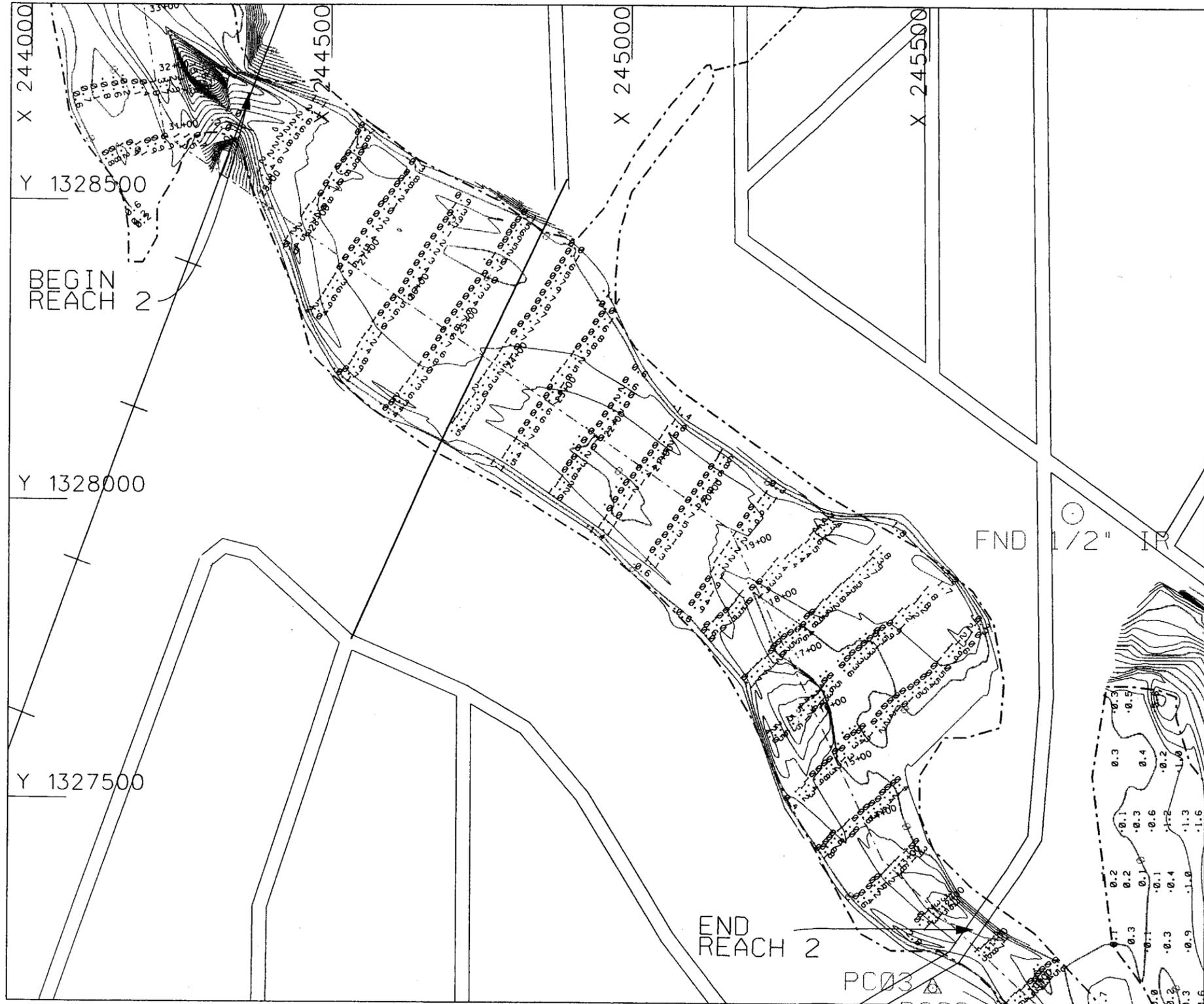
PLATE
A-2

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Reference files:

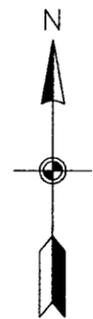
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Dwn by:
Ctd by:
Dated:

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JACKSONVILLE, FLORIDA





SURVEY CONTROL			
DATUM: NAD 27 FLORIDA WEST U.S. SURVEY FEET			
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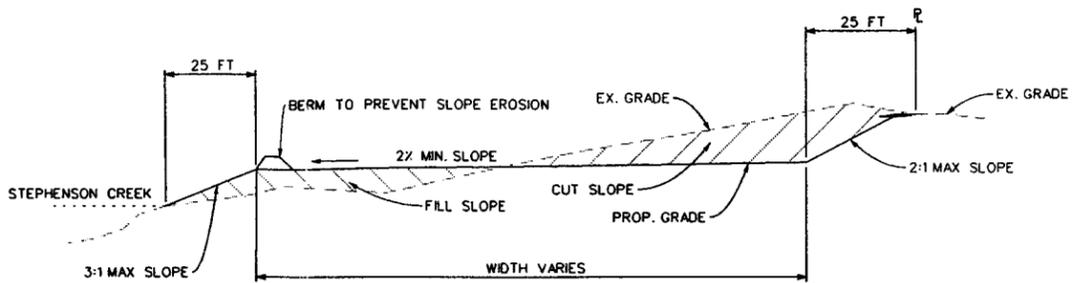
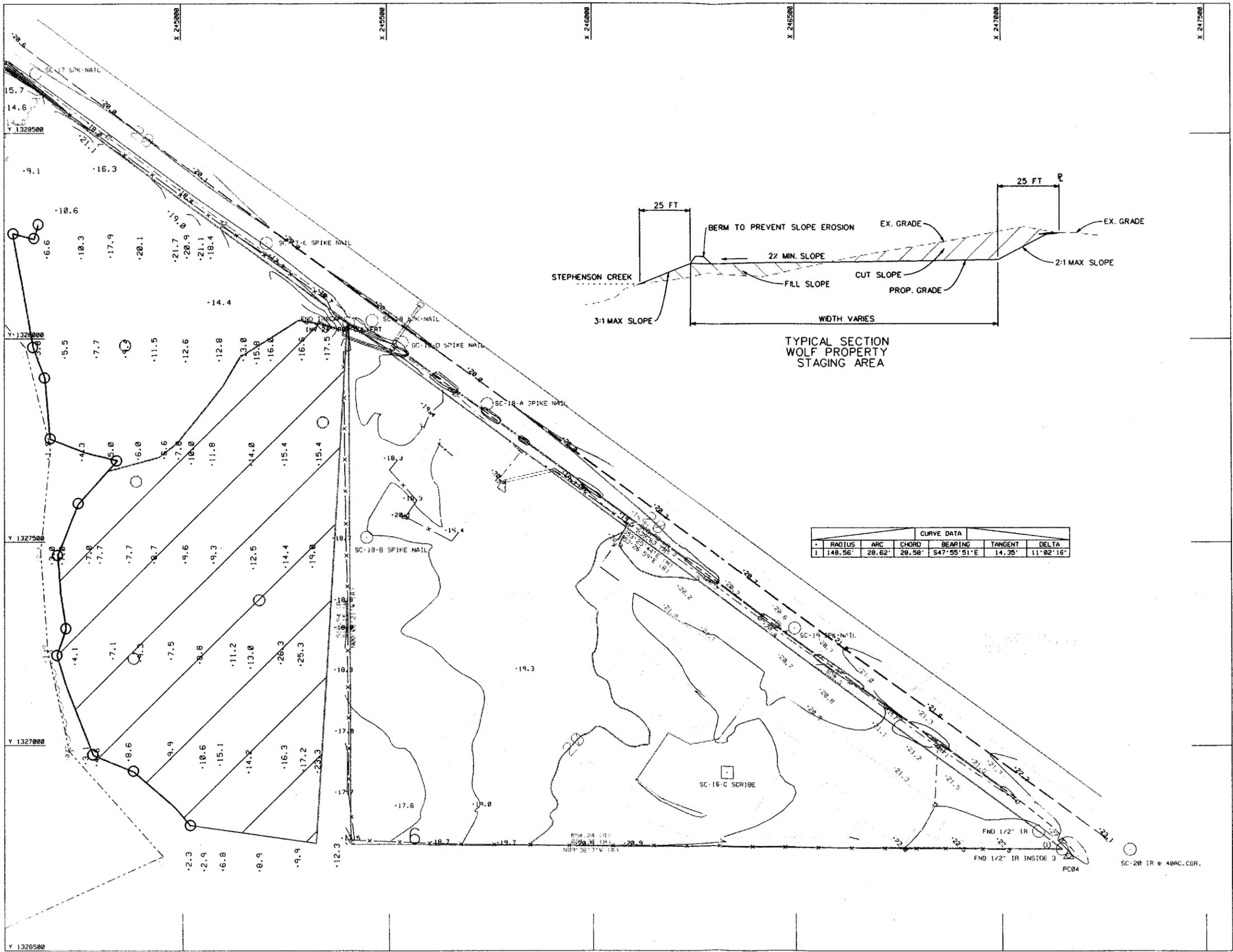


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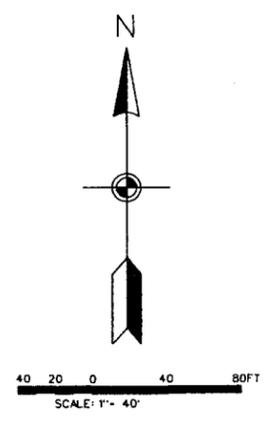
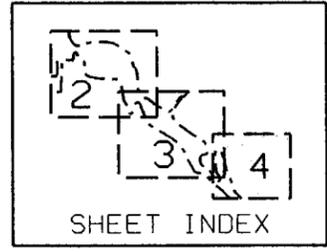
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	Dated:	

STEVENSON CREEK - CLEARWATER, FLORIDA
PROJECT PLAN
SECTION 206 - ENVIRONMENTAL RESTORATION

PLATE
A-3



CURVE DATA					
RADIUS	ARC	CHORD	BEARING	TANGENT	DELTA
148.56'	28.62'	28.58'	S47°55'51" E	14.35'	11°02'16"

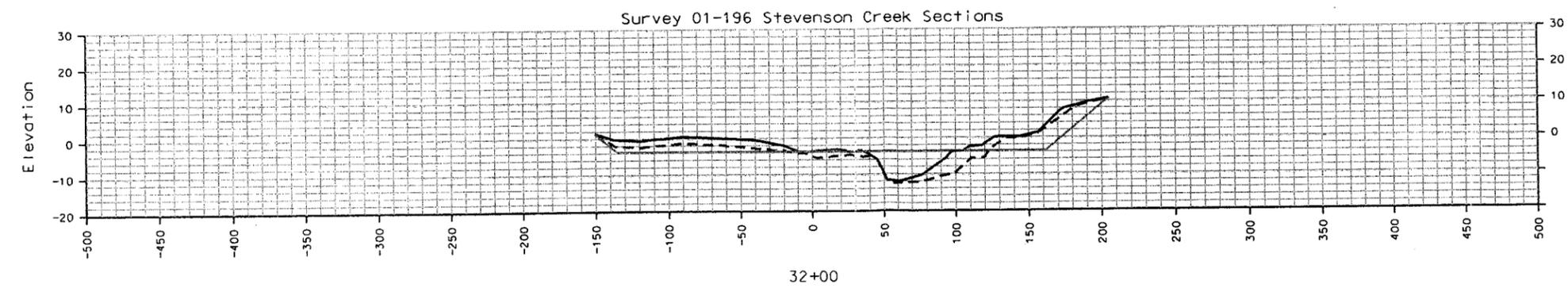
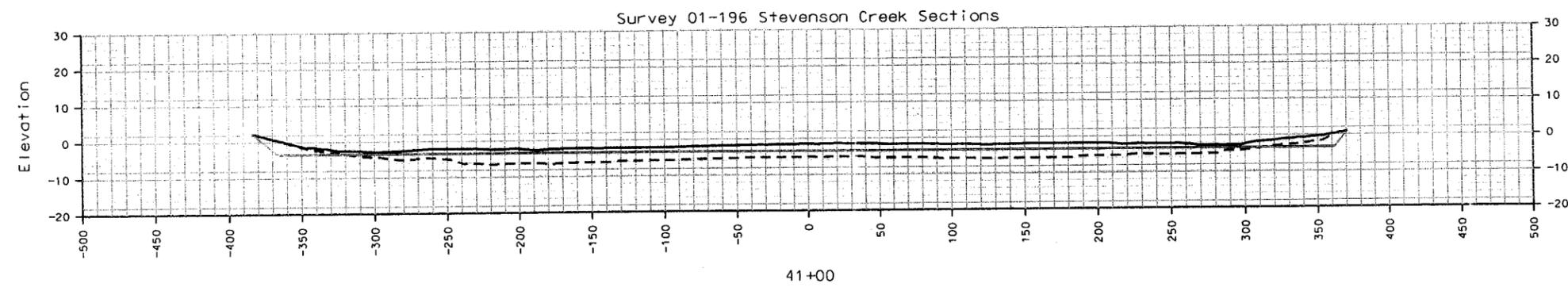
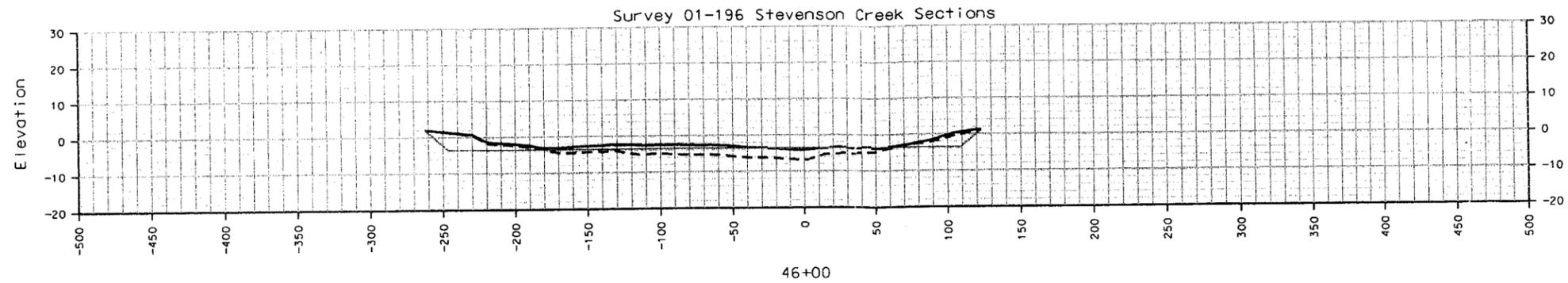


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File name:
Reference files:
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Scale:
Plot date:
Dated:

STEVENSON CREEK - CLEARWATER, FLORIDA
INTERIM DISPOSAL AREA
SECTION 206 - ENVIRONMENTAL RESTORATION

PLATE
A-4



DATA LEGEND	
TOP OF MUCK	—————
TOP OF SAND MATERIAL	- - - - -
PROP LIMITS OF DREDGE -3.5'	- · - · -



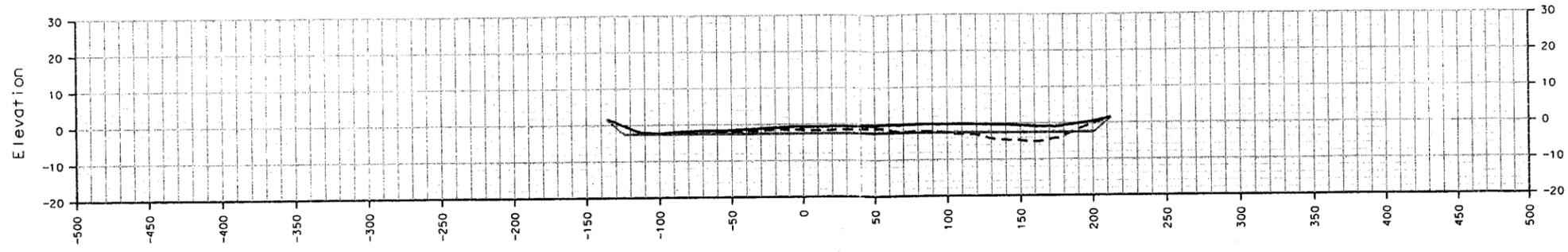
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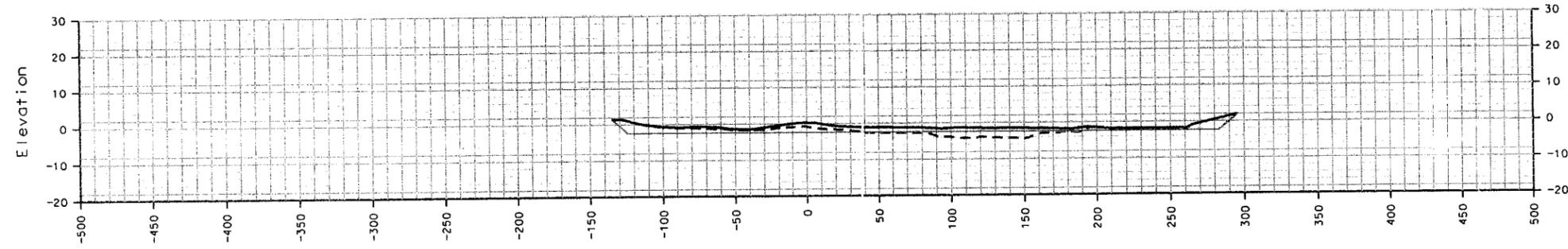
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STEVENSON CREEK - CLEARWATER, FLORIDA
TYPICAL SECTIONS
SECTION 206 - ENVIRONMENTAL RESTORATION

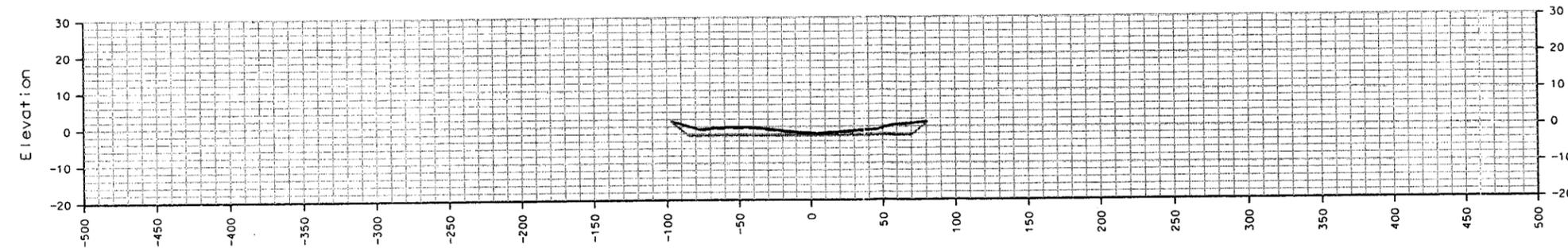
PLATE
A-5



27+00



18+00



13+00

DATA LEGEND	
TOP OF MUCK	—————
TOP OF SAND MATERIAL	- - - - -
PROP LIMITS OF DREDGE -2.5'	—————



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Jacksonville District

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JACKSONVILLE, FLORIDA

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	Date:	

STEVENSON CREEK - CLEARWATER, FLORIDA
TYPICAL SECTIONS
SECTION 206 - ENVIRONMENTAL RESTORATION

PLATE
A-6

TABLE A-1

FINAL DREDGING/DISPOSAL PLAN

Tue 17 Jun 2003
Eff. Date 10/01/02

U.S. Army Corps of Engineers
PROJECT CLP304: Stevenson Creek - FY03 - Clearwater, Florida

ENDL

TIME 11:44:3

TITLE PAGE

Stevenson Creek - FY03
Clearwater, Florida
Section 206 Aquatic
Ecosystem Restoration Plan
Final Dredging/Disposal Plan

Designed By: Jacksonville District
Estimated By: CESAJ-EN-C

Prepared By: B. Blake

Preparation Date: 06/16/03
Effective Date of Pricing: 10/01/02
Est Construction Time: 548 Days

Sales Tax: 7.30%

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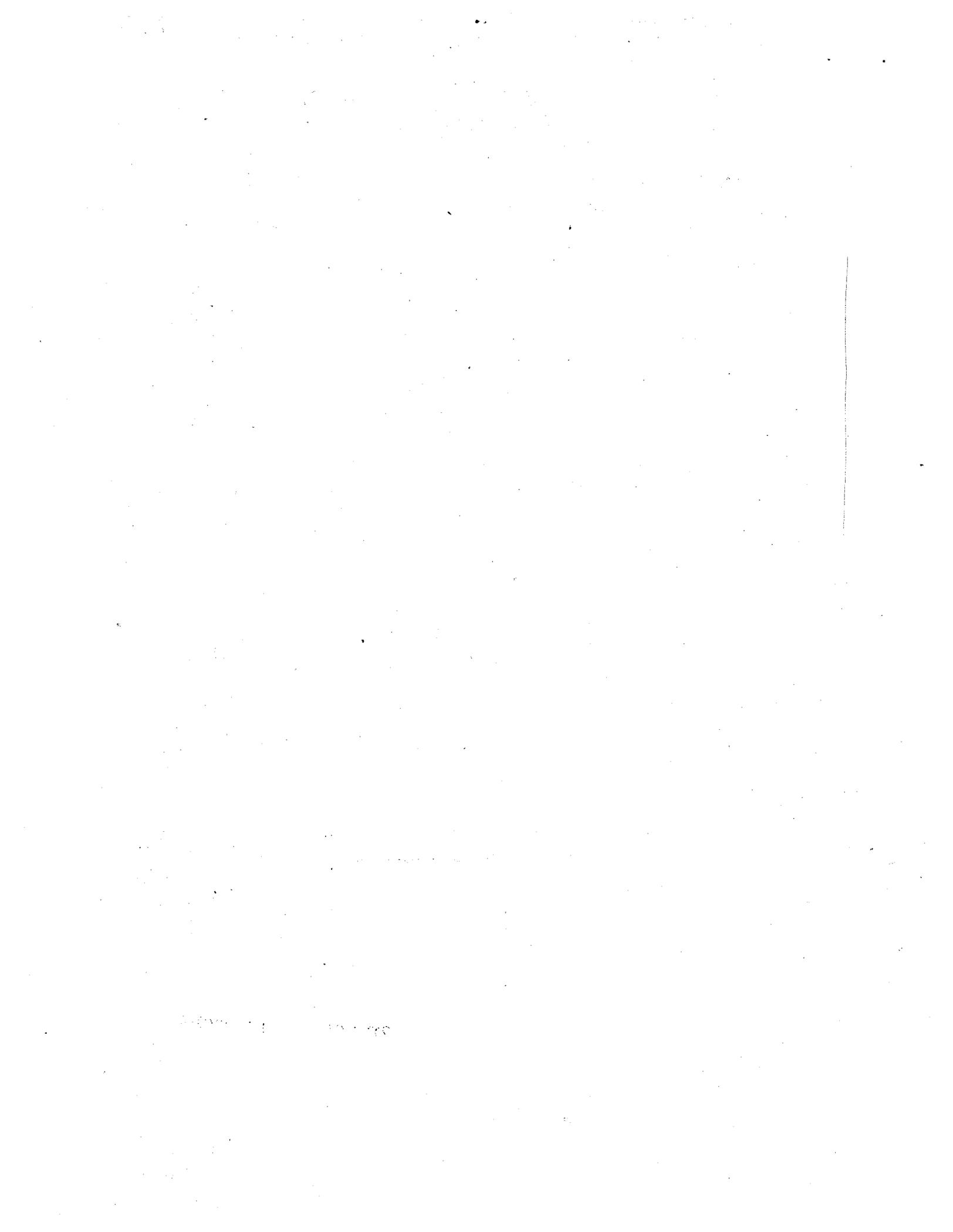
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LABOR ID: SARY2K EQUIP ID: REG03F

Currency in DOLLARS

CREW ID: NAT01A UPB ID: UP97EA



Planning Estimate for Feasibility Study, including profit and contingency.

Stevenson Creek, Section 206 Aquatic Ecosystem Restoration, Final Plan

References:

1. CESAJ-EN-DL Email of 19 August 2002 requesting cost estimate for proposed recommended dredging and disposal plan. A plan worksheet indicating a proposed disposal operation using MDS and GEOBAGS with offsite hauling of muck to the final disposal location was provided by CESAJ-EN-DL on 20 August 2002.

* - CESAJ-EN-DL Email of 14 January 2003 requesting the addition of a second Reach (2 - Upper Reach) with the existing Reach (1 - Main Estuary) for the Final Plan. The Email included the total dredging quantity and percentages of material types to be used in the estimate for Reach 2, according to CESAJ-EN-G/A. Rezaie.

** - CESAJ-EN-DL Email of 21 April 2003 providing revised dredging volume for Reach-1. This was due to the change from dredging to -3.5 feet to -5.5, which should cover the removal of most of the existing muck material.

*** - Reference CESAJ-EN-DL Email request of 9 June 2003 for a revised final project cost estimate for subject study based on further revisions made to the scope of work. A description of the work including the revised dredging and disposal quantities was provided at this time.

2. Draft Section 206 Project Fact Sheet from CESAJ-PD-PF dated 19 August 2002, which includes a description of the project and proposed restoration plan as follows.

Plan: The purpose of the project is to restore the bottom substrate for fisheries and wildlife by removing the muck and creating a ledge to support an expansion of an existing mangrove stand. Locating both a temporary dewatering/staging site and a permanent disposal site for the anticipated 38,400 cubic yards of muck has been difficult and delayed completion of the study. The surrounding watershed is highly urbanized. The only available property on (or anywhere near) the creek is a very small 4 acre parcel already purchased by the city, half of which is considered unique wetlands. While DEP has acknowledged that the remaining uplands is largely undesirable fauna there is a tree hammock on the property that they desire remain. This has reduced the site to less than 2 acres. The formerly proposed junkyard site while ideal for this work is not useable due to contamination issues.

To reduce the disposal problem, a hydrocyclone will be used to separate the desirable sand from the muck. The muck will be pumped into geobags for dewatering. The bags will take 2-3 weeks to dry and due to limited site availability only 4,400 cubic yards can be stacked on site until dry. This will take 7 to 10 workdays after which the dredge will be shut down until the bags are dry (2-3 weeks). Then the bags will be loaded onto dump trucks and hauled to the closest available site found. The site is a city-owned property located in a neighboring county (Hillsborough) which had previously been used as a sludge disposal farm. The site is located 21 miles from the creek. The dredge will be very small (8") due to the very shallow character of the creek. Admittedly, an inefficient operation this is the best available alternative. Total work should take 6 to 9 months for completion.

Early results of the hydrodynamic modeling suggest meaningful trends towards improvements with bridge modifications however it does not appear to justify the costs. Sponsor does not want to modify bridges at this time.

*** - Revised Final Dredging/Disposal Plan for Report.

Cut/fill the Wolfe property taking care to avoid the tree hammocks and maintain a buffer from existing wetlands. This is expected to yield a 2 acre site.

The remaining volume of silt/muck will be placed in geobags and stacked on the Wolfe property until dry.

The geobags will then be ripped open and the material will be loaded into dump trucks or loaded in the geobags onto flatbed trucks and hauled to the City's former sludge farm located approximately 20 miles away from the project for final disposal.

Effluent water to be decanted via the GEOBAGS and then drained back into the creek.

Proposed Disposal Plan as per CESAJ-EN-DL worksheet as follows.

GEOBAG configuration plan indicates 1 X 15 - 600 cyd bags that are approximately 7 feet high by 27 feet wide when full of material.

Assumed dredge output of approximately 100 cyds/hour (Reach 1 and 2).

*** Revised Reach-1 (Main Estuary) @ -5.5 feet elevation + 0.5 Foot Tolerance:

45% Muck	= 49,950 cyds
55% Sand	= 61,050 cyds
Total	= 111,000 cyds

*** Revised Reach-2 (Upper Reach) @ -4.5 feet elevation + 0.5 Foot Tolerance:

25% Muck	= 21,575 cyds
75% Sand	= 64,725 cyds
Total	= 86,300 cyds

Assume for an 8 to 10 hour workday that the hydrocyclone (MDS) can process enough material to fill one GEOBAG per day.

GEOBAGS dry for approximately 2 weeks.

Water content 50% or approximately 300 cyds material (dry) per GEOBAG.

After the first two weeks one bag would be hauled away and one bag filled.

300 cyds hauled 21 miles to disposal site using 16 cyd hauler = 20 trips/day.

*** - Revised Final Project Scope of Work description for revised Final Plan Alternative as per CESAJ-EN-DL Email of 9 June 2003 as follows.

Overall:

1. Dredging Tolerance +/-6" (0.5 Foot)
2. Dredge access is as shown on attachment (city property on the south side of Stevenson Creek).
3. Material processing will be performed on the Wolf property.
4. Excess sand shall be hauled to the upland permanent disposal site (abandoned City of Clearwater sludge farm located in Hillsborough County).
5. Dredge should be able to pass under the Pinellas Trail Bridge.

REACH 1:

1. Project depth is -5.5' NGVD.
2. Dredge approximately 111,000 cy (-6.0' NGVD) of material.
3. Construct 1.5 acre mangrove shelf, as shown on attachment, using approximately 15,300 cy of reclaimed sand.
4. Construct 1.7 acre mangrove shelf, as shown on attachment, using approximately 16,500 cy of reclaimed sand.

REACH 2:

1. Project depth is -4.5' NGVD.
2. Dredge approximately 86,300 cy (-5.0' NGVD) of material.

Estimate Assumptions:

1. All costs including the dredging cost were computed in MCACES. CEDEP was not used because the smallest pipeline dredge contained in the equipment database is 12-inch. The final recommended plan will be based on an 8-inch pipeline dredge.
2. The dredging will be accomplished using a MUDCAT Model MC-915 8-inch Portable Pipeline Dredge. This small dredge is completely portable and can be transported by a single truck (semi with lowboy trailer). It can be unloaded by crane directly into the creek from the abandoned railroad bridge located at the eastern side of the dredging area or launched from adjacent shoreline via an existing boatramp.

This dredge has a shallow enough draft (approximately 2 feet) to work within the shallow depths of the project. It has a vertical clearance requirement of 30 feet with spuds and 10 feet without spuds, but could easily be relocated upstream of the railroad bridge using the mobilization crane if necessary. The dredge will use 8-inch polyethylene pipeline for the discharge line.
3. The production for the 8-inch pipeline dredge used in the estimate is 100 cubic yards per hour based on input received from small dredging contractors that have performed similar lake restoration work. The dredge will pump approximately 7,200 cubic yards of separated fine sediments into the GEOBAGS before stopping for the drying period of approximately 2-3 weeks. The dredge will be periodically idle on STANDBY during the initial drying period and occasionally during the remaining work period for delays associated with dredge material processing, temporary storage, and disposal/placement operations.
4. The dredged material will be separated utilizing a Material Density Separator (MDS) hydrocyclone system at the 2 acre dewatering site. The MDS process will separate the dredged material into coarser sand material with beneficial use from finer organic sediments/silts with no beneficial use that will require eventual removal to a permanent off-site disposal area.
5. The dewatering site (2 acre site known as the "Wolfe Property") will be cleared and graded prior to use. Also, a short retention berm, perimeter ditch, and drainage weir will be constructed to allow the decanted discharge water to return back to the creek.

6. The slurry output from the MDS containing the fine organic material and silt will be pumped into Geotextile Containers (GEOBAGS) for temporary containment and dewatering. Flocculent agent will be added to the discharge slurry to speed the drying process. Once the material has dried sufficiently in the GEOBAGS, it will be removed from the bags, loaded into 16.5-CYD highway haulers and transported to the abandoned City sludge farm for final disposal. The sludge farm is located approximately 21 miles one-way from the project. The estimate assumes no tipping or land-use fee is required for disposal at this site.

7. The coarser material (SAND) separated by the MDS will be used for filling the bridge holes and/or creating the mangrove shelf with the remainder being stockpiled on site for future beneficial use by the local project sponser. The material used to create the mangrove shelf will be placed by 12-CYD dumptrucks along the shoreline then spread and shaped by dozer and front end loaders.

8. The estimated cost for the exotic-invasive plant removal and revegetation (Mangroves) was previously provided by the local sponser via CESAJ-PD-PR for the PRP.

Estimate Parameters:

1. The dredging will be accomplished by a small business dredging contractor (AA). Assumed 8 percent field overhead, 4 percent home office, 8 percent profit, and 1 percent bonds on AA.
2. The dike construction work will be accomplished by subcontractor (DA). Assumed 8 percent field overhead, 4 percent home office, 8 percent profit, and 1 percent bonds on DA.
3. The material separation (MDS) and GEOBAGS work will be accomplished by subcontractor (MD). Assumed 5 percent field overhead, 5 percent home office, and 5 percent profit on MD.
4. Applied 25 percent for construction contingency in accordance with ER 1110-2-1302 for this level of project design. This would cover unknowns associated with the project such as actual dewatering times, disposal requirements, equipment limitations or availability, environmental/mitigation requirements, and other changes to the scope of the project which are currently undefined or unmeasurable.
5. Non-construction cost as previously indicated by CESAJ-PD-PF. Used 8 percent for Engineering and Design (E&D) and 10 percent for contract administration (S&A).
6. Real Estate/Lands and Damages cost are not currently available and are NOT included in the estimate.

*** - Revised Final Estimated Construction Times as follows.

Reach-1 (Main Estuary):

30 days mob/demob + 254 days construction time = 284 calendar days

Construction time broken down as follows:

194 dredging days (includes 27 days idle/standby time)

60 additional days for MDS processing, GEOBAG drying, material hauling, material disposal and/or placement. The balance of these operations will run concurrent with the dredging period above.

240 days truck haul disposal of processed material to final placement site (to run concurrently with the dredging and material processing operations).

Projected 8-Inch Dredge Production based on 10 hour days x 6 days/week:

111,000 cyds / 100 cyds/hr = 1,110 effective dredging hours
1,110 eff. hours / 6.67 eff. hours/day = 166 eff. days
6.67 eff. hrs/day x 100 cyds/hr x 6 workdays/week = 4,002 cyds/week
111,000 cyds / 4,002 cyds/week = 28 weeks dredging time or 196 days

First work period = 7,200 cyds/bag capacity / 100 cyds/hr = 72 eff. hours
72 eff. hours / 6.67 eff. hours/day = 11 eff. days
7,200 cyds / 4,002 cyds/week = 1.8 weeks dredging time or 13 days

Remaining work period = 111,000 - 7,200 cyds / 100 cyds/hr = 1,038 eff. hours / 6.67 eff. hrs/day = 156 eff. days
103,800 cyds / 4,002 cyds/week = 25.9 weeks dredging time or 181 days

Dredge Idle/Standby Time = 194 dredging days - 167 eff. days = 27 days

Hauling production as follows (assuming 1:1 bulking factor):

79,200 cyds dried material (muck/sand balance) / 16.5 cyds/haul = 4,800 loads
Haul cycle time = 42 miles RT / 35 average mph = 1.20 hours/load
4,800 loads / 4 trucks = 1,200 hauls x 1.20 hours/load = 1,440 hours
1,440 hours / 6 average hours/day = 240 days total hauling time
4,800 loads / 240 days hauling time = 20 loads/day

Reach-2 (Upper Reach):

2 days mob/demob + 262 days construction time = 264 calendar days

Construction time broken down as follows:

153 dredging days (includes 23 days idle/standby time)

20 additional days for MDS processing, GEOBAG drying, material hauling, material disposal and/or placement. The balance of these operations will run concurrent with the dredging period above.

262 days truck haul disposal of processed material to final placement site (to run concurrently with the dredging and material processing operations).

Projected 8-Inch Dredge Production based on 10 hour days x 6 days/week:

86,300 cyds / 100 cyds/hr = 863 effective dredging hours
863 eff. hours / 6.67 eff. hours/day = 129 eff. days
6.67 eff. hrs/day x 100 cyds/hr x 6 workdays/week = 4,002 cyds/week
86,300 cyds / 4,002 cyds/week = 21.6 weeks dredging time or 151 days

First work period = 3,150 cyds/bag capacity / 100 cyds/hr = 32 eff. hours
32 eff. hours / 6.67 eff. hours/day = 5 eff. days
3,150 cyds / 4,002 cyds/week = 0.8 weeks dredging time or 6 days

Remaining work period = 86,300 - 3,150 cyds / 100 cyds/hr = 832 eff. hours / 6.67 eff. hrs/day = 125 eff. days
83,150 cyds / 4,002 cyds/week = 21.0 weeks dredging time or 147 days

Dredge Idle/Standby Time = 153 dredging days - 130 eff. days = 23 days

Hauling production as follows (assuming 1:1 bulking factor):

86,300 cyds dried material (muck/sand) / 16.5 cyds/haul = 5,230 loads
Haul cycle time = 42 miles RT / 35 average mph = 1.20 hours/load
5,230 loads / 4 trucks = 1,308 hauls x 1.20 hours/load = 1,570 hours
1,570 hours / 6 average hours/day = 262 days total hauling time
5,230 loads / 262 days hauling time = 20 loads/day

*** Revised Total Construction Time = 284 days (Reach-1) + 264 days (Reach-2)
= 548 days

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PROJECT CLP304: Stevenson Creek - FY03 - Clearwater, Florida

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** PROJECT OWNER SUMMARY - Contract **

SUMMARY PAGE

	QUANTY UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNI
R1 Final Plan Reach-1(Main Estuary)		2,837,982	704,420	0	3,542,402	
R2 Final Plan Reach-2(Upper Reach)		2,137,332	534,333	0	2,671,665	
TOTAL Stevenson Creek - FY03		4,975,314	1,238,753	0	6,214,067	

LABOR ID: SARY2K EQUIP ID: REG03F

Currency in DOLLARS

CREW ID: NAT01A UPB ID: UP97EA

Tue 17 Jun 2003
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U.S. Army Corps of Engineers
PROJECT CLP304: Stevenson Creek - FY03 - Clearwater, Florida

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** PROJECT OWNER SUMMARY - Feature **

SUMMARY PAGE

	QUANTY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COS	

R1 Final Plan Reach-1(Main Estuary)							
R1_ A Construction Cost							
R1_ B Non-Construction Cost			2,405,069	596,192	0	3,001,262	
			432,912	108,228	0	541,141	
TOTAL Final Plan Reach-1(Main Estuary)			2,837,982	704,420	0	3,542,402	

R2 Final Plan Reach-2(Upper Reach)							
R2_ A Construction Cost							
R2_ B Non-Construction Cost			1,811,298	452,825	0	2,264,123	
			326,034	81,508	0	407,542	
TOTAL Final Plan Reach-2(Upper Reach)			2,137,332	534,333	0	2,671,665	

TOTAL Stevenson Creek - FY03			4,975,314	1,238,753	0	6,214,067	

LABOR ID: SARY2K

EQUIP ID: REG03F

Currency in DOLLARS

CREW ID: NAT01A

UPB ID: UP97EA

** PROJECT OWNER SUMMARY - Level 6 **

SUMMARY PAGE

	QUANTITY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNI
R1 Final Plan Reach-1(Main Estuary)							
R1_ A Construction Cost							
R1_ A.09 Channels and Canals							
R1_ A.09.01 Channels							
R1_ A.09.01_ 01 Mobil, Demobil & Prep Work							
R1_ A.09.01_ 01_ 01							
			42,873	10,718	0	53,591	
R1_ A.09.01_ 01_ 02			14,734	3,683	0	18,417	
R1_ A.09.01_ 01_ 03			69,458	17,364	0	86,822	
TOTAL Mobil, Demobil & Prep Work			127,064	31,766	0	158,830	
R1_ A.09.01_ 16 Pipeline Dredging							
R1_ A.09.01_ 16_ 01							
	111000	CY	345,968	86,492	0	432,460	3.90
TOTAL Pipeline Dredging			345,968	86,492	0	432,460	3.90
R1_ A.09.01_ 20 Disposal Areas (2 Acre Site)							
R1_ A.09.01_ 20_ 1							
	2.00	AC	2,210	552	0	2,762	1381.23
R1_ A.09.01_ 20_ 2							
	2.00	AC	67,897	13,579	0	81,477	40738
R1_ A.09.01_ 20_ 3							
	1000.00	LF	6,102	1,526	0	7,628	7.63
R1_ A.09.01_ 20_ 4							
			33,602	6,720	0	40,322	
TOTAL Disposal Areas (2 Acre Site)			109,812	22,378	0	132,190	
R1_ A.09.01_ 99 Associated General Items							
R1_ A.09.01_ 99_ 01							
			61,085	15,271	0	76,356	
R1_ A.09.01_ 99_ 02							
	111000	CY	22,388	5,597	0	27,985	0.25
R1_ A.09.01_ 99_ 03							
	111000	CY	330,422	82,606	0	413,028	3.72
R1_ A.09.01_ 99_ 04							
	49950	CY	289,117	72,279	0	361,396	7.24
R1_ A.09.01_ 99_ 05							
	49950	CY	617,572	154,393	0	771,965	15.45
R1_ A.09.01_ 99_ 06							
	29250	CY	761,641	90,410	0	852,052	15.45
R1_ A.09.01_ 99_ 07							
	31800	CY	53,053	13,263	0	66,317	2.09
R1_ A.09.01_ 99_ 08							
	31800	CY	10,521	2,630	0	13,151	0.41
R1_ A.09.01_ 99_ 09							
			50,000	12,500	0	62,500	
R1_ A.09.01_ 99_ 10							
	27.00	DAY	26,426	6,606	0	33,032	1223.42
TOTAL Associated General Items			1,822,225	455,556	0	2,277,782	

** PROJECT OWNER SUMMARY - Level 6 **

	QUANTY UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COS	II

TOTAL Channels		2,405,069	596,192	0	3,001,262	
TOTAL Channels and Canals		2,405,069	596,192	0	3,001,262	
TOTAL Construction Cost		2,405,069	596,192	0	3,001,262	

R1_B Non-Construction Cost						
R1_B.30 Planning, Engineering & Design		192,406	48,101	0	240,507	
R1_B.31 Construction Management (S&I)		240,507	60,127	0	300,634	
TOTAL Non-Construction Cost		432,912	108,228	0	541,141	
TOTAL Final Plan Reach-1(Main Estuary)		2,837,982	704,420	0	3,542,402	

R2 Final Plan Reach-2(Upper Reach)						
R2_A Construction Cost						
R2_A.09 Channels and Canals						
R2_A.09.01 Channels						
R2_A.09.01_01 Mobil, Demobil & Prep Work						
R2_A.09.01_01_01 Pipeline Dredge Mob/Demob & Prep		4,287	1,072	0	5,359	
TOTAL Mobil, Demobil & Prep Work		4,287	1,072	0	5,359	

R2_A.09.01_16 Pipeline Dredging						
R2_A.09.01_16_01 MUDCAT 8" PORT. PIPELINE DREDGE	86300 CY	268,982	67,246	0	336,228	3.90
TOTAL Pipeline Dredging	86300 CY	268,982	67,246	0	336,228	3.90

R2_A.09.01_99 Associated General Items						
R2_A.09.01_99_01 Turbidity Monitoring		48,868	12,217	0	61,085	
R2_A.09.01_99_02 Polymer Injection of Flocculants	86300 CY	18,170	4,543	0	22,713	0.26
R2_A.09.01_99_03 Dredge Material Separation (MDS)	86300 CY	256,604	64,151	0	320,755	3.72
R2_A.09.01_99_04 Place Silt/Mud into GEOTUBES	21575 CY	124,879	31,220	0	156,098	7.24
R2_A.09.01_99_05 Loading/Hauling MUCK to Disposal	21575 CY	266,749	66,687	0	333,436	15.45
R2_A.09.01_99_06 Loading/Hauling SAND to Disposal	64725 CY	800,247	200,062	0	1,000,309	15.45
R2_A.09.01_99_08 Dredge Standby (Idle) Time	23.00 DAY	22,511	5,628	0	28,139	1223.42
TOTAL Associated General Items		1,538,029	384,507	0	1,922,536	

** PROJECT OWNER SUMMARY - Level 6 **

	QUANTITY	UOM	CONTRACT	CONTINGEN	ESCALATN	TOTAL COST	UNIT
TOTAL Channels			1,811,298	452,825	0	2,264,123	
TOTAL Channels and Canals			1,811,298	452,825	0	2,264,123	
TOTAL Construction Cost			1,811,298	452,825	0	2,264,123	
R2_ B Non-Construction Cost							
R2_ B.30 Planning, Engineering & Design			144,904	36,226	0	181,130	
R2_ B.31 Construction Management (S&I)			181,130	45,282	0	226,412	
TOTAL Non-Construction Cost			326,034	81,508	0	407,542	
TOTAL Final Plan Reach-2(Upper Reach)			2,137,332	534,333	0	2,671,665	
TOTAL Stevenson Creek - FY03			4,975,314	1,238,753	0	6,214,067	

Tue 17 Jun 2003

Eff. Date 10/01/02

ERROR REPORT

U.S. Army Corps of Engineers

PROJECT CLP304: Stevenson Creek - FY03 - Clearwater, Florida

TIME 11:44:3

ERROR PAGE

No errors detected...

* * * END OF ERROR REPORT * * *

LABOR ID: SARY2K EQUIP ID: REG03F

Currency in DOLLARS

CREW ID: NAT01A UPB ID: UP97EA

TABLE A-1

Stevenson Creek - FY03
Clearwater, Florida
Section 206 Aquatic
Ecosystem Restoration Plan
Final Dredging/Disposal Plan

Designed By: Jacksonville District
Estimated By: CESAJ-EN-C

Prepared By: B. Blake

Preparation Date: 01/16/03
Effective Date of Pricing: 10/01/02
Est Construction Time: 320 Days

Sales Tax: 7.30%

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MCACES GOLD EDITION

Release 5.30A

Planning Estimate for Feasibility Study, including profit and contingency.

Stevenson Creek, Section 206 Aquatic Ecosystem Restoration, Final Plan

References:

1. CESAJ-EN-DL Email of 19 August 2002 requesting cost estimate for proposed recommended dredging and disposal plan. A plan worksheet indicating a proposed disposal operation using MDS and GEOBAGS with offsite hauling of muck to the final disposal location was provided by CESAJ-EN-DL on 20 August 2002.

* - CESAJ-EN-DL Email of 14 January 2003 requesting the addition of a second Reach (2 - Upper Reach) with the existing Reach (1 - Main Estuary) for the Final Plan. The Email included the total dredging quantity and percentages of material types to be used in the estimate for Reach 2, according to CESAJ-EN-G/A. Rezaie.

2. Draft Section 206 Project Fact Sheet from CESAJ-PD-PF dated 19 August 2002, which includes a description of the project and proposed restoration plan as follows.

Plan: The purpose of the project is to restore the bottom substrate for fisheries and wildlife by removing the muck and creating a ledge to support an expansion of an existing mangrove stand. Locating both a temporary dewatering/staging site and a permanent disposal site for the anticipated 38,400 cubic yards of muck has been difficult and delayed completion of the study. The surrounding watershed is highly urbanized. The only available property on (or anywhere near) the creek is a very small 4 acre parcel already purchased by the city, half of which is considered unique wetlands. While DEP has acknowledged that the remaining uplands is largely undesirable fauna there is a tree hammock on the property that they desire remain. This has reduced the site to less than 2 acres. The formerly proposed junkyard site while ideal for this work is not useable due to contamination issues.

To reduce the disposal problem, a hydrocyclone will be used to separate the desirable sand from the muck. The muck will be pumped into geobags for dewatering. The bags will take 2-3 weeks to dry and due to limited site availability only 4,400 cubic yards can be stacked on site until dry. This will take 7 to 10 workdays after which the dredge will be shut down until the bags are dry (2-3 weeks). Then the bags will be loaded onto dump trucks and hauled to the closest available site found. The site is a city-owned property located in a neighboring county (Hillsborough) which had previously been used as a sludge disposal farm. The site is located 21 miles from the creek. The dredge will be very small (8") due to the very shallow character of the creek. Admittedly, an inefficient operation this is the best available alternative. Total work should take 6 to 9 months for completion.

Early results of the hydrodynamic modeling suggest meaningful trends towards improvements with bridge modifications however it does not appear to justify the costs. Sponsor does not want to modify bridges at this time.

* - Final Dredging/Disposal Plan for Report.

Reach-1 (Main Estuary) - Hydraulically dredge 80,000 cubic yards.

*Reach-2 (Upper Reach) - Hydraulically dredge 35,000 cubic yards.

Use hydrocyclone (MDS) to separate the sand from the dredged material which is to be placed within the deep holes at bridges and used to create a "shelf" near the North Ft. Harrison Avenue bridge which would be planted with mangroves.

Cut/fill the Wolfe property taking care to avoid the tree hammocks and maintain a buffer from existing wetlands. This is expected to yield a 2 acre site.

The remaining volume of silt/muck will be placed in geobags and stacked on the Wolfe property until dry.

The geobags will then be ripped open and the material will be loaded into dump trucks or loaded in the geobags onto flatbed trucks and hauled to the City's former sludge farm located approximately 20 miles away from the project for final disposal.

Effluent water to be decanted via the GEOBAGS and then drained back into the creek.

Proposed Disposal Plan as per CESAJ-EN-DL worksheet as follows.

GEOBAG configuration plan indicates 1 X 15 - 600 cyd bags that are approximately 7 feet high by 27 feet wide when full of material.

Assume dredge output of approximately 100 cyds/hour (Reach 1).

* Assumed dredge output of 95 cyds/hour for Reach 2.

Reach-1 (Main Estuary):

58% Muck = 46,000 cyds
42% Sand = 34,000 cyds
Total = 80,000 cyds

*Reach-2 (Upper Reach):

30% Muck = 10,500 cyds
70% Sand = 24,500 cyds
Total = 35,000 cyds

Assume for an 8 to 10 hour workday that the hydrocyclone (MDS) can process enough material to fill one GEOBAG per day.

GEOBAGS dry for approximately 2 weeks.

Water content 50% or approximately 300 cyds material (dry) per GEOBAG.

After the first two weeks one bag would be hauled away and one bag filled.

300 cyds hauled 21 miles to disposal site using 16 cyd hauler = 20 trips/day.

Estimate Assumptions:

1. All costs including the dredging cost were computed in MCACES. CEDEP was not used because the smallest pipeline dredge contained in the equipment database is 12-inch. The final recommended plan will be based on an 8-inch pipeline dredge.

2. The dredging will be accomplished using a MUDCAT Model MC-915 8-inch Portable Pipeline Dredge. This small dredge is completely portable and can be transported by a single truck (semi with lowboy trailer). It can be unloaded by crane directly into the creek from the abandoned railroad bridge located at the eastern side of the dredging area or launched from adjacent shoreline via an existing boatramp.

This dredge has a shallow enough draft (approximately 2 feet) to work within the shallow depths of the project. It has a vertical clearance requirement of 30 feet with spuds and 10 feet without spuds, but could easily be relocated upstream of the railroad bridge using the mobilization crane if necessary. The dredge will use 8-inch polyethylene pipeline for the discharge line.

3. The production for the 8-inch pipeline dredge used in the estimate is 100 cubic yards per hour based on input received from small dredging contractors that have performed similar lake restoration work. The dredge will pump approximately 7,200 cubic yards of separated fine sediments into the GEOBAGS before stopping for the drying period of approximately 2-3 weeks. The dredge will be periodically idle on STANDBY during the initial drying period and occasionally during the remaining work period for delays associated with dredge material processing, temporary storage, and disposal/placement operations.

* - Used 95 cubic yards per hour for Reach-2 (Upper Reach) due to longer pumping distance than Reach-1 (Main Estuary).

4. The dredged material will be separated utilizing a Material Density Separator (MDS) hydrocyclone system at the 2 acre dewatering site. The MDS process will separate the dredged material into coarser sand material with beneficial use from finer organic sediments/silts with no beneficial use that will require eventual removal to a permanent off-site disposal area.

5. The dewatering site (2 acre site known as the "Wolfe Property") will be cleared and graded prior to use. Also, a short retention berm, perimeter ditch, and drainage weir will be constructed to allow the decanted discharge water to return back to the creek.

6. The slurry output from the MDS containing the fine organic material and silt will be pumped into Geotextile Containers (GEOBAGS) for temporary containment and dewatering. Flocculent agent will be added to the discharge slurry to speed the drying process. Once the material has dried sufficiently in the GEOBAGS, it will be removed from the bags, loaded into 16.5-CYD highway haulers and transported to the abandoned City sludge farm for final disposal. The sludge farm is located approximately 21 miles one-way from the project. The estimate assumes no tipping or land-use fee is required for disposal at this site.

7. The coarser material (SAND) separated by the MDS will be used for filling the bridge holes and/or creating the mangrove shelf with the remainder being stockpiled on site for future beneficial use by the local project sponsor. The material used to create the mangrove shelf will be placed by 12-CYD dumptrucks along the shoreline then spread and shaped by dozer and front end loaders. The material for filling the holes at the bridges will be placed using a large bucket crane from a nearby stockpile of material delivered by the 12-CYD dumptrucks. The bucket crane will place the material from either the adjacent shoreline, top of bridge/abutment, or from a barge-platform.

8. The estimated cost for the exotic-invasive plant removal and revegetation (Mangroves) was previously provided by the local sponsor via CESAJ-PD-PR for the PRP.

Estimate Parameters:

1. The dredging will be accomplished by a small business dredging contractor (AA). Assumed 8 percent field overhead, 4 percent home office, 8 percent profit, and 1 percent bonds on AA.
2. The dike construction work will be accomplished by subcontractor (DA). Assumed 8 percent field overhead, 4 percent home office, 8 percent profit, and 1 percent bonds on DA.
3. The material separation (MDS) and GEOBAGS work will be accomplished by subcontractor (MD). Assumed 5 percent field overhead, 5 percent home office, and 5 percent profit on MD.
4. Applied 25 percent for construction contingency in accordance with ER 1110-2-1302 for this level of project design. This would cover unknowns associated with the project such as actual dewatering times, disposal requirements, equipment limitations or availability, environmental/mitigation requirements, and other changes to the scope of the project which are currently undefined or unmeasurable.
5. Non-construction cost as previously indicated by CESAJ-EN-HH. Used 8 percent for Engineering and Design (E&D) and 10 percent for contract administration (S&A).
6. Real Estate/Lands and Damages cost are not currently available and are NOT included in the estimate.

* - Final Estimated Construction Times as follows.

Reach-1 (Main Estuary):

30 days mob/demob + 200 days construction time = 230 calendar days

Construction time broken down as follows:

140 dredging days (includes 20 days idle/standby time)**

60 additional days for MDS processing, GEOBAG drying, material hauling, material disposal and/or placement. The balance of these operations will run concurrent with the dredging period above.

Projected 8-Inch Dredge Production based on 10 hour days x 6 days/week:

80,000 cyds / 100 cyds/hr = 800 effective dredging hours

800 eff. hours / 6.67 eff. hours/day = 120 eff. days

6.67 eff. hrs/day x 100 cyds/hr x 6 workdays/week = 4,002 cyds/week

80,000 cyds / 4,002 cyds/week = 20 weeks dredging time or 140 days

First work period = 7,200 cyds/bag capacity / 100 cyds/hr = 72 eff. hours

72 eff. hours / 6.67 eff. hours/day = 11 eff. days

7,200 cyds / 4,002 cyds/week = 1.8 weeks dredging time or 13 days

Remaining work period = 80,000 - 7,200 cyds / 100 cyds/hr = 728 eff.

hours / 6.67 eff. hrs/day = 109 eff. days

72,800 cyds / 4,002 cyds/week = 18.2 weeks dredging time or 127 days

**Dredge Idle/Standby Time = 140 dredging days - 120 eff. days = 20 days

Hauling production as follows (assuming 1:1 bulking factor):

46,000 cyds dried muck / 16.5 cyds/haul = 2,788 loads

Haul cycle time = 42 miles RT / 35 average mph = 1.20 hours/load

2,788 loads / 4 trucks = 697 hauls x 1.20 hours/load = 836 hours

836 hours / 6 average hours/day = 139 days total hauling time

2,788 loads / 139 days hauling time = 20 loads/day

Reach-2 (Upper Reach):

2 days mob/demob + 88 days construction time = 90 calendar days

Construction time broken down as follows:

65 dredging days (includes 5 days idle/standby time)**

23 additional days for MDS processing, GEOBAG drying, material hauling, material disposal and/or placement. The balance of these operations will run concurrent with the dredging period above.

Reach-2 (continued):

Projected 8-Inch Dredge Production based on 10 hour days x 6 days/week:

35,000 cyds / 95 cyds/hr = 368 effective dredging hours

368 eff. hours / 6.67 eff. hours/day = 55 eff. days

6.67 eff. hrs/day x 95 cyds/hr x 6 workdays/week = 3,802 cyds/week

35,000 cyds / 3,802 cyds/week = 5 weeks dredging time or 140 days

First work period = 3,150 cyds/bag capacity / 95 cyds/hr = 33 eff. hours

33 eff. hours / 6.67 eff. hours/day = 5 eff. days

3,150 cyds / 3,802 cyds/week = 0.8 weeks dredging time or 6 days

Remaining work period = 35,000 - 3,150 cyds / 95 cyds/hr = 335 eff.

hours / 6.67 eff. hrs/day = 50 eff. days

31,850 cyds / 3,802 cyds/week = 10.1 weeks dredging time or 71 days

**Dredge Idle/Standby Time = 65 dredging days - 55 eff. days = 5 days

Hauling production as follows (assuming 1:1 bulking factor):

24,500 cyds dried muck / 16.5 cyds/haul = 1,485 loads

Haul cycle time = 42 miles RT / 35 average mph = 1.20 hours/load

1,485 loads / 4 trucks = 372 hauls x 1.20 hours/load = 446 hours

446 hours / 6 average hours/day = 74 days total hauling time

1,485 loads / 74 days hauling time = 20 loads/day

Total Construction Time = 230 days (Reach-1) + 90 days (Reach-2) = 320 days

Thu 16 Jan 2003

U.S. Army Corps of Engineers

TIME 15:24:26

RF# date 10/01/02

PROJECT CLP361 Stevenson Creek - FY03 - Clearwater Florida

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PROJECT CLP301: Stevenson Creek - FY03 - Clearwater, Florida

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	QUANTY UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT
R1 Final Plan Reach-1(Main Estuary)		2,281,581	564,598	0	2,846,179	
R2 Final Plan Reach-2(Upper Reach)		701,260	175,315	0	876,575	
TOTAL Stevenson Creek - FY03		2,982,841	739,913	0	3,722,754	

Thu 16 Jan 2003

U.S. Army Corps of Engineers

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PROJECT CLP301: Stevenson Creek - FY03 - Clearwater, Florida

	QUANTY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT
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R1 Final Plan Reach-1(Main Estuary)

R1_A Construction Cost

1,933,543 477,588 0 2,411,131

R1_B Non-Construction Cost

348,038 87,009 0 435,047

TOTAL Final Plan Reach-1(Main Estuary)

2,281,581 564,598 0 2,846,179

R2 Final Plan Reach-2(Upper Reach)

R2_A Construction Cost

594,288 148,572 0 742,860

R2_B Non-Construction Cost

106,972 26,743 0 133,715

TOTAL Final Plan Reach-2(Upper Reach)

701,260 175,315 0 876,575

TOTAL Stevenson Creek - FY03

2,982,841 739,913 0 3,722,754

		QUANTITY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT	
R1 Final Plan Reach-1(Main Estuary)									
R1_ A Construction Cost									
R1_ A.09 Channels and Canals									
R1_ A.09.01 Channels									
R1_ A.09.01_ 01 Mobil, Demobil & Prep Work									
R1_ A.09.01_ 01_ 01	Pipeline Dredge Mob/Demob & Prep			48,840	12,210	0	61,050		
R1_ A.09.01_ 01_ 02	Disposal Area Mob/Demob & Prep			16,227	4,057	0	20,284		
R1_ A.09.01_ 01_ 03	MDS Mob/Demob & Prep work			69,458	17,364	0	86,822		
TOTAL Mobil, Demobil & Prep Work				134,525	33,631	0	168,156		
R1_ A.09.01_ 16 Pipeline Dredging									
R1_ A.09.01_ 16_ 01	MUDCAT 8" PORT. PIPELINE DREDGE	80000	CY	271,433	67,858	0	339,291		
TOTAL Pipeline Dredging				80000	CY	271,433	67,858	0	339,291 4.24
R1_ A.09.01_ 20 Disposal Areas (2 Acre Site)									
R1_ A.09.01_ 20_ 1	Clearing & Grubbing	2.00	AC	2,697	674	0	3,372	1685.92	
R1_ A.09.01_ 20_ 2	Grading and Berm Construction	2.00	AC	82,348	16,470	0	98,818	49409	
R1_ A.09.01_ 20_ 3	Drainage Ditch to Creek	1000.00	LF	6,529	1,632	0	8,161	8.16	
R1_ A.09.01_ 20_ 4	Drainage Weir to Creek			33,602	6,720	0	40,322		
TOTAL Disposal Areas (2 Acre Site)				125,176	25,497	0	150,673		
R1_ A.09.01_ 99 Associated General Items									
R1_ A.09.01_ 99_ 01	Turbidity Monitoring			48,868	12,217	0	61,085		
R1_ A.09.01_ 99_ 02	Polymer Injection of Flocculants	80000	CY	17,656	4,414	0	22,070	0.28	
R1_ A.09.01_ 99_ 03	Dredge Material Separation (MDS)	80000	CY	281,210	70,303	0	351,513	4.39	
R1_ A.09.01_ 99_ 04	Place Silt/Mud into GEOTUBES	46000	CY	266,254	66,563	0	332,817	7.24	
R1_ A.09.01_ 99_ 05	Loading/Hauling MUCK to Disposal	46000	CY	628,676	157,169	0	785,845	17.08	
R1_ A.09.01_ 99_ 06	Loading/Hauling SAND to Place	34000	CY	66,161	16,540	0	82,701	2.43	
R1_ A.09.01_ 99_ 07	SAND Placement Spreading/Shaping	34000	CY	22,875	5,719	0	28,594	0.84	
R1_ A.09.01_ 99_ 08	Exotic Plant Revegetation			50,000	12,500	0	62,500		
R1_ A.09.01_ 99_ 09	Dredge Standby (Idle) Time	20.00	DAY	20,709	5,177	0	25,886	129	
TOTAL Associated General Items				1,402,409	350,602	0	1,753,012		
TOTAL Channels				1,933,543	477,588	0	2,411,131		

	QUANTY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT
TOTAL Channels and Canals			1,933,543	477,588	0	2,411,131	
TOTAL Construction Cost			1,933,543	477,588	0	2,411,131	
R1_B Non-Construction Cost							
R1_B.30 Planning, Engineering & Design			154,683	38,671	0	193,354	
R1_B.31 Construction Management (S&I)			193,354	48,339	0	241,693	
TOTAL Non-Construction Cost			348,038	87,009	0	435,047	
TOTAL Final Plan Reach-1(Main Estuary)			2,281,581	564,598	0	2,846,179	
R2 Final Plan Reach-2(Upper Reach)							
R2_A Construction Cost							
R2_A.09 Channels and Canals							
R2_A.09.01 Channels							
R2_A.09.01_01 Mobil, Demobil & Prep Work							
R2_A.09.01_01_01 Pipeline Dredge Mob/Demob & Prep			4,884	1,221	0	6,105	
TOTAL Mobil, Demobil & Prep Work			4,884	1,221	0	6,105	
R2_A.09.01_16 Pipeline Dredging							
R2_A.09.01_16_01 MUDCAT 8" PORT. PIPELINE DREDGE	35000	CY	125,002	31,250	0	156,252	4.46
TOTAL Pipeline Dredging	35000	CY	125,002	31,250	0	156,252	4.46
R2_A.09.01_99 Associated General Items							
R2_A.09.01_99_01 Turbidity Monitoring			26,144	6,536	0	32,680	
R2_A.09.01_99_02 Polymer Injection of Flocculants	35000	CY	7,805	1,951	0	9,757	0.28
R2_A.09.01_99_03 Dredge Material Separation (MDS)	35000	CY	150,447	37,612	0	188,059	5.37
R2_A.09.01_99_04 Place Silt/Mud into GEOTUBES	10500	CY	60,775	15,194	0	75,969	7.24
R2_A.09.01_99_05 Loading/Hauling MUCK to Disposal	10500	CY	143,502	35,876	0	179,378	17.08
R2_A.09.01_99_06 Loading/Hauling SAND to Place	24500	CY	47,675	11,919	0	59,594	2.43
R2_A.09.01_99_07 SAND Placement Spreading/Shaping	24500	CY	22,875	5,719	0	28,594	1.17
R2_A.09.01_99_08 Dredge Standby (Idle) Time	5.00	DAY	5,177	1,294	0	6,472	1.294 32
TOTAL Associated General Items			464,402	116,101	0	580,503	

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PROJECT CLP301: Stevenson Creek - FY03 - Clearwater, Florida

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STEVENSON CREEK - UPPER REACH

	QUANTY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT
TOTAL Channels			594,288	148,572	0	742,860	
TOTAL Channels and Canals			594,288	148,572	0	742,860	
TOTAL Construction Cost			594,288	148,572	0	742,860	
R2_ B Non-Construction Cost							
R2_ B.30 Planning, Engineering & Design			47,543	11,886	0	59,429	
R2_ B.31 Construction Management (S&I)			59,429	14,857	0	74,286	
TOTAL Non-Construction Cost			106,972	26,743	0	133,715	
TOTAL Final Plan Reach-2(Upper Reach)			701,260	175,315	0	876,575	
TOTAL Stevenson Creek - FY03			2,982,841	739,913	0	3,722,754	

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PROJECT CLP301: Stevenson Creek - FY03 - Clearwater, Florida

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No errors detected...

* * * END OF ERROR REPORT * * *

ATTACHMENT A

GEOTECHNICAL
(Core Boring Logs and Gradation Curves)

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District		SHEET 1 OF 1 SHEETS	
1. PROJECT Stevenson Creek				10. SIZE AND TYPE OF BIT See Remarks			
2. LOCATION COORDINATES X = 243,399 Y = 1,320,553				11. COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. FL)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps Of Engineers				12. MANUFACTURER'S DESIGNATION OF DRILL Acker on Tripod (barge-mounted)			
4. BORING DESIGNATION CB-SC02-001				13. TOTAL SAMPLES		DISTURBED 5	
5. NAME OF DRILLER Larry Woolers				14. TOTAL NUMBER CORE BOXES 1		UNDISTURBED (UD) 0	
6. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		16. DATE BORING STARTED 04-10-02	
7. THICKNESS OF OVERBURDEN 0.0 Ft.		17. ELEVATION GROUND WATER N/A		17. ELEVATION TOP OF BORING -0.6 Ft.		COMPLETED 04-10-02	
8. DEPTH DRILLED INTO ROCK 0.0 Ft.		18. TOTAL RECOVERY FOR BORING 41 %		19. SIGNATURE AND TITLE OF INSPECTOR Julie Minton, Geologist			
9. TOTAL DEPTH OF BORING 7.5 Ft.							

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE		
-0.6	0.0						-0.6				
		[Clay Pattern]	CLAY, organic-L, medium plasticity, few sand, trace shell, strong reaction with HCl, wet, strong organic odor, dark brown (OL)	20	1 D-1		SPT Sampler	WOR	0		
									WOR		
									WOR		
						20	2 D-2		SPT Sampler	WOR	0
									WOR		
									WOR		
-5.1	4.5			53	3 D-2		SPT Sampler	WOR	0		
		[Sand Pattern]	SAND, poorly-graded, mostly fine to medium-grained quartz, trace silt, trace shell, weak reaction with HCl, wet, light brown (SP)	40	4 D-3		SPT Sampler	WOR	5		
									WOH	0	
									WOH		
				73	5 D-3		SPT Sampler	WOH	0		
-8.1	7.5						-8.1				
NOTES:			1. Soils are field visually classified in accordance with the Unified Soils Classification System.			140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).					
						Abbreviations: WOR = Weight of Rods. WOH = Weight of Hammer.					

ATTACHMENT A

GEOTECHNICAL
(Core Boring Logs and Gradation Curves)

**STEVENSON CREEK - REACH 1
WASH PROBE COORDINATES / DATA**

PROBE	X	Y	Water Elev.	Muck Elev.	Water to Sand Depth	Water to Sand Elev.	Muck Thickness	Water Depth
WP-SC02-001	243300	1329700	2.1	-0.6	5	-2.9	2.3	2.7
WP-SC02-002	243300	1329600	2.1	-2	7.4	-5.3	3.3	4.1
WP-SC02-003	243300	1329500	2.1	-1.8	8.9	-6.8	5	3.9
WP-SC02-004	243500	1329700	2	-1.3	7.1	-5.1	3.8	3.3
WP-SC02-005	243500	1329600	2.1	-1	8.9	-6.8	5.8	3.1
WP-SC02-006	243500	1329500		-0.7	7.7	-6.1	5.4	2.3
WP-SC02-007	243500	1329400	1.6	-0.5	7	-5.4	4.9	2.1
WP-SC02-008	243500	1329300	2.2	-0.5	7.5	-5.3	4.8	2.7
WP-SC02-009	243500	1329200	2.2	-0.4	8.1	-5.9	5.5	2.6
WP-SC02-010	243700	1329700	1.9	-2.2	9.5	-7.6	5.4	4.1
WP-SC02-011	243700	1329600	2	-0.2	7.3	-5.3	5.1	2.2
WP-SC02-012	243700	1329500	2	-0.4	6.4	-4.4	4	2.4
WP-SC02-013	243700	1329400	2.4	-0.4	7	-4.6	4.2	2.8
WP-SC02-014	243700	1329300	2.2	0	6.4	-4.2	4.2	2.2
WP-SC02-015	243700	1329200	2.2	0.1	6	-3.8	3.9	2.1
WP-SC02-016	243900	1329600	1.9	-1.2	6.7	-4.8	3.6	3.1
WP-SC02-017	243900	1329500	1.7	-0.6	6.5	-4.8	4.2	2.3
WP-SC02-018	243900	1329400	1.9	-0.6	7	-5.1	4.5	2.5
WP-SC02-019	243900	1329300	2.3	-0.6	6.8	-4.5	3.9	2.9
WP-SC02-020	243900	1329200	1.9	-0.9	8.5	-6.6	5.7	2.8
WP-SC02-021	244100	1329500	1.9	-2.1	6.5	-4.6	2.5	4
WP-SC02-022	244100	1329400	1.7	-0.7	6.3	-4.6	3.9	2.4
WP-SC02-023	244100	1329300	1.8	-0.6	5.9	-4.1	3.5	2.4
WP-SC02-024	244100	1329200	2.1	-0.4	5.1	-3	2.6	2.5
WP-SC02-025	244100	1329100	1.8	-0.8	3.6	-1.8	1	2.6

**STEVENSON CREEK - REACH 1
CORE BORING DATA**

Stevenson Creek Project Core Boring Number	Muck Depth	% Sand	% Organic	%MC	Gs
CB-SC02-001	1.5	72	10	115	2.67
CB-SC02-002	3	27	17	230	
CB-SC02-003	3	23	20	277	
CB-SC02-004	1.5	52	9	148	
CB-SC02-005	4.5	40	18	191	2.67
CB-SC02-006	4.5	31	12	223	2.66
CB-SC02-007	1.5	62	9	135	
CB-SC02-008	1.5	50	13	165	2.68
CB-SC02-009	1.5	72	3	93	
CB-SC02-010	1.5	52	12	174	
CB-SC02-011	0	90	2	43	
55 Gallon Sample		11	21	340	
MC - Moisture Content SG - Specific Gravity					

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 1 SHEETS	
1. PROJECT Stevenson Creek				16. SIZE AND TYPE OF BIT See Remarks				
2. LOCATION COORDINATES X = 243,485 Y = 1,329,303				17. COORDINATE SYSTEM/DATUM		HORIZONTAL		VERTICAL
3. DRILLING AGENCY Corps Of Engineers				State Plane, FLW (U.S. Ft.)		NAD83		NGVD29
4. BORING DESIGNATION CB-SC02-002				12. MANUFACTURER'S DESIGNATION OF DRILL Acker on Tripod (barge-mounted)				
5. NAME OF DRILLER Larry Wooters				13. TOTAL SAMPLES		DISTURBED		UNDISTURBED (UD)
6. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG. FROM VERTICAL		BEARING		
7. THICKNESS OF OVERBURDEN 0.0 Ft.				14. TOTAL NUMBER CORE BOXES 1		15. ELEVATION GROUND WATER N/A		
8. DEPTH DRILLED INTO ROCK 0.0 Ft.				16. DATE BORING		STARTED		COMPLETED
9. TOTAL DEPTH OF BORING 6.0 Ft.				17. ELEVATION TOP OF BORING -1.0 Ft.		18. TOTAL RECOVERY FOR BORING 40 %		19. SIGNATURE AND TITLE OF INSPECTOR Julie Minton, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
-1.0	0.0		CLAY, organic-L, medium plasticity, few sand, trace shell, strong reaction with HCl, wet, strong organic odor, dark brown (OL)	27	1 D-1		-1.0	WOR	0
				40	2 D-1		-2.5	WOR	
-4.0	3.0		SAND, poorly-graded, mostly fine-grained quartz, trace silt, trace shell, weak reaction with HCl, wet, light brown (SP)	33	3 D-2		-4.0	WOR	0
				60	4 D-2		-5.5	WOR	
-7.0	6.0						-7.0	WOR	4
NOTES:			1. Soils are field visually classified in accordance with the Unified Soils Classification System.		140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.). Abbreviations: WOR = Weight of Rods. WOH = Weight of Hammer.				

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District		SHEET 1 OF 1 SHEETS	
1. PROJECT Stevenson Creek				10. SIZE AND TYPE OF BIT See Remarks			
2. LOCATION COORDINATES X = 243,503 Y = 1,311,475				11. COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. FLS) NAD83		HORIZONTAL VERTICAL NCMD29	
3. DRILLING AGENCY Corps Of Engineers				12. MANUFACTURER'S DESIGNATION OF DRILL Acker on Tripod (barge-mounted)			
4. BORING DESIGNATION CB-SC-02-003				13. TOTAL SAMPLES		DISTURBED 5 UNDISTURBED (UD) 0	
5. NAME OF DRILLER Larry Wooters				14. TOTAL NUMBER CORE BOXES 1			
6. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG. FROM VERTICAL		BEARING	
7. THICKNESS OF OVERBURDEN 0.0 Ft.				16. DATE BORING		STARTED 04-09-02 COMPLETED 04-09-02	
8. DEPTH DRILLED INTO ROCK 0.0 Ft.				17. ELEVATION GROUND WATER N/A			
9. TOTAL DEPTH OF BORING 7.5 Ft.				18. ELEVATION TOP OF BORING -0.9 Ft.			
				19. SIGNATURE AND TITLE OF INSPECTOR Julie Minton, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
-0.9	0.0	[Vertical Hatching]	CLAY, organic-L, medium plasticity, few sand, trace shell, strong reaction with HCl, wet, strong organic odor, dark brown (OL)	20	1 D-1		-0.9	WOR	0
							SPT Sampler	WOR	
		[Vertical Hatching]		33	2 D-2		-2.4	WOR	0
							SPT Sampler	WOR	
-3.9	3.0	[Diagonal Hatching]	SAND, clayey, mostly fine to medium-grained quartz, little clay, trace shell, weak reaction with HCl, wet, light brown (SC)	93	3 D-3		-3.9	WOR	0
							SPT Sampler	WOR	
		[Diagonal Hatching]		73	4 D-3		-5.4	WOR	6
							SPT Sampler	3	
		[Diagonal Hatching]		73	5 D-3		-6.9	2	6
							SPT Sampler	3	
-8.4	7.5						-8.4	3	
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.). Abbreviations: WOR = Weight of Rods. WOH = Weight of Hammer.		

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 1 SHEETS		
1. PROJECT Stevenson Creek				10. SIZE AND TYPE OF BIT See Remarks					
2. LOCATION COORDINATES X = 240,598 Y = 1029,583				11. COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL NGVD29		
3. DRILLING AGENCY Corps Of Engineers				12. MANUFACTURER'S DESIGNATION OF DRILL Acker on Tripod (barge-mounted)					
4. BORING DESIGNATION CB-SC02-004				13. TOTAL SAMPLES		DISTURBED 5	UNDISTURBED (UD) 0		
5. NAME OF DRILLER Larry Wooters				14. TOTAL NUMBER CORE BOXES 1					
6. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG. FROM VERTICAL		BEARING		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 0.0 Ft.				16. DATE BORING		STARTED 04-09-02		COMPLETED 04-09-02	
8. DEPTH DRILLED INTO ROCK 0.0 Ft.				17. ELEVATION TOP OF BORING -0.9 Ft.					
9. TOTAL DEPTH OF BORING 7.5 Ft.				18. TOTAL RECOVERY FOR BORING 63 %					
				19. SIGNATURE AND TITLE OF INSPECTOR Julie Minton, Geologist					

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE	
-0.9	0.0		CLAY, organic-L, medium plasticity, few sand, trace shell, strong reaction with HCl, wet, strong organic odor, dark brown (OL)	40	1 D-1		-0.9	WOR	0	
								SPT Sampler		WOR
										WOR
					53	2 D-2		-2.4	WOR	0
									SPT Sampler	
								WOR		
				40	3 D-2		-3.9	WOR	0	
								SPT Sampler		
								WOR		
-5.9	5.0		SAND, poorly-graded with silt, mostly fine to medium-grained quartz, few silt, trace shell, weak reaction with HCl, wet, light brown (SP-SM)	100	4 D-2		-5.4	WOH	4	
								SPT Sampler		1
										3
				80	5 D-3		-6.9	2	4	
								SPT Sampler		
								2		
-8.4	7.5						-8.4	2		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.). Abbreviations: WOR = Weight of Rods. WOH = Weight of Hammer.			

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District		SHEET 1 OF 1 SHEETS	
1. PROJECT Stevenson Creek				10. SIZE AND TYPE OF BIT See Remarks			
2. LOCATION COORDINATES X = 243,602 Y = 1,325,341				11. COORDINATE SYSTEM/DATUM HORIZONTAL: State Plane, FLW (U.S. Ft.) VERTICAL: NAD83 NGVD29		12. MANUFACTURER'S DESIGNATION OF DRILL Acker on Tripod (large-mounted)	
3. DRILLING AGENCY Corps Of Engineers				13. TOTAL SAMPLES DISTURBED: 5 UNDISTURBED (UD): 0		14. TOTAL NUMBER CORE BOXES 1	
4. BORING DESIGNATION CB-SC02-005				15. ELEVATION GROUND WATER N/A			
5. NAME OF DRILLER Larry Wooters				16. DATE BORING STARTED: 04-09-02 COMPLETED: 04-09-02		17. ELEVATION TOP OF BORING -0.7 Ft.	
6. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		18. TOTAL RECOVERY FOR BORING 52 %	
7. THICKNESS OF OVERBURDEN 0.0 Ft.				19. SIGNATURE AND TITLE OF INSPECTOR Julie Minton, Geologist			
8. DEPTH DRILLED INTO ROCK 0.0 Ft.							
9. TOTAL DEPTH OF BORING 7.5 Ft.							

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
-0.7	0.0						-0.7		
			CLAY, organic-L, medium plasticity, few sand, trace shell, strong reaction with HCl, strong organic odor, dark brown (OL)	20	1	D-1	SPT Sampler	WOR	0
				47	2	D-2	SPT Sampler	WOR	0
				73	3	D-2	SPT Sampler	WOR	0
-5.2	4.5		SAND, poorly-graded, mostly fine to medium-grained quartz, trace silt, trace shell, trace organic matter, weak reaction with HCl, wet, light brown (SP)	80	4	D-3	SPT Sampler	WOH	0
				40	5	D-3	SPT Sampler	3 2 3	5
-8.2	7.5								
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.). Abbreviations: WOR = Weight of Rods. WOH = Weight of Hammer.		

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District		SHEET 1 OF 1 SHEETS	
1. PROJECT Stevenson Creek				10. SIZE AND TYPE OF BIT See Remarks			
2. LOCATION COORDINATES X = 243,603 Y = 1,139,246				11. COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. F.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps Of Engineers				12. MANUFACTURER'S DESIGNATION OF DRILL Acker on Tripod (barge-mounted)			
4. BORING DESIGNATION CB-SC02-006				13. TOTAL SAMPLES		DISTURBED 6	
5. NAME OF DRILLER Larry Wooters				14. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				15. ELEVATION GROUND WATER		N/A	
7. THICKNESS OF OVERBURDEN 0.0 Ft.				16. DATE BORING		STARTED 04-08-02	
8. DEPTH DRILLED INTO ROCK 0.0 Ft.				17. ELEVATION TOP OF BORING		COMPLETED 04-08-02	
9. TOTAL DEPTH OF BORING 7.5 Ft.				18. TOTAL RECOVERY FOR BORING		51 %	
				19. SIGNATURE AND TITLE OF INSPECTOR Julie Minton, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
-1.4	0.0		CLAY, organic-L, medium plasticity, few sand, trace shell, strong reaction with HCl, wet, strong organic odor, dark brown (OL)	33	1 D-1		-1.4 SPT Sampler	WOR	0
				40	2 D-2		-2.9 SPT Sampler	WOR	0
				47	3 D-2		-4.4 SPT Sampler	WOR	0
-5.9	4.5		SAND, poorly-graded, mostly fine to medium-grained quartz, trace clay, trace shell, weak reaction with HCl, wet, light brown (SP)	80	4 D-3		-5.9 SPT Sampler	WOH	5
					5 D-3		-7.4 SPT Sampler	3	6
-8.1	6.7		Limestone, moderately hard, highly weathered, medium-grained, white	53	5 D-4		-8.9 SPT Sampler	19	42
-8.9	7.5	HW						23	
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.). Abbreviations: WOR = Weight of Rods. WOH = Weight of Hammer.		

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 1 SHEETS	
1. PROJECT Stevenson Creek				10. SIZE AND TYPE OF BIT See Remarks				
2. LOCATION COORDINATES X = 243,799 Y = 1,329,549				11. COORDINATE SYSTEM/DATUM State Plane, F.L.W. (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL NGVD29	
3. DRILLING AGENCY Corps Of Engineers				12. MANUFACTURER'S DESIGNATION OF DRILL Acker on Tripod (barge-mounted)				
4. BORING DESIGNATION CB-SC02-007				13. TOTAL SAMPLES		DISTURBED 6	UNDISTURBED (UD) 0	
5. NAME OF DRILLER Larry Wooters				14. TOTAL NUMBER CORE BOXES 2				
6. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG. FROM VERTICAL		BEARING		
7. THICKNESS OF OVERBURDEN 0.0 Ft.				15. ELEVATION GROUND WATER N/A				
8. DEPTH DRILLED INTO ROCK 0.0 Ft.				16. DATE BORING		STARTED 04-04-02	COMPLETED 04-04-02	
9. TOTAL DEPTH OF BORING 7.5 Ft.				17. ELEVATION TOP OF BORING -0.6 Ft.				
				18. TOTAL RECOVERY FOR BORING 56 %				
				19. SIGNATURE AND TITLE OF INSPECTOR Julie Minton, Geologist				

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
-0.6	0.0						-0.6		
			CLAY, organic-L, medium plasticity, few sand, trace shell, strong reaction with HCl, wet, dark brown (OL)	33	1 D-1		SPT Sampler	WOR	0
				53	2 D-2		SPT Sampler	WOR	0
				47	3 D-2		SPT Sampler	WOR	0
-4.6	4.0			80	4 D-3		SPT Sampler	WOH	0
				67	5 D-3		SPT Sampler	2	5
					67	6 D-3		SPT Sampler	3
							-6.6	3	
							-8.1	3	7
							-8.1	4	
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.). Abbreviations: WOR = Weight of Rods. WOH = Weight of Hammer.		

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District		SHEET 1 OF 1 SHEETS	
1. PROJECT Stevenson Creek				10. SIZE AND TYPE OF BIT See Remarks			
2. LOCATION COORDINATES X = 249,802 Y = 1,329,346				11. COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. FL.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps Of Engineers				12. MANUFACTURER'S DESIGNATION OF DRILL Acker on Tripod (barge-mounted)			
4. BORING DESIGNATION CB-SC02-008				13. TOTAL SAMPLES		DISTURBED 7	
5. NAME OF DRILLER Larry Wooters				14. TOTAL NUMBER CORE BOXES		1 0	
6. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		16. DATE BORING STARTED 04-04-02	
7. THICKNESS OF OVERBURDEN		0.0 Ft.		17. ELEVATION TOP OF BORING		-0.5 Ft.	
8. DEPTH DRILLED INTO ROCK		0.0 Ft.		18. TOTAL RECOVERY FOR BORING			
9. TOTAL DEPTH OF BORING		9.0 Ft.		19. SIGNATURE AND TITLE OF INSPECTOR Julie Minton, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-0.5	0.0		CLAY, organic-L, medium plasticity, little sand, trace shell, strong reaction with HCl, wet, strong organic odor, dark brown (OL)	7	1 D-1		-0.5 SPT Sampler	WOR	0
				20	2 D-2		-2.0 SPT Sampler	WOR	0
				60	3 D-2		-3.5 SPT Sampler	WOR	0
					4 D-2		-5.0 SPT Sampler	WOR	0
-5.5	5.0		SAND, poorly-graded, mostly fine to medium-grained quartz, trace silt, trace shell, weak reaction with HCl, wet, brown (SP)	67	4 D-3		-6.5 SPT Sampler	1	5
				67	5 D-3		-8.0 SPT Sampler	4	10
				53	6 D-3		-9.5 SPT Sampler	6	6
-9.5	9.0		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.). Abbreviations: WOR = Weight of Rods.		

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 1 SHEETS		
1. PROJECT Stevenson Creek				10. SIZE AND TYPE OF BIT See Remarks					
2. LOCATION COORDINATES X = 243 801 Y = 1 329 264				11. COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. FL) NAD83 NCVD29			VERTICAL		
3. DRILLING AGENCY Corps Of Engineers				12. MANUFACTURER'S DESIGNATION OF DRILL Acker on Tripod (barge-mounted)					
4. BORING DESIGNATION CB-SC02-009				13. TOTAL SAMPLES		DISTURBED 6	UNDISTURBED (UD) 0		
5. NAME OF DRILLER Larry Wooters				14. TOTAL NUMBER CORE BOXES 1					
6. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG. FROM VERTICAL		BEARING		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 0.0 Ft.				16. DATE BORING		STARTED 04-04-02		COMPLETED 04-04-02	
8. DEPTH DRILLED INTO ROCK 0.0 Ft.				17. ELEVATION TOP OF BORING -0.9 Ft.					
9. TOTAL DEPTH OF BORING 7.5 Ft.				18. TOTAL RECOVERY FOR BORING 65 %					
				19. SIGNATURE AND TITLE OF INSPECTOR Julie Minton, Geologist					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-0.9	0.0						-0.9		
			CLAY, organic-L, medium plasticity, few sand, trace shell, strong reaction with HCl, wet, strong organic odor, dark brown (OL)	13	1 D-1		SPT Sampler	WOR	0
				60	2 D-2		SPT Sampler	WOR	0
				100	3 D-2		SPT Sampler	WOR	4
-4.9	4.0		SAND, poorly-graded with silt, mostly fine to medium-grained quartz, few silt, trace shell, weak reaction with HCl, wet, brown (SP-SM)		4 D-3		-5.4	4	4
				80	5 D-3		SPT Sampler	6	16
				73	6 D-3		SPT Sampler	10	8
-8.4	7.5						-8.4	5	
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.	140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.). Abbreviations: WOR = Weight of Rods.					

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 1 SHEETS	
1. PROJECT Stevenson Creek				19. SIZE AND TYPE OF BIT See Remarks				
2. LOCATION COORDINATES X = 243,797 Y = 1,329,148				11. COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL NGVD29	
3. DRILLING AGENCY Corps Of Engineers				12. MANUFACTURER'S DESIGNATION OF DRILL Ackon Tripod (barge-mounted)				
4. BORING DESIGNATION CB-SC02-010				13. TOTAL SAMPLES		DISTURBED 7	UNDISTURBED (UD) 0	
5. NAME OF DRILLER Larry Wooters				14. TOTAL NUMBER CORE BOXES 1				
6. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG. FROM VERTICAL		BEARING		
7. THICKNESS OF OVERBURDEN 0.0 Ft.				15. ELEVATION GROUND WATER N/A				
8. DEPTH DRILLED INTO ROCK 0.0 Ft.				16. DATE BORING		STARTED 04-04-02	COMPLETED 04-04-02	
9. TOTAL DEPTH OF BORING 9.0 Ft.				17. ELEVATION TOP OF BORING -0.7 Ft.				
				18. TOTAL RECOVERY FOR BORING 61 %				
				19. SIGNATURE AND TITLE OF INSPECTOR Julie Minton, Geologist				

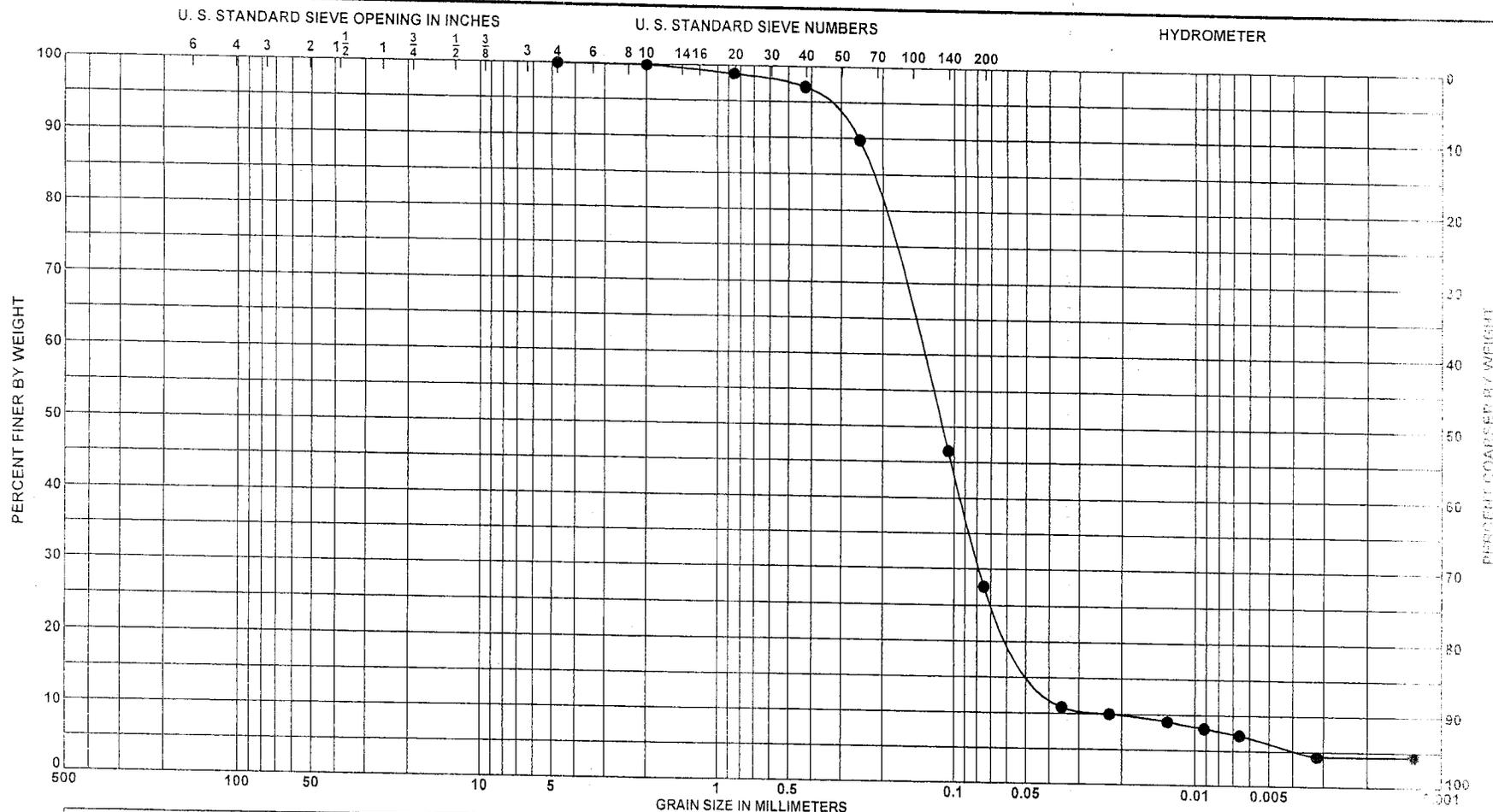
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
-0.7	0.0		CLAY, organic-L, medium plasticity, little sand, trace shell, strong reaction with HCl, wet, dark brown (OL)	27	1 D-1		-0.7		
				47	2 D-2		-2.2		
				73	3 D-2		-3.7		
				80	4 D-2		-5.2		
-6.2	5.5			67	5 D-3		-6.7	2	2
				73	6 D-3		-8.2	3	6
					7	D-3		-9.7	4
-9.7	9.0								
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.). Abbreviations: WOR = Weight of Rods.		

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District		SHEET 1 OF 1 SHEETS	
1. PROJECT Stevenson Creek				10. SIZE AND TYPE OF BIT See Remarks			
2. LOCATION COORDINATES X = 244 007 Y = 1 329 254				11. COORDINATE SYSTEM/DATUM		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps Of Engineers				12. MANUFACTURER'S DESIGNATION OF DRILL Ackerson Tripod (barge-mounted)			
4. BORING DESIGNATION CB-SC02-011				13. TOTAL SAMPLES		DISTURBED 5	
5. NAME OF DRILLER Larry Wooters				14. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		16. DATE BORING STARTED 04-04-02 COMPLETED 04-04-02	
7. THICKNESS OF OVERBURDEN 0.0 Ft.				17. ELEVATION TOP OF BORING -0.2 Ft.			
8. DEPTH DRILLED INTO ROCK 0.0 Ft.				18. TOTAL RECOVERY FOR BORING 43 %			
9. TOTAL DEPTH OF BORING 7.5 Ft.				19. SIGNATURE AND TITLE OF INSPECTOR Julie Minton, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
-0.2	0.0						-0.2		
		SAND, clayey, mostly fine to medium-grained quartz, some clay, trace shell, strong reaction with HCl, wet, strong organic odor, dark brown (SC)		33	1 D-1		SPT Sampler	WOR	0
				20	2 D-2		SPT Sampler	WOH	0
				33	3 D-3		SPT Sampler	WOH	0
								WOR	
								WOR	3
-4.7	4.5	SAND, silty, mostly fine to medium-grained quartz, little silt, trace shell, weak reaction with HCl, wet, weak organic odor, brown (SM)		53	4 D-4		SPT Sampler	3	5
				73	5 D-5		SPT Sampler	5	11
								6	
-7.7	7.5						SPT Sampler	2	4
								1	
								3	
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.). Abbreviations: WOR = Weight of Rods. WOH = Weight of Hammer.		10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District		SHEET 1 OF 1 SHEETS	
1. PROJECT Stevenson Creek				10. SIZE AND TYPE OF BIT See Remarks			
2. LOCATION COORDINATES X = 244,200 Y = 1,328,900				11. COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps Of Engineers				12. MANUFACTURER'S DESIGNATION OF DRILL Acker on Tripod (barge-mounted)			
4. BORING DESIGNATION CB-SC02-012				13. TOTAL SAMPLES		DISTURBED 3	
5. NAME OF DRILLER Larry Wooters				14. TOTAL NUMBER CORE BOXES		1 UNDISTURBED (UD) 0	
6. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		16. DATE BORING STARTED 04-03-02 COMPLETED 04-03-02	
7. THICKNESS OF OVERBURDEN 0.0 Ft.				17. ELEVATION TOP OF BORING -0.5 Ft.			
8. DEPTH DRILLED INTO ROCK 0.0 Ft.				18. TOTAL RECOVERY FOR BORING 44 %			
9. TOTAL DEPTH OF BORING 4.5 Ft.				19. SIGNATURE AND TITLE OF INSPECTOR Julie Minton, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-0.5	0.0		SAND, poorly-graded with silt, mostly fine to medium-grained quartz, few silt, trace shell, strong reaction with HCl, wet, brown (SP-SM)				-0.5		
				20	1 D-1		SPT Sampler	WOR WOH	0
				67	2 D-2		SPT Sampler	3 4 WOH	9
				47	3 D-2		SPT Sampler	5 3 4 7	11
-5.0	4.5						-5.0		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.). Abbreviations: WOR = Weight of Rods. WOH = Weight of Hammer.		

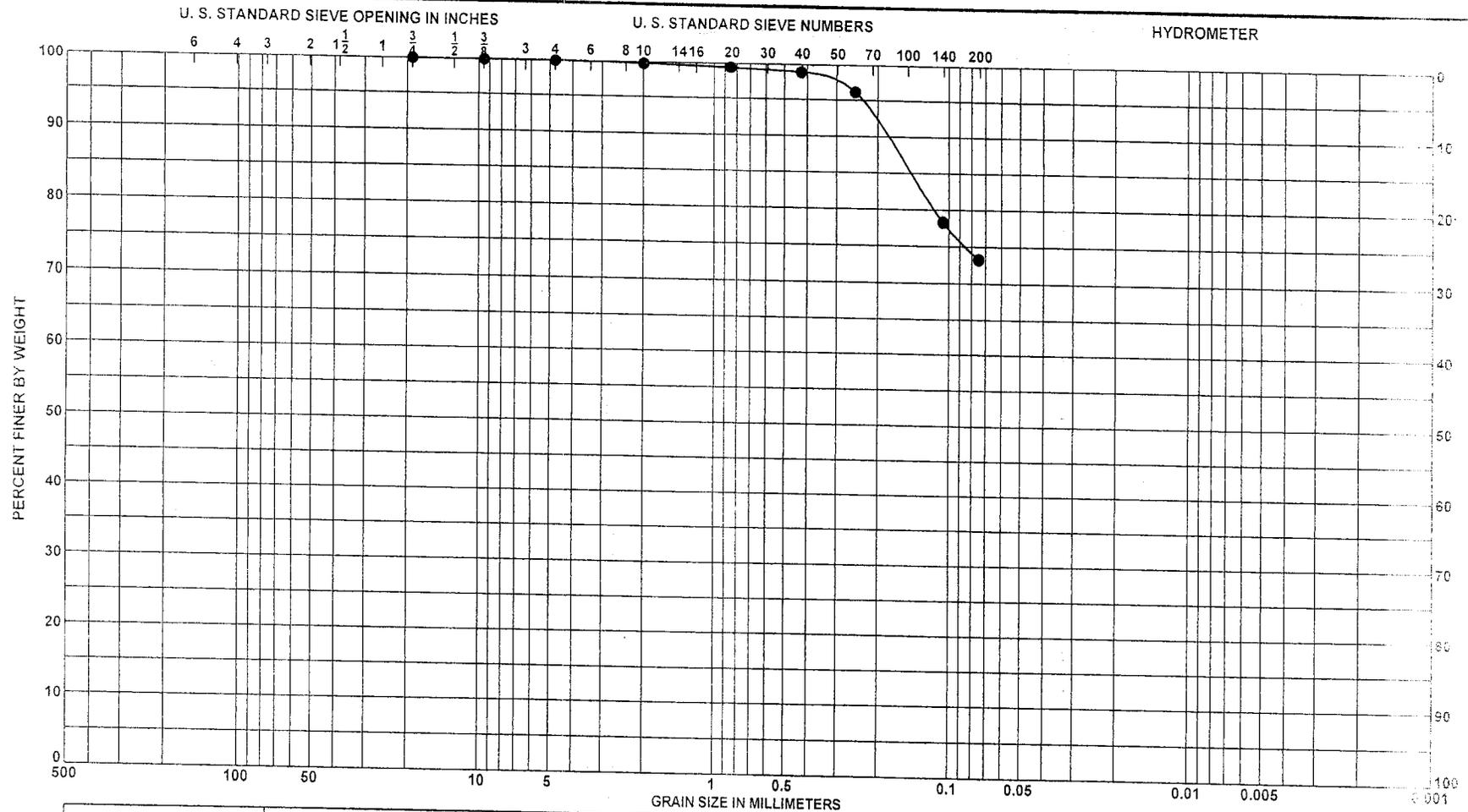


COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No.	Depth	Classification	CO ₃ %	G _s	Org %	w _n	LL	PL	PI
2	1.5 to 3.0 Ft.	SAND, silty, mostly fine-grained quartz, some silt, few organic matter, few clay, olive (Organic content = 10%) (SM)		2.67		115.0			

PROJECT	Stevenson Creek
BORING NO.	CB-SC02-001
BORING ELEV.	-0.6 Ft., NGVD29
DATE	5/21/2002

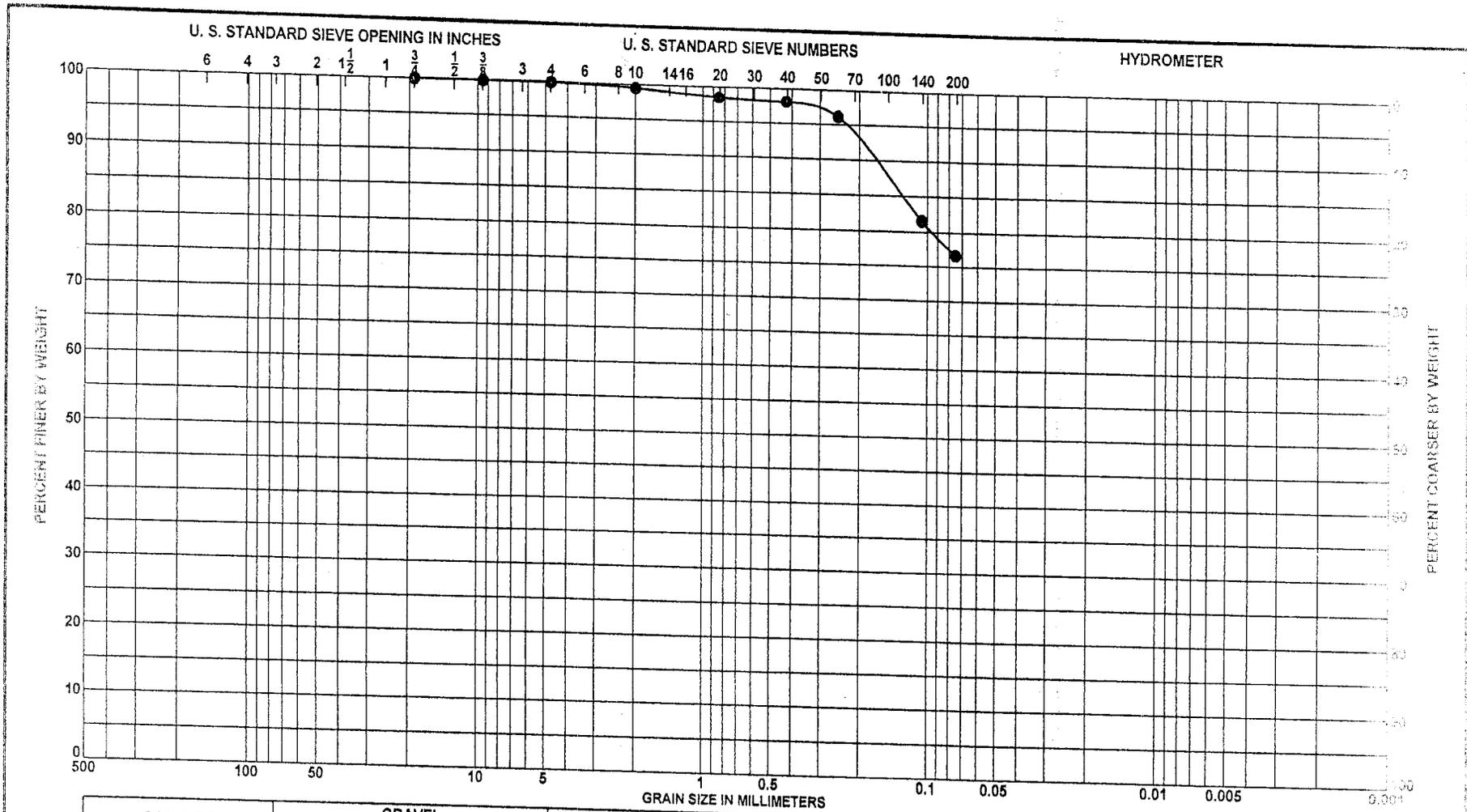
GRADATION CURVES



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No.	Depth	Classification	CO ₃ %	G _s	Org %	w _n	LL	PL	PI	PROJECT
1	0.0 to 1.5 Ft.	SILT, organic-H, little fine-grained quartz sand, trace medium-grained carbonate, few clay, olive (Organic content = 17%) (OH)				230.0	195	76	119	Stevenson Creek
										BORING NO. CB-SC02-002
										BORING ELEV. -1.0 Ft., NGVD29
										DATE 5/21/2002

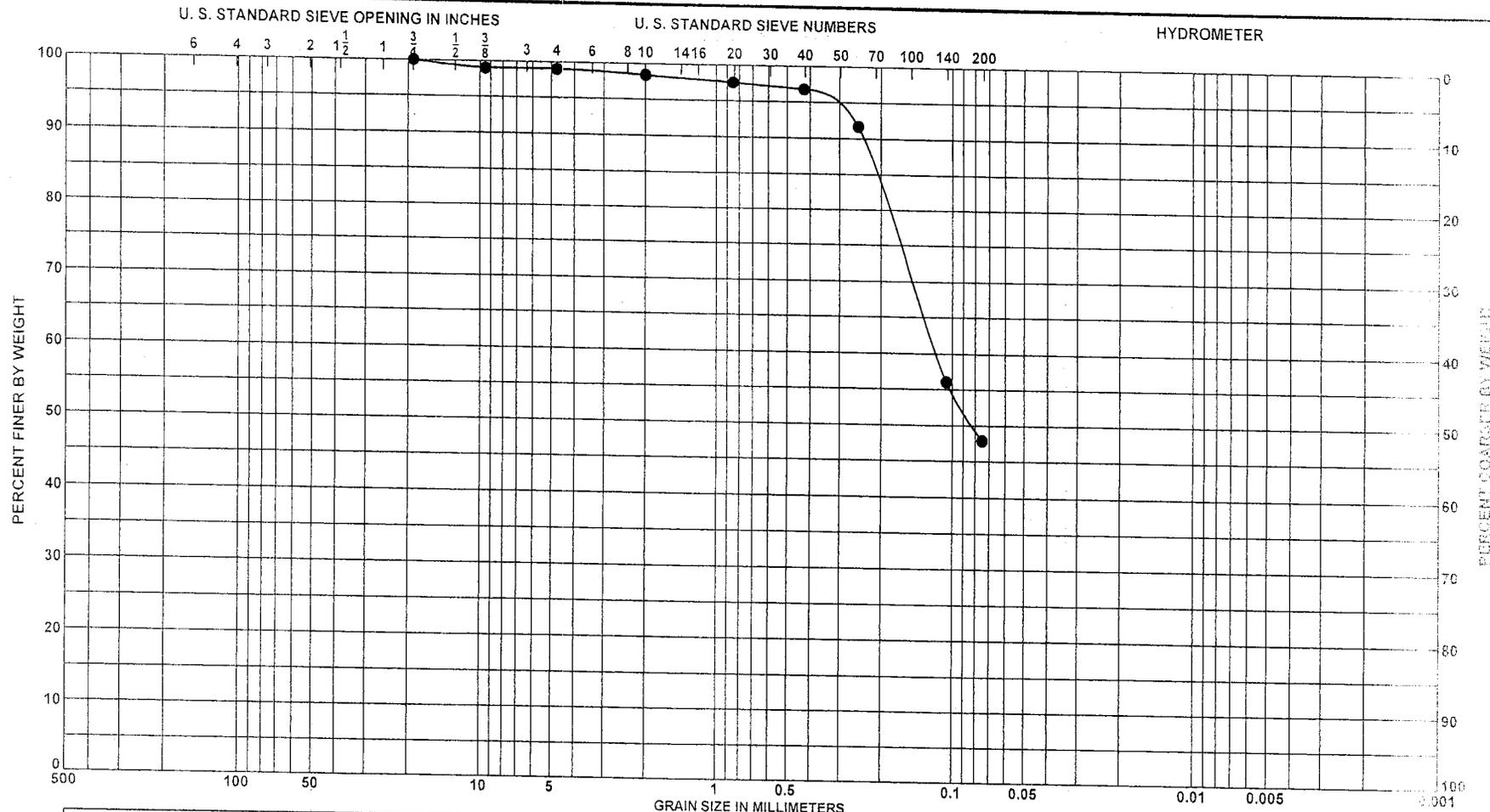
GRADATION CURVES



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No.	Elev or Depth	Classification	% CO ₂	G _s	Nat w %	LL	PL	PI	Project
2	El. -2.4 to -3.9	SILT, organic-H, little fine-grained quartz sand, trace medium-grained carbonate, few clay, olive (Organic content = 20%) (OH)			277.0				Stevenson Creek
									Area
									Boring No. CB-SC-02-003
									Date 5/21/2002

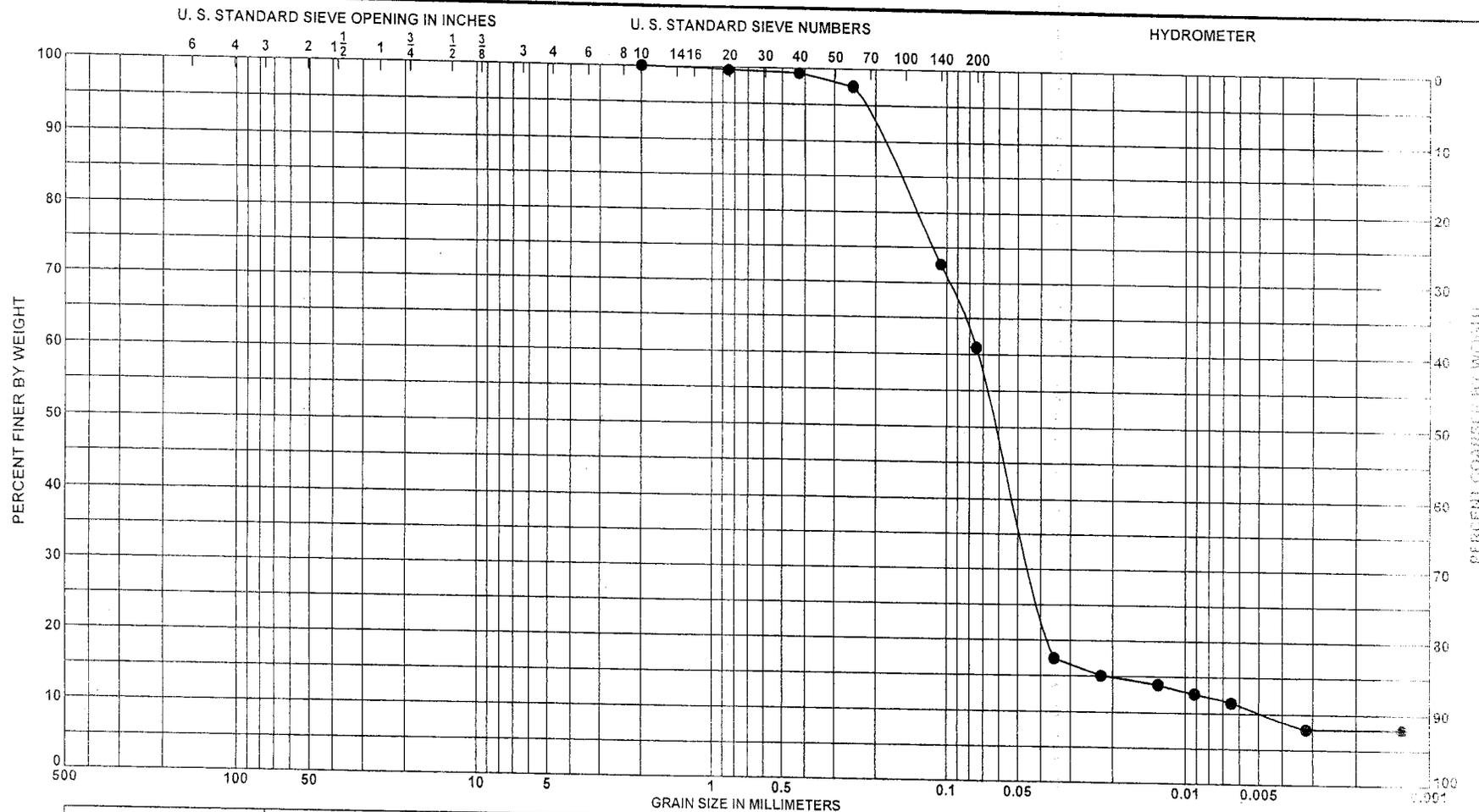
GRADATION CURVES



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No.	Depth	Classification	CO ₂ %	G _s	Org %	w _n	LL	PL	PI	PROJECT
2	1.5 to 3.0 Ft.	SAND, silty, mostly fine-grained quartz, some silt, few clay, few organic matter, olive (Organic content = 9%) (SM)				148.0				Stevenson Creek
										BORING NO. CB-SC02-004
										BORING ELEV. -0.9 Ft., NGVD29
										DATE 5/21/2002

GRADATION CURVES

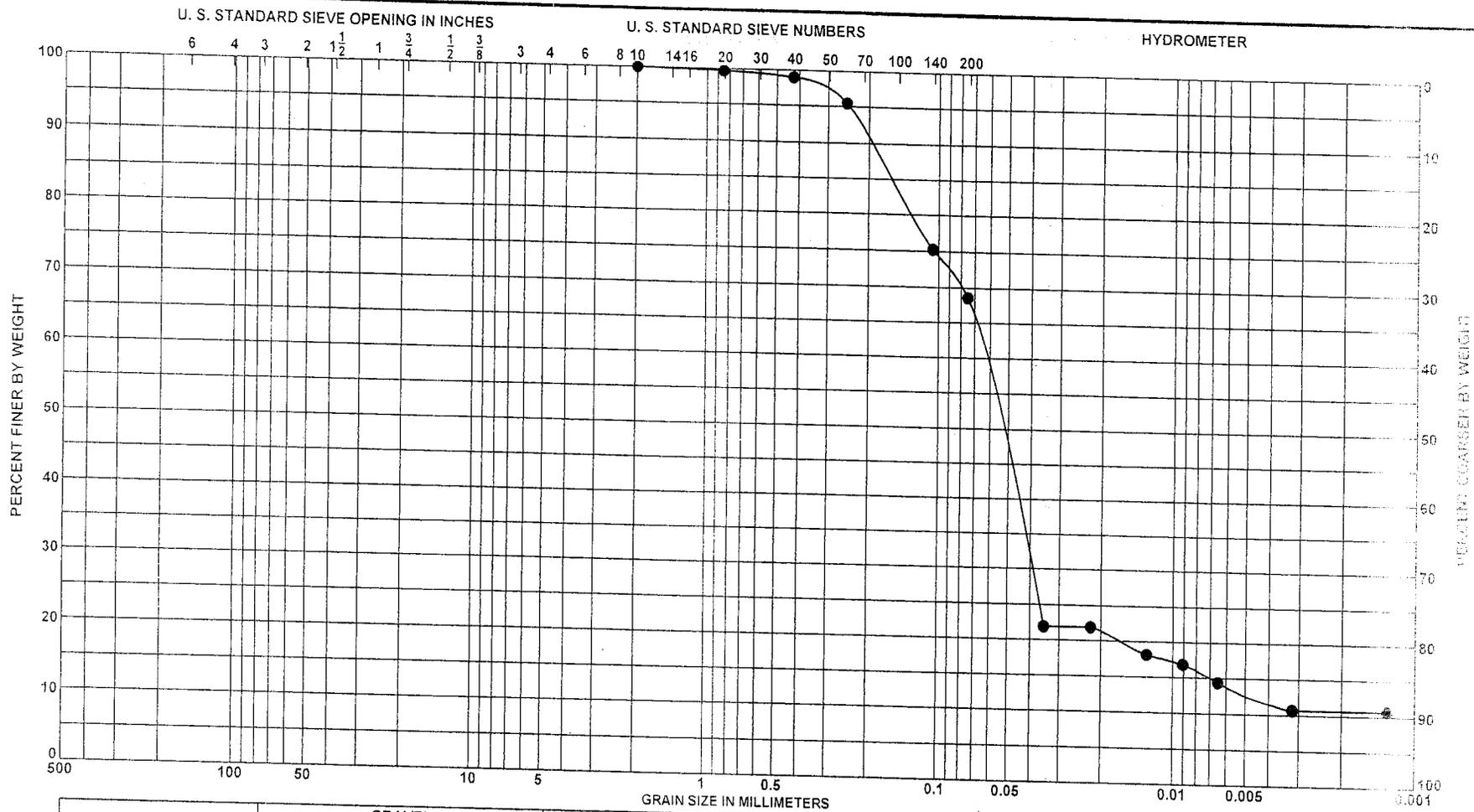


COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No.	Depth	Classification	CO ₂ %	G _s	Org %	w _n	LL	PL	PI
2	1.5 to 3.0 Ft.	SILT, organic-H, some fine-grained quartz sand, few clay, olive (Organic content = 18%) (OH)		2.67		191.0	175	56	119

PROJECT	Stevenson Creek
BORING NO.	CB-SC02-005
BORING ELEV.	-0.7 Ft., NGVD29
DATE	5/21/2002

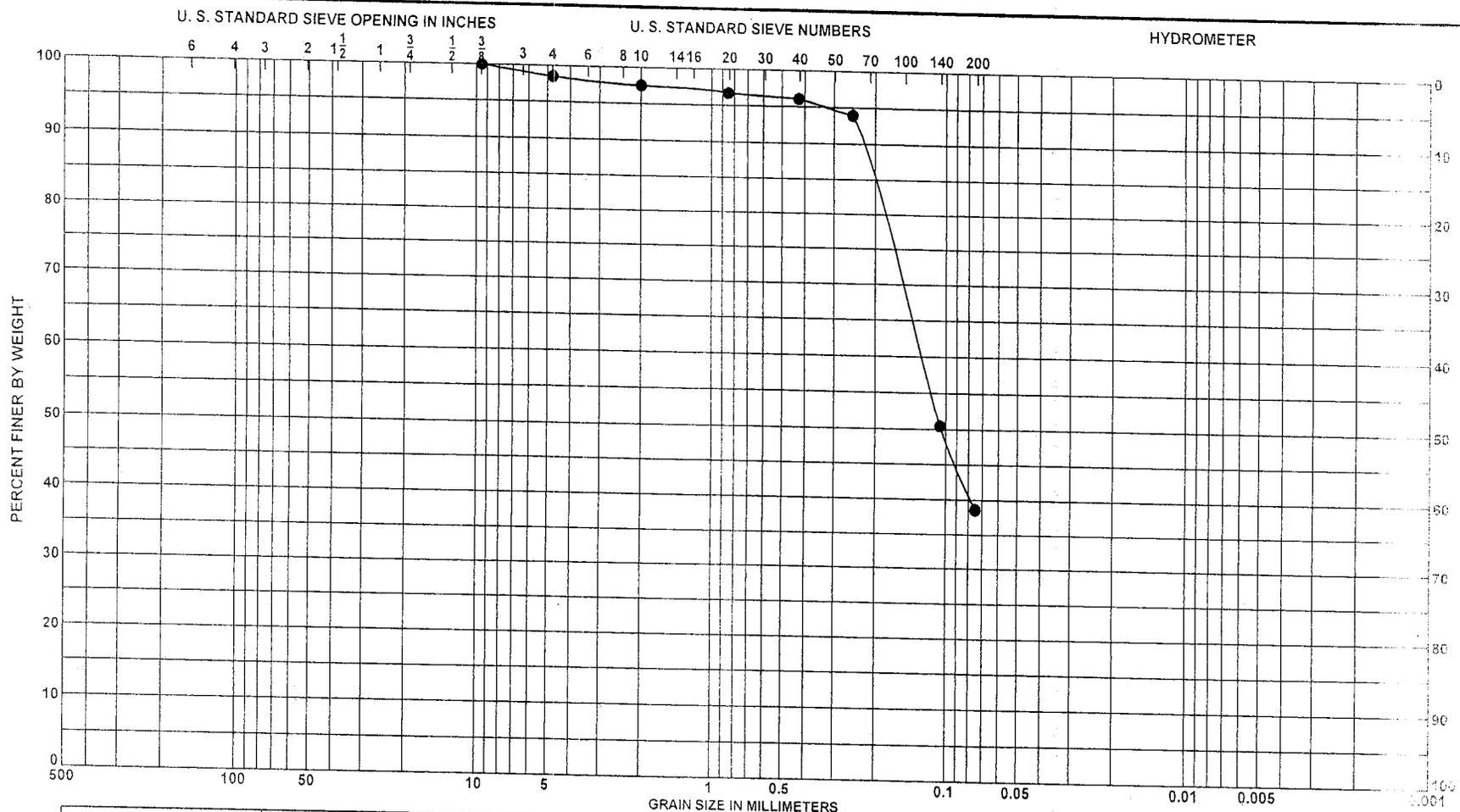
GRADATION CURVES



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No.	Depth	Classification	CO ₂ %	G _s	Org %	w _n	LL	PL	PI	PROJECT
2	1.5 to 3.0 Ft.	SILT, organic-H, some fine-grained quartz sand, few clay, olive (Organic content = 12%) (OH)		2.66		223.0	181	60	121	Stevenson Creek
										BORING NO. CB-SC02-006
										BORING ELEV. -1.4 Ft., NGVD29
										DATE 5/21/2002

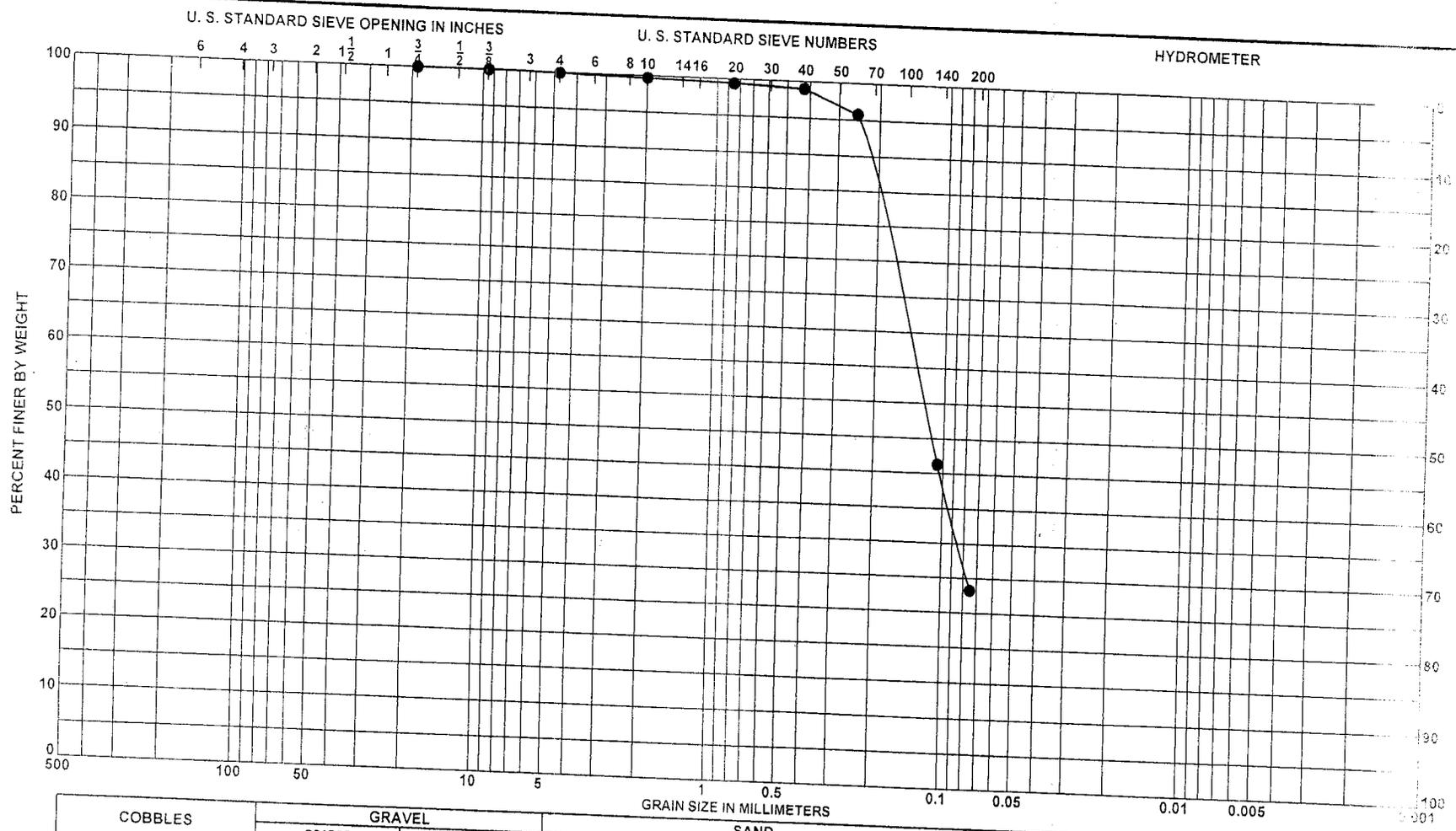
GRADATION CURVES



COBBLES	GRAVEL		SAND				SILT OR CLAY			
	COARSE	FINE	COARSE	MEDIUM	FINE					

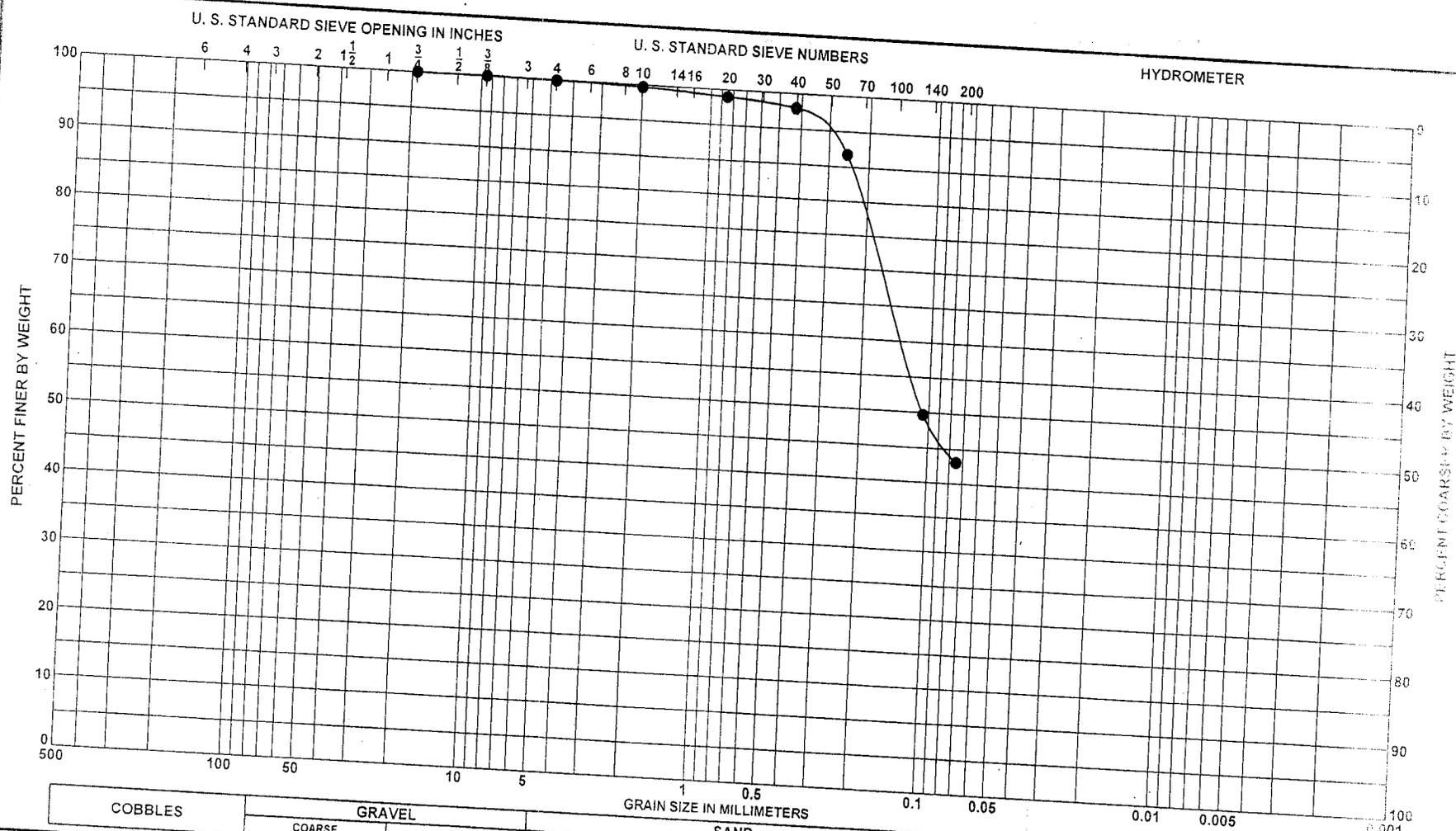
Sample No.	Depth	Classification	CO ₃ %	G _s	Org %	w _n	LL	PL	PI	PROJECT
2	1.5 to 3.0 Ft.	SAND, silty, mostly fine-grained quartz, some silt, few organic matter, olive (Organic content = 9%) (SM)				135.0				Stevenson Creek
										BORING NO. CB-SC02-007
										BORING ELEV. -0.6 Ft., NGVD29
										DATE 5/21/2002

GRADATION CURVES



COBBLES	GRAVEL		SAND					SILT OR CLAY		
	COARSE	FINE	COARSE	MEDIUM	FINE					

Sample No.	Depth	Classification	CO ₃ %	G _s	Org %	w _n	LL	PL	PI	PROJECT
2	1.5 to 3.0 Ft.	SAND, silty, mostly fine-grained quartz, some silt, trace organic matter, dark gray (Organic content = 3%) (SM)				93.0	125	41	84	Stevenson Creek
GRADATION CURVES										BORING NO. CB-SC02-009
										BORING ELEV. -0.9 Ft., NGVD29
										DATE 5/21/2002

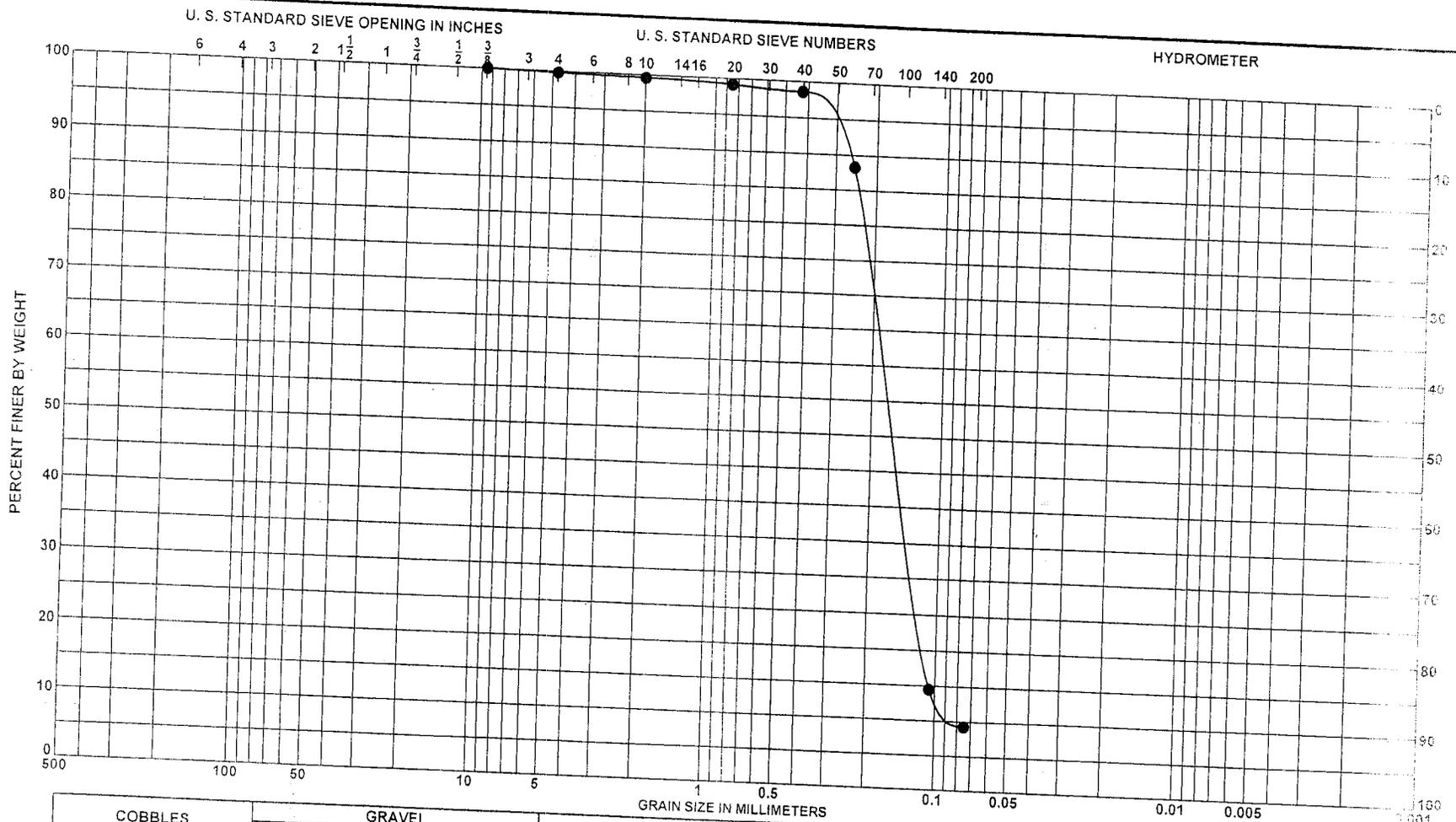


COBBLES	GRAVEL		SAND						SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE				

Sample No.	Depth	Classification	CO ₂ %	G _s	Org %	w _n	LL	PL	PI
2	1.5 to 3.0 Ft.	SAND, silty, mostly fine-grained quartz, some silt, little organic matter, olive (Organic content = 12%) (SM)				174.0			

PROJECT	Stevenson Creek
BORING NO.	CB-SC02-010
BORING ELEV.	-0.7 Ft., NGVD29
DATE	5/21/2002

GRADATION CURVES



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No.	Depth	Classification	CO ₂ %	G _s	Org %	w _n	LL	PL	PI	PROJECT
1	0.0 to 1.5 Ft.	SAND, poorly graded, mostly fine-grained quartz, few silt, trace organic matter, dark gray (Organic content = 2%) (SP-SM)				43.0				Stevenson Creek
										BORING NO. CB-SC02-011
										BORING ELEV. -0.2 Ft., NGVD29
										DATE 5/21/2002

GRADATION CURVES

ATTACHMENT B

STEVENSON CREEK TRIP REPORT

26 March, 2003

MEMORANDUM FOR RECORD

SUBJECT: Trip Report for Stevenson Creek

PURPOSE: a. Conduct site visit of proposed project.

The following are items noted during the site visit by Alan Bailey, CO-G:

Access To and From the Dredging Site (Stevenson Creek)

1. Dredging equipment access to the site by water (from west of the project, by the Gulf Intra coastal Waterway) will be restricted by the bridges over Stevenson Creek at U. S. Alternate 19 (Ft. Harrison/Edgewater Ave.) and the Pinellas Trail. At the east end, access is under the bridge for County Road 345 (Douglas/Fairmont/Marshall Avenue). Vertical and horizontal clearances under the bridges are not known. See photo's 1.a(1)-1, 2,3.
2. A site visit revealed no logical landing sites for equipment mobilization/access within the limits of the project, between Alt. U.S. 19 and County Road 345. No boat ramps were located. Of special concern are the load limits for residential streets.
3. The only substantial public property observed in the area were the Shuffleboard and Lawn Bowls Complex, south of Stevenson Creek and east of Ft. Harrison Avenue (U.S. Alternate 19), and the Marshall Wastewater Treatment Facility, south of Stevenson Creek and east of Douglas Avenue (County Road 345).

The Wolfe Property (Temporary Dewatering Site)

1. This site is said to be 2 acres extent, but during the site visit, there did not seem to be 2 usable acres. This site is probably not adequate for efficient sand-fines separation/silt-fines dewatering and material handling operations. Immediately to the east, the City of Clearwater is performing some sort of site work on about 4 acres. Some effort should be made to secure this area for the dewatering/sand-fines separating material handling operations. The Wolfe property would be needed for access from Stevenson Creek. See photo's 1.b(1)-1,2,3.
2. In addition to being the material handling site, the Wolfe property appears to be the only site put forth as a staging /access area.

3. Access to the Wolfe Property site by road is from Overbrook Road. The property is located to the SW of the intersection of Overbrook Road and Pineland Drive. See photo 1.b(3)-1.
4. The only logical access to this site by water (from Stevenson Creek) seems to be through about 200 to 300 feet of mangrove marsh. This seems to be the "unique wetlands" which are not part of the available lands for material handling. Please provide a logical, clearly delineated access route, through which a pipeline and access walkway can be built.
5. The SE tip of the Wolfe property abuts directly onto the private property at 1200 Claire Street. See photo 1.b(5)-1.
6. Near the SE corner of the Wolfe property is some sort of pressure relief structure. It seems to be abandoned, the pipe risers are disconnected at the ground level. See photo's 1.b(6)-2,3. (This was later identified as an old hydro-cyclone structure).
7. The Marshall Street Advanced Wastewater Treatment Facility is directly to the south, across Stevenson Creek, on the south bank east of Douglas Avenue. See photo 1.b(6)-4.
8. There was a monitoring well and debris also found on the Wolfe property. See photo's 1.b(8)-1 and 1.b(7)-1.

Access to the Hillsborough County Disposal Site on Patterson Road

1. There are two probable access points on Patterson Road, at the NW corner, about 0.8 miles S of Lake Fern-Tarpon Springs Road and at 1.1 miles S of Lake Fern-Tarpon Springs Road. The actual disposal site was not visited. The Silver Dollar Shooting club is in the SW corner of the property. Mr. Ken Ross (Tel. 813-920-4185) is the General Manager. See photo's 1.c(1)-1,2.

The Haul Route Between the Interim Dewatering Site and the Patterson Road Disposal Area.

1. The most direct primary highway route is Overbrook Road 0.1 miles SE to Betty Lane; 0.5 miles N to county Road 576 (Sunset Point Rd.); 1.3 miles E to Keene Road; 2.0 miles E to U.S. 19; 4.1 miles N to S.R. 586 (Curlew Road); 1.8 miles E to county Rd. 611 (east Lake Road); 7.1 miles N to County Road 582 (Keystone Road/Lake Fern-Tarpon Springs Road); 3.8 miles E to Patterson Road; 0.8 miles S to the NW Disposal Area Access Road.
2. The 21.5 mile trip took 46 minutes, during a slack traffic period from 1400 to 1500, by Jeep Cherokee, for an average 28 mph. Allowing for heavier traffic, and large dump trucks, reduce the average speed to 21 mph.

3. No posted load limits or other restrictions were observed.
4. All roads from the interim dewatering site to the intersection of Sunset Point Rd. and Keene Rd. (1.9 miles) were two-lane residential streets, even though Sunset Point Road is a County Highway. From this intersection to the intersection of East Lake Road with Keystone Road/Lake Fern-Tarpon Springs Road (15.0 miles), all roads were at least 4-lane urban/suburban highways. County Road 582 (3.8 miles) is a primary 2-lane suburban road. Patterson Road (0.8miles) is a secondary 2-lane suburban/rural road.

ACTION ITEMS:

- Use the trip report travel times in the cost estimate for the queuing analysis for hauling.
- The material processing site needs analysis for adequacy. It is too small for all the operations. A supporting site layout plan is needed.
- Site access, access routes, pipeline routes, staging and construction operations used in the cost estimate and EN Appendix need to use the input from the trip report. Cost and real estate need an engineering assessment.
- Include route descriptions and report in EN Appendix.
- Project real estate plan needs to use the trip report and address site access, work corridors, staging and material processing.
- Real Estate plan needs to provide additional lands for project execution.
- Cost estimate needs to consider relocations and site debris clearing.



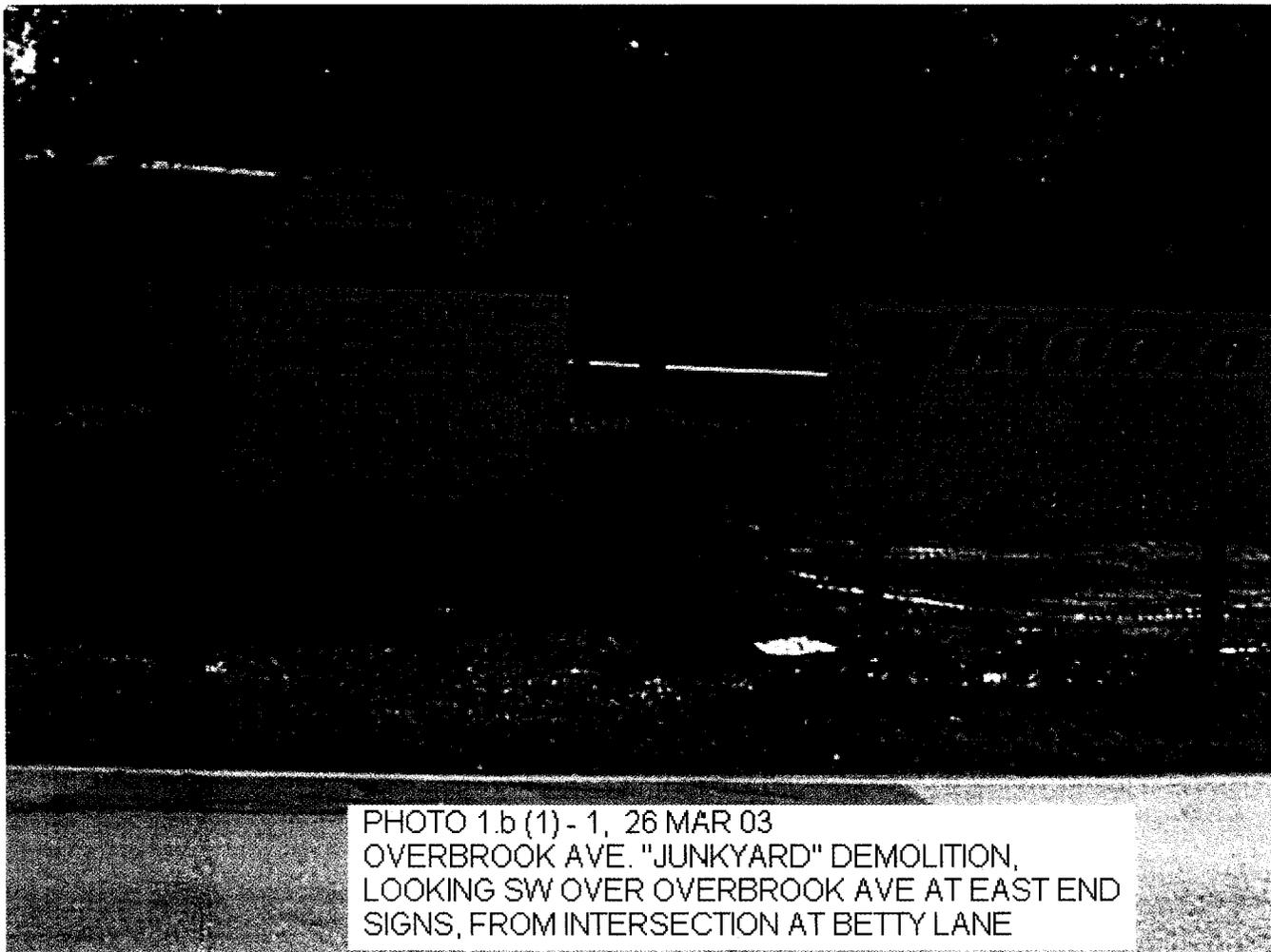


PHOTO 1.b (1) - 1, 26 MAR 03
OVERBROOK AVE. "JUNKYARD" DEMOLITION,
LOOKING SW OVER OVERBROOK AVE AT EAST END
SIGNS, FROM INTERSECTION AT BETTY LANE

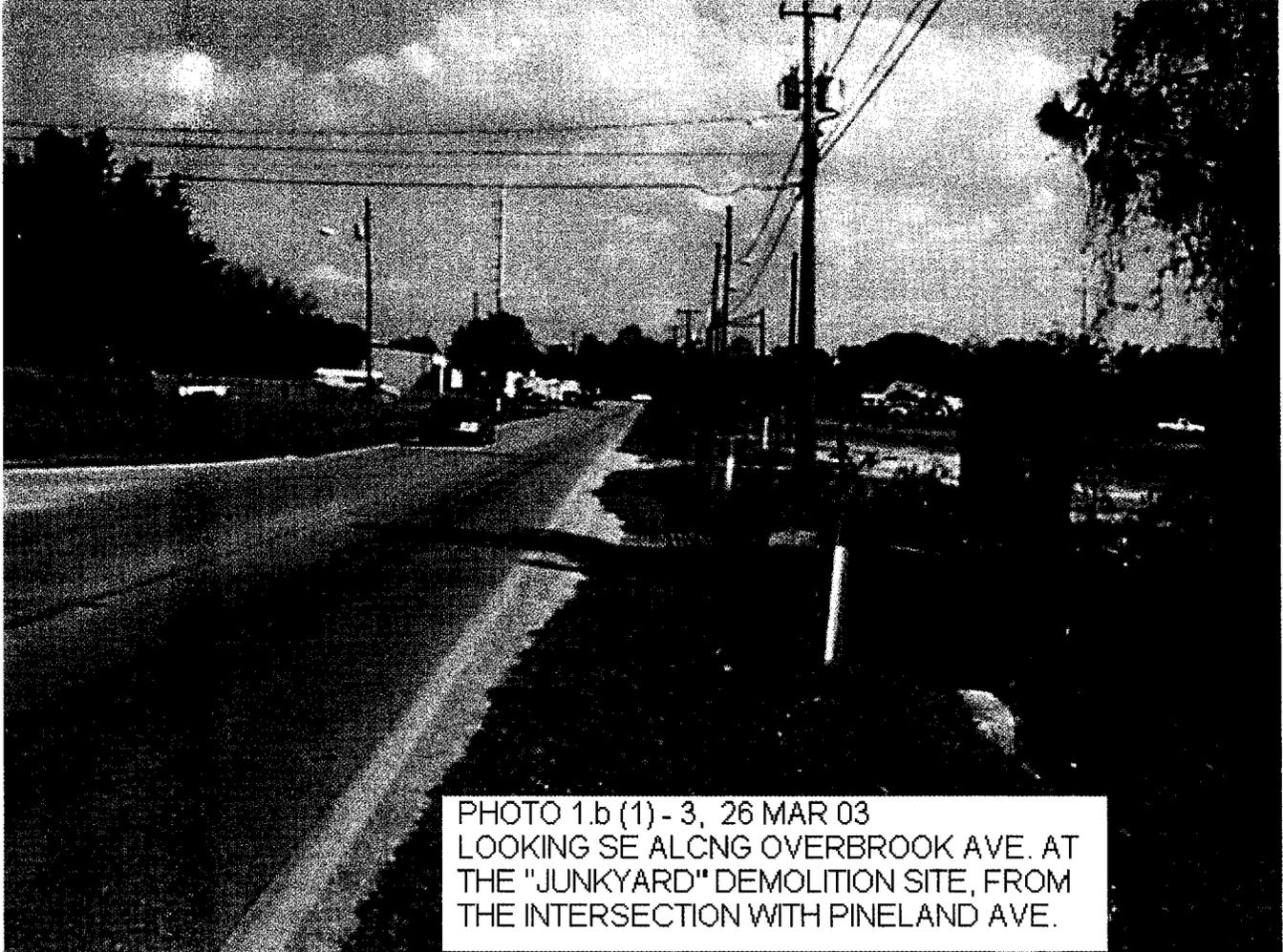


PHOTO 1.b (1) - 3, 26 MAR 03
LOOKING SE ALCNG OVERBROOK AVE. AT
THE "JUNKYARD" DEMOLITION SITE, FROM
THE INTERSECTION WITH PINELAND AVE.

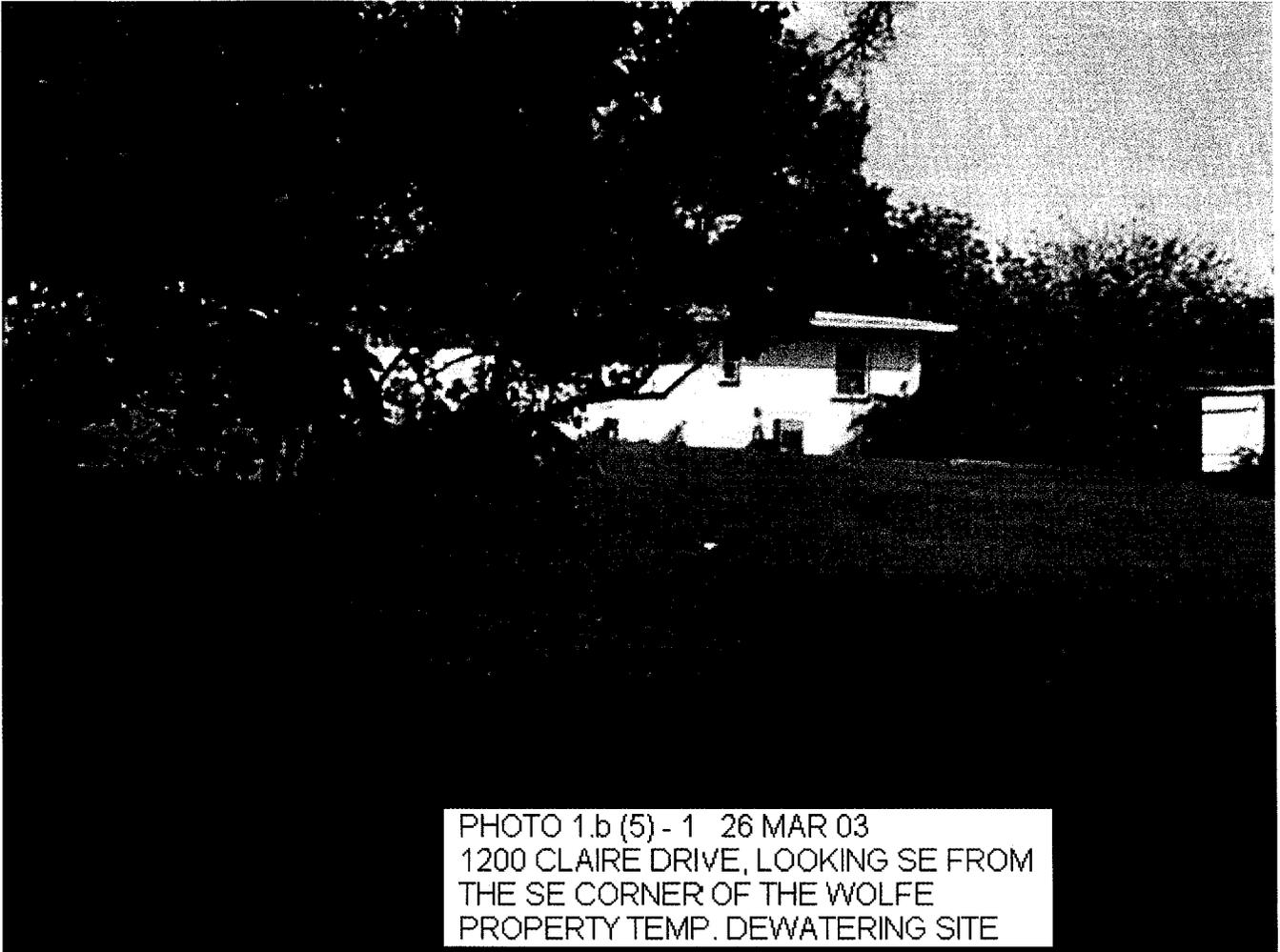


PHOTO 1.b (5) - 1 26 MAR 03
1200 CLAIRE DRIVE, LOOKING SE FROM
THE SE CORNER OF THE WOLFE
PROPERTY TEMP. DEWATERING SITE



PHOTO 1.b (6) - 2, 26 MA
PRESSURE / OVERFLOW
STRUCTURE, SE CORNER
WOLFE PROPERTY
TEMP. DEWATERING ST



PHOTO 1.b (6) - 4, 26 MAR 03
MARSHALL STREET ADVANCED
WASTEWATER TREATMENT FACILITY,
LOOKING SW FROM THE SW PART OF THE
WOLFE PROPERTY TEMP. DEWATERING SITE



PHOTO 1.b (8) -1, 26 MAR 03
DEBRIS,
CENTER OF WOLFE PROPERTY
TEMP. DEWATERING SITE

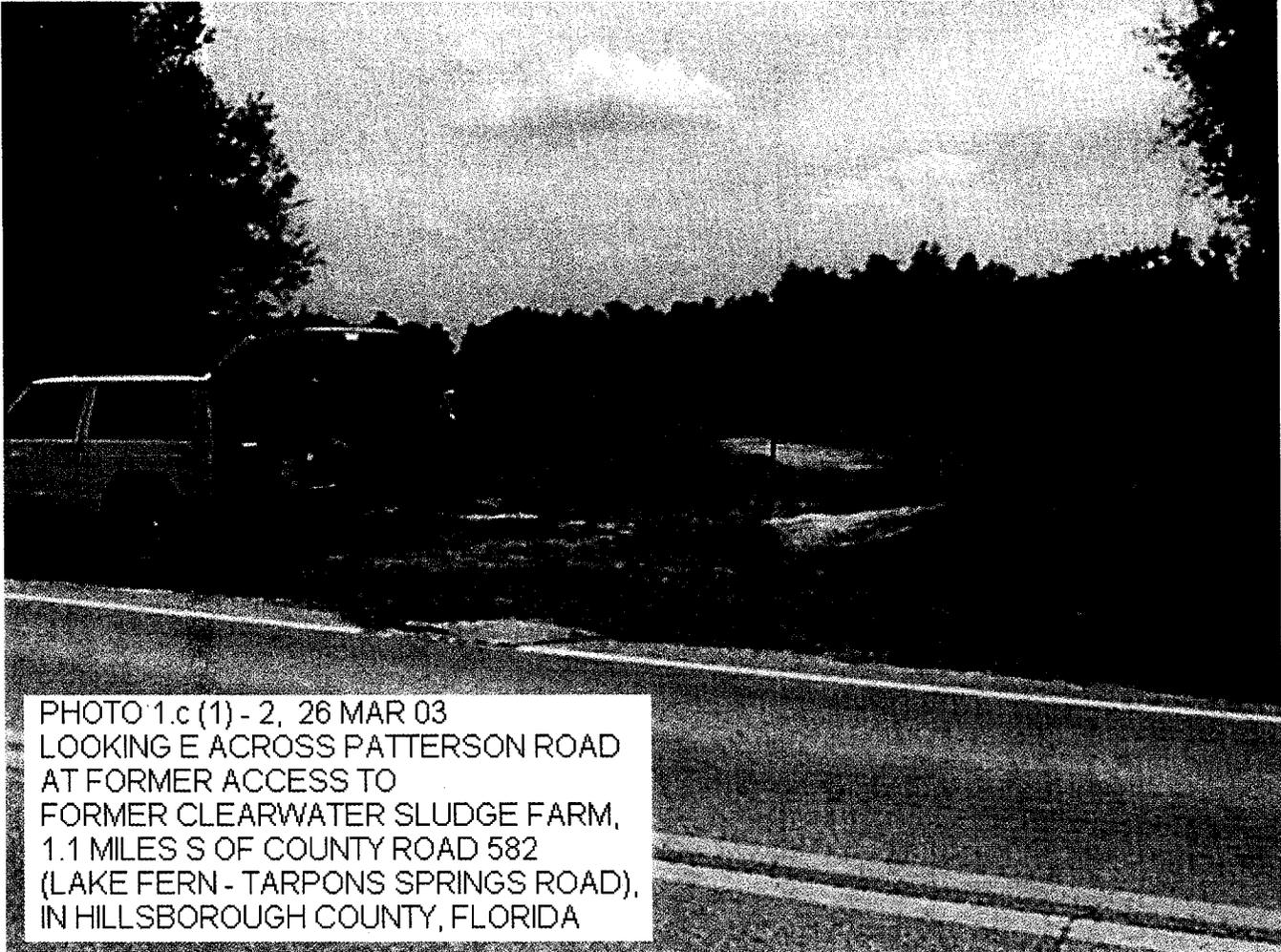


PHOTO 1.c (1) - 2, 26 MAR 03
LOOKING E ACROSS PATTERSON ROAD
AT FORMER ACCESS TO
FORMER CLEARWATER SLUDGE FARM,
1.1 MILES S OF COUNTY ROAD 582
(LAKE FERN - TARPONS SPRINGS ROAD),
IN HILLSBOROUGH COUNTY, FLORIDA

