APPENDIX B COST ENGINEERING AND RISK ANALYSIS

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B COST ESTIMATES

B.1 General Information

U.S. Army Corps of Engineers (Corps) cost estimates for planning purposes are prepared in accordance with the following guidance:

- Engineer Regulation (ER) 1110-1-1300, *Cost Engineering Policy and General Requirements* (March 26, 1993);
- ER 1110-2-1302, Civil Works Cost Engineering (June 30, 2016);
- ER 1110-2-1150, Engineering and Design for Civil Works Projects (August 31, 1999);
- ER 1105-2-100, Planning Guidance Notebook (April 22, 2000, as amended);
- Engineer Manual (EM) 1110-2-1304 (Tables revised September 30, 2018), *Civil Works Construction Cost Index System* (September 30, 2018);
- CECW-CP Memorandum for Distribution, Subject: Initiatives to Improve the Accuracy of Total Project Costs in Civil Works Feasibility Studies Requiring Congressional Authorization (September 19, 2007);
- CECW-CE Memorandum for Distribution, Subject: Application of Cost Risk Analysis Methods to Develop Contingencies for Civil Works Total Project Costs (July 3, 2007); and
- Cost and Schedule Risk Analysis Process (March 2008).

The goal of the planning level cost estimate for the Lake Okeechobee Component A Storage Reservoir (LOCAR) study (Project) is to present a total project cost (i.e., construction and non-construction cost) for the selected plan, in today's dollars, for Project justification/authorization. Additionally, the total Project cost summary sheet calculates a fully funded estimate (escalated for inflation through Project completion) for budgeting purposes. The intent of these costing efforts is to produce a final product (i.e., cost estimate) that is reliable and accurate and that supports the definition of the government's and the non-federal sponsor's obligations based on the current design plan. This estimate was prepared with the Project at the primary level and the Civil Works Breakdown Structure (CWBS) features code at the secondary Level and is supported by labor, equipment, and materials for most cost items. Additionally, some cost items are priced based on recent bid result data from ongoing, similar reservoir projects in the area. A risk analysis was prepared that addresses uncertainties in the Project and sets contingencies for selected plan cost items. A discussion of the risk analysis is included at the end of this appendix.

B.1.1 Plan Formation and Cost Estimates

The plan formulation is described in the main report and Appendix E. The final alternative considered includes a 200,000-acre-foot (ac-ft) reservoir, Alternative 1.

B.1.2 Project Scope for Recommended Plan

Alternative 1, the Recommended Plan, includes a 200,000 ac-ft aboveground storage reservoir north of the C-41A. The reservoir would cover an area of approximately 13,000 acres (ac) and be designed to have an average storage depth of 18 feet (ft) at its normal full-storage level. The reservoir would include two

pump stations, two outflow culverts, an outflow canal, an interior divider dam with a gated control structure, and two ungated overflow spillways.

Construction. The reservoir would be constructed with a perimeter dam and an interior divider dam, with each having an average height of approximately 33 ft above the ground. The perimeter dam would be approximately 18 miles (mi) around, allowing for recreational opportunities. Material from the Project footprint and the surrounding seepage canal would be used to construct the dams. A gated outflow culvert would be constructed on the west side of the reservoir to discharge water into C-41A upstream of S-83, while another gated culvert would be constructed near the southeast side of the reservoir to discharge water into C-41A, downstream of S-83.

The reservoir would be constructed to have two storage cells (i.e., east and west) split by an interior divider dam to reduce wave runup. The interior divider dam would include a 1,500-cubic-foot-per-second (cfs), gated water-control structure to allow for controlled conveyance of water between the two cells. Each cell would include an ungated overflow spillway designed to discharge into C-41A.

A seepage canal would be constructed outside the perimeter dam of the reservoir. Seepage from the reservoir would collect in the canal and be returned to the reservoir via seepage pump stations. If the seepage pump stations were not operational, the seepage collected in the canal would eventually overflow into the C-41A via overflow weir structures.

Operations. Two pump stations would be used to fill the reservoir at 1,500 cfs. One pump station would be located downstream of S-84 and move water from C-38 into C-41A, upstream of S-84. The second pump would be located on the C-41A canal upstream of State Highway 70 to pump water from C-41A directly into the reservoir. Water would be conveyed to the reservoir in one of two ways: (1) full or partial diversion of flow in C-41A downstream of S-83, or (2) back-pumping water from Lake Okeechobee via pumping from C-41A, downstream of S-84, into C-41A between S-83 and S-84. Water would be returned to Lake Okeechobee by discharging from the reservoir to C-41A upstream and/or downstream of S-83. The location of the reservoir outflow culverts would allow for water to be conveyed south to provide opportunities for storage in surrounding canals (e.g., C-41A, C-41, C-40, and C-39A).

B.2 Estimating Methodology

The Micro-Computer Aided Cost Estimating System (MCACES)/Second Generation (MII) cost estimate for the Selected Plan is based on the pre-final Engineering Appendix and Annex C-1 (Plans) provided. The estimate is formatted following the CWBS.

B.2.1 Quantities

Detailed quantity take-offs have been prepared for each of the primary features of the project and are consistent with the current level of design. Attachment 1 includes all quantity calculations currently developed for use in the estimate, sorted by proposed construction contract. These quantities include assumptions and sources of data used for the quantity development.

B.2.2 Work Breakdown Structure

The estimate includes both construction and non-construction costs. The construction costs, developed in MCACES, fall under the following feature codes:

- 03 Reservoirs;
- 08 Roads, Railroads, and Bridges;
- 09 Channels and Canals;
- 11 Levees and Floodwalls;
- 13 Pumping Plant;
- 14 Recreation Facilities; and
- 15 Flood Control and Diversion Structures.

The non-construction costs, included in the total project cost summary, fall under the following feature codes:

- 01 Lands and Damages;
- 30 Planning, Engineering, and Design; and
- 31 Construction Management.

B.2.3 MCACES Cost Item Development

The direct cost for Project elements identified in the plans and scope of work were developed in the MCACES/MII estimate using detailed labor, equipment, and materials for most of the cost items. Some cost items are priced using recent bids and quotes received on other similar reservoir projects in the area. The database line item productivities have been used where possible, with productivity adjustments made, as necessary. Where required, new crews have been created using the appropriate number of equipment, size of equipment, and labor trades to fit the work activity, and detailed production rate calculation have been developed (see Attachment 2). A majority of the costs have been compared with contractor bid prices from other reservoir projects in the area for reasonableness of use in this estimate.

B.2.3.1 Labor Rates

Federal wage determination rates have been used in the estimate. The wage rates for various counties were compared for use in the estimate. Most of the region had similar rates, as such, Palm Beach county rates were selected for the wage and fringe rates. Additionally, a separate value of \$12.50 an hour has been added to account for potential incentivization that may be required, as well as for lodging costs that the labor would need. Recommended values for these issues ranged from \$5 to \$15 dollars per hour beyond the current wage and fringe values.

B.2.4 Contracting Plan

Due to the size of the project, the estimate assumes this work would be broken out into eight (8) separate construction contracts. The prime contractors would be a heavy civil contractor and would self-perform embankment placement, excavation, and foundation drain installation for embankment and canal work.

Primary subcontractor work in each contract has been assumed to include dewatering, landscaping, reinforced concrete, pile driving, asphalt, and pump installation.

B.2.5 Cost Estimate Productivities and Markups

Crew productivities were adjusted as necessary to be consistent with other ongoing and completed reservoir projects in the area, as well as to account for efficiency factors/weather delays. In addition, a 7 percent material sales tax and a 17 percent overtime markup have been included in the estimate.

The following prime contractor's markups were applied to the direct and subcontractor's costs:

- Job Office Overhead Prime contractor job office overhead (JOOH) values are based on calculated values for each of the proposed construction contracts. Subcontractor JOOH is assumed to be 7.5 percent.
- Home Office Overhead 8 percent prime contractor and 12.5 percent subcontractor.
- Profit Prime contractor profits have been calculated using the profit weighted guidelines for each contract. Subcontractor profit is assumed to be 10 percent.
- Performance Bond These have been calculated using Table B for each of the proposed contracts.

B.2.6 Non-Construction Costs

Non-construction costs include real estate, planning, engineering, and design (PED), and construction management (supervision and administration [S&A]). Real estate costs were taken from the Appendix D Real Estate. The total real estate cost input in the total project cost summary spreadsheet includes all costs for land payments, administrative costs, condemnations, relocation assistance and contingencies.

PED cost was calculated based upon a percentage of 25 percent of construction costs.

Construction management cost was calculated based upon a percentage of 9.2 percent of construction costs.

B.2.7 Tentative Project Schedule

A tentative project schedule was prepared to present a reasonable schedule for the work that could be used in estimating durations for job office overhead calculations within the cost estimate. The construction duration and sequence were established based on productivities from recent and ongoing reservoir projects in the area. The construction schedule will be updated as the design of the Project proceeds into plans and specifications phase. Once the contract is award, the contractor will provide a construction schedule that may be different from this draft schedule based on historical data. The Project schedule is provided in Attachment 3.

B.2.8 MCACES Summary

A detailed printout of the MCACES cost estimate is provided in Attachment 4. This summary presents the current construction costs of the project based on the assumptions and information discussed above.

Any estimate of total project and/or construction costs prepared by Tetra Tech represents its professional judgment at the time of this submittal and is supplied for the guidance of the client. Tetra Tech has

developed the current construction cost estimate per USACE cost estimating guidance, along with the best available information, and Tetra Tech's cost estimating experience. But Tetra Tech does not have control over the cost of contractor labor and material, or over competitive bidding or market conditions. As such, Tetra Tech is not able to guarantee the accuracy of such estimates as compared to contractor bids or actual costs to the client at some future date.

B.3 Risk and Uncertainty Analysis

B.3.1 Risk Analysis Methods

The risk analysis process for this study followed the Corps requirements as well as the guidance provided by the Cost Engineering Directory of Expertise for Civil Works (Cost Engineering DX). The risk analysis process reflected within this report uses probabilistic cost and schedule risk analysis methods within the framework of the Oracle Crystal Ball software application. First, members of the Project Delivery Team (PDT) met to identify risk items for both the construction cost estimate and the construction schedule. Then, the risk register was completed (see Attachment 5). After that, the risk model was customized using commercially available Oracle Crystal Ball software. The most likely "high" and "low" values were assigned to estimate items using the software's "Assumption" function and the triangular distribution. "Forecasts" were then defined and the model was run.

After the model was run, the results were extracted from the sensitivity chart, the forecast chart, and the percentiles table for major items. The percentiles were then used to determine the contingency at the 80 percent confidence level. The appropriate contingency was then input in the total project cost summary spreadsheet.

B.3.2 Risk Analysis Results

The current risk analysis calculated a 55 percent contingency for costs and a 33 percent contingency on the schedule, which is based on the 80 percent confidence level. The current sensitivity charts, which provide an assessment of the contribution to the contingency calculation, are presented below.





Figure 2 - Sensitivity Chart, Schedule Contingency



B.4 Total Project Cost Summary

The TPCS addresses inflation through Project completion (accomplished by escalation to midpoint of construction per ER 1110-2-1302, Appendix C). It is based on the scope of the Recommended Plan and the Project schedule. The TPCS includes federal and non-federal costs for lands and damages, all construction features, PED, and S&A, along with the appropriate contingencies and escalation associated with each of these activities as discussed above. The current TPCS is provided in Attachment 6.

B.4.1 Cost Agency Technical Review Certification

WALLA WALLA COST ENGINEERING MANDATORY CENTER OF EXPERTISE

COST AGENCY TECHNICAL REVIEW

CERTIFICATION STATEMENT

For Project No. 511864

North of Lake Okeechobee Storage Reservoir (LOCAR) Section 203 Feasibility Study

The Lake Okeechobee (LOCAR) Section 203 Feasibility Study, as presented by the Non-Federal Interest South Florida Water Management District, has undergone a successful Cost Agency Technical Review (Cost ATR), performed by the Walla Walla District Cost Engineering Mandatory Center of Expertise (Cost MCX) team. The Cost ATR included study of the project scope, report, cost estimates, schedules, escalation, and risk-based contingencies. This certification signifies the products meet the quality standards as prescribed in ER 1110-2-1150 Engineering and Design for Civil Works Projects and ER 1110-2-1302 Civil Works Cost Engineering.

As of February 8, 2024, the Cost MCX certifies the estimated total project cost:

 FY24
 Project First Cost:
 \$3,544,488,000

 Fully Funded Amount:
 \$4,257,100,000

Cost Certification assumes Efficient Implementation (Funding). It remains the responsibility of the District to correctly reflect these cost values within the Final Report and to implement effective project management controls and implementation procedures including risk management through the period of Federal Participation.



for Michael P. Jacobs, PE, CCE Chief, Cost Engineering MCX Walla Walla District

DISTRICT: Jacksonville District

POC: CHIEF, COST ENGINEERING, xxx

PROJECT: Lake Okeechobee Component A Reservoir PROJECT NO: P2# 511864 LOCATION: Lake Okeechobee, FL

LOCAR Feasibility Report This Estimate reflects the scope and schedule in report;

Civil	Civil Works Work Breakdown Structure		ESTIMATE	ED COST				PROJEC (Constan	CT FIRST COST				TOTAL (FUL	PROJECT COS LY FUNDED)	Г
								Program Year Effective Pric	(Budget EC): ce Level Date:	2024 1 OCT 23					
										Spent Thru:	TOTAL FIRST				
WBS	Civil Works	COST	CNTG	CNTG	TOTAL	ESC	COST	CNTG	TOTAL	1-Oct-23	COST	INFLATED	COST	CNTG	FULL
NUMBER A	Feature & Sub-Feature Description <i>B</i>	<u>(\$K)</u> C	<u>(\$K)</u> D	<u>(%)</u> E	<u>(\$K)</u> F	<u>(%)</u> G	<u>(\$K)</u> H	<u>(\$K)</u> /	<u>(\$K)</u> J	<u>(\$K)</u>	<u>(\$K)</u> <i>K</i>	<u>(%)</u>	(\$K) <i>M</i>	<u>(\$K)</u> N	<u>(\$K)</u> 0
03	RESERVOIRS	\$1,306,218	\$718,420	55.0%	\$2,024,638	0.0%	\$1,306,218	\$718,420	\$2,024,638	\$0	\$2,024,638	24.9%	\$1,631,796	\$897,488	\$2,529,285
09	CHANNELS & CANALS	\$3,966	\$2,181	55.0%	\$6,148	0.0%	\$3,966	\$2,181	\$6,148	\$0	\$6,148	19.3%	\$4,734	\$2,603	\$7,337
11	LEVEES & FLOODWALLS	\$5,410	\$2,975	55.0%	\$8,385	0.0%	\$5,410	\$2,975	\$8,385	\$0	\$8,385	26.1%	\$6,822	\$3,752	\$10,574
13		\$171,569	\$94,363	55.0%	\$265,932	0.0%	\$171,569	\$94,363	\$265,932	\$0 ©0	\$265,932	17.4%	\$201,411	\$110,776	\$312,187
14		\$1,426	\$784 ¢co.coc	55.0%	\$2,210	0.0%	\$1,426	\$784 ¢co.coc	\$2,210	\$0 ©0	\$2,210	38.0%	\$1,967	\$1,082	\$3,048
											,				
	CONSTRUCTION ESTIMATE TOTALS:	\$1,598,599	\$879,229		\$2,477,828	0.0%	\$1,598,599	\$879,229	\$2,477,828	\$0	\$2,477,828	23.8%	\$1,979,039	\$1,088,471	\$3,067,510
01	LANDS AND DAMAGES	\$130,005	\$89,238	68.6%	\$219,243	0.0%	\$130,005	\$89,238	\$219,243	\$0	\$219,243	6.9%	\$138,987	\$95,404	\$234,391
30	PLANNING, ENGINEERING & DESIGN	\$399,650	\$219,807	55.0%	\$619,457	0.0%	\$399,650	\$219,807	\$619,457	\$0	\$619,457	10.1%	\$440,138	\$242,076	\$682,214
31	CONSTRUCTION MANAGEMENT	\$147,071	\$80,889	55.0%	\$227,960	0.0%	\$147,071	\$80,889	\$227,960	\$0	\$227,960	19.8%	\$176,120	\$96,866	\$272,986
	PROJECT COST TOTALS:	\$2,275,325	\$1,269,164	55.8%	\$3,544,488		\$2,275,325	\$1,269,164	\$3,544,488	\$0	\$3,544,488	20.1%	\$2,734,284	\$1,522,817	\$4,257,100

 CHIEF, COST ENGINEERING, xxx
 PROJECT MANAGER, xxx
 CHIEF, REAL ESTATE, xxx
 CHIEF, PLANNING, xxx
 CHIEF, ENGINEERING, xxx
 CHIEF, OPERATIONS, xxx
 CHIEF, CONSTRUCTION, xxx
 CHIEF, CONTRACTING, xxx
 CHIEF, PM-PB, xxxx
 CHIEF, DPM, xxx

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ESTIMATED TOTAL PROJECT COST: \$4,257,100

**** CONTRACT COST SUMMARY ****

CONTRACT 1

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PROJECT: Lake Okeechobee Component A Reservoir LOCATION: Lake Okeechobee, FL

This Estimate reflects the scope and schedule in report;

LOCAR Feasibility Report

Civ	il Works Work Breakdown Structure		ESTIMATE	ED COST			PROJECT (Constant	FIRST COST Dollar Basis			TOTAL PI	ROJECT COST (FULL)	FUNDED)	
		Estim Effecti	nate Prepared ive Price Leve	: 91:	7-Jan-24 1-Oct-23	Progra Effect	am Year (Budg tive Price Leve	jet EC): el Date:	2024 1 OCT 23					
			F	RISK BASED										
WBS	Civil Works	COST	CNTG	CNTG	TOTAL	ESC	COST	CNTG	TOTAL	Mid-Point	INFLATED	COST	CNTG	FULL
NUMBER	Feature & Sub-Feature Description	<u>(\$K)</u>	<u>(\$K)</u>	(%)	<u>(\$K)</u>	(%)	<u>(\$K)</u>	(\$K)	<u>(\$K)</u>	Date	(%)	<u>(\$K)</u>	<u>(\$K)</u>	<u>(\$K)</u>
Α		с	D	E	F	G	н	I	J	Р	L	М	N	0
03		0.2	¢0.	EE 00/	¢0,	0.0%	¢0,	¢o	¢0,	0	0.0%	¢0.	¢O	÷0
00		\$0 \$0	ېن د م	55.0% EE 0%	¢0	0.0%	\$0 \$0	φ0 ¢0	¢0	0	0.0%	\$0 \$0	\$0 ¢0	¢۲ م
11		\$U ©	\$U ©O	55.0%	\$U ©0	0.0%	\$U ©0	\$U ¢0	\$U ©0	0	0.0%	\$U \$0	\$0 ¢0	\$U #0
12		\$U	\$U	55.0%	\$U	0.0%	\$U	\$U	\$U #00.504	0	0.0%	\$U	\$U ¢⊃0.001	\$U
13		\$63,588	\$34,973	55.0%	\$98,561	0.0%	\$63,588	\$34,973	\$98,561	2029Q1	13.8%	\$72,366	\$39,801	\$112,167
14		\$0	\$0	55.0%	\$U	0.0%	\$0	\$0	\$U	0	0.0%	\$0	\$U	\$U
15	FLOODWAT CONTROL & DIVERSION STRU	\$14,471	\$7,909	55.0%	\$22,430	0.0%	\$14,471	\$7,909	φ 22,4 30	2029Q1	13.070	\$10,400	99,000	\$23,320
	CONSTRUCTION ESTIMATE TOTALS:	\$78,059	\$42,932	55.0%	\$120,991	-	\$78,059	\$42,932	\$120,991			\$88,834	\$48,859	\$137,693
01	LANDS AND DAMAGES	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$C
30	PLANNING, ENGINEERING & DESIGN													
2.	0% Project Management	\$1,561	\$859	55.0%	\$2,420	0.0%	\$1,561	\$859	\$2,420	2026Q2	5.0%	\$1,639	\$902	\$2,541
2.	0% Planning & Environmental Compliance	\$1,561	\$859	55.0%	\$2,420	0.0%	\$1,561	\$859	\$2,420	2026Q2	5.0%	\$1,639	\$902	\$2,541
9.	0% Engineering & Design	\$7,025	\$3,864	55.0%	\$10,889	0.0%	\$7,025	\$3,864	\$10,889	2026Q2	5.0%	\$7,377	\$4,058	\$11,435
2.	0% Reviews, ATRs, IEPRs, VE	\$1,561	\$859	55.0%	\$2,420	0.0%	\$1,561	\$859	\$2,420	2026Q2	5.0%	\$1,639	\$902	\$2,541
2.	0% Life Cycle Updates (cost, schedule, risks)	\$1,561	\$859	55.0%	\$2,420	0.0%	\$1,561	\$859	\$2,420	2026Q2	5.0%	\$1,639	\$902	\$2,541
1.	0% Contracting & Reprographics	\$781	\$429	55.0%	\$1,210	0.0%	\$781	\$429	\$1,210	2026Q2	5.0%	\$820	\$451	\$1,271
4.	0% Engineering During Construction	\$3,122	\$1,717	55.0%	\$4,840	0.0%	\$3,122	\$1,717	\$4,840	2029Q1	11.5%	\$3,481	\$1,915	\$5,396
2.	0% Planning During Construction	\$1,561	\$859	55.0%	\$2,420	0.0%	\$1,561	\$859	\$2,420	2029Q1	11.5%	\$1,741	\$957	\$2,698
0.: 0.:	5% Adaptive Management & Monitoring5% Project Operations	\$390 \$390	\$215 \$215	55.0% 55.0%	\$605 \$605	0.0% 0.0%	\$390 \$390	\$215 \$215	\$605 \$605	2029Q1 2026Q2	11.5% 5.0%	\$435 \$410	\$239 \$225	\$674 \$635
31	CONSTRUCTION MANAGEMENT													
7	2% Construction Management	\$5,620	\$3,091	55.0%	\$8,711	0.0%	\$5,620	\$3,091	\$8,711	2029Q1	11.5%	\$6,266	\$3,446	\$9,713
1.	0% Project Operation:	\$781	\$429	55.0%	\$1,210	0.0%	\$781	\$429	\$1,210	2029Q1	11.5%	\$870	\$479	\$1,349
1.	0% Project Management	\$781	\$429	55.0%	\$1,210	0.0%	\$781	\$429	\$1,210	2029Q1	11.5%	\$870	\$479	\$1,349
	CONTRACT COST TOTALS:	\$104,755	\$57,615		\$162,370		\$104,755	\$57,615	\$162,370	İ.		\$117,663	\$64,715	\$182,378

PREPARED: 1/8/2024

**** CONTRACT COST SUMMARY ****

CONTRACT 2

PROJECT: Lake Okeechobee Component A Reservoir LOCATION: Lake Okeechobee, FL LOCAR Feasibility Report DISTRICT: Jacksonville District POC: CHIEF, COST ENGINEERING, xxx PREPARED: 1/8/2024

This Estimate reflects the scope and schedule in report;

Civi	Civil Works Work Breakdown Structure		ESTIMATE	ED COST			PROJECT (Constant I	FIRST COST Dollar Basis)			TOTAL PF	ROJECT COST (FULL)	FUNDED)	
		Estim Effecti	ate Prepared ve Price Leve	: el:	7-Jan-24 1-Oct-23	Progra Effec	am Year (Budg tive Price Leve	et EC): I Date:	2024 1 OCT 23					
WBS <u>NUMBER</u> A	Civil Works <u>Feature & Sub-Feature Description</u> B	COST (\$K) C	CNTG _(<u>\$K)</u> D	CNTG (%) E	TOTAL _(\$K)	ESC (%) G	COST _ <u>(\$K)</u> <i>H</i>	CNTG (\$K) /	TOTAL (\$K)	Mid-Point <u>Date</u> P	INFLATED (%) <i>L</i>	COST (\$K)	CNTG (\$K) N	FULL (\$K) 0
	PHASE 2 or CONTRACT 2													
03	RESERVOIRS	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
09	CHANNELS & CANALS	\$3,234	\$1,779	55.0%	\$5,013	0.0%	\$3,234	\$1,779	\$5,013	2031Q1	19.8%	\$3,874	\$2,131	\$6,00
11	LEVEES & FLOODWALLS	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
13	PUMPING PLANT	\$95,155	\$52,335	55.0%	\$147,490	0.0%	\$95,155	\$52,335	\$147,490	2031Q1	19.8%	\$113,995	\$62,697	\$176,693
14	RECREATION FACILITIES	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$
15	FLOODWAY CONTROL & DIVERSION STRU	\$15,918	\$8,755	55.0%	\$24,672	0.0%	\$15,918	\$8,755	\$24,672	2031Q1	19.8%	\$19,069	\$10,488	\$29,55
	CONSTRUCTION ESTIMATE TOTALS:	\$114,307	\$62,869	55.0%	\$177,175	-	\$114,307	\$62,869	\$177,175			\$136,939	\$75,316	\$212,25
01	LANDS AND DAMAGES	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$
30	PLANNING, ENGINEERING & DESIGN													
2.0	0% Project Management	\$2,286	\$1,257	55.0%	\$3,544	0.0%	\$2,286	\$1,257	\$3,544	2027Q2	7.3%	\$2,454	\$1,349	\$3,80
2.0	0% Planning & Environmental Compliance	\$2,286	\$1,257	55.0%	\$3,544	0.0%	\$2,286	\$1,257	\$3,544	2027Q2	7.3%	\$2,454	\$1,349	\$3,80
9.0	0% Engineering & Design	\$10,288	\$5,658	55.0%	\$15,946	0.0%	\$10,288	\$5,658	\$15,946	2027Q2	7.3%	\$11,041	\$6,073	\$17,11
2.0	% Reviews, ATRs, IEPRs, VE	\$2,286	\$1,257	55.0%	\$3,544	0.0%	\$2,286	\$1,257	\$3,544	2027Q2	7.3%	\$2,454	\$1,349	\$3,80
2.0	1% Life Cycle Updates (cost, schedule, risks)	\$2,286	\$1,257	55.0%	\$3,544	0.0%	\$2,286	\$1,257	\$3,544	2027Q2	7.3%	\$2,454	\$1,349	\$3,80
1.0	0% Contracting & Reprographics	\$1,143	\$629	55.0%	\$1,772	0.0%	\$1,143	\$629	\$1,772	2027Q2	7.3%	\$1,227	\$675	\$1,90
4.0	Engineering During Construction	\$4,572	\$2,515	55.0%	\$7,087	0.0%	\$4,572	\$2,515	\$7,087	2031Q1	16.5%	\$5,325	\$2,929	\$8,25
2.0	Adaptive Management & Manitering	¢∠,200	\$1,207 ¢214	55.0% EE 0%	φ3,044 ¢00¢	0.0%	\$2,200 \$570	\$1,207 ¢214	\$3,544 ¢006	2031Q1	10.5%	\$2,00Z	\$1,404 #266	\$4,12
0.5	7% Project Operations	\$572	\$314 \$314	55.0%	\$886	0.0%	\$572	\$314 \$314	\$886 \$886	2027Q2	7.3%	\$613	\$337	\$95
31	CONSTRUCTION MANAGEMENT													
7.2	2% Construction Management	\$8,230	\$4,527	55.0%	\$12,757	0.0%	\$8,230	\$4,527	\$12,757	2031Q1	16.5%	\$9,584	\$5,271	\$14,85
1.0	9% Project Operation:	\$1,143	\$629	55.0%	\$1,772	0.0%	\$1,143	\$629	\$1,772	2031Q1	16.5%	\$1,331	\$732	\$2,06
1.0	0% Project Management	\$1,143	\$629	55.0%	\$1,772	0.0%	\$1,143	\$629	\$1,772	2031Q1	16.5%	\$1,331	\$732	\$2,06
	CONTRACT COST TOTALS:	\$153,400	\$84,370		\$237,769		\$153,400	\$84,370	\$237,769			\$180,533	\$99,293	\$279,820

DISTRICT: Jacksonville District

POC: CHIEF, COST ENGINEERING, xxx

1/8/2024

PREPARED:

**** CONTRACT COST SUMMARY ****

CONTRACT 3

PROJECT: Lake Okeechobee Component A Reservoir LOCATION: Lake Okeechobee, FL

This Estimate reflects the scope and schedule in report;

LOCAR Feasibility Report

Civil V	Civil Works Work Breakdown Structure		ESTIMATE	ED COST			PROJECT (Constant	FIRST COST Dollar Basis)			TOTAL PF	ROJECT COST (FULL)	(FUNDED)	
		Estim Effecti	ate Prepared ve Price Leve	:):	7-Jan-24 1-Oct-23	Progra Effect	am Year (Budg tive Price Leve	get EC): el Date:	2024 1 OCT 23					
WBS <u>NUMBER</u> A	Civil Works <u>Feature & Sub-Feature Description</u> <i>B</i>	COST _ <u>(\$K)</u> C	CNTG _(\$K) D	CNTG (%) <i>E</i>	TOTAL _(\$K) <i>F</i>	ESC _(%) G	COST _ <u>(\$K)</u> <i>H</i>	CNTG _(\$K)/	TOTAL _ <u>(\$K)_</u> J	Mid-Point <u>Date</u> P	INFLATED (%) L	COST (\$K)	CNTG (\$K) N	FULL (\$K) <i>O</i>
03 09	RESERVOIRS CHANNELS & CANALS	\$170,499 \$0	\$93,774 \$0	55.0% 55.0%	\$264,273 \$0	0.0% 0.0%	\$170,499 \$0	\$93,774 \$0	\$264,273 \$0	2030Q2 0	17.3% 0.0%	\$200,067 \$0	\$110,037 \$0	\$310,104 \$0
11 13 14	LEVEES & FLOODWALLS PUMPING PLANT RECREATION FACILITIES	\$0 \$0 \$0	\$0 \$0 \$0	55.0% 55.0% 55.0%	\$0 \$0 \$0	0.0% 0.0% 0.0%	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	0 0 0	0.0% 0.0% 0.0%	\$0 \$0 \$0	\$0 \$0 \$0	\$C \$C \$C
15	FLOODWAY CONTROL & DIVERSION STRU	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
	CONSTRUCTION ESTIMATE TOTALS:	\$170,499	\$93,774	55.0%	\$264,273	_	\$170,499	\$93,774	\$264,273			\$200,067	\$110,037	\$310,104
01	LANDS AND DAMAGES	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$(
30	PLANNING, ENGINEERING & DESIGN													
2.0%	6 Project Management	\$3,410	\$1,875	55.0%	\$5,285	0.0%	\$3,410	\$1,875	\$5,285	2027Q1	6.7%	\$3,640	\$2,002	\$5,642
2.0%	6 Planning & Environmental Compliance	\$3,410	\$1,875	55.0%	\$5,285	0.0%	\$3,410	\$1,875	\$5,285	2027Q1	6.7%	\$3,640	\$2,002	\$5,642
9.0%	6 Engineering & Design	\$15,345	\$8,440	55.0%	\$23,785	0.0%	\$15,345	\$8,440	\$23,785	2027Q1	6.7%	\$16,380	\$9,009	\$25,389
2.0%	Reviews, ATRs, IEPRs, VE	\$3,410	\$1,875	55.0%	\$5,285	0.0%	\$3,410	\$1,875	\$5,285	2027Q1	6.7%	\$3,640	\$2,002	\$5,642
2.0%	Life Cycle Updates (cost, schedule, risks)	\$3,410	\$1,875	55.0%	\$5,285	0.0%	\$3,410	\$1,875	\$5,285	2027Q1	6.7%	\$3,640	\$2,002	\$5,642
1.0%	Contracting & Reprographics	\$1,705	\$938	55.0%	\$2,643	0.0%	\$1,705	\$938	\$2,643	2027Q1	6.7%	\$1,820	\$1,001	\$2,821
4.0%	Blanning During Construction	\$0,820 \$2,410	\$3,731 ¢1 075	55.0% EE 0%	\$10,571 ¢E 20E	0.0%	\$0,820 \$2,410	\$3,731 ¢1 975	\$10,571 ¢E 29E	2030Q2	14.0%	\$7,013 \$2,007	\$4,297 ¢2,140	\$12,110 #6.0EE
2.0%	Adaptive Management & Monitoring	\$3,410 \$852	\$1,070 \$460	55.0%	φ0,200 ¢1 321	0.0%	\$3,410 \$852	φ1,070 ¢460	φ0,200 ¢1 321	203002	14.0%	\$3,907 \$077	\$2,149 ¢537	\$0,055 ¢1 514
0.5%	 Project Operations 	\$852	\$469	55.0%	\$1,321	0.0%	\$852 \$852	\$469 \$469	\$1,321	2030Q2 2027Q1	6.7%	\$910	\$501	\$1,411
31	CONSTRUCTION MANAGEMENT													
7.2%	6 Construction Management	\$12,276	\$6,752	55.0%	\$19,028	0.0%	\$12,276	\$6,752	\$19,028	2030Q2	14.6%	\$14,064	\$7,735	\$21,799
1.0%	6 Project Operation:	\$1,705	\$938	55.0%	\$2,643	0.0%	\$1,705	\$938	\$2,643	2030Q2	14.6%	\$1,953	\$1,074	\$3,028
1.0%	6 Project Management	\$1,705	\$938	55.0%	\$2,643	0.0%	\$1,705	\$938	\$2,643	2030Q2	14.6%	\$1,953	\$1,074	\$3,028
	CONTRACT COST TOTALS:	\$228,809	\$125,845		\$354,655		\$228,809	\$125,845	\$354,655			\$264,404	\$145,422	\$409,826

**** CONTRACT COST SUMMARY ****

CONTRACT 4

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 PROJECT:
 Lake Okeechobee Component A Reservoir

 LOCATION:
 Lake Okeechobee, FL

 This Estimate reflects the scope and schedule in report;

LOCAR Feasibility Report

Civil	Works Work Breakdown Structure		ESTIMATE	D COST			PROJECT (Constant	FIRST COST Dollar Basis))	TOTAL PROJECT COST (FULLY FUNDED)				
		Estim Effecti	nate Prepared: ive Price Leve	: I:	7-Jan-24 1-Oct-23	F	Program Year (E Effective Price	Budget EC): Level Date:	2024 1 OCT 23		FUL	LLY FUNDED PROJECT	ESTIMATE	
WBS <u>NUMBER</u> A	Civil Works Feature & Sub-Feature Description B	COST _ <u>(\$K)</u> C	CNTG (<u>\$K)</u> D	CNTG (%) <i>E</i>	TOTAL _ <u>(\$K)</u> <i>F</i>	ESC (%) G	COST <u>(\$K)</u> <i>H</i>	CNTG (\$K) /	TOTAL _ <u>(\$K)</u> 	Mid-Point <u>Date</u> P	INFLATED (%)	COST _(\$K)	CNTG _(\$K)	FULL (\$K) O
03 09 11 13 14	PHASE 4 or CONTRACT 4 RESERVOIRS CHANNELS & CANALS LEVEES & FLOODWALLS PUMPING PLANT RECREATION FACILITIES	\$1,119,282 \$0 \$5,410 \$0 \$0	\$615,605 \$0 \$2,975 \$0 \$0	55.0% 55.0% 55.0% 55.0% 55.0%	\$1,734,887 \$0 \$8,385 \$0 \$0	0.0% 0.0% 0.0% 0.0% 0.0%	\$1,119,282 \$0 \$5,410 \$0 \$0	\$615,605 \$0 \$2,975 \$0 \$0	\$1,734,887 \$0 \$8,385 \$0 \$0	2033Q1 0 2033Q1 0 0	26.1% 0.0% 26.1% 0.0% 0.0%	\$1,411,526 \$0 \$6,822 \$0 \$0	\$776,339 \$0 \$3,752 \$0 \$0	\$2,187,865 \$0 \$10,574 \$0 \$0
15	FLOODWAY CONTROL & DIVERSION STRU	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
	CONSTRUCTION ESTIMATE TOTALS:	\$1,124,692	\$618,580	55.0%	\$1,743,272		\$1,124,692	\$618,580	\$1,743,272			\$1,418,348	\$780,091	\$2,198,439
01	LANDS AND DAMAGES	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
30 2.09 2.09 2.09 2.09 1.09 4.09 0.59 0.59 31 7.22	PLANNING, ENGINEERING & DESIGN % Project Management % Planning & Environmental Compliance % Engineering & Design % Reviews, ATRS, IEPRS, VE % Life Cycle Updates (cost, schedule, risks) % Contracting & Reprographics % Engineering During Construction % Planning During Construction % Adaptive Management & Monitoring % Project Operations CONSTRUCTION MANAGEMENT Construction Management	\$22,494 \$22,494 \$101,222 \$22,494 \$11,247 \$44,988 \$22,494 \$5,623 \$5,623	\$12,372 \$12,372 \$55,672 \$12,372 \$6,186 \$24,743 \$12,372 \$3,093 \$3,093 \$44,538	55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0%	\$34,865 \$34,865 \$156,894 \$34,865 \$17,433 \$69,731 \$34,865 \$8,716 \$125,516 \$125,516	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	\$22,494 \$22,494 \$101,222 \$22,494 \$11,247 \$44,988 \$22,494 \$5,623 \$5,623 \$80,978	\$12,372 \$12,372 \$55,672 \$12,372 \$6,186 \$24,743 \$12,372 \$3,093 \$3,093 \$44,538	\$34,865 \$34,865 \$156,894 \$34,865 \$17,433 \$69,731 \$34,865 \$8,716 \$8,716 \$125,516	2027Q1 2027Q1 2027Q1 2027Q1 2027Q1 2033Q1 2033Q1 2033Q1 2027Q1	6.7% 6.7% 6.7% 6.7% 21.6% 21.6% 6.7% 21.6%	\$24,011 \$24,011 \$108,051 \$24,011 \$12,006 \$54,721 \$27,360 \$6,840 \$6,003 \$98,497	\$13,206 \$13,206 \$13,206 \$13,206 \$6,603 \$30,096 \$15,048 \$3,762 \$3,302 \$54,173	\$37,218 \$37,218 \$167,479 \$37,218 \$37,218 \$18,609 \$84,817 \$42,409 \$10,602 \$9,304 \$152,671
1.09 1.09	% Project Operation:% Project Management	\$11,247 \$11,247	\$6,186 \$6,186	55.0% 55.0%	\$17,433 \$17,433	0.0% 0.0%	\$11,247 \$11,247	\$6,186 \$6,186	\$17,433 \$17,433	2033Q1 2033Q1	21.6% 21.6%	\$13,680 \$13,680	\$7,524 \$7,524	\$21,204 \$21,204
	CONTRACT COST TOTALS:	\$1,509,336	\$830,135		\$2,339,471		\$1,509,336	\$830,135	\$2,339,471			\$1,855,231	\$1,020,377	\$2,875,609

DISTRICT: Jacksonville District POC: CHIEF, COST ENGINEERING, xxx PREPARED: 1/8/2024

**** CONTRACT COST SUMMARY ****

CONTRACT 5

 PROJECT:
 Lake Okeechobee Component A Reservoir

 LOCATION:
 Lake Okeechobee, FL

 This Estimate reflects the scope and schedule in report;

LOCAR Feasibility Report

Civil W	Vorks Work Breakdown Structure		ESTIMATE	ED COST			PROJECT (Constant	FIRST COST Dollar Basis)		TOTAL PROJECT COST (FULLY FUNDED)				
		Estim Effecti	ate Prepared ve Price Leve	: el:	7-Jan-24 1-Oct-23	P	rogram Year (E Effective Price	Budget EC): Level Date:	2024 1 OCT 23		FULLY	Y FUNDED PROJECT	ESTIMATE	
WBS <u>NUMBER</u> A	Civil Works <u>Feature & Sub-Feature Description</u> <i>B</i>	COST _ <u>(\$K)</u> C	CNTG _(\$K) D	CNTG (%) E	TOTAL _ <u>(\$K)</u> <i>F</i>	ESC (%) G	COST _(\$K)	CNTG (\$K) /	TOTAL (\$K)	Mid-Point <u>Date</u> P	INFLATED (%) <i>L</i>	COST <u>(\$K)</u> <i>M</i>	CNTG _(\$K)	FULL <u>(\$K)</u> O
03 09 11 13 14	PHASE 5 or CONTRACT 5 RESERVOIRS CHANNELS & CANALS LEVEES & FLOODWALLS PUMPING PLANT RECREATION FACILITIES	\$16,437 \$0 \$0 \$0 \$0	\$9,041 \$0 \$0 \$0 \$0	55.0% 55.0% 55.0% 55.0% 55.0%	\$25,478 \$0 \$0 \$0 \$0	0.0% 0.0% 0.0% 0.0%	\$16,437 \$0 \$0 \$0 \$0	\$9,041 \$0 \$0 \$0 \$0	\$25,478 \$0 \$0 \$0 \$0	2032Q1 0 0 0 0	22.9% 0.0% 0.0% 0.0% 0.0%	\$20,204 \$0 \$0 \$0 \$0 \$0	\$11,112 \$0 \$0 \$0 \$0 \$0	\$31,316 \$0 \$0 \$0 \$0 \$0 \$0
15	FLOODWAY CONTROL & DIVERSION STRU	\$59,958	\$32,977	55.0%	\$92,935	0.0%	\$59,958	\$32,977	\$92,935	2032Q1	22.9%	\$73,697	\$40,533	\$114,230
	CONSTRUCTION ESTIMATE TOTALS:	\$76,396	\$42,018	55.0%	\$118,413	-	\$76,396	\$42,018	\$118,413			\$93,901	\$51,646	\$145,546
01	LANDS AND DAMAGES	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0
30 2.0% 2.0% 2.0% 2.0% 2.0% 4.0% 2.0% 0.5% 31 7.2% 1.0%	PLANNING, ENGINEERING & DESIGN Project Management Planning & Environmental Compliance Engineering & Design Reviews, ATRs, IEPRs, VE Life Cycle Updates (cost, schedule, risks) Contracting & Reprographics Engineering During Construction Planning During Construction Adaptive Management & Monitoring Project Operations CONSTRUCTION MANAGEMENT Construction Management Project Operation: Project Management	\$1,528 \$1,528 \$6,876 \$1,528 \$764 \$3,056 \$1,528 \$382 \$382 \$382 \$5,500 \$764 \$764	\$840 \$840 \$3,782 \$840 \$420 \$1,681 \$840 \$210 \$210 \$210 \$3,025 \$420 \$420	55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0%	\$2,368 \$2,368 \$10,657 \$2,368 \$1,184 \$4,737 \$2,368 \$592 \$592 \$8,526 \$1,184 \$1,184	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	\$1,528 \$6,876 \$1,528 \$1,528 \$764 \$3,056 \$1,528 \$382 \$382 \$382 \$5,500 \$764 \$764	\$840 \$840 \$3,782 \$840 \$420 \$1,681 \$840 \$210 \$210 \$210 \$3,025 \$420 \$420	\$2,368 \$2,368 \$10,657 \$2,368 \$1,184 \$4,737 \$2,368 \$592 \$592 \$8,526 \$1,184 \$1,184	2027Q2 2027Q2 2027Q2 2027Q2 2027Q2 2032Q1 2032Q1 2032Q1 2032Q1 2032Q1 2032Q1 2032Q1 2032Q1	7.3% 7.3% 7.3% 7.3% 7.3% 19.0% 19.0% 19.0% 19.0% 19.0% 19.0%	\$1,640 \$1,640 \$7,379 \$1,640 \$820 \$3,637 \$1,818 \$455 \$410 \$6,546 \$909 \$909	\$902 \$902 \$4059 \$902 \$451 \$2,000 \$1,000 \$250 \$225 \$3,601 \$500 \$500	\$2,542 \$2,542 \$11,438 \$2,542 \$1,271 \$5,637 \$2,819 \$705 \$635 \$10,147 \$1,409 \$1,409
	CONTRACT COST TOTALS:	\$102,523	\$56,388		\$158,910		\$102,523	\$56,388	\$158,910	<u> </u>		\$123,344	\$67,839	\$191,183

DISTRICT: Jacksonville District POC: CHIEF, COST ENGINEERING, xxx PREPARED: 1/8/2024

DISTRICT: Jacksonville District

POC: CHIEF, COST ENGINEERING, xxx

1/8/2024

PREPARED:

**** CONTRACT COST SUMMARY ****

CONTRACT 6

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PROJECT: Lake Okeechobee Component A Reservoir LOCATION: Lake Okeechobee, FL This Estimate reflects the scope and schedule in report;

LOCAR Feasibility Report

Civil W	/orks Work Breakdown Structure		ESTIMATE	ED COST			PROJECT (Constant	FIRST COST Dollar Basis)			TOTAL P	ROJECT COST (FULL)	FUNDED)	
		Estim Effecti	ate Prepared ve Price Leve	i: el:	7-Jan-24 1-Oct-23	P I	rogram Year (I Effective Price	Budget EC): Level Date:	2024 1 OCT 23		FULL	Y FUNDED PROJECT	ESTIMATE	
WBS <u>NUMBER</u> A	Civil Works <u>Feature & Sub-Feature Description</u> B	COST (\$K) C	CNTG (\$K) D	CNTG (%) <i>E</i>	TOTAL _(\$K) <i>F</i>	ESC (%) G	COST _(\$K)	CNTG (\$K) /	TOTAL (\$K)	Mid-Point <u>Date</u> P	INFLATED (%) L	COST _(\$K)	CNTG (\$K) N	FULL (\$K) O
03 09 11 13 14 15	RESERVOIRS CHANNELS & CANALS LEVEES & FLOODWALLS PUMPING PLANT RECREATION FACILITIES FLOODWAY CONTROL & DIVERSION STRL	\$0 \$732 \$0 \$12,826 \$0 \$19,664	\$0 \$403 \$0 \$7,054 \$0 \$10,815	55.0% 55.0% 55.0% 55.0% 55.0%	\$0 \$1,135 \$0 \$19,880 \$0 \$30,479	0.0% 0.0% 0.0% 0.0% 0.0%	\$0 \$732 \$0 \$12,826 \$0 \$19,664	\$0 \$403 \$0 \$7,054 \$0 \$10,815	\$0 \$1,135 \$0 \$19,880 \$0 \$30,479	0 2030Q2 0 2030Q2 0 2030Q2	0.0% 17.3% 0.0% 17.3% 0.0% 17.3%	\$0 \$859 \$0 \$15,050 \$0 \$23,074	\$0 \$473 \$0 \$8,278 \$0 \$12,691	\$0 \$1,332 \$0 \$23,328 \$0 \$35,764
01	CONSTRUCTION ESTIMATE TOTALS:	\$33,222	\$18,272	0.0%	\$51,494 \$0	- 0.0%	\$33,222	\$18,272	\$51,494	0	0.0%		\$21,441 \$0	\$60,424
30 2.0% 2.0% 2.0% 2.0% 4.0% 2.0% 0.5% 0.5% 31 7.2% 1.0% 1.0%	PLANNING, ENGINEERING & DESIGN Project Management Planning & Environmental Compliance Engineering & Design Reviews, ATRs, IEPRs, VE Life Cycle Updates (cost, schedule, risks) Contracting & Reprographics Engineering During Construction Planning During Construction Adaptive Management & Monitoring Project Operations CONSTRUCTION MANAGEMENT Construction Management Project Operation: Project Management	\$664 \$2,990 \$664 \$332 \$1,329 \$664 \$166 \$166 \$166 \$166 \$12,392 \$332 \$332	\$365 \$365 \$1,644 \$365 \$183 \$731 \$365 \$91 \$91 \$91 \$1,316 \$183 \$183	55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0%	\$1,030 \$4,634 \$1,030 \$1,030 \$515 \$2,060 \$1,030 \$257 \$257 \$3,708 \$515 \$515	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	\$664 \$2,990 \$664 \$332 \$1,329 \$664 \$166 \$166 \$2,392 \$332 \$332	\$365 \$365 \$1,644 \$365 \$183 \$731 \$365 \$91 \$91 \$91 \$1,316 \$183 \$183	\$1,030 \$1,030 \$4,634 \$1,030 \$515 \$2,060 \$1,030 \$257 \$257 \$3,708 \$515 \$515	2027Q2 2027Q2 2027Q2 2027Q2 2027Q2 2030Q2 2030Q2 2030Q2 2030Q2 2027Q2 2030Q2 2030Q2 2030Q2 2030Q2 2030Q2	7.3% 7.3% 7.3% 7.3% 7.3% 14.6% 14.6% 14.6% 7.3%	\$713 \$713 \$3,209 \$713 \$357 \$1,522 \$761 \$190 \$178 \$2,740 \$381 \$381	\$392 \$392 \$1,765 \$392 \$196 \$837 \$419 \$105 \$98 \$1,507 \$209 \$209	\$1,105 \$1,105 \$4,974 \$1,105 \$553 \$2,360 \$1,180 \$295 \$276 \$4,248 \$590 \$590 \$590
	CONTRACT COST TOTALS:	\$44,584	\$24,521		\$69,105	<u> </u>	\$44,584	\$24,521	\$69,105			\$51,555	\$28,355	\$79,910

**** CONTRACT COST SUMMARY ****

PROJECT:

Lake Okeechobee Component A Reservoir LOCATION: Lake Okeechobee, FL This Estimate reflects the scope and schedule in report; LOCAR Feasibility Report

DISTRICT: Jacksonville District POC: CHIEF, COST ENGINEERING, xxx PREPARED: 1/8/2024

Civil V	Norks Work Breakdown Structure		ESTIMATE	D COST		PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estim: Effectiv	ate Prepared /e Price Leve	: el:	7-Jan-24 1-Oct-23	P	rogram Year (l Effective Price	Budget EC): Level Date:	2024 1 OCT 23		FULLY	FUNDED PROJECT	ESTIMATE					
WBS <u>NUMBER</u> A	Civil Works <u>Feature & Sub-Feature Description</u> B	COST <u>(\$K)</u> C	CNTG (\$K) D	CNTG (%) 	TOTAL _(\$K) <i>F</i>	ESC (%) G	COST _(\$K)	CNTG _(\$K)/	TOTAL (\$K)	Mid-Point <u>Date</u> P	INFLATED 	COST <u>(\$K)</u> M	CNTG _(\$K)	FULL _(\$K) 0				
	PHASE 7 or CONTRACT 7																	
03	RESERVOIRS	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0				
09	CHANNELS & CANALS	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0				
11	LEVEES & FLOODWALLS	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$(
13	PUMPING PLANT	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$(
14	RECREATION FACILITIES	\$1,426	\$784	55.0%	\$2,210	0.0%	\$1,426	\$784	\$2,210	2036Q3	38.0%	\$1,967	\$1,082	\$3,048				
15	FLOODWAY CONTROL & DIVERSION STRU	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$				
	CONSTRUCTION ESTIMATE TOTALS:	\$1,426	\$784	55.0%	\$2,210	-	\$1,426	\$784	\$2,210			\$1,967	\$1,082	\$3,04				
01	LANDS AND DAMAGES	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$				
30	PLANNING, ENGINEERING & DESIGN																	
2.0%	6 Project Management	\$29	\$16	55.0%	\$44	0.0%	\$29	\$16	\$44	2030Q4	15.8%	\$33	\$18	\$5				
2.0%	6 Planning & Environmental Compliance	\$29	\$16	55.0%	\$44	0.0%	\$29	\$16	\$44	2030Q4	15.8%	\$33	\$18	\$5				
9.0%	Engineering & Design	\$128	\$71	55.0%	\$199	0.0%	\$128	\$71	\$199	2030Q4	15.8%	\$149	\$82	\$23				
2.0%	Reviews, ATRs, IEPRs, VE	\$29	\$16	55.0%	\$44	0.0%	\$29	\$16	\$44	2030Q4	15.8%	\$33	\$18	\$5				
2.0%	Life Cycle Updates (cost, schedule, risks)	\$29	\$16	55.0%	\$44	0.0%	\$29	\$16	\$44	2030Q4	15.8%	\$33	\$18	\$5				
1.0%	Contracting & Reprographics	\$14	\$8	55.0%	\$22	0.0%	\$14	\$8	\$22	2030Q4	15.8%	\$17	\$9	\$20				
4.0%	Engineering During Construction	\$57	\$31	55.0%	\$88	0.0%	\$57	\$31	\$88	2036Q3	31.1%	\$75	\$41	\$110				
2.0%	Planning During Construction	\$29	\$10	55.0%	\$44	0.0%	\$29	\$16	\$44	2036Q3	31.1%	\$37	\$21	\$5				
0.5%	Adaptive Management & Monitoring Project Operations	\$7 ¢7	ቅ 4 ድላ	55.0% EE 0%	\$11 ©11	0.0%	ቅ/ ¢7	54 ድላ	۵۱۱ ۵11	2036Q3	31.1%	\$9 \$9	\$0 ¢E	\$1.				
0.5%	Project Operations	\$1	\$ 4	55.0%	\$11	0.0%	\$1	\$4	\$11	2030Q4	15.6%	\$ 0	φo	\$1				
31	CONSTRUCTION MANAGEMENT																	
7 2%	Construction Management	\$103	\$56	55.0%	\$159	0.0%	\$103	\$56	\$159	2036Q3	31.1%	\$135	\$74	\$20				
1.0%	Project Operation:	\$14	\$8	55.0%	\$22	0.0%	\$14	\$8	\$22	2036Q3	31.1%	\$19	\$10	\$20				
1.0%	6 Project Management	\$14	\$8 \$8	55.0%	\$22	0.0%	\$14	\$8 \$8	\$22	2036Q3	31.1%	\$19	\$10	\$2				
	CONTRACT COST TOTALS:	\$1,913	\$1,052		\$2,965		\$1,913	\$1,052	\$2,965			\$2,566	\$1,411	\$3,977				

CONTRACT 7

**** CONTRACT COST SUMMARY ****

REAL ESTATE ONLY

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 PROJECT:
 Lake Okeechobee Component A Reservoir

 LOCATION:
 Lake Okeechobee, FL

 This Estimate reflects the scope and schedule in report;

LOCAR Feasibility Report

Civil	Norks Work Breakdown Structure		ESTIMATE	D COST			PROJECT I (Constant I	FIRST COST Dollar Basis)			TOTAL PF	ROJECT COST (FULL)	FUNDED)	
		Estima Effectiv	ate Prepared /e Price Leve	: :	7-Jan-24 1-Oct-23	P	rogram Year (E Effective Price	Budget EC): Level Date:	2024 1 OCT 23		FULL	Y FUNDED PROJECT	ESTIMATE	
WBS <u>NUMBER</u> A	Civil Works <u>Feature & Sub-Feature Description</u> <i>B</i>	COST <u>(\$K)</u> C	CNTG (\$K) D	CNTG (%) <i>E</i>	TOTAL _ <u>(\$K)</u> <i>F</i>	ESC (%) G	COST _(\$K)	CNTG _(\$K)/	TOTAL (\$K)	Mid-Point <u>Date</u> P	INFLATED 	COST _(\$K)	CNTG (\$K) N	FULL (\$K) 0
03 09 11 13 14 15	Real Estate Only RESERVOIRS CHANNELS & CANALS LEVEES & FLOODWALLS PUMPING PLANT RECREATION FACILITIES FLOODWAY CONTROL & DIVERSION STRU	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	55.0% 55.0% 55.0% 55.0% 55.0%	\$0 \$0 \$0 \$0 \$0 \$0	0.0% 0.0% 0.0% 0.0% 0.0%	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0	0.0% 0.0% 0.0% 0.0% 0.0%	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0
01	CONSTRUCTION ESTIMATE TOTALS:	\$0 \$0 \$130,005	\$0 \$0 \$89,238	0.0%	0 219,243	0.0%	\$0 \$0 \$130,005	\$0 \$0 \$0 \$89,238	\$0 \$0 \$219,243	2026Q4	6.9%	\$0 \$0 \$138,987	\$0 \$0 \$95,404	\$0 \$0 \$234,391
30 2.0% 2.0% 2.0% 2.0% 2.0% 2.0% 4.0% 2.0% 0.5%	PLANNING, ENGINEERING & DESIGN Project Management Planning & Environmental Compliance Engineering & Design Reviews, ATRs, IEPRs, VE Life Cycle Updates (cost, schedule, risks) Contracting & Reprographics Engineering During Construction Planning During Construction Adaptive Management & Monitoring Project Operations	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0%	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 0 0	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
31 7.2% 1.0% 1.0%	CONSTRUCTION MANAGEMENT Construction Management Project Operation: Project Management CONTRACT COST TOTALS:	\$0 \$0 \$0 \$130,005	\$0 \$0 \$0 \$89,238	55.0% 55.0% 55.0%	0 0 0 219,243	0.0% 0.0% 0.0%	\$0 \$0 \$0 \$130,005	\$0 \$0 \$0 \$89,238	\$0 \$0 \$0 \$219,243	0 0 0	0.0% 0.0% 0.0%	\$0 \$0 \$0 \$138,987	\$0 \$0 \$0 \$95,404	\$0 \$0 \$234,391

DISTRICT: Jacksonville District POC: CHIEF, COST ENGINEERING, xxx PREPARED: 1/8/2024

Design Maturity Determination for Cost Certification

Date: 1/23/24

P2 Designation/Project Name: Lake Okeechobee Component A Reservoir (LOCAR) Section 203 Feasibility Study

The Chief of Engineering is responsible for the technical content and engineering sufficiency for all engineering products produced by the command. As such, I have performed the Management Control Evaluation per Engineer Regulation (ER) 1110-2-1150, Engineering and Design for Civil Works Projects, Appendix H, Internal Management Control Review Checklist.

The current design DOES NOT _ require HQ approval (i.e., engineering waivers), requiring a deviation from mandatory requirements and mandatory standards, as defined in ERs, Engineering Manuals, Engineering Technical letters, and Engineering Circulars.

The current hydrology and hydraulics modeling is at <u>20</u>% design maturity, per reference (h) below.

The current geotechnical data and subsurface investigations are at 20 % design maturity, per reference (h) below. Subsurface investigations shall also include investigations of potential borrow and spoil areas.

The current survey data is at <u>20</u>% design maturity, per reference (h) below.

Other major technical and/or scope assumptions and risks include the following, which will be refined as the design progresses.

Many design assumptions are based on SFWMD standard design practice and past construction experience for several other recent similar projects in similar geologic/construction settings. While data collection for survey and geotechnical are considered preliminary, confidence in concept design details presented are appropriate for feasibility level cost estimating for the project. Please refer to the risk register for additional identified risk items.

Due to potential conservative assumptions in overwash rates and the elimination of the wave wall feature from the proposed design, the embankment height estimates at this stage are considered to be conservative. Stability and seepage analysis indicate the proposed dam geometry is conservative. It is expected, during PED, that refinements in embankment height are possible for potential future cost savings during design.

The aggregate for all features is 20 % design maturity. Therefore, per the CECW-EC memorandum dated 05-June-2023, I certify that the design deliverables used to generate the cost products for this project and the estimate meet the requirements for a CLASS 3 estimate, as per reference (a) below. Design risks, impacts and remaining efforts are summarized on page 2.

Considering risks and assumptions noted above, along with all other concerns documented in the Risk Register, the Cost and Schedule Risk Analysis has developed a contingency of 55 % at the 80 % confidence level for the defined project scope.

Chief of Engineering & Construction

Lucine Dadrian 1/24/24

Printed Name

Lucine Dadian

Signature

Design Maturity Determination for Cost Certification, Remaining Work

If an engineering waiver is required, list the risks and remaining design work needed to mitigate this issue in the current design. Identify remaining effort to complete the design required for 100% design.

N/A at this time.

Identify remaining effort to complete geotechnical design effort required for 100% design. List the risks and cost and schedule impacts needed to mitigate this issue in the current design.

Additional geotechnical investigations/program, materials testing, along with pump testing to verify seepage assumptions on the 12,000-acre reservoir footprint are required to finalize the Geotechnical Design. The schedule for the additional site investigations are programmed into the cost estimate and are presented in the Feasibility Study. It has been determined that sufficient quantities of materials are available on-site for construction of the dam. Rip rap slope protection and drain materials will be imported in from off-site sources. The final geotechnical investigations are expected to confirm current assumptions.

Identify remaining effort required to complete H&H required for 100% design. List the risks and cost and schedule impacts needed to mitigate this issue in the current design.

Due to limited geotechnical data for seepage and groundwater conditions adjacent to the reservoir, additional 3D groundwater seepage modeling will be required to finalize the seepage management system design and establish operations to maintain compliance with the Savings Clause requirements. The current design incorporates sufficient operational flexibility to accommodate variations in anticipated seepage impacts around the reservoir. Final H&H conveyance analysis is also required to verify compliance with the Savings Clause. The schedule for the final H&H modeling are programmed into the cost estimate and are presented in the Feasibility Study.

Identify remaining effort needed to complete survey data required for 100% design. List the risks and cost and schedule impacts needed to mitigate this issue in the current design.

At the Feasibility stage, topography is based on Highlands County LiDAR 2018, with a level of vertical accuracy of +/- 0.12'. Upon acquisition of the property, a detailed site survey is required including boundary, utility and topographic verification. The schedule for the final survey is programmed into the cost estimate and presented in the Feasibility Study. Risks are low for a large quantity variance due to the Reservoir being built on existing ground. Minor elevation differences will only impact structures adjacent to the canal and the appropriate contingency is added to the risk register.

If the project is anticipated to be executed in parts, provide a design assessment (percent complete) of each part/phase below.

N/A

References:

- a. ER 1110-2-1302 Civil Works Cost Engineering
- b. CECW-EC memorandum dated 05-June-2023MFR, Guidance on Cost Engineering Products update for Civil Works Projects in accordance with Engineer Regulation 1110-2-1302 – Civil Works Cost Engineering
 ED 1105 2.017 – Civil Works Device Parket
- c. ER 1165-2-217 Civil Works Review Policy
- d. ER 1110-2-1150 Engineering and Design for Civil Works Projects
- e. ER 1110-3-12 Quality Management
- f. ER 1110-345-700 Design Analysis, Drawings and Specifications
- g. EM 5-1-11 Project Delivery Business Process (PDBP)
- h. Engineering and Construction Bulletin (ECB) 2023-9 Civil Works Design Milestone Checklists

Design Maturity Determination for Cost Certification – Instructions

Paragraph 1 – Design Date: Use the drop-down menu to populate the date of the design.

Paragraph 1 – Project Information: Enter the P2 Project number and Project name.

Paragraph 3 – Engineering Waivers: Use the drop-down menu to populate this field with either "Does," or "Does not." If an engineering waiver is needed, or anticipated to be needed, provide the specific waiver required for the Project. A waiver is any deviation from current mandatory standards, as indicated.

Paragraph 4 – Hydrology and Hydraulics: Populate this field with the % design maturity.

Paragraph 5 – Geotechnical Information: Populate this field with the % design maturity.

Paragraph 6 – Survey Data: Populate this field with the % design maturity.

Paragraph 7 – Other Technical Assumptions and/or Scope: Enter any other major technical assumptions or scope assumptions here. Only include assumptions that pertain to design. Template discussion fields are provided as a courtesy. Please include additional pages as necessary.

Paragraph 8 – Signature: Print the name and title and provide the signature for the District's Chief of Engineering. This authority cannot be delegated; however, the Deputy Chief of Engineering and Design may sign the form in the absence of the Chief of Engineering. All fillable fields must be populated (use N/A if not applicable) in order for the document to be signed.

Page 2 – Remaining Work: Identify the current baseline design assumptions and the remaining design effort and risks to complete 100% design for the authorized project. If the project is to be broken into parts or phases, provide details on the aggregate design level of each phase and anticipated timeline for completion.

This form is required for all Civil Works projects for initial Cost Certification and Recertification, based on Policy Clarification MFR dated 05 June 2023, *Guidance on Cost Engineering Products update for Civil Works Projects in accordance with Engineer Regulation 1110-2-1302 – Civil Works Cost Engineering.* The Point of Contact for this action is Mr. Mukesh Kumar, Cost Engineering Community of Practice Leader, CECW-EC, Mukesh.Kumar@usace.army.mil. Version 1: 01 October 2023.

ATTACHMENT 1

QUANTITY TAKE-OFFS

<u>Appendix</u>

LAKE OKEECHOBEE COMPONENT A RESERVOIR (LOCAR) FEASIBILITY STUDY

<u>Cost Estimate Scope Assumptions,</u> <u>Representative Drawings, and Quantity</u> <u>Takeoffs</u>

LAKE OKEECHOBEE COMPONENT A RESERVOIR (LOCAR) FEASIBILITY STUDY

CONTRACT 1 – S-84 SITE

- Demo Spillway S-84 and S-84X
 - Construct Spillway S-84+
- Construct Pump Station PS-1

Feature of Work:	STRUCTURE S-84+: DEMO EXISTING S-84 AND S-84A(X) SPILLWAY, CONSTRUCT NEW SPILLWAY
Scope Given:	To accommodate the peak design outflow rate from LOCAR during Probable Maximum Precipitation (PMP) Scenarios 1 and 2, and improve operational flexibility of C-41A, S-84+ will have three 22' wide x 14' tall roller gates, that will provide a total design discharge capacity of 9,000 cfs.
Reference for Scope Basis:	
Scope Assumptions:	 Assume similar to existing S-84 and S-84A structures.
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized. Plans and specifications for recent similar work were utilized to capture the necessary scope and assumptions to construct the feature.
Sequence of Work:	
Key Outstanding Questions/Issues:	



Feature of Work: S	TRUC	TURE S-84: EXIST	ING S	PILLWA	Y DEMO AND RE-C	ONSTRU	ICTION	١	
		Quantity	Take	Off:					
User Input		Row Calculation	1		Sum of Values ab	ove			
Sheetpile Dewatering									
Dewatering Pumps	=	TBD	EA		Size to be determined	d			
Width	=	210.0	FT		Assume 20' from top	of excava	tion		
Length	=	200.0	FT		Assume 20' from leng	gth of exca	avation		
Depth	=	50.0	FT		Approx. from As-Buil	t			
Total Perimeter	=	820.0	LF		Sheetpile perimeter				
Area	=	42,000.0	SF						
Spillway Excavation									
Assume Spillway Excavat	tion wil	l be partially perform	ed duri	ng canal e	excavation, if no canal e	exists			
Length	=	160.0	FT		Add'l 40' assumed for	r wingwall	installa	tion each v	vay
Total Depth	=	40.0	FT						
Thickness of Organic	=	2.0	FT						
Thickness of Cap Rock	=	8.0	FT						
Thickness of Fort Thompson	=	30.0	FT						
Canal Slope		1.5	:1		From Typical Section	S			
					Canal bottom: 80' wi	de, Canal	top: 160)' wide	
Bottom Width	=	50.0	FT						
Top Width	=	170.0	FT		Assumes slope same	as canal			
Cross Section	=	2,000.0	SF						
Cross Section Organic	=	0.0	SF		Removed due to Exis	ting			
Cross Section of Cap Rock	=	0.0	SF		Removed due to Exis	ting			
Cross Section of Fort Thompson	=	0.0	SF		Removed due to Exis	ting			
Organic Cut Volume	=	0.0	CF	=	- BCY	0	=		LCY
Cap Rock Cut Volume	=	0.0	CF	=	- BCY		=		LCY
Fort Thompson Cut Volume	=	0.0	CF	=	- BCY		=		LCY
EXCAVATION		TOTAL	0.	=	- BCY		=		- LCY
Structure Dimensions and Volumes			I	_					
Units	=	-	EA	For use c	only if existing canal is lo	ocated wh	ere stru	icture is to	be placed,
Underwater Concrete Seal Volume	=	-	CF	dimensio	our below area of struc	.ture, appi	UX. 20 T	i past struc	lure
(Unreinforced concrete) Tremie Volume	=	-	CF	=	CV	г	remie (Concrete	
	_	-		_			. enne C		
Structure	1	<u>l</u>	ength	80	ft	<u>Width</u>	50	ft	
Gate Openings	2		Height	40	ft	Width	25	ft	
Number of Gates	=	2.0	EA				_0		
Foundation									
Denth	=	4.0	FT		Assumed				
Length	=	9.0 80 0	FT						
Width	=	50.0	FT						
Volume	=	16,000.0	CF	=	592.6 CY				
Superstructure/Gate Structure									
Number of Towers	=	3.0	EA		A				
Tower Cross-Section	=	129.5	SF		Approx. from As-Buil	t			
Tower Width	=	3.0	FT						
Volume	=	1,165.5	CF	=	43.2 CY				

Number of Piers	=	1.0	EA			
Pier Top Cross-Section	=	120.0	SF		Approx. from As-Built	
Pier Height	=	35.0	FT		Approx. from As-Built	
Volume	=	4,200.0	CF	=	155.6 CY	
Abutment Walls	=	2.0	EA			
Side Cross-Section of Abutment Wall	=	2,300.0	SF		Approx. from As-Built	
Wall Width	=	2.5	FT		Approx. from As-Built	
Volume	=	11,500.0	CF	=	425.9 CY	
Operating Platform Cross-Section	=	4.5	SF		Approx. from As-Built	
Beam Length	=	45.0	FT		Width minus abutment wa	lls
volume of elevated beam	=	202.5	CF	=	7.5 CY	
Service Bridge Cross-Section	=	21.4	SF			
Width	=	45.0	FT			
Volume	=	964.1	CF	=	35.7 CY	
OGEE volume						
Cross section	=	250.0	SF		Approx. from As-Built	
Width	=	45.0	FT			
OGEE Spillway volume	=	11,250.0	CF	=	416.7 CY	
Elevated approach apron					Approx. from As-Built	
Length	=	6.5	FT			
Thickness	=	4.5	FT			
Volume	=	1,316.3	CF	=	48.8 CY	
Baffles						
Units	=	10.0	EA			
Length	=	3.0	FT			
Width	=	4.0	FT			
Thickness	=	2.3	FT CE		10.2 01	
volume	=	276.0	CF	=	10.2 CY	
CONCRETE		TOTAL		=	1,736.1 CY	Concrete
Steel Rebar					Assumed 1.2% volume of c	oncrete
STEEL REBAR		TOTAL		=	20.8 CY	Rebar
					127.7 TONS	

=	4.0	EA			
=	20.0	FT		Length to reach pas	st riprap banks
=	45.0	FT		Past bottom of stru	icture of slab
=	3,600.0	SF			
				x4	
=	2.0	FT			
=	2.0	FT			
=	320.0	CF	=	11.9 CY	Concrete
=	2.0	EA		US & DS	
=	15.0	FT		Min. 10' required	
=	50.0	FT			
		= 4.0 = 20.0 = 45.0 = 3,600.0 = 2.0 = 2.0 = 320.0 = 320.0 = 15.0 = 50.0	 = 4.0 EA = 20.0 FT = 45.0 FT = 3,600.0 SF = 2.0 FT = 320.0 CF = 2.0 EA = 15.0 FT = 50.0 FT 	 = 4.0 EA = 20.0 FT = 45.0 FT = 3,600.0 SF = 2.0 FT = 320.0 CF = = 2.0 EA = 15.0 FT = 50.0 FT 	= 4.0 EA $= 20.0 FT$ Length to reach particular the second structure of the

Area of Sheet Pile	=	1,500.0	SF		
τοται shfetpile		5 100 0	SE		Steel Sheetnile Wall
		3,100.0	51		
Anchor Rod Length	=	60.0	FT		
spacing	=	4.0	FT		
number of rods	=	96.0	EA		
RIP RAP					
Lengths and depths assu	med, ar	nd similar on US and	DS		
Number	=	2.0	EA		Average from Ac Duilt (701/201)
Length	_	50.0	г і ст		Average from As-Bull (70730)
Viati	_	3.0	FT		
Volume	_	48 000 0	CE	_	1 777 8 CV Binran
volume	-	48,000.0	CI	-	
Geotextile Filter Fabric	=	9,000.0	SF		Fabric
NEW GATES					
Assumptions borrowed	from As	-Built or Similar Strue	cture		
Gate weight calculations					
Height	=	12.0			Assume 2' taller than opening
Width	=	22.0			
3/8" Plate steel	=	15.3	lb/sq ft		Given
1/2" Plate steel	=	20.4	lb/sq ft		Given
1" Plate Steel	=	40.8	lb/sq ft		Given
		264.0			
Gale SKIII 3/8 Plate Steel	_	204.0	sqit		Same size as gate dimensions above
3/8 Plate stilleners and seal angles	_	87.U E41.7	sqit		Assume 5 sq it for seal angles and 82 for stimeners Assume 52, shapped is equivalent to $25^{\circ}x25^{\circ}(10$ (happeds)
Nortical C Channels (1/2)	_	541.7	sqit		Assume each viortical channel is 26"v16" (10 Channels).
Pull Pad avec (1")	_	340.7	sqit		Assume 4 pad eves per gate @ 1 sg ft each
Full Faultyes (1)	-	4.0	syn		Assume 4 pad eyes per gate @ 1 sq it each
Total 3/8" Plus 10% for misc. items	=	386.1	sq ft	=	5,907.3 lbs
Total 1/2" plus 15% for misc items	=	1,021.6	sq ft	=	20,840.3 lbs
Total 1" steel	=	4.0	sq ft	=	163.2 lbs
lbs/sq ft for 28'x14' gate	=	101.9	lb/sq ft		
Area of single gate	=	264.0	sq ft		assumed 3 ft bigger then opening in each direction
Approximate weight of gate	=	26,910.8	lb		
Overweight factor for larger gates (10%)	=	29,601.9	LB EA	=	59,203.8 LB Total
Total Steel Gate Weight				=	29.6 Tons
Gate embeds/seal lengths					
Gate Dimensions	_	22.0	FT		
Width	=	22.0			
Height	=	12.0	FI FT		
Gate Well Height	=	40.0	FI FT		
Gate well Embed	=	102.0	FI FT		2
I otal Embed Length	=	204.0	FI		2 gates
Seal Length	=	46.0	FT		seal length is the perimeter of bottom and both sides
Total Seal Length	=	138.0	FT		total of 3 gates
			•		Ŭ
US and DS Bulkhead Slot	=	180.0	FT		6 times vertical plus width of new gate per slot
Bulkheads	=	29,601.9	LB EA		Assume same size as gates

Number	=		4.0	EA	x2 per gate needed
Total Length of embeds	=		384.0	FT	
Total Weight of Stoplags	_	110	7 707 7	IR –	59.2 Tons
		110	5,407.7		- <u> </u>
TOTAL J BULB for GATES AND STOP LOGS	=		567.0	FT	
Backfill Assume structure/wingy	walls ar	e backfilled as	s part of	levee constr	uction
Railings and Ladders Railing					
Length	=		540.0	FT	Assumed 4 time the length of a wing wall and 6 times the
Height	=		3.5	FT	width of the structure and twice the length
Ladders					
Count	=		6.0	EA	Assumed ladders on each side of the structure
Height	=		18.5	FT	average of all three types
Total Height	=		111.0	FT	
Boat Barrier					
Number	=		2.0	EA	
Piles for Buoys	=		3.0	EA	Assume barrier has 3 points (2 at shore, 1 at canal)
Length	-		180.0	ET/FA	Assumed
Length	_		100.0		Assured
Total Length	=		360.0	FT	Buoy style barrier
Total Piles	=		6.0	EA	
Site Fencing					
Length	=		1.000.0	FT	Approx. chainlink fence required $\sim 600^{\circ}$, assume 1,000'
Gatos	_		4.0	EV	Assumed
Gales	-		4.0	LA	Assumed
SWPPP					
Length	=	1	1,000.0	LF	Assumed
Floating Silt Boom	=		250.0	LF	Assumed
Control Building					
Size	=		288.0	SF	12x24
Electrical	=	NEEDED			
Communications	=	NEEDED			
iviodular Precast Concrete Structure					
Exterior Walls					
Height	=		12.0	FΤ	
Perimeter Length	=		72.0	FT	
Thickness	=		4.0	IN	
Volume	=		288.0	=	10.7 CY
Interior Wall					
	_		12.0	ст	
Height	=		12.0	гі	

Length	=	12.0	FT		
Thickness	=	4.0	IN		
Volume	=	48.0		=	1.8 CY
Floor Slab					
Thickness	=	6.0	IN		
Area	=	288.0	SF		
Volume	=	144.0	CF	=	5.3 CY
Roof					
Thickness	=	5.0	IN		
Area	=	288.0	SF		
Volume	=	120.0	CF	=	4.4 CY
Fuel Pad	=	96.0	CF		Assume 8'x12'x12" thick reinforced concrete slab on grade
	=	3.6	СҮ		han
CONCRETE		TOTAL		=	25.8 CY
Total Doors	=	2.0	EA		
Size	=	4'-0" x 7'-0"			
Conduit Boxes	=	1.0	EA/DOC)R	
Lock Boxes	=	1.0	EA/DOC)R	
Fire Extinguishers	=	2.0	EA		
26" x 26" Exhaust Hoods	=	1.0	EA		
30" x 30" Exhaust Hoods	=	1.0	EA		
30" x 30"Intake Hoods	=	2.0	EA		
18" x 18" Intake Air Hood	=	1.0	EA		
18" x 18" Exhaust Hood	=	1.0	EA		
		1.0	5.4		
20" Exhaust Fan	=	1.0	EA		Coolair CBA20L, 1 HP, 4702 CFM @ 3/8" SP
12 Exhaust Fan	=	1.0	EA		Coolair CD012F17, 1/6 HP, 1210 CFIVI @ 1/4 SP
Generator Euel Tank	-	1 000 0	GALLON		
Generator i dei Talik	-	1,000.0			•
Gravel Pad	=	216.0	CF		Assume 50% greater area than building. 6" thick
	=	8.0	CY		
Filter Fabric		472.0	SF		

Quantities Summary

Coffer dam:	820.0	LF	
Coffer dam:	42,000.0	SF	
Tremie Concrete:	0.0	СҮ	
Excavation:	-	СҮ	
Concrete:	1,736.1	СҮ	
Steel Rebar:	20.8	CY (?)	
Steel Rebar:	137.7	TONS	
Sheetpile:	5,100.0	SF	160' Wall length x 30' Long sheets
Cap:	11.9	СҮ	
Railing:	540.0	LF	
Ladders:	6.0	EA	
Gates:	2.0	EA	12'x22'
Total steel gate wt	29.6	Tons	
Stoplogs	4.0	EA	
Total stoplog wt	59.20	Tons	
Seals:	138.0	LF	
Backfill:	-	LCY	
Rip-rap:	1,777.8	СҮ	
Geofabric:	9,000.0	SF	
Boat Barrier:	360.0	LF	
Barrier Piles:	6.0	EA	
Floating Curtain:	250.0	LF	
Silt Fence:	1,000.0	LF	
Control bldg.:	25.8	CY	Concrete
Total Doors	2.0	EA	Size 4'-0" x 7'-0"
Conduit Boxes	1.0	EA/DOOR	
Lock Boxes	1.0	EA/DOOR	
Fire Extinguishers	2.0	EA	
26" x 26" Exhaust Hoods	1.0	EA	
30" x 30" Exhaust Hoods	1.0	EA	
30" x 30"Intake Hoods	2.0	EA	
18" x 18" Intake Air Hood	1.0	EA	
18" x 18" Exhaust Hood	1.0	EA	
20" Exhaust Fan	1.0	EA	
12" Exhaust Fan	1.0	EA	
CTRL BLDG Gravel Pad	8.0	CY	
CTRL BLDG Pad Fabric	472.0	SF	
DEMO			
12"x15' Timber Pile Supports	162	еа	Approx. from As-Built
INEVN	100	02	Approx @ 5' Spacing
TID YOU OUTCIDE FILES	100	Ca	when over the participation of



Feature of Work: S	TRUC	TURE S-84X: EXISTING	SPILLW	AY DEMO (assume	similar t	o S-84	l, 1 gate)
		Quantity Take	Off:					
User Input		Row Calculation		Sum of Values abo	ove			
heetpile Dewatering								
Dewatering Pumps	=	TBD EA		Size to be determined	1			
Width	=	176.0 FT		Assume 20' from top	of excavat	ion		
Length	=	192.0 FT		Assume 20' from leng	th of exca	vation		
Depth	=	50.0 FT		Approx. from As-Built				
Total Perimeter	=	736.0 LF		Sheetpile perimeter				
Area	=	33,792.0 SF						
oillway Excavation								
Assume Spillway Excava	tion wil	be partially performed duri	ng canal	excavation, if no canal e	xists			
Length	=	152.0 FT		Add'l 40' assumed for	wingwall	installa	tion each v	way
Total Depth	=	40.0 FT						
Thickness of Organic	=	2.0 FT						
Thickness of Cap Rock	=	8.0 FT						
Thickness of Fort Thompson	=	30.0 FT						
Canal Slope		1.5 :1		From Typical Sections	;			
				Canal bottom: 80' wid	de, Canal t	op: 160	' wide	
Bottom Width	=	16.0 FT						
Top Width	=	136.0 FT		Assumes slope same	as canal			
Cross Section	=	640.0 SF						
Cross Section Organic	=	0.0 SE		Removed due to Exist	ing			
Cross Section of Can Bock	-	0.0 SF		Removed due to Exist	ing			
Cross Section of East Thompson	_	0.0 5		Removed due to Exist	ing			
Organia Cut Voluma	_	0.0 SF	_		ing	_		
Organic Cut Volume	-	0.0 CF	-	- BCY		=		LCY
Cap Rock Cut Volume	=	0.0 CF	=	- BCY		=		LCY
Fort Thompson Cut Volume	=	0.0 CF	=	- BCY		=		LCY
EXCAVATION		TOTAL	=	- BCA		=		- LUY
ructure Dimensions and Volumes								
Units	=	1.0 EA	For use o	only if existing canal is lo	cated whe	ere stru	cture is to	be place
Underwater Concrete Seal Volume	=	31,360.0 CF	tremie p	our below area of struct	ture, appro	ox. 20 f	t past strue	cture
(Unreinforced concrete)			arnensio	DIIS, 5 IT TNICK				
Tremie Volume	=	31,360.0 CF	=	1,161.5 CY	Т	remie C	Concrete	
Structure	1	Length	72	ft	Width	16	ft	
Gate Onenings	1	Height	40	ft	Width	25	ft	
Number of Cotes	-		-+0		width	25	11	
Number of Gates	=	1.0 EA						
Foundation								
Dooth	_	6.0 ET		Assumed				
Longth	_	72 0 FT		7.55umeu				
	_	12.0 FI						
Width	=		_	256 D CV				
volume	=	0,912.U CF	=	250.U CY				
Superstructure/Gate Structure								
Superstructure/Gate Structure Number of Towers	=	2.0 EA						
Superstructure/Gate Structure Number of Towers Tower Cross-Section	= =	2.0 EA 129.5 SF		Approx. from As-Built				
Superstructure/Gate Structure Number of Towers Tower Cross-Section Tower Width	= = =	2.0 EA 129.5 SF 3.0 FT		Approx. from As-Built				

Number of Piers	=	-	EA			
Pier Top Cross-Section	=	120.0	SF		Approx. from As-Built	
Pier Height	=	35.0	FT		Approx. from As-Built	
Volume	=	-	CF	=	- CY	
Abutment Walls	=	2.0	EA			
Side Cross-Section of Abutment Wall	=	2,300.0	SF		Approx. from As-Built	
Wall Width	=	2.5	FT		Approx. from As-Built	
Volume	=	11,500.0	CF	=	425.9 CY	
Operating Platform Cross-Section	=	4.5	SF		Approx. from As-Built	
Beam Length	=	11.0	FT		Width minus abutment wa	lls
volume of elevated beam	=	49.5	CF	=	1.8 CY	
Service Bridge Cross-Section	=	21.4	SF			
Width	=	11.0	FT			
Volume	=	235.7	CF	=	8.7 CY	
OGEE volume						
Cross section	=	250.0	SF		Approx. from As-Built	
Width	=	11.0	FT			
OGEE Spillway volume	=	2,750.0	CF	=	101.9 CY	
Elevated approach apron			_		Approx. from As-Built	
Length	=	6.5	FT			
Thickness	=	4.5	FT			
Volume	=	321.8	CF	=	11.9 CY	
Baffles						
Units	=	4.0	EA			
Length	=	3.0	FT			
Width	=	4.0	FT			
Thickness	=	2.3	FT			
Volume	=	110.4	CF	=	4.1 CY	
CONCRETE		TOTAL		=	839.1 CY	Concrete
Steel Rebar					Assumed 1.2% volume of c	oncrete
STEEL REBAR		TOTAL		=	10.1 CY	Rebar
					66.6 TONS	

Assume same for US and DS sides


Area of Sheet Pile	=	480.0	SF		
τοται sheetpile		11 760 0	SF		Steel Sheetnile Wall
		11,700.0	51		
Anchor Rod Length	=	60.0	FT		
spacing	=	4.0	FT		
number of rods	=	96.0	EA		
RIP RAP					
Lengths and depths assu	med, ai	nd similar on US and	DS		
Number	=	2.0	EA		
Length	=	50.0	F1		Average from As-Built (70730)
Width	_	160.0	F1 ET		Average depth
Volume	_	48 000 0		_	Average depth
volume	-	48,000.0	CF	-	
Geotextile Filter Fabric	=	9,000.0	SF		Fabric
GATES					
Assumptions borrowed f	rom As	-Built or Similar Struc	cture		
Gate weight calculations					
Height	=	12.0			Assume 2' taller than opening
Width	=	22.0			
3/8" Plate steel	=	15.3	lb/sq ft		Given
1/2" Plate steel	=	20.4	lb/sq ft		Given
1" Plate Steel	=	40.8	lb/sq ft		Given
Gate Skin 3/8" Plate Steel	=	264.0	sa ft		Same size as gate dimensions above
3/8" Plate stiffeners and seal angles	_	87.0	sa ft		Assume 5 on ft for seal angles and 82 for stiffeners
Horizontal C-Channels (1/2")	=	541.7	sa ft		Assume ea, channel is equivalent to $26"x25"$ (10 Channels).
Vertical C-Channels (1/2")	=	346.7	sa ft		Assume each vertical channel is 26"x16' (10 Channels).
Pull Pad eyes (1")	=	4.0	sq ft		Assume 4 pad eyes per gate @ 1 sq ft each
Total 3/8" Plus 10% for misc. items	=	386.1	sq ft	=	5,907.3 lbs
Total 1/2" plus 15% for misc items	=	1,021.6	sq ft	=	20,840.3 lbs
Total 1" steel	=	4.0	sq ft	=	163.2 lbs
lbs/sq ft for 28'x14' gate	=	101.9	lb/sq ft		
Area of single gate	=	264.0	sq ft		assumed 3 ft bigger then opening in each direction
Approximate weight of gate	=	26,910.8	lb		
Overweight factor for larger gates (10%)	=	29,601.9	LB EA	=	29,601.9 LB Total
Total Steel Gate Weight				=	14.8 Tons
Gate embeds/seal lengths					
Gate Dimensions					
Width	=	22.0	FT		
Height	=	12.0	FT		
Gate Well Height	=	40.0	FT		
Gate Well Embed	=	102.0	FT		
Total Embed Length	=	102.0	FT		2 gates
			CT.		
Seal Length	=	46.0	FI FT		seal length is the perimeter of bottom and both sides
I otal Seal Length	=	138.0	FI		total of 3 gates
US and DS Bulkhead Slot	=	180.0	FT		6 times vertical plus width of new gate per slot
Bulkheads	=	29,601.9	LB EA		Assume same size as gates

Number	=	2.0	EA		x2 per gate needed
Total Length of embeds	=	282.0	FT		
Total Weight of Stoplogs	=	59,203.8	LB	=	29.6 Tons
TOTAL J BULB for GATES AND STOP LOGS	=	567.0	FT		
Backfill Assume structure/wingv	valls are	e backfilled as part of	levee coi	nstructio	n
Railings and Ladders					
Railing					
Length	=	480.0	FT		Assumed 4 time the length of a wing wall and 6 times the
Height	=	3.5	FT	,	width of the structure and twice the length
Ladders					
Count	=	6.0	EA		Assumed ladders on each side of the structure
Height	=	18.5	FT		average of all three types
Total Height	=	111.0	FT		
Boat Barrier					
Number	=	2.0	FΔ		
Pilos for Puove	_	2.0	EA		Assume harrier has 2 points (2 at shore 1 at canal)
Files for Budys	_	180.0	ET/FA		Assumed
Length		100.0	, ב, .		, isanica
Total Length	=	360.0	FT		Buoy style barrier
Total Piles	=	6.0	EA		
Site Eencing					
Site relicing		1 000 0	FT		Amount designing for an annual accord accord and a
Length	=	1,000.0	FI		Approx. chainlink rence required ~600 , assume 1,000
Gates	=	4.0	EA		Assumed
SWPPP					
Length	=	1,000.0	LF		Assumed
Floating Silt Boom	=	250.0	LF		Assumed

Coffer dam:	736.0	LF	
Coffer dam:	33,792.0	SF	
Tremie Concrete:	1,161.5	СҮ	
Excavation:	-	СҮ	
Concrete:	839.1	СҮ	
Steel Rebar:	10.1	CY (?)	
Steel Rebar:	66.6	TONS	
Sheetpile:	11,760.0	SF	160' Wall length x 30' Long sheets
Cap:	35.6	СҮ	
Railing:	480.0	LF	
Ladders:	6.0	EA	
Gates:	1.0	EA	12'x22'
Total steel gate wt	14.8	Tons	
Stoplogs	2.0	EA	
Total stoplog wt	29.60	Tons	
Seals:	138.0	LF	
Backfill:	-	LCY	
Rip-rap:	1,777.8	СҮ	
Geofabric:	9,000.0	SF	
Boat Barrier:	360.0	LF	
Barrier Piles:	6.0	EA	
Floating Curtain:	250.0	LF	
Silt Fence:	1,000.0	LF	
1.5'x30' SQ Concrete Piles	70	ea	Approx. @ 4' Spacing

Feature of Work:	STRUCTURE PS-1: 1,500 CFS DIESEL ELECTRIC PUMP STATION
Scope Given:	1,500 CFS diesel pump station (by-pass not required for construction). Pump Station PS-1 (S-84) will pump water from the C-41A Canal toward the LOCAR Site, South of .the S-83 Structure.
Reference for Scope Basis:	
Scope Assumptions:	 Assume similar to structure Pump Station G-508 with a smaller capacity. Assume given dimensions in the engineering appendix govern over provided design documents for similar structure if no dimensions are given in the engineering appendix all dimensions will come from the similar structure. Assume there will be a total of four 375 cfs pumps. Assume discharge of pumps will be piped by 6-8' diameter pipes. Assume the discharge structure will consist of a concrete headwall full height of the canal 30 ft wide 18 inch thick reinforced concrete, 20'x30' apron 18 inch thick reinforced concrete, wing walls extending 30ft up and downstream of the discharge point sloping from full height of the canal to bottom of canal 18 inch thick reinforced concrete and riprap lining 136 ft beyond the concrete apron. Assume the excavation will extend 3 feet below the inflow canal bottom elevation. Assume pump station will be constructed of reinforced concrete below grade and a combination of cast-in-place columns and reinforced CMU walls. Assume a fuel pad will be required for storage tanks for the diesel pump and the diesel generator, assumed 2 feet thick reinforced concrete.
Documentation: (by Cost Team)	
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized. Plans and specifications for recent similar work were utilized to capture the necessary scope and assumptions to construct the feature. *Updated with some features shown on site planning documents.
Sequence of Work:	Cap slab will be placed in bottom of excavation. Structure will be built and excavation for the inlet basin will commence. Suction apron will be placed along with excavation for discharge piping and discharge headwall/discharge apron. Excavate out discharge piping and backfill levee.
Key Challenges, Risks, and Opportunities	









SECTION - PS-1 PUMP STATION

LOCAR RECOMMENDED PLAN



OKEECHOBEE COMPONENT A RESERVOIR (LOCAR)



S-84 HISTORICAL LOW TW ELEV. 8.20

S-84 HISTORICAL AVG. TW ELEV. 12.50

CANAL

CONCRETE

LEGEND:
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> RIPRAP BEDDING STONE SOIL REMOVAL/EXCAVATION

SUPPORT FOR BRIDGE CRANE RAIL (BRIDGE CRANE NOT SHOWN)

Feature of Work: S	STRUC	TURE PS-1: 1,500 CFS D	IESEL	ELECTRIC PUMP STATION
		Quantity Take C	Off:	
User Input		Row Calculation		Sum of Values above
Sheetpile Dewatering				
Dewatering Pumps	=	TBD EA		Size to be determined
Width	=	294.0 FT		Assume 20' from top of excavation
Length	=	306.0 FT		Assume 20' from length of excavation
Depth	=	46.0 FT		Assumed
Total Perimeter	=	1,200.0 LF		Sheetpile perimeter
Area	=	89,964.0 SF		
Pump Station Excavation				
Length	=	266.0 FT		Compared to G-508
Total Depth	=	26.0 FT		Assumed
Thickness of Organic	=	2.0 FT		
Thickness of Cap Rock	=	8.0 FT		
Thickness of Fort Thompson	=	16.0 FT		
Slope1	=	2.0 :1		
Slope2	=	2.0 :1		
Bottom Width	=	150.0 FT		Compared to G-508
Top Width	=	254.0 FT		
Cross Section	=	5,252.0 SF		
Cross Section Organic	=	500.0 SF		
Cross Section of Cap Rock	=	1,840.0 SF		
Cross Section of Fort Thompson	=	2,912.0 SF		
Organic Cut Volume	=	133,000.0 CF	=	4,925.9 BCY = LCY
Cap Rock Cut Volume	=	489,440.0 CF	=	18,127.4 BCY = LCY
Fort Thompson Cut Volume	=	774,592.0 CF	=	28,688.6 BCY = LCY
EXCAVATION		IUTAL	=	51,741.9 BCY 64,677.4 LCY
Structure Dimensions and Volumes				
Structure	1	Length	171	ft <u>Width</u> 218 ft
Intake Bays	3	<u>Height</u>	49	ft
Coundation				
Foundation	=	/ 0 ET		Assumed
	-	4.0 FI 171 0 ET		
Length Midth	-	1/1.0 FT 218.0 FT		
Volume	=	149,112.0 CF	=	5,522.7 CY
Superstructure				
Number of Piers	=	2.0 EA		
Pier Width	=	2.0 FT		Assumed
Pier Length	=	136.8 FT		Borrowea from similar
Pier Height	=	45.0 FT		
Volume	=	24,624.0 CF	=	912.0 CY
Abutment Walls	=	2.0 EA		
Abutment Width	=	2.0 FT		Borrowed from similar
Abutment Length	=	136.8 FT		Borrowed from similar
Abutment Height	=	45.0 FT		Structure Height below Control Building
Discharge Wall	=	1.0 EA		
Discharge Wall Width	=	2.0 FT		

Discharge Wall Length	=	218.0 FT			
Discharge Wall Height	=	45.0 FT			
Volume	=	44,244.0 CF	=	1,638.7 CY	
Beam Cross-Section	=	6.0 SF		Borrowed from similar	
Beam Length	=	210.0 FT			
volume of elevated beam	=	1,260.0 CF	=	46.7 CY	
Cross-Section of Bridge and Ctrl Bldg Slab	=	162.0 SF			
Width	=	214.0 FT			
Volume	=	34,668.0 CF	=	1,284.0 CY	
Wing Walls					
Number	=	2.0 EA			
Depth	=	12.5 FT		Average depth	
Length	=	80.0 FT		Borrowed from similar	
Width	=	2.0 FT		Borrowed from similar	
Volume	=	4,000.0 CF	=	148.1	
Control Building					
Building Cross-Section	=	308.5 SF		Borrowed from similar	
Building Length	=	220.0 FT		Borrowed from similar	
Outside Wall Width	=	76.0 FT		Borrowed from similar	
Outside Wall Thickness	=	1.0 FT		Borrowed from similar	
Outside Wall Height	=	40.0 FT		Borrowed from similar	
Volume	=	70,910.0 CF	=	2,626.3	
CONCRETE		TOTAL	=	12,178.4 CY Concrete	
Steel Pohar				Assumed 1.2% volume of concrete	
		τοται	_	146 1 CV Pobar	
		TOTAL	_	965.9 TONS	
Discharge Piping 6' Dia. Pipes	=	4.0 EA			
Length of Pipes	=	400.0 LF		Assume all pipes equal length to discharge	
Total 6' Dia. Pipes	=	1,600.0 LF		All piping 0.75" thick steel with x4 45 degree bends per pi	pe
s Total 8' Dia. Pipes 45 degree bends	=	16.0 EA		x4 per pipe for going over levee	
Pumps					
27E CES Dumps	_	4.0 54		Por Structure Summany	
375 CFS Pumps	=	4.0 EA		Per Structure Summary	
375 CFS Pumps	=	4.0 EA		Per Structure Summary	
375 CFS Pumps RIP RAP Lengths and depths assu	= imed, a	4.0 EA		Per Structure Summary	
375 CFS Pumps RIP RAP Lengths and depths assu Number	= imed, a =	4.0 EA and similar on US and DS 1.0 EA		Per Structure Summary	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length	= imed, a = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT		Per Structure Summary Assumed width of canal	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length Width	= imed, a = = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT 218.0 FT		Per Structure Summary Assumed width of canal Assumed	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length Width Depth	= imed, a = = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT 218.0 FT 3.0 FT		Per Structure Summary Assumed width of canal Assumed Average depth	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length Width Depth Volume	= imed, a = = = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT 218.0 FT 3.0 FT 88,944.0 CF		Per Structure Summary Assumed width of canal Assumed Average depth 3,294.2 CY Riprap	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length Width Depth Volume Geotextile Filter Fabric	= imed, a = = = = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT 218.0 FT 3.0 FT 88,944.0 CF 32,368.0 SF	=	Per Structure Summary Assumed width of canal Assumed Average depth 3,294.2 CY Riprap Fabric	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length Width Depth Volume Geotextile Filter Fabric	= imed, a = = = = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT 218.0 FT 3.0 FT 88,944.0 CF 32,368.0 SF	=	Per Structure Summary Assumed width of canal Assumed Average depth 3,294.2 CY Riprap Fabric	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length Width Depth Volume Geotextile Filter Fabric Boat Barrier Number	= imed, ; = = = = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT 218.0 FT 3.0 FT 88,944.0 CF 32,368.0 SF 1.0 EA	=	Per Structure Summary Assumed width of canal Assumed Average depth 3,294.2 CY Riprap Fabric	

Length = 170.0 FT/EA Total Length = 170.0 FT/EA Total Piles = 3.0 EA Station and Building Equipment = 9.1800 SF Assume Trash rake is 60 ft tall and covers the width of the operating floor (153) Roll Up Garage Door = 1680 SF Assume Roll up garage door 12'x14' # of Doors = 4.0 ea Assume Trash rake is 60 ft tall and covers the width of the operating floor (153) Roll Up Garage Door = 1680 SF Assume Roll up garage door 12'x14' # of Doors = 4.0 ea Assume Solut ropenings 7'-4' square Overhead Crane = 2.0 ea Assume 1 pot toble water openings 7'-4' square Power Line Connection = 1.0 ea Assume 1 pot 20 bit from site Septic tank system = 1.0 ea Assume to 100 galon fue tanks required Generator Fuel Tank = 2000 Galon ea Assume to 100 galon fue tanks required Fuel Pad dimensions = 342.0 VLF Assume to 100 galon fue tanks required Ladders = 342.0 VLF Assume to 100 galon fue tanks required Ladders = 37.00 L Fr As	Piles for Buoys	=	3.0	EA	Assume barrier has 3 point	ts (2 at shore, 1 at canal)
Total Length = 170.0 FT Buoy style barrier Station and Building Equipment Trash Rack Surface Area (total) = 9,180.0 \$F Assume Trash rake is 60 ft tall and covers the width of the operating floor (153') Roll Up Garage Door = 168.0 \$F Assume 1 set of double doors and two other doors # do Doors = 4.0 ea Assume 2 overhead cranes (0 25 tons each Work Power Openings = 2.0 ea Assume 2 overhead cranes (0 25 tons each Power Line Connection = 2.0000.0 IF Assume 1 septic tank system Power Line Connection = 2.0000.0 FF Assume 1 septic tank system Power Line Connection = 2.0000.0 FF Assume 1 septic tank system Datable water = 1.0 ea Assume 1 septic tank system Power Fuel Cank system = 1.0000.5 FF Assume 1 septic tank system It adders = 2.0000.0 FF Assume 1 septic tank system 1.0 Power Line Connection = 2.0000.0 FF Assume 1 septic tank system 1.0 <	Length	=	170.0	FT/EA		
Total Length = 1700 FT Buoy style barrier Total Piles = 3.0 EA Station and Building Equipment = 9,180.0 SF Assume Trash rake is 60 ft tall and covers the width of the operating floor (153') Roll Up Garage Door = 168.0 SF Assume 1 set of double doors and two other doors # louver openings = 8.0 ea Assume 2 overhead crane (0.25 tons each Power tile Connection = 2,500.0 LF Assume 1 set of double doors and two other doors Power tile Connection = 2,500.0 LF Assume 2 overhead crane (0.25 tons each Power tile Connection = 2,500.0 LF Assume 1 septic tank system Overhead Crane = 0.00 ea Assume 1 septic tank system Generator Fuel Tank = 0.000 SF Assume 1 work 2000 gallon fuel tanks required Generator Fuel Tank = 0.000.0 SF Assume 1 work 2000 gallon fuel tanks required Ladders = 342.0 VF Assume 1 work 2000 gallon fuel tanks required 1.333.3 Concrete barrier = <						
Station and Building Equipment 9,180.0 SF Assume Trash rake is 60 ft tall and covers the width of the operating floor (153') Roll Up Garage Door = 168.0 SF Assume Roll up garage door 12'x14' # of Doors = 4.0 ea Assume 1 set of double doors and two other doors # lower openings = 2.0 ea Assume 8 lower openings 7-4'' square Overhead Crane = 2.0 ea Assume 2 overhead cranes @ 25 tons each Power Line Connection = 2.500.0 LF Assume 1 septic tank system Potable water = 1.0 ea Assume 1 septic tank system Potable water = 1.0 ea Assume 1 septic tank system Potable water = 1.0 ea Assume 1 septic tank system Potable water = 1.0 ea Assume 1 septic tank system Fuel Pad dimensions = 2.000.0 SF Assume two 100'x20'x8'' thick reinforced concrete slab on grade pad 1,333.3 CF = 4.94 CY Floor Steel Grating = 5.8 Sume Wdith Bay (13'x5+13'x4) by 4' <	Total Length	=	170.0	FT	Buoy style barrier	
Station and Building Equipment Trash Rack Surface Area (total) = 9,180.0 SF Assume Trash rake is 60 ft tall and covers the width of the operating floor (153') Roll Up Garage Door = 168.0 SF Assume Roll up garage door 12'x14' # of Doors = 4.0 ea Assume 1 set of double doors and two other doors # lower openings = 8.0 ea Assume 2 overhead cranse 20 so the assume 3 lower openings 7'-4"'s quare Overhead Crane = 2.0 ea Assume 2 overhead cranse 25 tons each Power Line Connection = 2.500.0 LF Assume 1 set of double doors and two other doors Septic tank system = 1.0 ea Assume 1 set of double doors are h Power Line Connection = 2.500.0 LF Assume to potable water well will be required Generator Fuel Tank = 2.000.0 SF Assume 1 potable water well will be required Ladders = 3.430.0 SF Assume Woith Bay (13'x5+18'x4) by 4' Ladders = 4.9.4 CY Floor Steel Grating = 4.9 CF S' Total	Total Piles	=	3.0	EA		
Station and Building Equipment Trash Rack Surface Area (total) = 9,1800 SF Assume Trash rake is 60 ft tall and covers the width of the operating floor (153') Roll Up Garage Door = 16800 SF Assume Roll up garage door 12'x14' # of Doors = 4.0 ea Assume 1 set of double doors and two other doors # louver openings = 2.0 ea Assume 2 overhead cranes @ 25 tons each Power Line Connection = 2,500.0 LF Assume power available 2500 If from site Septic tank system = 1.0 ea Assume 1 set of tall and covers the width of the operating Potable water = 1.0 ea Assume 1 set patie tank system Potable water = 2.0 Gallon ea Assume 1 potable water well will be required Generator Fuel Tank = 2000 Gallon ea Assume 1 potable water well will be required J.333.3 CF = 4.9 CF & 10 VF Assume 38 ft per pump bay (9 bays) of the operating floor Concrete bollard = 4.9 CF & 10 Assume 13.7 CY CONCRETE TOTAL = 6.51 CY Concrete SUM 424.5 CF = 15.7 CY CONCRETE TOTAL = 6.51 CY Concrete Silt Fence = 3,700.0 LF Assume Similar to Merritt Pump Station Silt Fence = 1.0 EA/DOOR Lock Boxes = 1.0 EA/DOOR Free Extinguishers = 2.0 EA						
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Floor Steel Grating=548.0SFAssume Wdith Bay (13'x5+18'x4) by 4'Ladders=342.0VLFAssume 38 ft per pump bay (9 bays) of the operating floorConcrete bollard=4.9CF8" DIA. Bollard, 56" tall, x1 per bayConcrete borrier=419.6CFFDOT Inex 415, N.J. Shape Barrier sUMSUM424.5CF=15.7CYCONCRETETOTAL=65.1CYConcreteChain link Fence=2,280.0LFAssume Similar to Merritt Pump Station Silt BoomEFAssume similar to Merritt Pump StationSilt Boom=1.0EA/DOEAEAEAFire Extinguishers=2.0EAEA			1,333.3	CF	= 49.4 CY	
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Lock Boxes = 1.0 EA/DOOR Fire Extinguishers = 2.0 EA	Conduit Boxes	=	1.0	EA/DO	R	
Fire Extinguishers = 2.0 EA	Lock Boxes	=	1.0	EA/DO	R	
Fire Extinguishers = 2.0 EA						
	Fire Extinguishers	=	2.0	EA		
20" Exhaust Fan = 1.0 EA Coolair CBA20L, 1 HP, 4702 CFM @ 3/8" SP	20" Exhaust Fan	=	1.0	EA	Coolair CBA20L, 1 HP, 4702	2 CFM @ 3/8" SP
12" Exhaust Fan = 1.0 EA Coolair CDU12F17, 1/6 HP, 1210 CFM @ 1/4" SP	12" Exhaust Fan	=	1.0	EA	Coolair CDU12F17, 1/6 HP	, 1210 CFM @ 1/4" SP

Coffer dam:	1,200.0	LF	
Coffer dam:	89,964.0	SF	
Excavation:	51,741.9	CY	
Concrete:	12,178.4	СҮ	
Steel Rebar:	146.1	CY (?)	
Steel Rebar:	965.9	TONS	
Backfill:	64,677.4	LCY	
6' Discharge Pipe	1,600.0	LF	0.75" thick
6' Steel 45-bend	16.0	EA	0.75" thick
375 CFS Pump	4.0	EA	
Rip-rap:	3,294.2	СҮ	
Geofabric:	32,368.0	SF	
Boat Barrier:	170.0	LF	
Barrier Piles:	3.0	EA	
Control bld.:	65.1	СҮ	
Trash Rack	9,180.0	SF	
Roll Up Garage Door:	168.0	SF	Concrete
Total Doors	4.0	EA	
Conduit Boxes	1.0	EA/DOOR	12' x 14'
Lock Boxes	1.0	EA/DOOR	Size 4'-0" x 7'-0"
Louver Openings	8.0	EA	
Overhead Crane	2.0	EA	
Power Line Connection	2,500.0	LF	
Generator Fuel Tank	2,000.0	GALLONS	
Septic Tank System	1.0	EA	Assume available 2500LF
Potable Water Well	1.0	EA	
Steel Grate	548.0	SF	
Ladders	9.0	EA	
Concrete:	65.1	СҮ	
Chainlink Fence			
	2,280.0	LF	38 EA
Silt Fence	2,280.0 3,700.0	LF LF	38 EA Fuel pad, bollards, barrier
Silt Fence Silt Boom	2,280.0 3,700.0 600.0	LF LF	58 EA Fuel pad, bollards, barrier
Silt Fence Silt Boom Fire Extinguishers	2,280.0 3,700.0 600.0 2.0	LF LF LF EA	38 EA Fuel pad, bollards, barrier
Silt Fence Silt Boom Fire Extinguishers	2,280.0 3,700.0 600.0 2.0	LF LF EA	38 EA Fuel pad, bollards, barrier
Silt Fence Silt Boom Fire Extinguishers 20" Exhaust Fan	2,280.0 3,700.0 600.0 2.0 1.0	LF LF EA EA	38 EA Fuel pad, bollards, barrier

LAKE OKEECHOBEE COMPONENT A RESERVOIR (LOCAR) FEASIBILITY STUDY

<u>CONTRACT 2 – RESERVOIR INFLOW PUMP STATION</u> <u>SITE</u>

- Construct Pump Station PS-2
- Construct Pump Station SPS-1
- Construct Res. Inflow-Outflow Canal CNL-2
- Construct Gated Outflow Culvert CU-1B
- Construct Canal Overflow Structure PCOS-1

Feature of Work:	STRUCTURE PS-2: 1,500 CFS DIESEL ELECTRIC PUMP STATION
Scope Given:	1,500 CFS diesel pump station (by-pass not required for construction). Pump Station PS-2 will be the inflow pump Station near C-41A to pump water from the Canal into the Reservoir East Cell.
Reference for Scope Basis:	
Scope Assumptions:	 Assume similar to structure Pump Station G-508 with a smaller capacity. Assume given dimensions in the engineering appendix govern over provided design documents for similar structure if no dimensions are given in the engineering appendix all dimensions will come from the similar structure. Assume there will be a total of four 375 cfs pumps. Assume discharge of pumps will be piped by 6-8' diameter pipes. Assume the discharge structure will consist of a concrete headwall full height of the canal 30 ft wide 18 inch thick reinforced concrete, 20'x30' apron 18 inch thick reinforced concrete, wing walls extending 30ft up and downstream of the discharge point sloping from full height of the canal to bottom of canal 18 inch thick reinforced concrete and riprap lining 136 ft beyond the concrete apron. Assume the excavation will extend 3 feet below the inflow canal bottom elevation. Assume pump station will be constructed of reinforced concrete below grade and a combination of cast-in-place columns and reinforced CMU walls. Assume a fuel pad will be required for storage tanks for the diesel pump and the diesel generator, assumed 2 feet thick reinforced concrete.
Supporting Documentation: (by Cost Team)	Quantity Takeoff, Material Quotes
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized. Plans and specifications for recent similar work were utilized to capture the necessary scope and assumptions to construct the feature. *As part of an RFI, the structures heights were increased by 6-ft, also changing the estimated length. *Updated with some features shown on site planning documents.
Sequence of Work:	Cap slab will be placed in bottom of excavation. Structure will be built and excavation for the inlet basin will commence. Suction apron will be placed along with excavation for discharge piping and discharge headwall/discharge apron. Excavate out discharge piping and backfill levee.
Key Challenges, Risks, and Opportunities	



	RIPRAP	ESTIMATED EXIST. AVG. GROUND ELEV. 29.00	MWSL ELEV. 56.30 ▽	RESERVOIR WEST CELL
			NFSL ELEV. 51.70	





Locar Recommended Plan Section - DDS-1 Divider Dam Structure



OKEECHOBEE COMPONENT A RESERVOIR (LOCAR)

CONCRETE	BEDDING STONE	RIPRAP	LIMEROCK BASE	FILTER SAND (FDOT 902-4)	CLEAN SAND	EMBANKMENT FILL	SOIL CEMENT REVETMENT	6" THICK TOPSOIL LAYER	SOIL REMOVAL/EXCAVATION

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	000000		<u>03780</u>	K Z Z		D:

Feature of Work:	STRUC	TURE PS-2: 1,500 CFS [DIESELI	ELECTRIC PUMP STATION				
Quantity Take Off:								
User Input		Row Calculation		Sum of Values above				
Sheetpile Dewatering								
Dewatering Pumps	=	TBD EA		Size to be determined				
Width	=	294.0 FT		Assume 20' from top of excavation				
Length	=	306.0 FT		Assume 20' from length of excavation				
Depth	=	46.0 FT		Assumed				
Total Perimeter	=	1,200.0 LF		Sheetpile perimeter				
Area	=	89,964.0 SF						
Pump Station Excavation								
Length	=	266.0 FT		Compared to G-508				
Total Depth	=	26.0 FT		Assumed				
Thickness of Organic	=	2.0 FT						
Thickness of Cap Rock	=	8.0 FT						
Thickness of Fort Thompson	=	16.0 FT						
Slope1	=	2.0 :1						
Slope2	=	2.0 :1						
Bottom Width	=	150.0 FT		Compared to G-508				
Top Width	=	254.0 FT						
Cross Section	=	5,252.0 SF						
Cross Section Organic	=	500.0 SF						
Cross Section of Cap Rock	=	1,840.0 SF						
Cross Section of Fort Thompson	=	2,912.0 SF						
Organic Cut Volume	=	133,000.0 CF	=	4,925.9 BCY = LCY				
Cap Rock Cut Volume	=	489,440.0 CF	=	18,127.4 BCY = LCY				
Fort Thompson Cut Volume	=	774,592.0 CF	=	28,688.6 BCY = LCY				
EXCAVATION		TOTAL	=	51,741.9 BCY 64,677.4 LCY				
Structure Dimensions and Volumes								
Structure Dimensions and Volumes	1	Length	171	ft Width 218 ft				
<u>Intake Bays</u>	3	<u>Height</u>	49	ft				
Foundation								
Depth	=	4.0 FT		Assumed				
Length	=	171.0 FT						
Width	=	218.0 FT						
Volume	=	149,112.0 CF	=	5,522.7 CY				
Superstructure								
Number of Piers	=	2.0 EA						
Pier Width	=	2.0 FT		Assumed				
Pier Length	=	136.8 FT		Borrowed from similar				
Pier Height	=	45.0 FT		Structure Height below Control Building				
Volume	=	24,624.0 CF	=	912.0 CY				
Abutmont Malls	-	20 EA						
Abutment Width	_	2.0 EA		Borrowed from similar				
Abutmont Loogth	_	126 0 ET		Borrowed from similar				
	_			Structure Height below Control Building				
	-	40.0 FI 10 FA		Structure rieght below control building				
Discharge Wall Width	=	2.0 FT						
		2.0 11						

Discharge Wall Length	=	218.0 FT			
Discharge Wall Height	=	45.0 FT			
Volume	=	44,244.0 CF	=	1,638.7 CY	
Beam Cross-Section	=	6.0 SF		Borrowed from similar	
Beam Length	=	210.0 FT			
volume of elevated beam	=	1,260.0 CF	=	46.7 CY	
Cross-Section of Bridge and Ctrl Bldg Slab	=	162.0 SF			
Width	=	214.0 FT			
Volume	=	34,668.0 CF	=	1,284.0 CY	
Wing Walls					
Number	=	2.0 EA			
Depth	=	12.5 FT		Average depth	
Length	=	80.0 FT		Borrowed from similar	
Width	=	2.0 FT		Borrowed from similar	
Volume	=	4,000.0 CF	=	148.1	
Control Building					
Building Cross-Section	=	308.5 SF		Borrowed from similar	
Building Length	=	220.0 FT		Borrowed from similar	
Outside Wall Width	=	76.0 FT		Borrowed from similar	
Outside Wall Thickness	=	1.0 FT		Borrowed from similar	
Outside Wall Height	=	40.0 FT		Borrowed from similar	
Volume	=	70,910.0 CF	=	2,626.3	
CONCRETE		TOTAL	=	12,178.4 CY Concrete	
Steel Pohar				Assumed 1.2% volume of concrete	
		τοται	_	146 1 CV Pobar	
		TOTAL	_	965.9 TONS	
Discharge Piping 6' Dia. Pipes	=	4.0 EA			
Length of Pipes	=	400.0 LF		Assume all pipes equal length to discharge	
Total 6' Dia. Pipes	=	1,600.0 LF		All piping 0.75" thick steel with x4 45 degree bends per pi	pe
s Total 8' Dia. Pipes 45 degree bends	=	16.0 EA		x4 per pipe for going over levee	
Pumps					
27E CES Dumps	_	4.0 54		Por Structure Summany	
375 CFS Pumps	=	4.0 EA		Per Structure Summary	
375 CFS Pumps	=	4.0 EA		Per Structure Summary	
375 CFS Pumps RIP RAP Lengths and depths assu	= imed, a	4.0 EA		Per Structure Summary	
375 CFS Pumps RIP RAP Lengths and depths assu Number	= imed, a =	4.0 EA and similar on US and DS 1.0 EA		Per Structure Summary	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length	= imed, a = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT		Per Structure Summary Assumed width of canal	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length Width	= imed, a = = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT 218.0 FT		Per Structure Summary Assumed width of canal Assumed	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length Width Depth	= imed, a = = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT 218.0 FT 3.0 FT		Per Structure Summary Assumed width of canal Assumed Average depth	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length Width Depth Volume	= imed, a = = = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT 218.0 FT 3.0 FT 88,944.0 CF		Per Structure Summary Assumed width of canal Assumed Average depth 3,294.2 CY Riprap	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length Width Depth Volume Geotextile Filter Fabric	= imed, a = = = = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT 218.0 FT 3.0 FT 88,944.0 CF 32,368.0 SF	=	Per Structure Summary Assumed width of canal Assumed Average depth 3,294.2 CY Riprap Fabric	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length Width Depth Volume Geotextile Filter Fabric	= imed, a = = = = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT 218.0 FT 3.0 FT 88,944.0 CF 32,368.0 SF	=	Per Structure Summary Assumed width of canal Assumed Average depth 3,294.2 CY Riprap Fabric	
375 CFS Pumps RIP RAP Lengths and depths assu Number Length Width Depth Volume Geotextile Filter Fabric Boat Barrier Number	= imed, ; = = = = =	4.0 EA and similar on US and DS 1.0 EA 136.0 FT 218.0 FT 3.0 FT 88,944.0 CF 32,368.0 SF 1.0 EA	=	Per Structure Summary Assumed width of canal Assumed Average depth 3,294.2 CY Riprap Fabric	

Length = 170.0 FT/EA Total Length = 170.0 FT/EA Total Piles = 3.0 EA Station and Building Equipment = 9.1800 SF Assume Trash rake is 60 ft tall and covers the width of the operating floor (153) Roll Up Garage Door = 1680 SF Assume Roll up garage door 12'x14' # of Doors = 4.0 ea Assume Trash rake is 60 ft tall and covers the width of the operating floor (153) Roll Up Garage Door = 1680 SF Assume Roll up garage door 12'x14' # of Doors = 4.0 ea Assume Solut ropenings 7'-4' square Overhead Crane = 2.0 ea Assume 1 pot toble water openings 7'-4' square Power Line Connection = 1.0 ea Assume 1 pot 20 bit from site Septic tank system = 1.0 ea Assume to 100 galon fue tanks required Generator Fuel Tank = 2000 Galon ea Assume to 100 galon fue tanks required Fuel Pad dimensions = 342.0 VLF Assume to 100 galon fue tanks required Ladders = 342.0 VLF Assume to 100 galon fue tanks required Ladders = 37.00 L Fr As	Piles for Buoys	=	3.0	EA	Assume barrier has 3 point	ts (2 at shore, 1 at canal)
Total Length = 170.0 FT Buoy style barrier Station and Building Equipment Trash Rack Surface Area (total) = 9,180.0 \$F Assume Trash rake is 60 ft tall and covers the width of the operating floor (153') Roll Up Garage Door = 168.0 \$F Assume 1 set of double doors and two other doors # do Doors = 4.0 ea Assume 2 overhead cranes (0 25 tons each Work Power Openings = 2.0 ea Assume 2 overhead cranes (0 25 tons each Power Line Connection = 2.0000.0 IF Assume 1 septic tank system Power Line Connection = 2.0000.0 FF Assume 1 septic tank system Power Line Connection = 2.0000.0 FF Assume 1 septic tank system Datable water = 1.0 ea Assume 1 septic tank system Power Fuel Cank system = 1.0000.5 FF Assume 1 septic tank system It adders = 2.0000.0 FF Assume 1 septic tank system 1.0 Power Line Connection = 2.0000.0 FF Assume 1 septic tank system 1.0 <	Length	=	170.0	FT/EA		
Total Length = 1700 FT Buoy style barrier Total Piles = 3.0 EA Station and Building Equipment = 9,180.0 SF Assume Trash rake is 60 ft tall and covers the width of the operating floor (153') Roll Up Garage Door = 168.0 SF Assume 1 set of double doors and two other doors # louver openings = 8.0 ea Assume 2 overhead crane (0.25 tons each Power tile Connection = 2,500.0 LF Assume 1 set of double doors and two other doors Power tile Connection = 2,500.0 LF Assume 2 overhead crane (0.25 tons each Power tile Connection = 2,500.0 LF Assume 1 septic tank system Overhead Crane = 0.00 ea Assume 1 septic tank system Generator Fuel Tank = 0.000 SF Assume 1 work 2000 gallon fuel tanks required Generator Fuel Tank = 0.000.0 SF Assume 1 work 2000 gallon fuel tanks required Ladders = 342.0 VF Assume 1 work 2000 gallon fuel tanks required 1.333.3 Concrete barrier = <						
Station and Building Equipment 9,180.0 SF Assume Trash rake is 60 ft tall and covers the width of the operating floor (153') Roll Up Garage Door = 168.0 SF Assume Roll up garage door 12'x14' # of Doors = 4.0 ea Assume 1 set of double doors and two other doors # lower openings = 2.0 ea Assume 8 lower openings 7-4'' square Overhead Crane = 2.0 ea Assume 2 overhead cranes @ 25 tons each Power Line Connection = 2.500.0 LF Assume 1 septic tank system Potable water = 1.0 ea Assume 1 septic tank system Potable water = 1.0 ea Assume 1 septic tank system Potable water = 1.0 ea Assume 1 septic tank system Potable water = 1.0 ea Assume 1 septic tank system Fuel Pad dimensions = 2.000.0 SF Assume two 100'x20'x8'' thick reinforced concrete slab on grade pad 1,333.3 CF = 4.94 CY Floor Steel Grating = 5.8 Sume Wdith Bay (13'x5+13'x4) by 4' <	Total Length	=	170.0	FT	Buoy style barrier	
Station and Building Equipment Trash Rack Surface Area (total) = 9,180.0 SF Assume Trash rake is 60 ft tall and covers the width of the operating floor (153') Roll Up Garage Door = 168.0 SF Assume Roll up garage door 12'x14' # of Doors = 4.0 ea Assume 1 set of double doors and two other doors # lower openings = 8.0 ea Assume 2 overhead cranse 20 so the assume 3 lower openings 7'-4"'s quare Overhead Crane = 2.0 ea Assume 2 overhead cranse 25 tons each Power Line Connection = 2.500.0 LF Assume 1 set of double doors and two other doors Septic tank system = 1.0 ea Assume 1 set of double doors are h Power Line Connection = 2.500.0 LF Assume to potable water well will be required Generator Fuel Tank = 2.000.0 SF Assume 1 potable water well will be required Ladders = 3.430.0 SF Assume Woith Bay (13'x5+18'x4) by 4' Ladders = 4.9.4 CY Floor Steel Grating = 4.9 CF S' Total	Total Piles	=	3.0	EA		
Station and Building Equipment Trash Rack Surface Area (total) = 9,1800 SF Assume Trash rake is 60 ft tall and covers the width of the operating floor (153') Roll Up Garage Door = 16800 SF Assume Roll up garage door 12'x14' # of Doors = 4.0 ea Assume 1 set of double doors and two other doors # louver openings = 2.0 ea Assume 2 overhead cranes @ 25 tons each Power Line Connection = 2,500.0 LF Assume power available 2500 If from site Septic tank system = 1.0 ea Assume 1 set of tall and covers the width of the operating Potable water = 1.0 ea Assume 1 set patie tank system Potable water = 2.0 Gallon ea Assume 1 potable water well will be required Generator Fuel Tank = 2000 Gallon ea Assume 1 potable water well will be required J.333.3 CF = 4.9 CF & 10 VF Assume 38 ft per pump bay (9 bays) of the operating floor Concrete bollard = 4.9 CF & 10 Assume 13.7 CY CONCRETE TOTAL = 6.51 CY Concrete SUM 424.5 CF = 15.7 CY CONCRETE TOTAL = 6.51 CY Concrete Silt Fence = 3,700.0 LF Assume Similar to Merritt Pump Station Silt Fence = 1.0 EA/DOOR Lock Boxes = 1.0 EA/DOOR Free Extinguishers = 2.0 EA						
Irish Rack Sufface Area (total) = 9,1800 SF Assume I rish rake is but it fail and covers the width of the operating floor (153') Roll Up Garage Door = 108.0 SF Assume Roll up garage door 12'x14' # of Doors = 4.0 ea Assume Roll up garage door 12'x14' # lower openings = 8.0 ea Assume I set of double doors and two other doors Workhow Time Connection = 2.00 ea Assume pover available 2500 If from site Septit Cank system = 10 ea Assume 1 septit cank system Power Line Connection = 2.000.0 IF Assume 1 septit cank system Potable water = 10 ea Assume 1 septit cank system Potable water = 10 ea Assume 1 septit cank system Fuel Pad dimensions = 2.000.0 SF Assume Wolft Bay (13'x5+18'x4) by 4' Ladders = 342.0 VLF Assume 8 ft per pump bay (9 bays) of the operating floor Concrete barrier = 419.6 CF E 15.7 CY Concrete barrier = 3.700	Station and Building Equipment		0.400.0		T	
Roll Up Garage Door = 1680 SF Assume 1 set of double doors and two other doors # do Doors = 4.0 ea Assume 1 set of double doors and two other doors # louver openings = 8.0 ea Assume 1 set of double doors and two other doors Workead Crane = 2.00 ea Assume 2 overhead cranes @ 25 tons each Power Line Connection = 2.500.0 LF Assume 1 set of double doors and two other doors Septit tank system = 1.0 ea Assume 1 set of tanks system Potable water = 1.0 ea Assume 1 set of tanks system Generator Fuel Tank = 2000 Gallon ea Assume two 100'x20'x8" thick reinforced concrete slab on grade pad 1,333.3 CF = 49.4 CY Floor Steel Grating = 548.0 SF Assume 38 ft per pump bay (9 bays) of the operating floor - 4.9 CF 8" DIA. Bollard, 5C" tall, x1 per bay Concrete balard = 4.9 CF 8" DIA. Bollard, 5C" tall, x1 per bay Concrete barrier SUM 424.5 CF	Trash Rack Surface Area (total)	=	9,180.0	SF	sume Trash rake is 60 ft tall and co	vers the width of the operating
Roll Up Garage Door = 188.0 SF Assume Roll up garage door 12'x14' # of Doors = 4.0 ea Assume 1 set of double doors and two other doors # louver openings = 8.0 ea Assume 2 louver openings 7'4" square Overhead Crane = 2.00 ea Assume 2 louver openings 7'4" square Overhead Crane = 2.00 ea Assume 2 louver openings 7'4" square Overhead Crane = 2.00 ea Assume 1 set of double doors and two other doors Power Line Connection = 2.000.0 LF Assume 1 settic tank system Potable water = 1.0 ea Assume 1 settic tank system Potable water = 1.0 ea Assume 1 settic tank system Potable water = 1.0 ea Assume 1 settic tank system Import that that the system = 1.0 ea Assume 1 settic tank system Potable water = 1.0 ea Assume two 100'x20'x8" thick reinforced concrete slab on grade pad 1,333.3 CF = 49.4 CY Floo)OF (153.)	
# of Doors = 4.0 ea Assume 1 set of double doors and two other doors # louver openings = 8.0 ea Assume 8 louver openings 7'-4" square Overhead Crane = 2.0 ea Assume 2 overhead Cranes (@ 25 tons each) Power Line Connection = 2,500.0 LF Assume 1 power available 2500 lif from site Septit tank system = 1.0 ea Assume 1 potable water well will be required Generator Fuel Tank = 2,000.0 LF Assume 1 vot 2000 gallon fuel tanks required Fuel Pad dimensions = 2,000.0 SF Assume 1 vot 00'x20'x8" thick reinforced concrete slab on grade pad 1,333.3 CF = 49.4 CY Floor Steel Grating = 4.9.4 CY Ladders = 4.9.4 CY Concrete bollard = 4.9.4 CY Concrete bollard = 4.9.6 CF 8" DIA. Bollard, 56" tall, x1 per bay Concrete barrier = 4.9.2 CY Concrete CY SUM 424.5 CF = 1.57	Roll Up Garage Door	=	168.0	SF	sume Roll up garage door 12'x14'	
# louver openings = 8.0 ea Assume 8 louver openings 7'-4" square Overhead Crane = 2.0 ea Assume 2 overhead cranes @ 25 tons each Power Line Connection = 2,500.0 LF Assume 1 septic tank system Potable water = 1.0 ea Assume 1 potable water well will be required Generator Fuel Tank = 2,000.0 SF Assume 1 potable water well will be required Fuel Pad dimensions = 2,000.0 SF Assume 1 potable water well will be required Ladders = 2,000.0 SF Assume 1 potable water well will be required Ladders = 2,000.0 SF Assume 1 potable water well will be required Ladders = 49.4 CY Floor Steel Grating = 49.4 CY Concrete bollard = 49.4 CY Concrete bollard = 49.4 CY Concrete bollard = 49.6 CF FoDT Inex 415, NJ. Shape Barrier SUM 424.5 CF = 15.7 CY Concrete <t< td=""><td># of Doors</td><td>=</td><td>4.0</td><td>ea</td><td>sume 1 set of double doors and tw</td><td>o other doors</td></t<>	# of Doors	=	4.0	ea	sume 1 set of double doors and tw	o other doors
Overhead Crane = 2.0 ea Assume 2 overhead cranes @ 25 tons each Power Line Connection = 2,500.0 LF Assume power available 2500 lf from site Septic tank system = 1.0 ea Assume 1 potable water well will be required Potable water = 1.0 ea Assume 1 potable water well will be required Generator Fuel Tank = 2000 Gallon ea Assume five 2000 gallon fuel tanks required Fuel Pad dimensions = 2,000.0 SF Assume two 100°x20°x8" thick reinforced concrete slab on grade pad 1,333.3 CF = 49.4 CV Floor Steel Grating = 548.0 SF Assume 38 ft per pump bay (9 bays) of the operating floor Concrete bollard = 4.9 CF 8" DIA. Bollard, 56" tall, x1 per bay Concrete barrier = 419.6 CF EDI Inex 415, N.J. Shape Barrier SUM 424.5 CF = 15.7 CY CONCRETE TOTAL = 65.1 CY Concrete Silt Pence = 3,700.0 LF Assume similar to M	# louver openings	=	8.0	ea	sume 8 louver openings 7'-4" squa	re
Power Line Connection = 2,500.0 LF Assume power available 2500 if from site Septic tank system = 1.0 ea Assume 1 septic tank system Potable water = 1.0 ea Assume 1 potable water well will be required Generator Fuel Tank = 2000 Gallon ea Assume five 2000 gallon fuel tanks required Fuel Pad dimensions = 2,000.0 SF Assume two 100'x20'x8' thick reinforced concrete siab on grade pad 1,333.3 CF = 49.4 CY Floor Steel Grating = 548.0 SF Assume Woith Bay (13'x5+18'x4) by 4' Ladders = 342.0 VLF Assume Bare portaing floor Concrete bollard = 4.9 CY Concrete barrier = 419.6 CF FDOT Inex 415, N.J. Shape Barrier SUM 424.5 CF = 15.7 CY CONCRETE TOTAL = 65.1 CY Concrete Silt Boom = 2,700.0 LF Assume similar to Merritt Pump Station Silt Boom = 1.0	Overhead Crane	=	2.0	ea	sume 2 overhead cranes @ 25 ton:	s each
Septic tank system = 1.0 ea Assume 1 septic tank system Potable water = 1.0 ea Assume 1 potable water well will be required Generator Fuel Tank = 2000 Gallon ea Assume five 2000 gallon fuel tanks required Fuel Pad dimensions = 2,000.0 SF Assume two 100'x20'x8" thick reinforced concrete slab on grade pad 1,333.3 CF = 49.4 CY Floor Steel Grating = 548.0 SF Assume Wdith Bay (13'x5+18'x4) by 4' Ladders = 342.0 VLF Assume 38 ft per pump bay (9 bays) of the operating floor Concrete bollard = 4.9 CF 8" DIA. Bollard, 56" tall, x1 per bay Concrete barrier = 419.6 CF EDT lnex 415, NJ. Shape Barrier SUM 424.5 CF = 15.7 CY CONCRETE TOTAL = 65.1 CY Concrete Silt Fence = 3,700.0 LF Assume similar to Merritt Pump Station Silt Boom = 1.0 EA/DCOR EA/DCOR Lock Boxes	Power Line Connection	=	2,500.0	LF	sume power available 2500 lf from	site
Potable water = 1.0 ea Assume 1 potable water well will be required Generator Fuel Tank = 2000 Gallon ea Assume five 2000 gallon fuel tanks required Fuel Pad dimensions = 2,000.0 SF Assume two 100'x20'x8" thick reinforced concrete slab on grade pad 1,333.3 CF = 49.4 CY Floor Steel Grating = 548.0 SF Assume Wdith Bay (13'x5+18'x4) by 4' Ladders = 342.0 VLF Assume 38 ft per pump bay (9 bays) of the operating floor Concrete bollard = 4.9 CF 8" DIA. Bollard, 56" tall, x1 per bay Concrete barrier = 419.6 CF = 15.7 SUM 424.5 CF = 15.7 CY CONCRETE TOTAL = 65.1 CY Concrete Silt Fence = 3,700.0 LF Assume similar to Merritt Pump Station Silt Boom = 1.0 EA/DOOR EA/DOOR Lock Boxes = 1.0 EA/DOOR EA/DOOR	Septic tank system	=	1.0	ea	sume 1 septic tank system	
Generator Fuel Tank = 2000 Gallon ea Assume five 2000 gallon fuel tanks required Fuel Pad dimensions = 2,000.0 SF Assume two 100°x20'x8" thick reinforced concrete slab on grade pad 1,333.3 CF = 49.4 CY Floor Steel Grating = 548.0 SF Assume Wdith Bay (13'x5+18'x4) by 4' Ladders = 342.0 VLF Assume 38 ft per pump bay (9 bays) of the operating floor Concrete bollard = 4.9 CF 8" DIA. Bollard, 56" tall, x1 per bay Concrete barrier = 419.6 CF FDOT Inex 415, NJ. Shape Barrier SUM 424.5 CF = 15.7 CY CONCRETE TOTAL = 65.1 CY Concrete Silt Fence = 3,700.0 LF Assume similar to Merritt Pump Station Silt Boom Silt Boom = 1.0 EA/DOOR EA/DOOR Fire Extinguishers = 2.0 EA	Potable water	=	1.0	ea	sume 1 potable water well will be	required
Fuel Pad dimensions = 2,000.0 SF Assume two 100'x20'x8" thick reinforced concrete slab on grade pad 1,333.3 CF = 49.4 CY Floor Steel Grating = 548.0 SF Assume Wdith Bay (13'x5+18'x4) by 4' Ladders = 342.0 VLF Assume 38 ft per pump bay (9 bays) of the operating floor Concrete bollard = 4.9 CF 8" DIA. Bollard, 56" tall, x1 per bay Concrete barrier = 419.6 CF FDOT Inex 415, N.J. Shape Barrier SUM 424.5 CF = 15.7 CY CONCRETE TOTAL = 65.1 CY Concrete Silt Fence = 3,700.0 LF Assume similar to Merritt Pump Station Silt Boom = 600.0 LF Assume similar to Merritt Pump Station Conduit Boxes = 1.0 EA/DOOR EA/DOOR Fire Extinguishers = 2.0 EA EA	Generator Fuel Tank	=	2000 Gallon	ea	sume five 2000 gallon fuel tanks re	quired
1,333.3 CF = 49.4 CY Floor Steel Grating = 548.0 SF Assume Wdith Bay (13'x5+18'x4) by 4' Ladders = 342.0 VLF Assume 38 ft per pump bay (9 bays) of the operating floor Concrete bollard = 4.9 CF 8" DIA. Bollard, 56" tall, x1 per bay Concrete barrier = 419.6 CF FDOT Inex 415, N.J. Shape Barrier SUM 424.5 CF = 15.7 CY CONCRETE TOTAL = 65.1 CY Concrete Chain link Fence = 2,280.0 LF Assume Similar to Merritt Pump Station Silt Boom = 600.0 LF Assume similar to Merritt Pump Station Fire Extinguishers = 1.0 EA/DOR Fire Extinguishers = 2.0 EA	Fuel Pad dimensions	=	2,000.0	SF	sume two 100'x20'x8" thick reinfor	rced concrete slab on grade pad
Floor Steel Grating=548.0SFAssume Wdith Bay (13'x5+18'x4) by 4'Ladders=342.0VLFAssume 38 ft per pump bay (9 bays) of the operating floorConcrete bollard=4.9CF8" DIA. Bollard, 56" tall, x1 per bayConcrete borrier=419.6CFFDOT Inex 415, N.J. Shape Barrier sUMSUM424.5CF=15.7CYCONCRETETOTAL=65.1CYConcreteChain link Fence=2,280.0LFAssume Similar to Merritt Pump Station Silt BoomEFAssume similar to Merritt Pump StationSilt Boom=1.0EA/DOEAEAEAFire Extinguishers=2.0EAEA			1,333.3	CF	= 49.4 CY	
Floor Steel Grating = 548.0 SF Assume Wdith Bay (13'x5+18'x4) by 4' Ladders = 342.0 VLF Assume 38 ft per pump bay (9 bays) of the operating floor Concrete bollard = 4.9 CF 8" DIA. Bollard, 56" tall, x1 per bay Concrete barrier = 419.6 CF FDOT Inex 415, N.J. Shape Barrier SUM 424.5 CF = 15.7 CY CONCRETE TOTAL = 65.1 CY Concrete Silt Fence = 3.700.0 LF Assume similar to Merritt Pump Station Silt Boom = 600.0 LF Assume similar to Merritt Pump Station Conduit Boxes = 1.0 EA/DO OR Lock Boxes = 1.0 EA/DO OR Fire Extinguishers = 2.0 EA						
Ladders=342.0VLFAssume 38 ft per pump bay (9 bays) of the operating floorConcrete bollard=4.9CF8" DIA. Bollard, 56" tall, x1 per bay Concrete barrierConcrete barrier=419.6CFFDOT Inex 415, N.J. Shape Barrier SUMSUM424.5CF=15.7CONCRETETOTAL=65.1CYCONCRETETOTAL=65.1CYConcrete3,700.0LFAssume similar to Merritt Pump Station Silt BoomLFSilt Boom=1.0EA/DOORLock Boxes=1.0EA/DOORFire Extinguishers=2.0EA	Floor Steel Grating	=	548.0	SF	sume Wdith Bay (13'x5+18'x4) by 4	1'
Concrete bollard = 4.9 CF 8" DIA. Bollard, 56" tall, x1 per bay Concrete barrier = 419.6 CF FDOT Inex 415, N.J. Shape Barrier SUM 424.5 CF = 15.7 CY CONCRETE TOTAL = 65.1 CY Concrete Chain link Fence = 2,280.0 LF Assume Similar to Merritt Pump Station Silt Fence = 3,700.0 LF Assume similar to Merritt Pump Station Silt Boom = 60.0 LF Assume similar to Merritt Pump Station Conduit Boxes = 1.0 EA/DOOR Lock Boxes = 1.0 EA/DOOR Fire Extinguishers = 2.0 EA	Ladders	=	342.0	VLF	sume 38 ft per pump bay (9 bays)	
Concrete bollard = 4.9 CF 8" DIA. Bollard, 56" tall, x1 per bay Concrete barrier = 419.6 CF FDOT Inex 415, N.J. Shape Barrier SUM 424.5 CF = 15.7 CY CONCRETE TOTAL = 65.1 CY Concrete Chain link Fence = 2,280.0 LF Assume Similar to Merritt Pump Station Silt Fence = 3,700.0 LF Assume similar to Merritt Pump Station Silt Boom = 600.0 LF Assume similar to Merritt Pump Station Conduit Boxes = 1.0 EA/DOOR EA/DOOR Fire Extinguishers = 2.0 EA					the operating floor	
Concrete barrier = 419.6 CF FDOT linex 415, N.J. Shape Barrier SUM 424.5 CF = 15.7 CY CONCRETE TOTAL = 65.1 CY Concrete Chain link Fence = 2,280.0 LF Assume Similar to Merritt Pump Station Silt Fence = 3,700.0 LF Assume similar to Merritt Pump Station Silt Boom = 600.0 LF Assume similar to Merritt Pump Station Conduit Boxes = 1.0 EA/DOOR Lock Boxes = 1.0 EA/DOOR Fire Extinguishers = 2.0 EA	Concrete bollard	=	4.9	CF	DIA. Bollard, 56" tall, x1 per bay	
SUM424.5 CF=15.7 CYCONCRETETOTAL=65.1 CYConcreteChain link Fence=2,280.0 LFAssume Similar to Merritt Pump StationSilt Fence=3,700.0 LFAssume similar to Merritt Pump StationSilt Boom=600.0 LFAssume similar to Merritt Pump StationConduit Boxes=1.0 EA/DOORLock Boxes=1.0 EA/DOORFire Extinguishers=2.0 EA	Concrete barrier	=	419.6	CF	OT Inex 415, N.J. Shape Barrier	
CONCRETE TOTAL = BS.1 CY Concrete Chain link Fence = 2,280.0 LF Assume Similar to Merritt Pump Station Silt Fence = 3,700.0 LF Assume similar to Merritt Pump Station Silt Boom = 600.0 LF Assume similar to Merritt Pump Station Conduit Boxes = 1.0 EA/DOOR Lock Boxes = 1.0 EA/DOOR Fire Extinguishers = 2.0 EA	CONCRETE	SUIVI	424.5	CF	= 15.7 CY	Constants
Chain link Fence=2,280.0LFAssume Similar to Merritt Pump StationSilt Fence=3,700.0LFAssume similar to Merritt Pump StationSilt Boom=600.0LFAssume similar to Merritt Pump StationConduit Boxes=1.0EA/DC/ORLock Boxes=1.0EA/DC/ORFire Extinguishers=2.0EA	CONCRETE		TUTAL		= 65.1 CY	Concrete
Silt Fence = 3,700.0 LF Assume similar to Merritt Pump Station Silt Boom = 600.0 LF Assume similar to Merritt Pump Station Conduit Boxes = 1.0 EA/DOOR Lock Boxes = 1.0 EA/DOOR Fire Extinguishers = 2.0 EA	Chain link Fence	_	2 280 0	IF	sume Similar to Merritt Pump Stat	ion
Silt Boom = 600.0 LF Assume similar to Merritt Pump Station Conduit Boxes = 1.0 EA/DOOR Lock Boxes = 1.0 EA/DOOR Fire Extinguishers = 2.0 EA	Silt Fence	=	3 700 0	LE	sume similar to Merritt Pump Stati	on
Conduit Boxes = 1.0 EA/DOOR Lock Boxes = 1.0 EA/DOOR Fire Extinguishers = 2.0 EA	Silt Boom	=	600.0	LE	sume similar to Merritt Pump Stati	on
Conduit Boxes = 1.0 EA/DOOR Lock Boxes = 1.0 EA/DOOR Fire Extinguishers = 2.0 EA						
Lock Boxes = 1.0 EA/DOOR Fire Extinguishers = 2.0 EA	Conduit Boxes	=	1.0	EA/DO	R	
Fire Extinguishers = 2.0 EA	Lock Boxes	=	1.0	EA/DO	R	
Fire Extinguishers = 2.0 EA						
	Fire Extinguishers	=	2.0	EA		
20" Exhaust Fan = 1.0 EA Coolair CBA20L, 1 HP, 4702 CFM @ 3/8" SP	20" Exhaust Fan	=	1.0	EA	Coolair CBA20L, 1 HP, 4702	2 CFM @ 3/8" SP
12" Exhaust Fan = 1.0 EA Coolair CDU12F17, 1/6 HP, 1210 CFM @ 1/4" SP	12" Exhaust Fan	=	1.0	EA	Coolair CDU12F17, 1/6 HP	, 1210 CFM @ 1/4" SP

Coffer dam:	1,200.0	LF	
Coffer dam:	89,964.0	SF	
Excavation:	51,741.9	CY	
Concrete:	12,178.4	СҮ	
Steel Rebar:	146.1	CY (?)	
Steel Rebar:	965.9	TONS	
Backfill:	64,677.4	LCY	
6' Discharge Pipe	1,600.0	LF	0.75" thick
6' Steel 45-bend	16.0	EA	0.75" thick
375 CFS Pump	4.0	EA	
Rip-rap:	3,294.2	СҮ	
Geofabric:	32,368.0	SF	
Boat Barrier:	170.0	LF	
Barrier Piles:	3.0	EA	
Control bld.:	65.1	СҮ	
Trash Rack	9,180.0	SF	
Roll Up Garage Door:	168.0	SF	Concrete
Total Doors	4.0	EA	
Conduit Boxes	1.0	EA/DOOR	12' x 14'
Lock Boxes	1.0	EA/DOOR	Size 4'-0" x 7'-0"
Louver Openings	8.0	EA	
Overhead Crane	2.0	EA	
Power Line Connection	2,500.0	LF	
Generator Fuel Tank	2,000.0	GALLONS	
Septic Tank System	1.0	EA	Assume available 2500LF
Potable Water Well	1.0	EA	
Steel Grate	548.0	SF	
Ladders	9.0	EA	
Concrete:	65.1	СҮ	
Chainlink Fence			
	2,280.0	LF	38 EA
Silt Fence	2,280.0 3,700.0	LF	38 EA Fuel pad, bollards, barrier
Silt Fence Silt Boom	2,280.0 3,700.0 600.0	LF LF	58 EA Fuel pad, bollards, barrier
Silt Fence Silt Boom Fire Extinguishers	2,280.0 3,700.0 600.0 2.0	LF LF LF EA	38 EA Fuel pad, bollards, barrier
Silt Fence Silt Boom Fire Extinguishers	2,280.0 3,700.0 600.0 2.0	LF LF EA	38 EA Fuel pad, bollards, barrier
Silt Fence Silt Boom Fire Extinguishers 20" Exhaust Fan	2,280.0 3,700.0 600.0 2.0 1.0	LF LF EA EA	38 EA Fuel pad, bollards, barrier

Feature of Work:	STRUCTURE SPS-1: 100 CFS DIESEL ELECTRIC PUMP STATION
Scope Given:	100 CFS diesel pump station (by-pass not required for construction). Seepage Pump Station SPS-1 will function as seepage pump station for the East Cells.
Reference for Scope Basis:	
Scope Assumptions:	 Assume similar to structure Pump Station G-725 with a smaller capacity. Assume given dimensions in the engineering appendix govern over provided design documents for similar structure if no dimensions are given in the engineering appendix all dimensions will come from the similar structure. Assume there will be a total of two 50 cfs pumps and one 50 cfs auxiliary pump. Assume pump station will be constructed of reinforced concrete below grade and a combination of cast-in-place columns and reinforced CMU walls. Assume a fuel pad will be required for storage tanks for the diesel pump and the diesel generator, assumed 2 feet thick reinforced concrete.
Supporting Documentation: (by Cost Team)	Quantity Takeoff, Material Quotes
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized. Plans and specifications for recent similar work were utilized to capture the necessary scope and assumptions to construct the feature. *As part of an RFI, the structures heights were increased by 6-ft, also changing the estimated length. *Updated with some features shown on site planning documents
Sequence of Work:	Cap slab will be placed in bottom of excavation. Structure will be built and excavation for the inlet basin will commence. Suction apron will be placed along with excavation for discharge piping and discharge headwall/discharge apron. Excavate out discharge piping and backfill levee.
Key Challenges, Risks, and Opportunities	



FOR THE LOCAR PROJECT LIMITS OF	NORTH AMERICAN VERTICAL DATUM	1. ELEVATIONS SHOWN HEREON ARE	NOTE:
CONSTRUCTION.	OF 1988 (NAVD88)	EXPRESSED IN FEE	
). NGVD29 = NAVD88 + 1.2 FEET	ET AND ARE BASED ON THE	

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			MWSL ELEV. 56.30 NFSL ELEV. 51.70 NFSL ELEV. 51.70 SAXOPHONE DISSIPATOR 24" MIN. THICK GROUND ELEV. 27.00 CONTRACTOR 24" MIN. THICK CONTRACTOR 24" MIN. THICK	RESERVOIR CELL	
ESTIMATED AVG. ELEV120.00	VARIES, SILTY & CLAYEY SAND, SILT & CLAY (SM, SC, ML, MH, CL & CH)	ESTIMATED AVG. ELEV20.00 VARIES, POORLY GRADED SAND WITH SILT & SILTY & CLAYEY SAND (SP-SM, SP-SC, SM ESTIMATED AVG. ELEV50.00	FABRICATED TEE 12" THICK SOLL CEMENT REVETMENT 24" MIN. THICK CLEAN SAND LAYER TOP. ELEV. 44.70 Second Contraction Development 6" DIA. SCH 80 SLOTTED PVC PIPE (SEEPAGE COLLECTION DRAIN) 6" DIA. SCH 80 SOLID PVC PIPE (SEEPAGE COLLECTION DRAIN OUTLET) (SPACED 200' O.C.) SP, SP-SM & SP-SC)	130.50 BLIND FLANGE WITH AIR RELIEVE VALVE PRIMING FLOW DISCHARGE PIPE W/ ELEC. ACTUATED BUTTERFLY VALVE AND CONC. PIPE SUPPORT INTERIOR TOB ELEV. 68.50	



OKEECHOBEE COMPONENT A



SECTION - SPS-1 SEEPAGE PUMP STATION LOCAR RECOMMENDED PLAN



RESERVOIR (LOCAR) DRAWING PREPARED BY J-TECH TYPICAL SECTION SHEET LAYOUTS.DWG 9/24/2023

Feature of Work: STRUCTURE SPS-1: 370 CFS DIESEL ELECTRIC PUMP STATION							
Quantity Take Off:							
User Input		Row Calculation		Sum of Values above			
Sheetpile Dewatering							
Dewatering Pumps	=	TBD EA		Size to be determined			
Width	=	204.0 FT		Assume 20' from top of excavation			
Length	=	166.0 FT		Assume 20' from length of excavation			
Depth	=	46.0 FT		Assumed			
Total Perimeter	=	740.0 LF		Sheetpile perimeter			
Area	=	33,864.0 SF					
Pump Station Excavation							
Length	=	126.0 FT		Compared to G-725			
Total Depth	=	26.0 FT		Assumed			
Thickness of Organic	=	2.0 FT					
Thickness of Cap Rock	=	8.0 FT					
Thickness of Fort Thompson	=	16.0 FT					
Slope1	=	2.0 :1					
Slope2	=	2.0 :1					
Bottom Width	=	60.0 FT		Compared to G-725			
Top Width	=	164.0 FT					
Cross Section	=	2,912.0 SF					
Cross Section Organic	=	320.0 SF					
Cross Section of Cap Rock	=	1,120.0 SF					
Cross Section of Fort Thompson	=	1,472.0 SF					
Organic Cut Volume	=	40,320.0 CF	=	1,493.3 BCY = LCY			
Cap Rock Cut Volume	=	141,120.0 CF	=	5,226.7 BCY = LCY			
Fort Thompson Cut Volume	=	185,472.0 CF	=	6,869.3 BCY = LCY			
EXCAVATION		TOTAL	=	13,589.3 BCY 16,986.7 LCY			
Structure Dimensions and Volumes							
Structure	1	Length	84	ft <u>Width</u> 75 ft			
Intako Povo	2	Haight	31	ft			
intake bays	2	neight	51	14			
Foundation							
Depth	=	4.0 FT		Assumed			
Length	=	84.0 FT					
Width	=	75.0 FT					
Volume	=	25,200.0 CF	=	933.3 CY			
Superstructure							
Number of Piers	=	10 FA					
Diar Width	-	2.0 FT		Assumed			
Pier Length	=	48.0 FT		Borrowed from similar			
Pier Height	=	27.0 FT		Structure Height below Control Building			
Volume	=	2,592.0 CF	=	96.0 CY			
<u>.</u>							
Abutment Walls	=	2.0 EA		Demoused from similar			
Abutment Width	=	2.0 FT		Borrowed from similar			
Abutment Length	=	48.0 FI		Burrowed from Similar			
Abutment Height	=	27.0 FI		Structure Height below Control Building			
Discharge Wall	-	1.U EA					
Discharge wall Width	=	2.0 FI					

Discharge Wall Length	=	75.0 FT		
Discharge Wall Height	=	27.0 FT		
Volume	=	9,234.0 CF	=	342.0 CY
Beam Cross-Section	=	6.0 SF		Borrowed from similar
Beam Length	=	69.0 FT		
volume of elevated beam	=	414.0 CF	=	15.3 CY
Cross-Section of Bridge and Ctrl Bldg Slab	=	162.0 SF		
Width	=	71.0 FT		
Volume	=	11,502.0 CF	=	426.0 CY
		,		
Wing Walls				
Number	=	2.0 EA		
Depth	=	12.5 FT		Average depth
Length	=	56.0 FT		Borrowed from similar
Width	=	2.0 FT		Borrowed from similar
Volume	-	2 800 0 CE	=	103.7
volume	_	2,000.0 Ci	_	105.7
Control Building				
Building Cross-Section	_	150.0 SE		Borrowed from similar
Building Length	_	25.0 FT		Borrowed from similar
Outside Wall Width	_	23.0 TT		Borrowed from similar
	_	14.0 FI		Borrowed from similar
	=	1.0 FI		Borrowed from similar
Outside wall Height	=	10.0 FI		Borrowed from similar
Volume	=	3,890.0 CF	=	144.1
CONCRETE		ΤΟΤΑΙ	_	
CONCRETE		TOTAL	-	2,000.4 Cf Concrete
Steel Rebar				Assumed 1.2% volume of concrete
Steel Rebar		τοται	_	Assumed 1.2% volume of concrete
Steel Rebar STEEL REBAR		TOTAL	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS
Steel Rebar STEEL REBAR		TOTAL	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS
Steel Rebar STEEL REBAR Discharge Pining		TOTAL	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS
Steel Rebar STEEL REBAR Discharge Piping		TOTAL	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes	=	TOTAL 3.0 EA	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes	=	TOTAL 3.0 EA 100.0 LE	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes	=	TOTAL 3.0 EA 100.0 LF	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes	=	TOTAL 3.0 EA 100.0 LF	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes	= = =	TOTAL 3.0 EA 100.0 LF 300.0 LF	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes	=	TOTAL 3.0 EA 100.0 LF 300.0 LF	-	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Steel Rebar	= = =	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Stotal x' Dia. Pipes 45 degree bends	= = =	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Total x' Dia. Pipes 45 degree bends Pumps	= = =	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Total x' Dia. Pipes 45 degree bends Pumps	= = =	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee Per Structure Summary
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Total x' Dia. Pipes 45 degree bends Pumps 185 CFS Pumps	=	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA 2.0 EA 1.0 EA	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee Per Structure Summary Per Structure Summary
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Total x' Dia. Pipes 45 degree bends Pumps 185 CFS Pumps 125 CFS Auxilliary Pumps	=	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA 1.0 EA		Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee Per Structure Summary Per Structure Summary
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Total x' Dia. Pipes 45 degree bends Pumps 185 CFS Pumps 125 CFS Auxilliary Pumps	= = = =	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA 1.0 EA	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee Per Structure Summary Per Structure Summary
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Total x' Dia. Pipes 45 degree bends Total x' Dia. Pipes 45 degree bends Rip RAP Lengths and depths assu	= = = = =	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA 1.0 EA 1.0 EA	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee Per Structure Summary Per Structure Summary
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Total x' Dia. Pipes 45 degree bends Total x' Dia. Pipes 45 degree bends RIP RAP Lengths and depths assu	= = = = = umed, a	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA 12.0 EA 1.0 EA 1.0 EA		Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee Per Structure Summary Per Structure Summary
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Total x' Dia. Pipes 45 degree bends Total x' Dia. Pipes 45 degree bends 125 CFS Pumps 125 CFS Auxilliary Pumps RIP RAP Lengths and depths assu Number Length	= = = = = umed, a = =	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA 12.0 EA 1.0 EA		Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee Per Structure Summary Per Structure Summary Assumed width of canal
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Total x' Dia. Pipes 45 degree bends Total x' Dia. Pipes 45 degree bends 125 CFS Pumps 125 CFS Auxilliary Pumps RIP RAP Lengths and depths assu Number Length Width	= = = = = umed, a = = =	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA 1.0 EA		Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee Per Structure Summary Per Structure Summary Per Structure Summary
Steel Rebar STEEL REBAR	= = = = = umed, a = = = =	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA 12.0 EA 1.0 EA	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee Per Structure Summary Per Structure Summary Per Structure Summary Assumed width of canal Assumed Average depth
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Total x' Dia. Pipes 45 degree bends Total x' Dia. Pipes 45 degree bends 125 CFS Auxilliary Pumps RIP RAP Lengths and depths asso Number Length Width Depth	= = = = umed, a = = = =	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA 12.0 EA 1.0 EA 1.0	_	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee Per Structure Summary Per Structure Summary Per Structure Summary Assumed width of canal Assumed Average depth 1.133.3 CY Riprap
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Total x' Dia. Pipes 45 degree bends Total x' Dia. Pipes 45 degree bends 185 CFS Pumps 125 CFS Auxilliary Pumps RIP RAP Lengths and depths assu Number Length Width Depth Volume	= = = = = umed, a = = = = = =	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA 12.0 EA 1.0 EA 1.0	=	Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee Per Structure Summary Per Structure Summary Per Structure Summary Assumed width of canal Assumed Average depth 1,133.3 CY Riprap
Steel Rebar STEEL REBAR Discharge Piping x' Dia. Pipes Length of Pipes Total x' Dia. Pipes Total x' Dia. Pipes 45 degree bends Total x' Dia. Pipes 45 degree bends 125 CFS Pumps 125 CFS Auxilliary Pumps RIP RAP Lengths and depths assu Number Length Width Depth Volume	= = = = umed, a = = = = = =	TOTAL 3.0 EA 100.0 LF 300.0 LF 12.0 EA 12.0 EA 1.0 EA 1.0		Assumed 1.2% volume of concrete 24.7 CY Rebar 163.4 TONS Assume all pipes equal length to discharge All piping 0.75" thick steel with x4 45 degree bends per pipe run x4 per pipe for going over levee Per Structure Summary Per Structure Summary Per Structure Summary Assumed width of canal Assumed Average depth 1,133.3 CY Riprap Fabric

Boat Barrier

Number Piles for Buoys Length	= = =	1.0 EA 3.0 EA 170.0 FT/EA	Assume barrier has 3 points (2 at shore, 1 at canal)
Total Length	=	170.0 FT	Buoy style barrier
Total Piles	=	3.0 EA	-
Station and Building Equipment			
Trash Rack Surface Area (total)	=	9,180.0 SF	Assume Trash rake is 60 ft tall and covers the width of the operating floor (153')
Roll Up Garage Door	=	168.0 SF	Assume Roll up garage door 12'x14'
# of Doors	=	4.0 ea	Assume 1 set of double doors and two other doors
# louver openings	=	8.0 ea	Assume 8 louver openings 7'-4" square
Overhead Crane	=	2.0 ea	Assume 2 overhead cranes @ 25 tons each
Power Line Connection	=	2,500.0 LF	Assume power available 2500 If from site
Septic tank system	=	1.0 ea	Assume 1 septic tank system
Potable water	=	1.0 ea	Assume 1 potable water well will be required
Generator Fuel Tank	=	2000 Gallon ea	Assume five 2000 gallon fuel tanks required
Fuel Pad dimensions	=	500.0 SF	Assume two 25'x20'x8" thick reinforced concrete slab on grade pad
		1,333.3 CF	= 49.4 CY
Floor Steel Grating	=	548.0 SF	Assume Wdith Bay (13'x5+18'x4) by 4'
Ladders	=	342.0 VLF	Assume 38 ft per pump bay (9 bays)
			of the operating floor
Concrete bollard	=	3.3 CF	8" DIA. Bollard. 56" tall. x1 per bay
Concrete barrier	=	419.6 CF	FDOT Inex 415. N.J. Shape Barrier
	SUM	422.9 CF	= 15.7 CY
CONCRETE		TOTAL	= 65.0 CY Concrete
Chain link Fence	=	2,280.0 LF	Assume Similar to Merritt Pump Station
Silt Fence	=	3,700.0 LF	Assume similar to Merritt Pump Station
Silt Boom	=	600.0 LF	Assume similar to Merritt Pump Station
Conduit Boxes	=	1.0 EA/D0	OOR
Lock Boxes	=	1.0 EA/D0	OOR
Fire Extinguishers	=	2.0 EA	
20" Fyhaust Fan	=	1 0 FA	Coolair CBA20L 1 HP 4702 CFM @ 3/8" SP
12" Evhaust Fan	-	1.0 LA	Coolair CDU12E17 1/6 HP 1210 CEM @ 1/4" SP
	-	1.0 LA	

Coffer dam:	740.0	LF	
Coffer dam:	33,864.0	SF	
Excavation:	13,589.3	СҮ	
Concrete:	2,060.4	СҮ	
Steel Rebar:	24.7	CY (?)	
Steel Rebar:	163.4	TONS	
Backfill:	16,986.7	LCY	
x' Discharge Pipe	300.0	LF	0.75" thick
x' Steel 45-bend	12.0	EA	0.75" thick
185 CFS Pump	2.0	EA	
125 CFS Auxilliary Pump	1.0	EA	
Rip-rap:	1,133.3	CY	
Geofabric:	12,920.0	SF	
Boat Barrier:	170.0	LF	
Barrier Piles:	3.0	EA	
Control bld.:	65.0	CY	
Trash Rack	9,180.0	SF	Concrete
Roll Up Garage Door:	168.0	SF	
Total Doors	4.0	EA	12' x 14'
Conduit Boxes	1.0	EA/DOOR	Size 4'-0" x 7'-0"
Lock Boxes	1.0	EA/DOOR	
Louver Openings	8.0	EA	
Overhead Crane	2.0	EA	
Power Line Connection	2,500.0	LF	
Generator Fuel Tank	2,000.0	GALLONS	Assume available 2500LF
Septic Tank System	1.0	EA	
Potable Water Well	1.0	EA	
Steel Grate	548.0	SF	
Ladders	9.0	EA	
Concrete:	65.0	CY	38' EA
Chainlink Fence	2,280.0	LF	Fuel pad, bollards, barrier
Silt Fence	3,700.0	LF	
Silt Boom	600.0	LF	
Fire Extinguishers	2.0	EA	
20" Exhaust Fan	1.0	EA	
12" Exhaust Fan	1.0	EA	

Feature of Work:	STRUCTURES CU-1B: 280 LF DOUBLE GATED 13'Wx12'H BOX CULVERT WITH ENDWALLS, 12'x24' CONTROL BUILDING
Scope Given:	556 LF double gated 13'x12' box culvert w/ endwalls w/ 12'x24' control building and HW/TW monitoring stations w/ walkways (by-pass not required for construction). Structures CU-1B is a gated box culvert which allows for outflow from the Seepage Canal CNL-1 Reach 7, discharging to the Inflow-Outflow Canal CNL-2.
Reference for Scope Basis:	
Scope Assumptions:	 Assume similar to structure S-276 and S-277 as a double barrel culvert. Assume given dimensions in the engineering appendix govern over provided design documents for similar structure if no dimensions are given in the engineering appendix all dimensions will come from the similar structure. Assume Excavation will be to the same depth below finished grade as shown in contract drawings for similar projects with a slope of 1:2 for construction. Assume material as 2 ft of organic, 8 ft of blastable cap rock, and 10 ft of Fort Thompson layer for the remainder of the excavation – until indicated otherwise. Assume power will be provided from power lines in the area. Assume that a diesel generator is needed for backup power.
Supporting Documentation: (by Cost Team)	Quantity Takeoff, Material Quotes
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized. Plans and specifications for recent similar work were utilized to capture the necessary scope and assumptions to construct the feature. *As part of an RFI, the structures heights were increased by 6-ft, also changing the estimated length.
Sequence of Work:	Excavation/blasting of limestone rock will be required to allow space for the foundation for the gated culvert structure. Culverts, foundations and structures will then be placed. Control structures for the culverts will be installed and a standalone Control station will be built in the area. An additional backup generator will be required along with local utility power. Apron, wing wall, and riprap placement will occur after Culverts have been placed. Backfill and compaction around the structure will occur, the plugs will be removed.
Key Outstanding Questions/Issues:	



Feature of Work:	STRUC	TURE CU-1B: 556 LF DC ' CONTROL BUILDING	DUBLE	GATED 13'Wx12'H BOX	CULVERT WIT	TH ENDWALLS,	
Quantity Take Off:							
oser input				Sum of values above			
Sheetpile Dewatering							
Dewatering Pumps	=	TBD EA		Size to be determined			
Width	=	255.7 FT		Assume 20' from top of ex	cavation		
Length	=	356.0 FT		Assume 20' from length of	excavation		
Depth	=	46.0 FT		Assumed			
Total Perimeter	=	1,223.3 LF		Sneetpile perimeter			
Area	-	91,017.3 SF					
Culvert excavation							
Length	=	316.0 FT		Assumed from drawings			
Total Depth	=	26.0 FT		Invert Elev. Minus Founda	tion Depth		
Thickness of Organic	=	2.0 FT		Assume - 2ft thick			
Thickness of Cap Rock	=	8.0 FT		Assume - 4ft thick			
Thickness of Fort Thompson	=	16.0 FT		Assume - 24tt thick			
Slope1	=	2.0 :1					
Slope2	=	2.0 :1		Assumes 10' andwalls bet	າ wave		
Bottom Width Top Width	=	111.7 FI 215 7 ET		, sources to chuwalls DOI			
iop width	-	11 /.712					
Cross Section	=	4,255.3 SF					
Cross Section Organic	=	423.3 SF					
Cross Section of Cap Rock	=	1,533.3 SF					
Cross Section of Fort Thompson	=	2,298.7 SF					
Organic Cut Volume	=	133,773.3 CF	=	4,954.6 BCY	=	LCY	
Cap Rock Cut Volume	=	484,533.3 CF	=	17,945.7 BCY	=	LCY	
	=	726,378.7 CF	=	26,902.9 BCY	-	LCY	
LACAVATION						-, 110 LUI	
Concrete Culvert Concrete				-			
<u>Culvert Pipes</u>	2	<u>Width</u>	13	Heij	<u>zht</u> 18		
Length	=	316.0 FT					
Foundation Concrete Bottom Width	=	31.7 FT					
Bottom Thickness	=	3.0 FT		1 111 0 01			
Volume	=	30,020.0 CF	=	1,111.9 (Y			
Vertical Concrete Height	=	18.0 FT					
Thickness of Edge Walls	=	2.0 FT					
Thickness of Interior Walls	=	1.7 FT					
Volume	=	30,336.0 CF	=	1,123.6 CY			
Elevated Concrete							
Top Width	=	31.7 FT					
Thickness	=	2.0 FT					
Volume	=	20,013.3 CF	=	741.2 CY			
Inlet and Outlet Works							
Number	=	2.0 FA		Assumed intake and outlet	t are the same		
Number		2.0 10		and make and built			
Foundation							
Length	=	20.0 FT					
Depth	=	2.0 FT					
Width	=	31.7 FT					

Volume	=	2,533.3 (CF =	93.8 CY
Culvert Endwall		20.0.5		
Height	=	38.0 F	-1	Assume x2 (Culvert Height + 1')
Thickness	=	1.5	-1	
Width	=	31.7 F	-T	
Openings	=	468.0 S	SF	
Volume	=	2,206.0 0	CF =	81.7 CY
Needle Beam				
Height	=	25 F	т	
Width	_	2.5 T	т т	
Dopth	_	2.0	т т	
Volume	-	300.0	, с –	14.4 CV
volume		350.0 0		14.4 CI
Exterior Walls				
Edge Wall Height	=	38.0 F	т	
Edge Wall Length	=	20.0 F	т	total each side
Edge Wall Thickness	=	2.0 F	T	
Interior Wall Height		38.0 F	T	
Interior Wall Length		14.0 F	T	
Inteiror Wall Thickness		1.7 F	т	
Volume	=	7.853.3 0	CF =	290.9 CY
CONCRETE		TOTAL	=	3,457.5 CY
Steel Rebar				Assumed 1.2% volume of concrete Culvert referenced
STEEL REBAR		TOTAL	=	41.5 CY Rebar as an example used
				274.2 TONS approx. 0.8% steel
				per teranie
Chaotaile Endualle				
Sheetpile Endwalls	_	205	= ^	x2 Endwalls not oppning (LIW/TW)
Sheetpile Endwalls Number	=	2.0 E	Ā	x2 Endwalls per opening (HW/TW)
Sheetpile Endwalls Number Width	=	2.0 E 80.0 F	EA ET	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert
Sheetpile Endwalls Number Width Length	= = =	2.0 E 80.0 F 30.0 F	EA -T	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets
Sheetpile Endwalls Number Width Length Sheetpile Area	= = =	2.0 E 80.0 F 30.0 F 4.800.0 S	EA ET ET	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets 160' Snan PZ-27
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Can	= = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4,0 S	EA ET EF EF	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap	= = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C	=A =T =F SF =F ===========================	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume	= = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C	EA FT FT 5F 5F CF =	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume	= = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C	EA FT FF FF CF =	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing	= = = =	2.0 E 80.0 F 30.0 S 4,800.0 S 4.0 S 640.0 C	EA FT FF FF CF =	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing	= = = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L	EA ET EF EF CF = .F .F	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING	= = = = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 404.0 L	EA FT 5F 5F CF = .F .F	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6'' Tall Steel Railing
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING	= = = = = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 640.0 C 120.0 L 82.0 L 404.0 L	EA ET SF SF CF = .F .F	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders	= = = = = = =	2.0 E 80.0 F 30.0 F 30.0 S 4,800.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E	EA FT SF SF CF = .F .F .F EACH	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height	= = = = = = = = = = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F	EA FT FT FF FF F F F EACH FT EA =	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height	= = = = = = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F	EA FT FT FF FF FF FF FF FF FF FF FF FF FF	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6'' Tall Steel Railing 51.0 FT TOTAL
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height		2.0 E 80.0 F 30.0 F 30.0 S 4,800.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S	EA FT SF SF CF = .F .F .F EACH FT EA = SF per Gate	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating		2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S	EA FT SF SF CF = F F EACH FT EA = SF per Gate SF	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating		2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S	EA FT FT FF FF FF FF FF FF FF FF FF FF FF	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6'' Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating		2.0 E 80.0 F 30.0 F 30.0 S 4,800.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S	EA T T SF SF CF = .F .F .F EACH T EA = SF per Gate SF 	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating		2.0 E 80.0 F 30.0 F 30.0 F 30.0 F 30.0 F 4,800.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S 19.0 E	EA T T SF SF CF = F F EACH T EA = SF per Gate SF EA T	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating x1 per Culvert Pipe Assumed 1' greater than Culvert Height
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating		2.0 E 80.0 F 30.0 F 30.0 F 30.0 F 4,800.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S 120.0 F 12.0 E	EA T T SF SF CF = F F EACH T EA = SF per Gate SF EA T T	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating x1 per Culvert Pipe Assumed 1' greater than Culvert Height Assumed 1' smaller than Culvert Width (frame)
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating NEW GATES Number of gates Height Width		2.0 E 80.0 F 30.0 F 4,800.0 S 4,0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S 312.0 S 19.0 F 12.0 F 12.0 F 19.0 F	EA T T F F F F EACH T EACH EACH EA F EA F EA F EA F EA F EA F EA F EA F EA F EA F EA F EA EA EA EA EA EA EA EA EA EA	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6'' Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating x1 per Culvert Pipe Assumed 1' greater than Culvert Height Assumed 1' smaller than Culvert Width (frame) Follows similar woight calculations as 5.2 but advisor
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating NEW GATES Number of gates Height Width Total Weight of Gates		2.0 E 80.0 F 30.0 F 30.0 F 4,800.0 S 4,0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S 312.0 S 19.0 F 12.0 F 12.0 F 12.0 F 12.0 F 12.0 F	EA T T SF SF CF = .F .F .F EACH ET EA = .F .F .F .F .F .F .F .F .F .F	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating x1 per Culvert Pipe Assumed 1' greater than Culvert Height Assumed 1' smaller than Culvert Width (frame) Follows similar weight calculations as S-2, but reduces number of steel channels
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating NEW GATES Number of gates Height Width Total Weight of Gates		2.0 E 80.0 F 30.0 F 30.0 F 30.0 S 4,800.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S 19.0 F 12.0 F 20,269.2 L 40.538.3 L	EA T T SF SF CF = F F EACH T EA = SF per Gate SF T EA EA EA EA EA EA EA EA EA EA	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating x1 per Culvert Pipe Assumed 1' greater than Culvert Height Assumed 1' smaller than Culvert Width (frame) Follows similar weight calculations as S-2, but reduces number of steel channels 20.3 TONS
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating NEW GATES Number of gates Height Width Total Weight of Gates		2.0 E 80.0 F 30.0 F 4,800.0 S 4,0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S 312.0 S 19.0 F 12.0 F 19.0 F 12.0 F 20,269.2 L 40,538.3 L	EA T T SF SF CF = F F EACH T EA = SF per Gate SF EA EA EA EA EA EA EA EA EA EA	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating x1 per Culvert Pipe Assumed 1' greater than Culvert Height Assumed 1' smaller than Culvert Width (frame) Follows similar weight calculations as S-2, but reduces number of steel channels 20.3 TONS

					motor, yoke, etc. to be provided by manufacturer
Imbeds for Gate	=		124.0 LF		
Gate Seal Length	=		124.0 LF		Gate perimeter x # of gates
Backfill					
Assume Culvert is backfi	lled as	part of lev	ee construction		
RIP RAP					
Assume same on both si	des				
Number of placements	=		2.0 EA		1 each side
Length	=		136.0 FT		Assume width of new canal
Width	=		111.7 FT		Assume same as bottom width of excavation
thickness	=		3.0 FT		Assumed
Volume	=		45,560.0 CF/EA	=	1,687.4 CY/EA
RIPRAP		TOTAL		=	3,374.8 CY Riprap
Geotextile Filter Fabric	=		16,546.7 SF		Fabric
Boat Barrier					
Number	=		2.0 EA		
Piles for Buoys	=		3.0 EA		Assume barrier has 3 points (2 at shore, 1 at canal)
Length	=		170.0 FT/EA		
Total Length	=		340.0 FT		Buoy style barrier
Total Piles	=		6.0 EA		
SWPPP			000 0 FT		Assessed
Floating Silt Boom	=		980.0 FT		Assumed
Silt Fence	=		6,492.0 FI		Assumed
Control Building					
Size	=		288.0 SF		12x24
Electrical	_	NEEDED			
Communications	_	NEEDED			
communications	-	NEEDED			
Modular Precast Concrete Structure					
Exterior Walls					
Height	=		12.0 FT		
Perimeter Length	=		72.0 FT		
Thickness	=		4.0 IN		
Volume	=		288.0	=	10.7 CY
Interior Wall					
Height	=		12.0 FT		
Length	=		12.0 FT		
Thickness	=		4.0 IN		
Volume	=		48.0	=	1.8 CY
Floor Slab					
Thickness	=		6.0. IN		
Διεσ	=		288.0 SF		
Volume	=		144.0 CF	=	5.3 CY
Roof					
Thickness	=		5.0 IN		
Area	=		288.0 SF		
Volume	=		120.0 CF	=	4.4 CY

Fuel Pad	=	96.0	CF		Assume 8'x12'x12" thick reinforced concrete slab on grade
	=	3.6	CY		pad
CONCRETE		TOTAL		=	25.8 CY
Total Doors	=	2.0	EA		
Size	=	4'-0" x 7'-0"			
Conduit Boxes	=	1.0	EA/DO	OR	
Lock Boxes	=	1.0	EA/DO	OR	
Fire Extinguishers	=	2.0	EA		
26" x 26" Exhaust Hoods	=	1.0	EA		
30" x 30" Exhaust Hoods	=	1.0	EA		
30" x 30"Intake Hoods	=	2.0	EA		
18" x 18" Intake Air Hood	=	1.0	EA		
18" x 18" Exhaust Hood	=	1.0	EA		
20" Exhaust Fan	=	1.0	EA		Coolair CBA20L, 1 HP, 4702 CFM @ 3/8" SP
12" Exhaust Fan	=	1.0	EA		Coolair CDU12F17, 1/6 HP, 1210 CFM @ 1/4" SP
Generator Fuel Tank	=	1,000.0	GALLO	N	
Gravel Pad	=	216.0	CF		Assume 50% greater area than building, 6" thick
	=	8.0	CY		
Filter Fabric		472.0	SF		

Coffer dam:	1,223.3	LF	
Coffer dam:	91,017.3	SF	
Excavation:	49,803.2	СҮ	
Concrete:	3,457.5	СҮ	
Steel Rebar:	41.5	CY (?)	
Steel Rebar:	274.2	TONS	
Sheetpile:	4,800.0	SF	PZ27x160LFx30FT
Cap:	23.7	СҮ	
Railing:	404.0	LF	
Grate:	312.0	SF	
Ladders:	2.0	EA	25' EA
Gates:	2.0	EA	13'x12' w/ mechanical components
Seals:	124.0	LF	
Backfill:	62,254.0	LCY	
Rip-rap:	3,374.8	CY	
Geofabric:	16,546.7	SF	
Boat Barrier:	340.0	LF	
Barrier Piles:	6.0	EA	
Floating Curtain:	980.0	LF	
Silt Fence:	6,492.0	LF	
Control bld.:	25.8	СҮ	Concrete
Total Doors	2.0	EA	Size 4'-0" x 7'-0"
Conduit Boxes	1.0	EA/DOOR	
Lock Boxes	1.0	EA/DOOR	
Fire Extinguishers	2.0	EA	
26" x 26" Exhaust Hoods	1.0	EA	
30" x 30" Exhaust Hoods	1.0	EA	
30" x 30"Intake Hoods	2.0	EA	
18" x 18" Intake Air Hood	1.0	EA	
18" x 18" Exhaust Hood	1.0	EA	
20" Exhaust Fan	1.0	EA	
12" Exhaust Fan	1.0	EA	
Generator Fuel Tank:	1,000.0	GALLONS	
CTRL BLDG Gravel Pad	8.0	CY	
CTRL BLDG Pad Fabric	472.0	SF	

TYPICAL SECTION - Reservoir East Inflow-Outflow Canal (CNL-2)									
Total Length (feet) of CNL-2 along its C/L			293						
	Cross Sect.	Cross Sect.	Length of					Pipe	Structure
	Area	Length	Component	Neat Vol.	Neat Area	Neat Area	Neat Area	Quantities	Quantities
Component	(sqft)	(ft)	on Site Plan	(cuyd)	(sqft)	(sqyd)	(acres)	(LF)	(No.)
Clearing & Grubbing					130,526		3		
Excavation of Top 6" of Topsoil within CNL-2 site				2,417	130,526				
Upper Soil Excavation for CNL-2 (18" below initial 6" topsoil excavation)	351.77		293	4,226					
Remaining Soil Excavation for CNL-2	3,475.77		293	47,684					
6" Thick Topsoil Layer	87.71		329	1,067					
Levee Embankment Fill	471.00		329	5,732					
6" Bedding Stone	130.02		329	1,582					
18" Type B riprap	506.64		329	6,166					
Berm Drain: 15" HDPE Drainage Pipe								122	
Berm Drain: 15" HDPE Flared End Section									2
Berm Drain: 6' x 6' x two layers thick sand cement bag pad									2
Berm Drain: Delineateor on post (one on each side of drain)									4
Sodding		177.16	329				1		
Hydroseeding Beyond levees		40.00	329				0.3		



Feature of Work:	PERIMETER CANAL OUTFALL STRUCTURES (PCOS-1 thru PCOS-4)
Scope Given: Reference for Scope Basis:	 PCOS-1 will be a fixed weir overflow structure for CNL-1 Reach 7 that will outflow to CNL-2, which in turn will outflow to C-41A. PCOS-2 will be a fixed weir overflow structure for CNL-1 Reach 7 that will outflow to C-41A. PCOS-2 will replace existing flashboard riser (FBR) structure PC17N. PCOS-3 will be a fixed weir overflow structure for CNL-1 Reach 7 that will outflow to existing FBR structure PC18N via a ditch, which in turn will outflow to C-41A. PCOS-4 will be a fixed weir overflow structure for CNL-1 Reach 7 that will outflow to existing FBR structure PC20N via a ditch, which in turn will outflow to C-41A.
Scope Assumptions:	- Assume Ditch Bottom iniet structure can be utilized with 30 KCP
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology: Sequence of Work:	When possible a corollary approach to the estimate development was utilized.
Key Outstanding	
Questions/Issues:	


	Feature of Work: P	PERIME	ETER CANAL OUTFAL	L STRUCTURES (PCC	DS-1 thru PCOS-4)								
	Quantity Take Off:												
PCOS	Quantity	=	4.0 ea		Total all PCOS-1	thru PCOS-4							
	FDOT Type D Ditch Botto	om Inlet	with Bleed Orifice										
	Quantity	=	1.0 ea		4.0 ea	Type D Inlet							
	Depth	=	10.0 FT	Assume 10' deep									
	36" RCP pipe to CNL-1												
	Length	=	40.0 LF	Assumed	160.0 LF	36" RCP Pipe							
	Diameter	=	3.0 FT	Assumed 36"									
	Excavation												
	Depth	=	12.0 FT	Assume Depth +2									
	Bottom Width	=	11.0 FT	Dia. + 4' each way									
	Top Width	=	59.0 FT	2:1 @ Depth									
	Volume	=	16,800.0 CF										
	Volume per PCOS	=	622.2 CY		2,488.9 CY	Excavation							

Assume part of new construction not requiring additional dewatering

LAKE OKEECHOBEE COMPONENT A RESERVOIR (LOCAR) FEASIBILITY STUDY

CONTRACT 3 – RESERVOIR DAM FOUNDATION

- Construct Perimeter and Divider Dam Soil Bentonite Wall Below Existing Ground
- Construct Soil Stabilization/Foundation Prep for Perimeter and Divider Dam

SECTION A - West & East Cells												
Total Length (feet) of Perimeter Dam C/L Along West & East Cells			96,799									
Component	Cross Sect. Area (sqft)	Cross Sect. Length (ft)	Length of Component on Site Plan (ft)	Neat Vol. (cuyd)	Neat Area (sqft)	Neat Area (sqyd)	Neat Area (acres)	Pipe Quantities (LF)	Structure Quantities (No.)			
Temp. Silt Fencing (installed along entire perimeter except along C-41A levee)			13,287									
Clearing & Grubbing		614.42	97,509				1,375					
Excavation of Top 6" of Topsoil	298.41		97,509	1,077,695								
Additional 18" Soil Excavation Below Dam & 50' Beyond Each Toe	530.66		96,764	1,901,820								
Slurry Cutoff Wall	180.00	60.00	96,733	644,884	5,803,959							

SECTION D - Divider Dam Between West & East Cells											
Total Length (feet) of Divider Dam C/L Between West & East Cells	14,392										
Component	Cross Sect. Area (sqft)	Cross Sect. Length (ft)	Length of Component on Site Plan (ft)	Neat Vol. (cuyd)	Neat Area (sqft)	Neat Area (sqyd)	Neat Area (acres)	Pipe Quantities (LF)	Structure Quantities (No.)		
Clearing & Grubbing		347.88	14,392				115				
24" Soil Excavation Below Dam & 50' Beyond Each Toe Slurry Cutoff Wall	661.76 150.00	50.00	14,392 14,392	352,747 79,957	719,609						







OKEECHOBEE COMPONENT A RESERVOIR (LOCAR)

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CONCRETE	BEDDING STONE	RIPRAP	LIMEROCK BASE	FILTER SAND (FDOT 902-4)	CLEAN SAND	EMBANKMENT FILL	SOIL CEMENT REVETMENT	6" THICK TOPSOIL LAYER	SOIL REMOVAL/EXCAVATION

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LEGEND:

T DRY SEASON CONTROL T WET SEASON CONTROL 3 5 8 & MES 11	18" THICK TYPE B RIPRAP ." DRAINAGE PIPE . <u>20</u> . ELEV. 33.30		PER	- 292.	
ELEV. 30.00 (REACH 1), 29.00 (REACH 6) ELEV. 30.00 (REACH 1), 28.00 (REACH 6) 11	TOB EI	- 16.00	METER CANAL	3.18	
0.50 R 5-5	TOB ELEV. 34.90	20.00 - 24.00	PERIM MAINTET ROJ	<u>.</u>	
EMOVAL OF SOIL	-6" THICK LIMEROCK EASE	0 9.92 8.00 VARIES	ETER NANCE		LIMITS OF CONSTRUCTION

NOTE: 1. ELEVATIONS SHOWN HEREON ARE EXPRESSED IN FEET AND ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). NGVD29 = NAVD88 + 1.2 FEET FOR THE LOCAR PROJECT LIMITS OF CONSTRUCTION.

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OKEECHOBEE COMPONENT A RESERVOIR (LOCAR)

CONCRETE	BEDDING STONE	RIPRAP	LIMEROCK BASE	FILTER SAND (FD	CLEAN SAND	EMBANKMENT FIL	SOIL CEMENT RE	6" THICK TOPSO	

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LAKE OKEECHOBEE COMPONENT A RESERVOIR (LOCAR) FEASIBILITY STUDY

CONTRACT 4 – RESERVOIR EARTHWORK

- Construct Perimeter and Divider Dams
 - Construct Toe Ditch and Toe Road
- Construct Perimeter Canal CNL-1 and Perimeter Maintenance Road
 - Construct Reservoir Outflow Canal CNL-3
- Construct Lykes AGI Earthwork Features (Levee and Borrow Ditch)

SECTION A - West & East Cells									
Total Length (feet) of Perimeter Dam C/L Along West & East Cells			96,799 Length of						
Comment	Cross Sect. Area	Cross Sect. Length	Component on Site Plan	Neat Vol.	Neat Area	Neat Area	Neat Area	Pipe Quantities	Structure Quantities
Barbed Wire Perimeter Fence (installed along entire perimeter except along C-41A)	(sqit)	(11)	73,763	(cuyu)	(sqit)	(sqyu)	(dures)	(LF)	(NO.)
Abandonment of FAS Irrigation Wells									22
Abandonment of Monitoring Wells									2
Sail Inversion Within Former Citrus Crower									
Clearing of Citrus Trees									
Clearing & Grubbing									
Leveling of Planting Beds & Backfilling of Ditches									
Soil Inversion									
Additional Soil Excavation for Soil Cement Toe	37.32		95,942	132,629					
	1,597.40	-	98,211	5,811,708					
Excavation for Offsite Drainge Collection Ditch (ODCD) & Access Rd	1,721.08		11,354	723,734					
6" Thick Topsoil Laver - Part 1	73.47		97.309	264.790					
6" Thick Topsoil Layer - Part 2	25.08		98,006	91,043					İ
6" Thick Topsoil Layer - Part 3	18.98		99,009	69,594					
6" Thick Topsoil Layer - Part 4	9.30		99,338	34,215					
6" Thick Topsoil Layer - Shoulders of Access Rd Along Southwest Side of ODCD	28.28		12,004	12,573					
6" Thick Limerock Base - Toe Road	8.00		97,801	28,984					
6" Thick Limerock Base - Perint, Maint, Road Parallel to Perint, Dain Alignment 6" Thick Limerock Base - Access Road Along Southwest Side of ODCD	12.00		12 004	5 336					
	12.00		12,001	3,555					
Additional Embankment Fill for higher toe ditch & roads along Reach 7 of P. Canal	205.44		35,380	269,204					
Toe Road Embankment Fill (no reduction for MESs & culverts)	436.80		97,817	1,582,459					
Perim. Maint. Road Embankment Fill	105.23		99,203	386,639					
ODCD Access Road Embankment Fill	194.30		12,004	86,386					
Dam Embankment Fill	5,023.11	22.40	96,799	18,008,538	2 262 544				
Slurry Culori Wali 24" Thick Clean Sand Laver Beneath Soil Cement	70.50	23.40	96,733	252,580	2,263,544				
24" Thick Filter Sand Laver Beneath Soil Cement	88.54		96.131	315.235					
30" Wide Filter Sand Chimney Drain	39.50		96,987	141,889					
18" Thick Filter Sand Blanket Drain	125.57		97,237	452,237					
24" Thick Clean Sand Layer Beneath Blanket Drain	152.10		97,210	547,618					
16" Soil Cement Revetment	194.79	148.95	95,974	692,407		1,588,351			
	57.52		95,942	152,029					
6" Bedding Stone	42.23		980	1.533					
18" Type B riprap	121.13		980	4,397					
24" Drainage Pipe								7,840	
24" Mitered End Section									98
6" Slotted BVC Collector Pine for Inside Toe Drain		-	-					96.044	
6" Solid PVC Discharge Pipe for Inside Toe Drain								3,848	
6" Backflow Preventer for each Inside Toe Drain								- /	481
12" Slotted PVC Collector Pipe for Outside Toe Drain								97,463	
12" Solid PVC Discharge Pipe for Outside Toe Drain								2,196	400
12" FDOT U-Type Conc. Endwall for each Outside Toe Drain									488
Sodding - Part 1		146 94	97 309				328		
Sodding - Part 2	1	50.99	98,006				115		
Sodding - Part 3	1	38.79	99,009				88		
Sodding - Part 4		18.98	99,338				43		
Sodding - Access Road Along Southwest Side of ODCD		88.76	12,004				24		
	ł	10.00	00.268				22		
Invaroseeding Beyond Perimeter Maintenance Kd.	1	10.00	99,368	1	1	1	23	1	1

SECTION D - Divider Dam Between West & East Cells

Total Length (feet) of Divider Dam C/L Between West & East Cells			14,392						
Component	Cross Sect. Area (sqft)	Cross Sect. Length (ft)	Length of Component on Site Plan (ft)	Neat Vol. (cuyd)	Neat Area (sqft)	Neat Area (sqyd)	Neat Area (acres)	Pipe Quantities (LF)	Structure Quantities (No.)
Additional Soil Excavation for Soil Cement Toe	71.49		14,392	38,106					
Dam Embankment Fill	3,667.45		14,392	1,954,913					
Slurry Cutoff Wall	99.60	33.20	14,392	53,091	477,821				
24" Thick Clean Sand Layer Beneath Soil Cement	147.99		14,392	78,888					
24" Thick Filter Sand Layer Beneath Soil Cement	173.28		14,392	92,368					
16" Soil Cement Revetment	313.07	239.24	14,392	166,881		382,571			
Soil Cement Toe	71.49		14,392	38,106					
6" Slotted PVC Collector Pipe for Toe Drains								28,784	
6" Solid PVC Discharge Pipe for Toe Drains								1,152	
6" Backflow Preventer for each Toe Drain									144
				2,126,169					

SECTION AGI - Levee for New/Expanded Farm AGI(s)*								
Total Length (feet) of C/L of New AGI Levee			14,262					
Component	Cross Sect. Area (sqft)	Cross Sect. Length (ft)	Length of Component on Site Plan** (ft)	Neat Vol. (cuyd)	Neat Area (sqyd)	Neat Area (acres)	Pipe Quantities (LF)	Structure Quantities (No.)
Clearing & Grubbing		171.80	14,262			56		
6" Soil Excavation Below Levee & Beyond Levee Toe	75.09		14,262	39,663				
Additional Soil Excavation for Borrow Ditch	315.88		14,262	166,851				
Levee Embankment Fill	359.92		14,262	190,114				
Sodding		146.95	14,262			48		







OKEECHOBEE COMPONENT A RESERVOIR (LOCAR)

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CONCRETE	BEDDING STONE	RIPRAP	LIMEROCK BASE	FILTER SAND (FDOT 902-4)	CLEAN SAND	EMBANKMENT FILL	SOIL CEMENT REVETMENT	6" THICK TOPSOIL LAYER	SOIL REMOVAL/EXCAVATION

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LEGEND:

T DRY SEASON CONTROL T WET SEASON CONTROL 3 5 8 & MES 11	18" THICK TYPE B RIPRAP ." DRAINAGE PIPE . <u>20</u> . ELEV. 33.30		PER	- 292.	
ELEV. 30.00 (REACH 1), 29.00 (REACH 6) ELEV. 30.00 (REACH 1), 28.00 (REACH 6) 11	TOB EI	- 16.00	METER CANAL	3.18	
0.50 R	TOB ELEV. 34.90	20.00 - 24.00	PERIM MAINTET ROJ	<u>.</u>	
EMOVAL OF SOIL	-6" THICK LIMEROCK EASE	0 9.92 8.00 VARIES	ETER NANCE		LIMITS OF CONSTRUCTION

NOTE: 1. ELEVATIONS SHOWN HEREON ARE EXPRESSED IN FEET AND ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). NGVD29 = NAVD88 + 1.2 FEET FOR THE LOCAR PROJECT LIMITS OF CONSTRUCTION.

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OKEECHOBEE COMPONENT A RESERVOIR (LOCAR)

CONCRETE	BEDDING STONE	RIPRAP	LIMEROCK BASE	FILTER SAND (FD	CLEAN SAND	EMBANKMENT FIL	SOIL CEMENT RE	6" THICK TOPSO	

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(YPICAL SECTION - Reservoir West Inflow-Outflow Canal (CNL-3) and ODCD-2											
Total Length (feet) of CNL-3 along its C/L			4,411								
	Cross Sect.	Cross Sect.	Length of					Pipe	Structure		
	Area	Length	Component	Neat Vol.	Neat Area	Neat Area	Neat Area	Quantities	Quantities		
Component	(sqft)	(ft)	on Site Plan	(cuyd)	(sqft)	(sqyd)	(acres)	(LF)	(No.)		
Clearing & Grubbing along CNL-3		510.00	4,411				52				
Clearing & Grubbing along ODCD-2		80.00	3,016				6				
Excavation of Top 6" of Topsoil for CNL-3	231.72		4,411	37,859							
Upper Soil Excavation for CNL-3 (18" below initial 6" topsoil excavation)	272.91		4,411	44,591							
Remaining Soil Excavation for CNL-3	2,390.63		4,411	396,261							
Excavation of Top 6" of Topsoil for ODCD-2	19.25		3,016	2,150							
Remaining Soil Excavation for ODCD-2	105.75		3,016	11,811							
6" Thick Topsoil Layer	142.98		4,411	23,361							
Levee Embankment Fill	1,501.39		4,411	245,308							
6" Bedding Stone	114.24		1,592	6,737							
18" Type B riprap	335.05		1,592	19,758							
Berm Drain: 15" HDPE Drainage Pipe								1,062			
Berm Drain: 15" HDPE Flared End Section									18		
Berm Drain: 6' x 6' x two layers thick sand cement bag pad									18		
Berm Drain: Delineateor on post (one on each side of drain)									36		
Sodding		270.88	4,411				27				
		40.00							l		
Hydroseeding Beyond levees along CINL-3		40.00	4,411	L			4.1		ł		
Hydroseeding Beyond levees along ODCD-2		80.00	3,016		1	1	5.5				





LAKE OKEECHOBEE COMPONENT A RESERVOIR (LOCAR) FEASIBILITY STUDY

CONTRACT 5 – RESERVOIR DAM STRUCTURES

- Construct Overflow Spillways OS-1 and OS-2
 - Construct Gated Outflow Culvert CU-1A
 - Construct Gated Outflow Culvert CU-2
 - Construct Divider Dam Structure DDS-1

Feature of Work:	STRUCTURES OS-1: EMERGENCY OVERFLOW UN-GATED WEIR/SPILLWAY
Scope Given:	Emergency overflow weir/spillway (by-pass not required for construction). Structure OS-1 is an overflow spillway for the East Cell, once it reaches the maximum crest EL = 50.6-ft NAVD being utilized as the reservoir storage limit.
Reference for Scope Basis:	
Scope Assumptions:	 Assume similar to structure plans and cross-sections provided as part of site planning documents. Assume given dimensions in the engineering appendix govern over provided design documents for similar structure if no dimensions are given in the engineering appendix all dimensions will come from the similar structure. Reservoir is not operational prior to overflow weir being constructed. Assumed that levee is constructed to design grade of overflow weir. Minimal excavation is needed prior to placement of concrete. Assumed that the weir will start at the toe of the levee then rise at a constant slope up to top of canal, be 14 ft wide, then back down to the opposite toe of the levee.
Supporting Documentation: (by Cost Team)	Quantity Takeoff, Material Quotes
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized. Plans and specifications for recent similar work were utilized to capture the necessary scope and assumptions to construct the feature. *As part of an RFI, the structures heights were increased by 6-ft, also changing the estimated length.
Sequence of Work:	 Site survey and stake entire area of Emergency Overflow Weir. Silt Fence the entire site. Silt fence maintenance will be ongoing during construction of the overflow weir. Excavate site for keyed ends near the toe of the levee and the intersection of the levee crown and the weir. Place filter fabric below future holes, set and tie reinforcing. Form, place, finish, and cure concrete. Saw cut joints. Strip forms backfill and compact at edges of concrete.
Key Outstanding Questions/Issues:	

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NOTE: 1. ELEVATIONS SHOWN HEREON ARE EXPRESSED IN FEET AND ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). NGVD29 = NAVD88 + 1.2 FE FOR THE LOCAR PROJECT LIMITS OF CONSTRUCTION.					6" DI/ (SEEP	$\frac{\text{MWSL ELEV. 56.30 } \square}{\square} \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad$	RESERVOIR CELL	
Ε	ESTIMATED AVG. ELEV120.00	VARIES, SILTY & CLAYEY SAND, SILT & CLAY (SM, SC, ML, MH, CL & CH)	VARIES, POORLY GRADED SAND WITH SILT & CLAY, SILTY & CLAYEY SAND (SP-SM, SP-SC, SM & SC)	ESTIMATED AVG. ELEV20.00	A. SCH 80 SLOTTED PVC PIPE PAGE COLLECTION DRAIN) POORLY GRADED SAND (SP, SP-SM & SP-SC)	TOC ELEV. 49.70 17 17 17 17 VINYL SHEETPILE	ELEV.	





<u>Locar recommended plan</u> <u>Section - OS-1 ungated overflow spillway</u> <u>Section - OS-2 ungated overflow spillway</u>



		Quantity	Take	e Off:	
User Input		Row Calculation	า		Sum of Values above
oncrete					
Spillway Length	=	309.9	FT		Across canal - measured from Typical
Spillway Foundation Width	=	33.1	FT		Across Levee - measured from Plan
Foundation Cross-Section Area	=	953.2	SF		Measured from Typical
Foundation Volume	=	31,550.3	CF	=	1,168.5 CY
Sidewall Width	=	2.0	FT		Measured from Plan
Sidewall Cross-Section Area	=	7,595.7	SF		Measured from Typical - minus foundation
4" Thick Concrete Volume	=	30,382.9	CF	=	1,125.3 CY
Structure Corssings	=	2.0	EA		
Crossings Length		53.1	FT		Measured from Plan
Crossings Cross-Section Area	=	45.2	SF		Measured from Typical
Structure Crossings Volume	=	4,804.5	CF	=	177.9 CY
TOTAL CONCRETE	=	74,435.7	CF	=	2,471.8 CY
Steel Rebar					Assumed 1.2% volume of concrete
STEEL REBAR		TOTAL		=	29.7 CY Rebar
					196.0 TONS
te Prep					
Perimeter	=	686.0	LF		
Area of work	=	10,257.7	SF	=	0.2 Acres
t Fence					
Silt Fence	=	857.5	LF		Assumed 125% longer than the perimeter of the work ar

Quantities Summary

Concrete:	2,471.8	CY
Steel Rebar:	29.7	CY (?)
Steel Rebar:	196.0	TONS
Silt Fence:	857.5	LF

Feature of Work:	STRUCTURES OS-2: EMERGENCY OVERFLOW UN-GATED WEIR/SPILLWAY
Scope Given:	Emergency overflow weir/spillway (by-pass not required for construction). Structure OS-2 is an overflow spillway for the West Cell, once it reaches the maximum crest EL = 50.6-ft NAVD being utilized as the reservoir storage limit.
Reference for Scope Basis:	
Scope Assumptions:	 Assume similar to structure plans and cross-sections provided as part of site planning documents. Assume given dimensions in the engineering appendix govern over provided design documents for similar structure if no dimensions are given in the engineering appendix all dimensions will come from the similar structure. Reservoir is not operational prior to overflow weir being constructed. Assumed that levee is constructed to design grade of overflow weir. Minimal excavation is needed prior to placement of concrete. Assumed that the weir will start at the toe of the levee then rise at a constant slope up to top of canal, be 14 ft wide, then back down to the opposite toe of the levee.
Supporting Documentation: (by Cost Team)	Quantity Takeoff, Material Quotes
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized. Plans and specifications for recent similar work were utilized to capture the necessary scope and assumptions to construct the feature. *As part of an RFI, the structures heights were increased by 6-ft, also changing the estimated length.
Sequence of Work:	 Site survey and stake entire area of Emergency Overflow Weir. Silt Fence the entire site. Silt fence maintenance will be ongoing during construction of the overflow weir. Excavate site for keyed ends near the toe of the levee and the intersection of the levee crown and the weir. Place filter fabric below future holes, set and tie reinforcing. Form, place, finish, and cure concrete. Saw cut joints. Strip forms backfill and compact at edges of concrete.
Key Outstanding Questions/Issues:	

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NOTE: 1. ELEVATIONS SHOWN HEREON ARE EXPRESSED IN FEET AND ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). NGVD29 = NAVD88 + 1.2 FE FOR THE LOCAR PROJECT LIMITS OF CONSTRUCTION.					6" DI/ (SEEP	$\frac{\text{MWSL ELEV. 56.30 } \square}{\square} \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad$	RESERVOIR CELL	
Ε	ESTIMATED AVG. ELEV120.00	VARIES, SILTY & CLAYEY SAND, SILT & CLAY (SM, SC, ML, MH, CL & CH)	VARIES, POORLY GRADED SAND WITH SILT & CLAY, SILTY & CLAYEY SAND (SP-SM, SP-SC, SM & SC)	ESTIMATED AVG. ELEV20.00	A. SCH 80 SLOTTED PVC PIPE PAGE COLLECTION DRAIN) POORLY GRADED SAND (SP, SP-SM & SP-SC)	TOC ELEV. 49.70 17 17 17 17 VINYL SHEETPILE	ELEV.	





<u>Locar recommended plan</u> <u>Section - OS-1 ungated overflow spillway</u> <u>Section - OS-2 ungated overflow spillway</u>



Quantity Take Off:										
	User Input		Row Calculation	ı		Sum of Values above				
oncrete										
	Spillway Length	=	309.9	FT		Across canal - measured from Typical				
	Spillway Foundation Width	=	33.1	FT		Across Levee - measured from Plan				
F	Foundation Cross-Section Area	=	953.2	SF		Measured from Typical				
	Foundation Volume	=	31,550.3	CF	=	1,168.5 CY				
	Sidewall Width	=	2.0	FT		Measured from Plan				
	Sidewall Cross-Section Area	=	7,595.7	SF		Measured from Typical - minus foundation				
	4" Thick Concrete Volume	=	30,382.9	CF	=	1,125.3 CY				
	Structure Corssings	=	2.0	EA						
	Crossings Length		53.1	FT		Measured from Plan				
	Crossings Cross-Section Area	=	45.2	SF		Measured from Typical				
	Structure Crossings Volume	=	4,804.5	CF	=	177.9 CY				
	TOTAL CONCRETE	=	74,435.7	CF	=	2,471.8 CY				
	Steel Rebar					Assumed 1.2% volume of concrete				
	STEEL REBAR		TOTAL		=	29.7 CY Rebar				
						196.0 TONS				
te Prep										
	Perimeter	=	686.0	LF						
	Area of work	=	10,257.7	SF	=	0.2 Acres				
lt Fence										
	Silt Fence	=	857.5	LF		Assumed 125% longer than the perimeter of the work are				

Quantities Summary

Concrete:	2,471.8	CY
Steel Rebar:	29.7	CY (?)
Steel Rebar:	196.0	TONS
Silt Fence:	857.5	LF

Feature of Work:	STRUCTURES CU-1A: 556 LF DOUBLE GATED 13'Wx12'H BOX CULVERT WITH ENDWALLS, 12'x24' CONTROL BUILDING
Scope Given:	556 LF double gated 13'x12' box culvert w/ endwalls w/ 12'x24' control building and HW/TW monitoring stations w/ walkways (by-pass not required for construction). Structure CU-1A is a gated box culvert which allows for outflow from the East Cell, discharging to the Seepage Canal CNL-1 Reach 7.
Reference for Scope Basis:	
Scope Assumptions:	 Assume similar to structure S-276 and S-277 as a double barrel culvert. Assume given dimensions in the engineering appendix govern over provided design documents for similar structure if no dimensions are given in the engineering appendix all dimensions will come from the similar structure. Assume Excavation will be to the same depth below finished grade as shown in contract drawings for similar projects with a slope of 1:2 for construction. Assume material as 2 ft of organic, 8 ft of blastable cap rock, and 10 ft of Fort Thompson layer for the remainder of the excavation – until indicated otherwise. Assume power will be provided from power lines in the area. Assume that a diesel generator is needed for backup power.
Supporting Documentation: (by Cost Team)	Quantity Takeoff, Material Quotes
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized. Plans and specifications for recent similar work were utilized to capture the necessary scope and assumptions to construct the feature. *As part of an RFI, the structures heights were increased by 6-ft, also changing the estimated length.
Sequence of Work:	Excavation/blasting of limestone rock will be required to allow space for the foundation for the gated culvert structure. Culverts, foundations and structures will then be placed. Control structures for the culverts will be installed and a standalone Control station will be built in the area. An additional backup generator will be required along with local utility power. Apron, wing wall, and riprap placement will occur after Culverts have been placed. Backfill and compaction around the structure will occur, the plugs will be removed.
Key Outstanding Questions/Issues:	





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OKEECHOBEE COMPONENT A



Feature of Work:	STRUCTURE CU-1A: 556 LF DOUBLE GATED 13'Wx12'H BOX CULVERT WITH ENDWALLS, 12'x24' CONTROL BUILDING					
		Quantity Take	Off:			
					_	
User Input		Row Calculation		Sum of Values above		
Sheetnile Dewatering						
Dewatering Pumps	=	TBD EA		Size to be determined		
Width	=	255.7 FT		Assume 20' from top of ex	cavation	
Length	=	632.0 FT		Assume 20' from length of	excavation	
Depth	=	46.0 FT		Assumed		
Total Perimeter	=	1,775.3 LF		Sheetpile perimeter		
Area	=	161,581.3 SF				
Culvert excavation						
Length	=	592.0 FT		Assumed from drawings		
Total Depth	=	26.0 FT		Invert Elev. Minus Founda	tion Depth	
Thickness of Organic	=	2.0 FT		Assume - 2ft thick		
Thickness of Cap Rock	=	8.0 FT		Assume - 4ft thick		
Thickness of Fort Thompson	=	16.0 FT		Assume - 24ft thick		
Slope1	=	2.0 :1				
Slope2	=	2.0 :1				
Bottom Width	=	111.7 FT		Assumes 40' endwalls bot	n ways	
Top Width	=	215.7 FT				
Cross Section	=	4,255.3 SF				
Cross Section Organic	=	423.3 SF				
Cross Section of Cap Rock	=	1,533.3 SF				
Cross Section of Fort Thompson	=	2,298.7 SF				
Organic Cut Volume	=	250,613.3 CF	=	9,282.0 BCY	=	LCY
Cap Rock Cut Volume	=	907,733.3 CF	=	33,619.8 BCY	=	LCY
Fort Thompson Cut Volume	=	1,360,810.7 CF	=	50,400.4 BCY	=	
		TUTAL	-	93,302.1 BCF	_ = _	110,020
Concrete Culvert Concrete				_		
Culvert Pipes	2	Width	13	Heij	<u>zht</u> 18	
Length	=	592.0 FT				
Foundation Concrete Bottom Width	=	31.7 FT				
Bottom Thickness	=	3.0 FT				
Volume	=	56,240.0 CF	=	2,083.0 CY		
Vertical Concrete Height	=	18.0 FT				
Thickness of Edge Walls	=	2.0 FT				
Thickness of Interior Walls	=	1.7 FT				
Volume	=	56,832.0 CF	=	2,104.9 CY		
Elevated Concrete						
Top Width	=	31.7 FT				
Thickness	=	2.0 FT				
Volume	=	37,493.3 CF	=	1,388.6 CY		
Inlet and Outlet Works						
Number	=	2.0 EA		Assumed intake and outle	t are the same	
Foundation						
Length	=	20.0 FT				
Depth	=	2.0 FT				
Width	=	31.7 FT				

Volume	=	2,533.3 0	CF =	93.8 CY
Culturant Frankrus II				
Cuivert Endwall		20.0.5		
Height	=	38.0 F	-1 - -	Assume x2 (Curvert Height + 1)
THICKNESS	=	1.5 F	-1 - 7	
Width	=	31.7 F	-1 .e	
Openings	=	468.U S		
Volume	=	2,206.0 C	_F =	81.7 CY
Needle Beam				
Height	=	2.5 F	T	
Width	=	13.0 F	т	
Depth	=	3.0 F	T	
Volume		390.0 C	CF =	14.4 CY
Exterior Walls				
Edge Wall Height	=	38.0 F	T	
Edge Wall Length	=	20.0 F	T	total each side
Edge Wall Thickness	=	2.0 F	T	
Interior Wall Height		38.0 F	т	
Interior Wall Length		14.0 F	т	
Inteiror Wall Thickness		1.7 F	т	
Volume	=	7,853.3 C	CF =	290.9 CY
CONCRETE		TOTAL	=	6,057.3 CY
				Assumed 1.20/ usly use of assesses Culture referenced
Steel Redar		ΤΟΤΑΙ	_	Assumed 1.2% volume of concrete Cuivert referenced
STEEL REBAR		TOTAL	=	ARO A TONIC approx. 0.8% steel
				460.4 TONS per volume
Sheetpile Endwalls				
Sheetpile Endwalls Number	=	2.0 E	A	x2 Endwalls per opening (HW/TW)
Sheetpile Endwalls Number	=	2.0 E	Ā	x2 Endwalls per opening (HW/TW)
Sheetpile Endwalls Number Width	=	2.0 E 80.0 F	EA FT	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert
Sheetpile Endwalls Number Width Length	= = =	2.0 E 80.0 F 30.0 F	EA FT FT	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets
Sheetpile Endwalls Number Width Length Sheetpile Area	= = =	2.0 E 80.0 F 30.0 F 4,800.0 S	EA ET EF	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap	= = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S	EA ET EF EF	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume	= = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C	EA FT FF FF FF CF =	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume	= = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C	EA FT 5F 5F CF =	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS	= = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C	EA ET EF EF EF EF EF	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing	= = = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L	EA ET EF EF EF EF	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING	= = = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 82.0 L	EA FT 5F 5F CF = .F .F	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end Per each end 3'6'' Tall Steel Bailing
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING	= = = = = = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 404.0 L	EA FT SF CF = F F F F	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end Per each end 3'6" Tall Steel Railing
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders	= = = = = = =	2.0 E 80.0 F 30.0 F 4,800.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E	EA FT FF FF CF = F F EACH	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6'' Tall Steel Railing
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height		2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 82.0 L 2.0 E 25.5 F	EA FT FT FF FF FF FF FF FF FF FF FF FF FF	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6'' Tall Steel Railing 51.0 FT TOTAL
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height		2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F	EA FT SF SF CF = F F F EACH FT EA =	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating		2.0 E 80.0 F 30.0 F 4,800.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S	EA FT FT FF FF FF FF FF FF FF FF FF FF FF FF FF	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6'' Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating		2.0 E 80.0 F 30.0 F 4,800.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S	EA FT FT FF FF FF FF FF FF FF FF FF FF FF	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating		2.0 E 80.0 F 30.0 F 4,800.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S	EA FT FF FF FF FF FF FF FF FF FF FF FF FF	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating		2.0 E 80.0 F 30.0 F 4,800.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S	EA FT FT FF FF FF FF FF FT EACH FT EA F F F F F F F F F F F F F F F F F F	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating		2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S 10.0 F	EA T T F F F EACH T EA = F F F F EACH T EA = F EACH T EA = F EACH T EA =	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6'' Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating x1 per Culvert Pipe Assumed 1' greater than Culvert Height
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating NEW GATES Number of gates Height		2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 2.0 E 25.5 F 78.0 S 312.0 S 2.0 E 19.0 F 19.0 F	EA T T F F F F F EACH T EA = F F F EACH T EA = F EACH T EA = T T EA = T T EA T E	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating x1 per Culvert Pipe Assumed 1' greater than Culvert Height Assumed 1' greater than Culvert Height
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating NEW GATES Number of gates Height Width		2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S 2.0 E 19.0 F 12.0 F 12.0 F	EA T T F F F F EACH T EACH F F EACH T EA F EA F EA F EA F EA EA EA EA EA EA EA EA EA EA	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end Per each end 3'6'' Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating x1 per Culvert Pipe Assumed 1' greater than Culvert Height Assumed 1' smaller than Culvert Width (frame) Falleaus similar user for 2 is is under
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating NEW GATES Number of gates Height Width Total Weight of Gates		2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S 312.0 S 19.0 F 12.0 F 12.0 F 12.0 F 12.0 F	EA T T F F F F EACH T EA F F EACH T EA F EA EA EA EA EA EA EA EA EA EA	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6" Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating x1 per Culvert Pipe Assumed 1' greater than Culvert Height Assumed 1' smaller than Culvert Width (frame) Follows similar weight calculations as S-2, but reduces number of steel channels
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating NEW GATES Number of gates Height Width Total Weight of Gates		2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S 312.0 S 2.0 E 19.0 F 12.0 F 20,269.2 L 40.538.3 L	EA T T F F F F EACH T EA F F F EACH T EA F F EA EA EA EA EA EA EA EA EA EA	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' Long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6'' Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating x1 per Culvert Pipe Assumed 1' greater than Culvert Height Assumed 1' smaller than Culvert Width (frame) Follows similar weight calculations as S-2, but reduces number of steel channels 20.3 TONS
Sheetpile Endwalls Number Width Length Sheetpile Area Concrete Cap Concrete Volume MISC METALS Structure Railing Endwall Railing TOTAL RAILING Ladders height Grating TOTAL Grating NEW GATES Number of gates Height Width Total Weight of Gates		2.0 E 80.0 F 30.0 F 4,800.0 S 4.0 S 640.0 C 120.0 L 82.0 L 404.0 L 2.0 E 25.5 F 78.0 S 312.0 S 2.0 E 19.0 F 12.0 F 20,269.2 L 40,538.3 L	EA T T F F F F EACH F F EACH F F EACH EA EA EA EA EA EA EA EA EA EA	x2 Endwalls per opening (HW/TW) 40 ft off each side of culvert Assume PZ27 sheetpile, 30' long sheets 30' long Sheets, 160' Span PZ-27 Assume 2'x2' cap with PZ27 sheets 23.7 CY Concrete Per each end Per each end 3'6'' Tall Steel Railing 51.0 FT TOTAL Approx. 6' long, width of each bay Steel Grating x1 per Culvert Pipe Assumed 1' greater than Culvert Height Assumed 1' smaller than Culvert Width (frame) Follows similar weight calculations as S-2, but reduces number of steel channels 20.3 TONS

					motor, yoke, etc. to be provided by manufacturer
Imbeds for Gate	=		124.0 LF		
Gate Seal Length	=		124.0 LF		Gate perimeter x # of gates
Backfill					
Assume Culvert is backfi	illed as	part of leve	ee construction		
RIP RAP					
Assume same on both si	ides				
Number of placements	=		2.0 EA		1 each side
Length	=		136.0 FT		Assume width of new canal
Width	=		111.7 FT		Assume same as bottom width of excavation
thickness	=		3.0 FT		Assumed
Volume	=		45,560.0 CF/EA	=	1,687.4 CY/EA
RIPRAP		TOTAL		=	3,374.8 CY Riprap
Geotextile Filter Fabric	=		16,546.7 SF		Fabric
Boat Barrier					
Number	=		2.0 EA		
Piles for Buoys	=		3.0 EA		Assume barrier has 3 points (2 at shore, 1 at canal)
Length	=		170.0 FT/EA		
Total Length	=		340.0 FT		Buoy style barrier
Total Piles	=		6.0 EA		
SW/DDD					
Floating Silt Boom	=		980.0 FT		Assumed
Silt Fence	=		6.492.0 FT		Assumed
			0,102.0		
Control Building					
Size	=		288.0 SF		12x24
Electrical	=	NEEDED			
Communications	=	NEEDED			
Modular Precast Concrete Structure					
Exterior Walls					
Height	=		12.0 FT		
Perimeter Length	=		72.0 FT		
Thickness	=		4.0 IN		
Volume	=		288.0	=	10.7 CY
Interior Wall					
Height	=		12.0 FT		
Length	=		12.0 FT		
Thickness	=		4.0 IN		
Volume	=		48.0	=	1.8 CY
Floor Slab					
Thickness	=		6.0 IN		
Area	=		288.0 SF		
Volume	=		144.0 CF	=	5.3 CY
Roof					
Thickness	=		5.0 IN		
Area	=		288.0 SF		
Volume	=		120.0 CF	=	4.4 CY
. s.anc					

Fuel Pad	=	96.0	CF		Assume 8'x12'x12" thick reinforced concrete slab on grade
	=	3.6	CY		pad
CONCRETE		TOTAL		=	25.8 CY
Total Doors	=	2.0	EA		
Size	=	4'-0" x 7'-0"			
Conduit Boxes	=	1.0	EA/DO	OR	
Lock Boxes	=	1.0	EA/DO	OR	
Fire Extinguishers	=	2.0	EA		
26" x 26" Exhaust Hoods	=	1.0	EA		
30" x 30" Exhaust Hoods	=	1.0	EA		
30" x 30"Intake Hoods	=	2.0	EA		
18" x 18" Intake Air Hood	=	1.0	EA		
18" x 18" Exhaust Hood	=	1.0	EA		
20" Exhaust Fan	=	1.0	EA		Coolair CBA20L, 1 HP, 4702 CFM @ 3/8" SP
12" Exhaust Fan	=	1.0	EA		Coolair CDU12F17, 1/6 HP, 1210 CFM @ 1/4" SP
Generator Fuel Tank	=	1,000.0	GALLO	N	
Gravel Pad	=	216.0	CF		Assume 50% greater area than building, 6" thick
	=	8.0	CY		
Filter Fabric		472.0	SF		

Quantities Summary

Coffer dam:	1,775.3	LF	
Coffer dam:	161,581.3	SF	
Excavation:	93,302.1	СҮ	
Concrete:	6,057.3	CY	
Steel Rebar:	72.7	CY (?)	
Steel Rebar:	480.4	TONS	
Sheetpile:	4,800.0	SF	PZ27x160LFx30FT
Cap:	23.7	СҮ	
Railing:	404.0	LF	
Grate:	312.0	SF	
Ladders:	2.0	EA	25' EA
Gates:	2.0	EA	13'x12' w/ mechanical components
Seals:	124.0	LF	
Backfill:	116,627.7	LCY	
Rip-rap:	3,374.8	CY	
Geofabric:	16,546.7	SF	
Boat Barrier:	340.0	LF	
Barrier Piles:	6.0	EA	
Floating Curtain:	980.0	LF	
Silt Fence:	6,492.0	LF	
Control bld.:	25.8	СҮ	Concrete
Total Doors	2.0	EA	Size 4'-0" x 7'-0"
Conduit Boxes	1.0	EA/DOOR	
Lock Boxes	1.0	EA/DOOR	
Fire Extinguishers	2.0	EA	
26" x 26" Exhaust Hoods	1.0	EA	
30" x 30" Exhaust Hoods	1.0	EA	
30" x 30"Intake Hoods	2.0	EA	
18" x 18" Intake Air Hood	1.0	EA	
18" x 18" Exhaust Hood	1.0	EA	
20" Exhaust Fan	1.0	EA	
12" Exhaust Fan	1.0	EA	
Generator Fuel Tank:	1,000.0	GALLONS	
CTRL BLDG Gravel Pad	8.0	СҮ	
CTRL BLDG Pad Fabric	472.0	SF	

Feature of Work:	STRUCTURES CU-2: 556 LF DOUBLE GATED 13'Wx12'H BOX CULVERT WITH ENDWALLS, 12'x24' CONTROL BUILDING
Scope Given:	556 LF double gated 13'x12' box culvert w/ endwalls w/ 12'x24' control building and HW/TW monitoring stations w/ walkways (by-pass not required for construction). Structure CU-2 is a gated box culvert which allows for outflow from the West Cell, discharging to the Seepage Canal CNL-3.
Reference for Scope Basis:	
Scope Assumptions:	 Assume similar to structure S-276 and S-277 as a double barrel culvert. Assume given dimensions in the engineering appendix govern over provided design documents for similar structure if no dimensions are given in the engineering appendix all dimensions will come from the similar structure. Assume Excavation will be to the same depth below finished grade as shown in contract drawings for similar projects with a slope of 1:2 for construction. Assume material as 2 ft of organic, 8 ft of blastable cap rock, and 10 ft of Fort Thompson layer for the remainder of the excavation – until indicated otherwise. Assume power will be provided from power lines in the area. Assume that a diesel generator is needed for backup power.
Supporting Documentation: (by Cost Team)	Quantity Takeoff, Material Quotes
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized. Plans and specifications for recent similar work were utilized to capture the necessary scope and assumptions to construct the feature. *As part of an RFI, the structures heights were increased by 6-ft, also changing the estimated length.
Sequence of Work:	Excavation/blasting of limestone rock will be required to allow space for the foundation for the gated culvert structure. Culverts, foundations and structures will then be placed. Control structures for the culverts will be installed and a standalone Control station will be built in the area. An additional backup generator will be required along with local utility power. Apron, wing wall, and riprap placement will occur after Culverts have been placed. Backfill and compaction around the structure will occur, the plugs will be removed.
Key Outstanding Questions/Issues:	









OKEECHOBEE COMPONENT A RESERVOIR (LOCAR) DRAWING PREPARED BY J-TECH TYPICAL SECTION SHEET LAYOUTS.DWG 9/24/2023

	PERIMETER CANAL TYP. SECTION (BEYOND)	285.64 - 20.00
Soll Removal/excavation 6" Thick Topsoll Layer Soll Cement Revetment Soll Cement Revetment Clean Sand Filter Sand (Fdot 902-4) LIMEROCK BASE RIPRAP Bedding Stone CONCRETE		PERIMETER MAINTENANCE ROAD 24.00 9.92 -14.00 - 38.40 - 38.40 - 38.40 - 38.40 - 38.40 - 108 ELEV. 31.48 - 3
MATCHLINE A		

Feature of Work:	STRUCTURE CU-2A: 556 LF DOUBLE GATED 13'Wx12'H BOX CULVERT WITH ENDWALLS, 12'x24' CONTROL BUILDING					
		Quantity Take	Off:			
User Input		Row Calculation		Sum of Values above		
Sheetnile Dewatering						
Dewatering Pumps	=	TBD EA		Size to be determined		
Width	=	255.7 FT		Assume 20' from top of ex	cavation	
Length	=	632.0 FT		Assume 20' from length of	excavation	
Depth	=	46.0 FT		Assumed		
Total Perimeter	=	1,775.3 LF		Sheetpile perimeter		
Area	=	161,581.3 SF				
Culvert excavation						
Length	=	592.0 FT		Assumed from drawings		
Total Depth	=	26.0 FT		Invert Elev. Minus Founda	tion Depth	
Thickness of Organic	=	2.0 FT		Assume - 2ft thick		
Thickness of Cap Rock	=	8.0 FT		Assume - 4ft thick		
Thickness of Fort Thompson	=	16.0 FT		Assume - 24ft thick		
Slope1	=	2.0 :1				
Slope2	=	2.0 :1				
Bottom Width	=	111.7 FT		Assumes 40' endwalls botl	n ways	
Top Width	=	215.7 FT				
Cross Section	=	4,255.3 SF				
Cross Section Organic	=	423.3 SF				
Cross Section of Cap Rock	=	1,533.3 SF				
Cross Section of Fort Thompson	=	2,298.7 SF				
Organic Cut Volume	=	250,613.3 CF	=	9,282.0 BCY	=	LCY
Cap Rock Cut Volume	=	907,733.3 CF	=	33,619.8 BCY	=	LCY
Fort Thompson Cut Volume	=	1,360,810.7 CF	=	50,400.4 BCY	-	
EACAVATION		TUTAL	=	93,302.1 BCY	_ = _	110,028
Concrete Culvert Concrete				_		
<u>Culvert Pipes</u>	2	Width	13	Hei	<u>zht</u> 18	
Length	=	592.0 FT				
Foundation Concrete Bottom Width	=	31.7 FT				
Bottom Thickness	=	3.0 FT				
Volume	=	56,240.0 CF	=	2,083.0 CY		
Vertical Concrete Height	=	18.0 FT				
Thickness of Edge Walls	=	2.0 FT				
Thickness of Interior Walls	=	1.7 FT				
Volume	=	56,832.0 CF	=	2,104.9 CY		
Elevated Concrete						
Top Width	=	31.7 FT				
Thickness	=	2.0 FT				
Volume	=	37,493.3 CF	=	1,388.6 CY		
Inlet and Outlet Works						
Number	=	2.0 EA		Assumed intake and outle	t are the same	
Enundation						
Foundation	_	20 0 ET				
Denth	-	20.0 FT				
Width	=	31.7 FT				
wiath	•	51.7 11				

Volume	=	2,533.	3 CF	=	93.8 CY
Culvert Endwall		20.			
Height	=	38.			Assume x2 (Culvert Height + 1')
Inickness	=	1.	5 FI		
Width	=	31.	7 FT		
Openings	=	468.	0 SF		
Volume	=	2,206.	0 CF	=	81.7 CY
Needle Beam					
Height	=	2	5 FT		
Width	_	13			
Dopth	_	13.			
Volumo	-	3.0		_	14.4 CV
volume		390.	UCF	-	14.4
Exterior Walls					
Edge Wall Height	=	38.	0 FT		
Edge Wall Length	=	20.0	0 FT		total each side
Edge Wall Thickness	=	2.0	0 FT		
Interior Wall Height		38.0	0 FT		
Interior Wall Length		14.	0 FT		
Inteiror Wall Thickness		1.	7 FT		
Volume	=	7 853	3 CF	=	290.9 CY
CONCRETE		TOTAL	0 0.	=	6,057.3 CY
Steel Rebar					Assumed 1.2% volume of concrete Culvert referenced
STEEL REBAR		TOTAL		=	72.7 CY Rebar as an example used
					480.4 TONS approx. 0.8% steel
					pervolume
Sheetpile Endwalls					
Number	=	2.	0 EA		x2 Endwalls per opening (HW/TW)
Width	-	80.	0 FT		40 ft off each side of culvert
length	_	30.			Assume $P727$ sheatnile $30'$ long sheats
Sheetnile Area	_	4 800			30' Long Sheets 160' Span P7-27
Concrete Can	_	4,000.			Accume 2'v2' can with P727 shoats
Concrete Cap	_	4. 640		_	
Concrete volume	-	040.	UCF	-	
MISC METALS					
Structure Railing	=	120.	0 LF		Per each end
Endwall Railing	=	82.	0 LF		Per each end
TOTAL RAILING	=	404.	0 LF		3'6" Tall Steel Railing
Ladders	=	2.	0 EACH		
height	=	25.	5 FT EA	=	51.0 FT TOTAL
Grating	=	78.	0 SF per (Gate	Approx. 6' long, width of each bay
TOTAL Grating	=	312.	<mark>0</mark> SF		Steel Grating
NEW GATES					v1 nor Culurt Ding
Number of gates	=	2.			Assumed 1 greater than Culuart Usingt
Height	=	19.			Assumed 1 greater than Cuivert Height
Width	=	12.			Assumed 1 smaller than Culvert Width (frame)
I otal Weight of Gates	=	20,269.	z lb fa		Follows similar weight calculations as S-2, but reduces
		40 529		_	
		40,538.		-	20.3 10193
Mechanical Components	=	2.	0 EA		All gate component information including frame, stem,

					motor, yoke, etc. to be provided by manufacturer
Imbeds for Gate	=		124.0 LF		
Gate Seal Length	=		124.0 LF		Gate perimeter x # of gates
Backfill					
Assume Culvert is backfi	lled as	part of lev	ee construction		
RIP RAP					
Assume same on both si	des				
Number of placements	=		2.0 EA		1 each side
Length	=		136.0 FT		Assume width of new canal
Width	=		111.7 FT		Assume same as bottom width of excavation
thickness	=		3.0 FT		Assumed
Volume	=		45,560.0 CF/EA	=	1,687.4 CY/EA
RIPRAP		TOTAL		=	3,374.8 CY Riprap
Geotextile Filter Fabric	=		16,546.7 SF		Fabric
Boat Barrier					
Number	=		2.0 EA		
Piles for Buoys	=		3.0 EA		Assume barrier has 3 points (2 at shore, 1 at canal)
Length	=		170.0 FT/EA		
Total Length	=		340.0 FT		Buoy style barrier
Total Piles	=		6.0 EA		
SWPPP			000 0 FT		Assessed
Floating Silt Boom	=		980.0 FT		Assumed
Silt Fence	=		6,492.0 FI		Assumed
Control Building					
Size	=		288.0 SF		12x24
Electrical	_	NEEDED			
Communications	_	NEEDED			
communications	-	NEEDED			
Modular Precast Concrete Structure					
Exterior Walls					
Height	=		12.0 FT		
Perimeter Length	=		72.0 FT		
Thickness	=		4.0 IN		
Volume	=		288.0	=	10.7 CY
Interior Wall					
Height	=		12.0 FT		
Length	=		12.0 FT		
Thickness	=		4.0 IN		
Volume	=		48.0	=	1.8 CY
Floor Slab					
Thickness	=		6.0. IN		
Διεσ	=		288.0 SF		
Volume	=		144.0 CF	=	5.3 CY
Roof					
Thickness	=		5.0 IN		
Area	=		288.0 SF		
Volume	=		120.0 CF	=	4.4 CY
Fuel Pad	=	96.0	CF		Assume 8'x12'x12" thick reinforced concrete slab on grade
---------------------------	---	---------------	-------	----	---
	=	3.6	CY		pad
CONCRETE		TOTAL		=	25.8 CY
Total Doors	=	2.0	EA		
Size	=	4'-0" x 7'-0"			
Conduit Boxes	=	1.0	EA/DO	OR	
Lock Boxes	=	1.0	EA/DO	OR	
Fire Extinguishers	=	2.0	EA		
26" x 26" Exhaust Hoods	=	1.0	EA		
30" x 30" Exhaust Hoods	=	1.0	EA		
30" x 30"Intake Hoods	=	2.0	EA		
18" x 18" Intake Air Hood	=	1.0	EA		
18" x 18" Exhaust Hood	=	1.0	EA		
20" Exhaust Fan	=	1.0	EA		Coolair CBA20L, 1 HP, 4702 CFM @ 3/8" SP
12" Exhaust Fan	=	1.0	EA		Coolair CDU12F17, 1/6 HP, 1210 CFM @ 1/4" SP
Generator Fuel Tank	=	1,000.0	GALLO	N	
Gravel Pad	=	216.0	CF		Assume 50% greater area than building, 6" thick
	=	8.0	CY		
Filter Fabric		472.0	SF		

Quantities Summary

Coffer dam:	1,775.3	LF	
Coffer dam:	161,581.3	SF	
Excavation:	93,302.1	СҮ	
Concrete:	6,057.3	CY	
Steel Rebar:	72.7	CY (?)	
Steel Rebar:	480.4	TONS	
Sheetpile:	4,800.0	SF	PZ27x160LFx30FT
Cap:	23.7	СҮ	
Railing:	404.0	LF	
Grate:	312.0	SF	
Ladders:	2.0	EA	25' EA
Gates:	2.0	EA	13'x12' w/ mechanical components
Seals:	124.0	LF	
Backfill:	116,627.7	LCY	
Rip-rap:	3,374.8	СҮ	
Geofabric:	16,546.7	SF	
Boat Barrier:	340.0	LF	
Barrier Piles:	6.0	EA	
Floating Curtain:	980.0	LF	
Silt Fence:	6,492.0	LF	
Control bld.:	25.8	СҮ	Concrete
Total Doors	2.0	EA	Size 4'-0" x 7'-0"
Conduit Boxes	1.0	EA/DOOR	
Lock Boxes	1.0	EA/DOOR	
Fire Extinguishers	2.0	EA	
26" x 26" Exhaust Hoods	1.0	EA	
30" x 30" Exhaust Hoods	1.0	EA	
30" x 30"Intake Hoods	2.0	EA	
18" x 18" Intake Air Hood	1.0	EA	
18" x 18" Exhaust Hood	1.0	EA	
20" Exhaust Fan	1.0	EA	
12" Exhaust Fan	1.0	EA	
Generator Fuel Tank:	1,000.0	GALLONS	
CTRL BLDG Gravel Pad	8.0	СҮ	
CTRL BLDG Pad Fabric	472.0	SF	

Feature of Work:	STRUCTURE DDS-1: DIVIDER DAM TWO-WAY FLOW GATED SPILLWAY 1,500 CFS
Scope Given:	Gated spillway w/ (2) 10'Wx10'H Gates w/ 12'x24' Control Bldg. & HW/TW Monitoring Stations w/ Walkways (by-pass not required for construction). Allows for flow between the East and West Cells through the Divider Dam.
Reference for Scope Basis:	
Scope Assumptions:	 Assume similar to structure S-475. Assume given dimensions in the engineering appendix govern over provided design documents for similar structure if no dimensions are given in the engineering appendix all dimensions will come from the similar structure. Assume aprons are in addition to the concrete structure shown in the provided drawings. Assume power for the structure will be provided from local power lines. Assume that a diesel generator is needed for backup power. Assume 50 KW Diesel Generator with 1000 gallon above ground tank.
Supporting Documentation: (by Cost Team)	Quantity Takeoff, Material Quotes
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized. Plans and specifications for recent similar work were utilized to capture the necessary scope and assumptions to construct the feature. *As part of an RFI, the structures heights were increased by 6-ft, also changing the estimated length.
Sequence of Work:	Excavation of materials to allow for construction of the foundation of the cross canal gate structure and the canal apron/wingwall. Concrete work for structure followed by apron and wingwalls. Backfill suitable material around the structure and import riprap. Construct control station, diesel generator, and fuel storage. Place gates and other associated closure devices for the gate structure.
Key Outstanding Questions/Issues:	



	RIPRAP	ESTIMATED EXIST. AVG. GROUND ELEV. 29.00	MWSL ELEV. 56.30 ▽	RESERVOIR WEST CELL
			NFSL ELEV. 51.70	





Locar Recommended Plan Section - DDS-1 Divider Dam Structure



OKEECHOBEE COMPONENT A RESERVOIR (LOCAR)

CONCRETE	BEDDING STONE	RIPRAP	LIMEROCK BASE	FILTER SAND (FDOT 902-4)	CLEAN SAND	EMBANKMENT FILL	SOIL CEMENT REVETMENT	6" THICK TOPSOIL LAYER	SOIL REMOVAL/EXCAVATION

* •						LEGENI
	000000		<u>03780</u>	K Z Z		D:

Feature of Work: STRUCTURE DDS-1: DIVIDER DAM TWO-WAY FLOW GATED SPILLWAY 1,500 CFS									
Quantity Take Off:									
User Input		Row Calculation	n		Sum of Values abo	ove			
Sheetpile Dewatering			_						
Dewatering Pumps	=	TBD	EA		Size to be determined	ł			
Width	=	152.5	5 FT		Assume 20' from top	of excavat	ion		
Length	=	394.0) FT		Assume 20' from leng	th of exca	vation		
Depth	=	46.0	FT		Assumed				
Total Perimeter	=	1,093.0) LF		Sheetpile perimeter				
Area	=	60,085.0	SF						
Spillway Excavation									
Assume Spillway Excava	ation will	l be partially perforn	ned dur	ing canal	excavation, if no canal	exists			
Length	=	354.0) FT		Add'l 40' assumed for	· wingwall	installa	tion each way	
Total Depth	=	26.0) FT		15' below crest eleva	tion for cr	est, foo	ter, and tremie	
Thickness of Organic	=	2.0	FT						
Thickness of Cap Rock	=	8.0	FT						
Thickness of Fort Thompson	=	16.0) FT						
Canal Slope		2.5	5 :1		From Typical Sections	;			
					Canal bottom: 55' wid	de, Canal t	op: 127	7.5' wide	
Bottom Width	=	112.5	5 FT		Assumes 20' past can	al excavat	ion (mi	nus canal width)	
Top Width	=	112.5 FT			Assumes slope same as canal				
Cross Section	=	2,925.0) SF						
Cross Section Organic	=	225.0) SF						
Cross Section of Cap Rock	=	900.0) SF						
Cross Section of Fort Thompson	=	1,800.0 SF							
Organic Cut Volume	=	79,650.0) CF	=	2,950.0 BCY		=	LCY	
Cap Rock Cut Volume	=	318,600.0) CF	=	11,800.0 BCY		=	LCY	
Fort Thompson Cut Volume	=	637,200.0) CF	=	23,600.0 BCY		=	LCY	
EXCAVATION		TOTAL		=	38,350.0 BCY		=	47,937.5 LCY	
Structure Dimensions and Volumes									
Units	=	1.0	EA	For use of	only if existing canal is lo	ocated wh	ere stru	cture is to be placed,	
Underwater Concrete Seal Volume	=	157,000.0	CF	tremie p	our below area of struc	ture, appr	ox. 20 f	t past structure	
(Unreinforced concrete)		-		dimensio	ons, 5 ft thick				
Tremie Volume	=	157,000.0	CF	=	5,814.8 CY	Т	remie (Concrete	
Structure	1		<u>Length</u>	274	ft	<u>Width</u>	60	ft	
Gate Openings	1		Hojaht	10	ft	Width	20	ft	
Number of Cates	-	1.0	FA	10		wium	20		
Number of Gates	=	1.0	EA						
Superstructure/Gate Structure									
Number of Towers	=	2.0	EA						
Tower Cross-Section	=	160.0	SF		Assume from similar				
Tower Width	=	3.0	FT						
Volume	=	960.0	CF	=	35.6 CY				
Number of Piers	=	-	EA						
Pier Cross-Section	=	126.0	SF		Assume from similar				
Pier Height	=	32.0	FT		Assume from similar				
Volume	=	-	CF	=	- CY				
Abutment Walls	=	2.0	EA						

Cross-Section of Abutment Wall	=	150.0	SF		Assume from similar
Wall Height	=	32.0	FT		Assume from similar
Volume	=	9,600.0	CF	=	355.6 CY
Beam Cross-Section	=	15.0	SF		
Beam Length	=	55.0	FT		Assume from similar
volume of elevated beam	=	825.0	CF	=	30.6 CY
Cross-Section of Platform, Bridge, Brestwall	=	46.5	SF		
Width	=	55.0	FT		
Volume	=	2,557.5	CF	=	94.7 CY
OGEE volume					
Cross section	=	143.9	SF		Assume from similar
Width	=	55.0	FT		Assume from similar
OGEE Spillway volume	=	7,914.5	CF	=	293.1 CY
Approach apron					Assume 12' long, 60' wide. 5' thick per S-65EX design
Length	=	80.0	FT		
Thickness	=	5.0	FT		
Volume	=	24,000.0	CF	=	888.9 CY
Stilling Basin					Assume 22' long, 60' wide. 5' thick per S-65EX design
Length	=	80.0	FT		
Thickness	=	5.0	FT		
Volume	=	24,000.0	CF	=	888.9 CY
CONCRETE		TOTAL		=	2,587.3 CY Concrete
Steel Rebar					Assumed 1.2% volume of concrete
STEEL REBAR		TOTAL		=	31.0 CY Rebar
					205.2 TONS

Wingwalls						
Number	=	4.0	EA			
Length	=	50.0	FT		Length to reach past ri	prap banks
Depth	=	43.0	FT		Past bottom of structu	re of slab
Area of Sheet Pile	=	8,600.0	SF			
Pile Cap					x4	
Height	=	2.0	FT			
Width	=	2.0	FT			
Volume	=	800.0	CF	=	29.6 CY	Concrete
Cutoff Walls						
Number	=	2.0	EA		US & DS	
Depth	=	15.0	FT		Min. 10' required	
Width	=	60.0	FT			
Area of Sheet Pile	=	1,800.0	SF			
			_			
TOTAL SHEETPILE		10,400.0	SF		Steel Sheetpile Wall	
Anchor Rod Length	=	60.0	FT			
spacing	=	4.0	FT			
number of rods	=	96.0	EA			

Lengths and depths assu	imed, an	d similar on US and	DS		
Number	=	2.0	EA		
Length	=	30.0	FT		Assume riprap will extend 30' from structure
Width	=	167.5	FT		Assume canal width plus excavation width
Depth	=	3.0	FT		Average depth
Volume	=	30,150.0	CF	=	1,116.7 CY Riprap
		,	_		
Geotextile Filter Fabric	=	5,625.0	SF		Fabric
NEW GATES					
Assumptions borrowed	from a si	milar design			
Gate weight calculations					
Height	=	12.0			Assume 2' taller than opening
Width	=	20.0			
3/8" Plate steel	=	15.3	lb/sa ft		Given
1/2" Plate steel	=	20.4	lb/sa ft		Given
1" Plate Steel	_	40.8	lb/sa ft		Given
	-	40.8	ib/sq it		Given
Gate Skin 3/8" Plate Steel	=	240.0	sq ft		Same size as gate dimensions above
3/8" Plate stiffeners and seal angles	=	87.0	sq ft		Assume 5 sq ft for seal angles and 82 for stiffeners
Horizontal C-Channels (1/2")	=	541.7	sq ft		Assume ea. channel is equivalent to 26"x25' (10 Channels).
Vertical C-Channels (1/2")	=	346.7	sq ft		Assume each vertical channel is 26"x16' (10 Channels).
Pull Pad eyes (1")	=	4.0	sq ft		Assume 4 pad eyes per gate @ 1 sq ft each
Total 2/0" Plus 10% for miss itoms	_	250 7	sa ft	_	5 502 4 lbc
	-	1 021 0	syn	-	
Total 1/2 plus 15% for misc items	=	1,021.6	sqitt	=	20,840.3 IDS
Total 1º steel	=	4.0	sq ft	=	163.2 105
lbs/sq ft for 28'x14' gate	=	110.4	lb/sq ft		
Area of single gate	=	240.0	sq ft		assumed 3 ft bigger then opening in each direction
Approximate weight of gate	=	26.506.9	lb.		
Overweight factor for larger gates (10%)	=	29,157,6	LB EA	=	29.157.6 LB Total
Total Steel Gate Weight		.,		=	14.6 Tons
Gate embeds/seal lengths					
Gate Dimensions					
Width	=	20.0	FT		
Height	=	12.0	FT		
Gate Well Height	=	42.0	FT		
Gate Well Embed	=	119.0	FT		
Total Embed Length	=	119.0	FT		1 gate
Seal Length	=	<i>44</i> 0	FT		seal length is the perimeter of bottom and both sides
Jean Length Tatal Caal Langth	_		FT		total of 1 gates
Total Sear Length	-	44.0	ГІ		total of 1 gates
US and DS Bulkhead Slot	=	312.0	FT		6 times vertical plus width of new gate per slot
Bulkheads	=	29.157.6	LB EA		Assume same size as gates
Number	=	20	EA		x2 per gate needed
Number	-	2.0	L71		ve bei Bare liceaca
Total Length of imbeds	=	431.0	FT		
		101.0			
Total Weight of Stoplogs	=	58,315.2	LB	=	29.2 Tons
	=	567 0	FT		
TOTAL DOLD TO GATLY AND STOP LOUS	-	507.0			

Assume structure/wingwalls are backfilled as part of levee construction



	=	3.6	СҮ		pad	
CONCRETE		TOTAL		=	25.8 CY	
Total Doors	=	2.0	EA			
Size	=	4'-0" x 7'-0"				
Conduit Boxes	=	1.0	EA/DO	OR		
Lock Boxes	=	1.0	EA/DO	OR		
Fire Extinguishers	=	2.0	EA			
26" x 26" Exhaust Hoods	=	1.0	EA			
30" x 30" Exhaust Hoods	=	1.0	EA			
30" x 30"Intake Hoods	=	2.0	EA			
18" x 18" Intake Air Hood	=	1.0	EA			
18" x 18" Exhaust Hood	=	1.0	EA			
20" Exhaust Fan	=	1.0	EA		Coolair CBA20L, 1 HP, 4702 CF	M @ 3/8" SP
12" Exhaust Fan	=	1.0	EA		Coolair CDU12F17, 1/6 HP, 12	10 CFM @ 1/4" SP
Generator Fuel Tank	=	1 000 0	GALLO	IN		
Generator raci rank		1,000.0	UALLO			
Gravel Pad	=	216.0	CF		Assume 50% greater area than	1 building, 6" thick
	=	8.0	CY			
Filter Fabric		472.0	SF			
			-			

Quantities Summary

Coffer dam:	1,093.0	LF	
Coffer dam:	60,085.0	SF	
Tremie Concrete:	5,814.8	СҮ	
Excavation:	38,350.0	СҮ	
Concrete:	2,587.3	СҮ	
Steel Rebar:	31.0	CY (?)	
Steel Rebar:	205.2	TONS	
Sheetpile:	10,400.0	SF	160' Wall length x 30' Long sheets
Cap:	29.6	СҮ	
Railing:	1,108.0	LF	
Ladders:	6.0	EA	
Gates:	1.0	EA	18'x25'
Total steel gate wt	14.6	Tons	
Stoplogs	2.0	EA	
Total stoplog wt	29.16	Tons	
Seals:	44.0	LF	
Backfill:	-	LCY	
Rip-rap:	1,116.7	СҮ	
Geofabric:	5,625.0	SF	
Boat Barrier:	340.0	LF	
Barrier Piles:	6.0	EA	
Floating Curtain:	250.0	LF	
Silt Fence:	1,000.0	LF	
Control bldg.:	25.8	СҮ	Concrete
Total Doors	2.0	EA	Size 4'-0" x 7'-0"
Conduit Boxes	1.0	EA/DOOR	
Lock Boxes	1.0	EA/DOOR	
Fire Extinguishers	2.0	EA	
26" x 26" Exhaust Hoods	1.0	EA	
30" x 30" Exhaust Hoods	1.0	EA	
30" x 30"Intake Hoods	2.0	EA	
18" x 18" Intake Air Hood	1.0	EA	
18" x 18" Exhaust Hood	1.0	EA	
20" Exhaust Fan	1.0	EA	
12" Exhaust Fan	1.0	EA	
CTRL BLDG Gravel Pad	8.0	CY	
CTRL BLDG Pad Fabric	472.0	SF	

LAKE OKEECHOBEE COMPONENT A RESERVOIR (LOCAR) FEASIBILITY STUDY

<u>CONTRACT 6 – RESERVOIR PERIMETER CANAL &</u> <u>OUTFALL CANAL STRUCTURES</u>

- Construct Perimeter Canal Overflow Structures PCOS-2
 thru PCOS-4
- Construct Perimeter Canal Ungated Culvert PCCU-1 thru PCCU-4
- Construct Perimeter Canal (Manually) Adjustable Weir PCW-1 thru PCW-7
 - Construct Ungated Outflow Culvert CU-3
- Construct Offsite Outfall Structures OOS-1 thru OOS-8
- Construct Lykes AGI Structures AGI-OS-1 and AGI-PS-1
 - Demo 2 Lykes AGI R12 Pump Station
 - Construct ODCD-OS-1

Feature of Work:	PERIMETER CANAL OUTFALL STRUCTURES (PCOS-1 thru PCOS-4)
Scope Given: Reference for Scope Basis:	 PCOS-1 will be a fixed weir overflow structure for CNL-1 Reach 7 that will outflow to CNL-2, which in turn will outflow to C-41A. PCOS-2 will be a fixed weir overflow structure for CNL-1 Reach 7 that will outflow to C-41A. PCOS-2 will replace existing flashboard riser (FBR) structure PC17N. PCOS-3 will be a fixed weir overflow structure for CNL-1 Reach 7 that will outflow to existing FBR structure PC18N via a ditch, which in turn will outflow to C-41A. PCOS-4 will be a fixed weir overflow structure for CNL-1 Reach 7 that will outflow to existing FBR structure PC20N via a ditch, which in turn will outflow to C-41A.
Scope Assumptions:	- Assume Ditch Bottom iniet structure can be utilized with 30 KCP
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology: Sequence of Work:	When possible a corollary approach to the estimate development was utilized.
Key Outstanding	
Questions/Issues:	



	Feature of Work: PERIMETER CANAL OUTFALL STRUCTURES (PCOS-1 thru PCOS-4)										
Quantity Take Off:											
PCOS	Quantity	=	4.0 ea		Total all PCOS-1	thru PCOS-4					
	FDOT Type D Ditch Botto	om Inlet	with Bleed Orifice								
	Quantity	=	1.0 ea		4.0 ea	Type D Inlet					
	Depth	=	10.0 FT	Assume 10' deep							
	36" RCP pipe to CNL-1										
	Length	=	40.0 LF	Assumed	160.0 LF	36" RCP Pipe					
	Diameter	=	3.0 FT	Assumed 36"							
	Excavation										
	Depth	=	12.0 FT	Assume Depth +2							
	Bottom Width	=	11.0 FT	Dia. + 4' each way							
	Top Width	=	59.0 FT	2:1 @ Depth							
	Volume	=	16,800.0 CF								
	Volume per PCOS	=	622.2 CY		2,488.9 CY	Excavation					

Assume part of new construction not requiring additional dewatering

Feature of Work:	PERIMETER CANAL CULVERT UNGATED (PCCU-1 thru PCCU-4)
Scope Given:	 PCCU-1 supports the unpaved roadway crossing of CNL-1 Reach 2, to be located near the Divider Dam crest road north access ramp. PCCU-2 will be located under the reservoir perimeter maintenance road and will connect CNL-1 Reach 7 to the east end of the ODCD. PCCU-3 supports the unpaved roadway crossing of CNL-1 Reach 7, to be located near the Divider Dam crest road south access ramp. PCCU-4 will be located under the reservoir perimeter maintenance road and will connect CNL-1 Reach 7 to the west end of the ODCD.
Reference for Scope Basis:	
Scope Assumptions:	 Assume 48" RCP under site roads
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized.
Sequence of Work:	
Key Outstanding Questions/Issues:	

	Feature of Work: PERIMETER CANAL CULVERT UNGATED (PCCU-1 thru PCCU-4)									
	Quantity Take Off:									
PCCU	Quantity	=	4.0	ea		Total all PCCU-1	thru PCCU-4			
PCCU (each)	48" RCP pipe to CNL-1									
	Length	=	40.0	LF	Assumed for road	160.0 LF	48"RCP Pipe			
	Diameter	=	4.0	FT	Assumed 48"					
	Excavation									
	Depth	=	8.0	FT	Assume Depth					
	Bottom Width	=	12.0	FT	Dia. + 4' each way					
	Top Width	=	44.0	FT	2:1 @ Depth					
	Volume	=	8,960.0	CF						
	Volume per OOS	=	331.9	CY		1,327.4 CY	Excavation			
Assume part of new construction not requiring additional dewatering										

Feature of Work:	PERIMETER CANAL WEIR (PCW-1 thru PCW-10) - MANUALLY ADJUSTABLE WEIR
Scope Given:	Manually adjustable weirs located at various points along perimeter canal.
	• Allowable range for adjustment of weir crest to be determined during the PED phase.
Reference for Scope Basis:	
Scope Assumptions:	 Assume similar to manually adjustable weir structure proposed at C139 Annex, Structure G765A-C
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized.
Sequence of Work:	
Key Outstanding Questions/Issues:	



			Quantity Take	: UTT:
W Total	Quantity	=	10.0 ea	
CW (Each)	Weir Slide Gate	=	1.0 ea	Assume 4'x4' Gate with Frame/Embeds/Seals
	Sheetpile across Cana	al		
	Perimeter Canal Width	=	150.0 FT	Approx. from Sections Perimeter Canal
	Sheetpile Width	=	160.0 FT	Assume 5-ft past bank
	Sheetpile Length	=	20.0 FT	Assume from similar - average
	Sheeptile Area	=	3,200.0 SF	Assume PZ-27
	Pile Cap Walkway			
	Pile Cap Width	=	3.0 FT	
	Pile Cap Depth	=	2.0 FT	
	Walkway Length	=	75.0 FT	Assume 1/2 width of canal
	Concrete Volume	=	16.7 CY	
	Steel Rebar	=	0.2 CY	Assumed 1.2% volume of concrete
	Steel Rebar	=	1.3 TONS	5
	Gate Opening Concre	te Fra	me (borrowed from sin	nilar concept)
	Gate Opening Concre Pile Cap Width	te Fran	me (borrowed from sin	illar concept)
	Gate Opening Concre Pile Cap Width 2.75'x4' Risers x2	te Fran = =	me (borrowed from sin 3.0 FT 22.0 SF	illar concept) Borrowed from similar concept
	Gate Opening Concre Pile Cap Width 2.75'x4' Risers x2 12'x2' Top Slab	te Frai = = =	me (borrowed from sin 3.0 FT 22.0 SF 24.0 SF	illar concept) Borrowed from similar concept Borrowed from similar concept
	Gate Opening Concre Pile Cap Width 2.75'x4' Risers x2 12'x2' Top Slab Stairs 4'x4'	te Fran = = = = =	me (borrowed from sin 3.0 FT 22.0 SF 24.0 SF 8.0 SF	iilar concept) Borrowed from similar concept Borrowed from similar concept Borrowed from similar concept
	Gate Opening Concre Pile Cap Width 2.75'x4' Risers x2 12'x2' Top Slab Stairs 4'x4' Concrete Volume	: te Fra i = = = = =	me (borrowed from sin 3.0 FT 22.0 SF 24.0 SF 8.0 SF 6.0 CY	iilar concept) Borrowed from similar concept Borrowed from similar concept Borrowed from similar concept
	Gate Opening Concre Pile Cap Width 2.75'x4' Risers x2 12'x2' Top Slab Stairs 4'x4' Concrete Volume Steel Rebar	: te Fra i = = = = = =	me (borrowed from sin 3.0 FT 22.0 SF 24.0 SF 8.0 SF 6.0 CY 0.1 CY	iilar concept) Borrowed from similar concept Borrowed from similar concept Borrowed from similar concept Assumed 1.2% volume of concrete
	Gate Opening Concre Pile Cap Width 2.75'x4' Risers x2 12'x2' Top Slab Stairs 4'x4' Concrete Volume Steel Rebar Steel Rebar	te Frai = = = = = = = =	me (borrowed from sin 3.0 FT 22.0 SF 24.0 SF 8.0 SF 6.0 CY 0.1 CY 0.5 TON:	nilar concept) Borrowed from similar concept Borrowed from similar concept Borrowed from similar concept Assumed 1.2% volume of concrete
	Gate Opening Concre Pile Cap Width 2.75'x4' Risers x2 12'x2' Top Slab Stairs 4'x4' Concrete Volume Steel Rebar Steel Rebar Steel Rebar	te Frai = = = = = = =	me (borrowed from sin 3.0 FT 22.0 SF 24.0 SF 8.0 SF 6.0 CY 0.1 CY 0.5 TONS	hilar concept) Borrowed from similar concept Borrowed from similar concept Borrowed from similar concept Assumed 1.2% volume of concrete
	Gate Opening Concre Pile Cap Width 2.75'x4' Risers x2 12'x2' Top Slab Stairs 4'x4' Concrete Volume Steel Rebar Steel Rebar Steel Rebar Handrail Length	te Frai = = = = = = = =	me (borrowed from sin 3.0 FT 22.0 SF 24.0 SF 8.0 SF 6.0 CY 0.1 CY 0.5 TONS 150.0 FT	hilar concept) Borrowed from similar concept Borrowed from similar concept Borrowed from similar concept Assumed 1.2% volume of concrete
	Gate Opening Concre Pile Cap Width 2.75'x4' Risers x2 12'x2' Top Slab Stairs 4'x4' Concrete Volume Steel Rebar Steel Rebar Steel Rebar Handrail Length Riprap	• te Fra = = = = = = =	me (borrowed from sin 3.0 FT 22.0 SF 24.0 SF 8.0 SF 6.0 CY 0.1 CY 0.5 TONS 150.0 FT	hilar concept) Borrowed from similar concept Borrowed from similar concept Borrowed from similar concept Assumed 1.2% volume of concrete
	Gate Opening Concre Pile Cap Width 2.75'x4' Risers x2 12'x2' Top Slab Stairs 4'x4' Concrete Volume Steel Rebar Steel Rebar Steel Rebar Handrail Length Riprap Length	•te Frai	me (borrowed from sin 3.0 FT 22.0 SF 24.0 SF 8.0 SF 6.0 CY 0.1 CY 0.5 TONS 150.0 FT 75.0 FT	hilar concept) Borrowed from similar concept Borrowed from similar concept Borrowed from similar concept Assumed 1.2% volume of concrete Assume x2 Length of Walkway Assume 1/2 width of canal
	Gate Opening Concre Pile Cap Width 2.75'x4' Risers x2 12'x2' Top Slab Stairs 4'x4' Concrete Volume Steel Rebar Steel Rebar Handrail Length Riprap Length Width	•te Frai	me (borrowed from sin 3.0 FT 22.0 SF 24.0 SF 8.0 SF 6.0 CY 0.1 CY 0.1 CY 150.0 FT 75.0 FT 6.0 FT	hilar concept) Borrowed from similar concept Borrowed from similar concept Borrowed from similar concept Assumed 1.2% volume of concrete Assume x2 Length of Walkway Assume 1/2 width of canal Assumed
	Gate Opening Concre Pile Cap Width 2.75'x4' Risers x2 12'x2' Top Slab Stairs 4'x4' Concrete Volume Steel Rebar Steel Rebar Handrail Length Width Depth	•te Frai = = = = = = = = = = = = = =	me (borrowed from sin 3.0 FT 22.0 SF 24.0 SF 8.0 SF 6.0 CY 0.1 CY 0.5 TONS 150.0 FT 75.0 FT 6.0 FT 5.1 FT	hilar concept) Borrowed from similar concept Borrowed from similar concept Borrowed from similar concept Assumed 1.2% volume of concrete Assumed 1.2% volume of concrete Assume x2 Length of Walkway Assume 1/2 width of canal Assumed 2-ft Type B and 0.5-ft bedding
	Gate Opening Concre Pile Cap Width 2.75'x4' Risers x2 12'x2' Top Slab Stairs 4'x4' Concrete Volume Steel Rebar Steel Rebar Handrail Length Riprap Length Width Depth Volume	•te Frai	sin 3.0 FT 3.0 FT 22.0 SF 24.0 SF 24.0 SF 8.0 SF 6.0 CY 0.1 CY 0.5 TONS 150.0 FT 75.0 FT 6.0 FT 1,125.0 CF	hilar concept) Borrowed from similar concept Borrowed from similar concept Borrowed from similar concept Assumed 1.2% volume of concrete Assume x2 Length of Walkway Assume 1/2 width of canal Assumed 2-ft Type B and 0.5-ft bedding = 41.7 CY Riprap

Sheetpile Area	=	32,000.0	SF	Assume PZ-27
Concrete Volume	=	226.7	CY	
Steel Rebar	=	18.0	TONS	
Weir Slide Gates	=	10.0	ea	Assume 4'x4' Gate with Frame/Embeds/Seals
Riprap	=	416.7	CY	Туре В
Geotextile Fabric	=	19,500.0	SF	

Feature of Work:	STRUCTURES CU-3: 280 LF DOUBLE 16'Wx14'H BOX CULVERT WITH ENDWALLS (UNGATED), 12'x24' CNTRL BUILDING
Scope Given:	280 LF double 13'x12' box culvert w/ endwalls w/ 12'x24' control building and HW/TW monitoring stations w/ walkways (by-pass not required for construction). Structure CU-3 is an ungated box culvert which allows for discharge from the Seepage Canal, previously from West Cell, discharging into the C-41A Canal Upstream of the existing S-83 structure via an Outflow Canal and Diversion Canal, respectively.
Reference for Scope Basis:	
Scope Assumptions:	 Assume similar to structure S-276 and S-277 as a double barrel culvert. Assume given dimensions in the engineering appendix govern over provided design documents for similar structure if no dimensions are given in the engineering appendix all dimensions will come from the similar structure. Assume Excavation will be to the same depth below finished grade as shown in contract drawings for similar projects with a slope of 1:2 for construction. Assume material as 2 ft of organic, 8 ft of blastable cap rock, and 10 ft of Fort Thompson layer for the remainder of the excavation – until indicated otherwise. Assume power will be provided from power lines in the area. Assume that a diesel generator is needed for backup power.
Supporting Documentation: (by Cost Team)	Quantity Takeoff, Material Quotes
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized. Plans and specifications for recent similar work were utilized to capture the necessary scope and assumptions to construct the feature. The scope and assumptions were documented and sent to the design team for review. After reaching consensus on the scope and major assumptions, the labor, equipment, materials, and production rates were developed for the estimate. *As part of an RFI, the structures heights were increased by 6-ft, also changing the estimated length.
Sequence of Work:	Construction will be performed after the canal plugs are installed up and downstream of the proposed culvert location. Dewatering will be needed. Dewatering pumps used as needed throughout construction. Excavation/blasting of limestone rock will be required to allow space for the foundation for the gated culvert structure. Culverts, foundations and structures will then be placed. Control structures for the culverts will be installed and a standalone Control station will be built in the area. An additional backup generator will be required along with local utility power. Apron, wing wall, and riprap placement will occur after Culverts have been placed. Backfill and compaction around the structure will occur, the plugs will be removed.
Key Outstanding Questions/Issues:	



Feature of Work: (UNGATED), 12'x24' CONTROL BUILDING								
	UNOP	Quantity Take (Off:					
User Input		Row Calculation		Sum of Values above				
Sheetpile Dewatering								
Dewatering Pumps	=	TBD EA		Size to be determined				
Width	=	237.7 FT		Assume 20' from top of exca	avation			
Length	=	320.0 FT		Assume 20' from length of e	excavation			
Depth	=	40.0 FT		Assumed				
Total Perimeter	=	1,115.3 LF		Sheetpile perimeter				
Area	=	76,053.3 SF						
Culvert excavation								
Length	=	280.0 FT		Assumed from drawings				
Total Depth	=	20.0 FT		Invert Elev. Minus Foundation	on Depth			
Thickness of Organic	=	2.0 FT		Assume - 2ft thick				
Thickness of Cap Rock	=	8.0 FT		Assume - 8ft thick				
Thickness of Fort Thompson	=	10.0 FT		Assume - 24ft thick				
Slope1	=	2.0 :1						
Slope2	=	2.0 :1						
Bottom Width	=	117.7 FT		Assumes 40' endwalls both	ways			
Top Width	=	197.7 FT						
Cross Section	=	3,153.3 SF						
Cross Section Organic	=	387.3 SF						
Cross Section of Cap Rock	=	1,389.3 SF						
Cross Section of Fort Thompson	=	1,376.7 SF						
Organic Cut Volume	=	108,453.3 CF	=	4,016.8 BCY	=	LCY		
Cap Rock Cut Volume	=	389,013.3 CF	=	14,407.9 BCY	=	LCY		
Fort Thompson Cut Volume	=	385,466.7 CF	=	14,276.5 BCY	=	LCY		
EXCAVATION		TOTAL	=	32,701.2 BCY	_ =	40,876.5 LCY		
Concrete Culvert Concrete								
<u>Culvert Pipes</u>	2	<u>Width</u>	16	Heigh	<u>nt</u> 14			
Length	=	280.0 FT						
Foundation Concrete Bottom Width	=	37.7 FT						
Bottom Thickness	=	3.0 FT						
Volume	=	31,640.0 CF	=	1,171.9 CY				
Vertical Concrete Height	=	14.0 FT						
Thickness of Edge Walls	=	2.0 FT						
Thickness of Interior Walls	=	1.7 FT						
Volume	=	20,906.7 CF	=	774.3 CY				
Elevated Concrete								
Top Width	=	37.7 FT						
Thickness	=	2.0 FT						
Volume	=	21,093.3 CF	=	781.2 CY				
Inlet and Outlet Works								
Number	=	2.0 EA		Assumed intake and outlet a	are the same			
Foundation								
Length	=	20.0 FT						
Depth	=	2.0 FI						
Width	=	37.7 FT						

	Volume	=		3,013.3 CF	=	111.6 CY
	Culvert Endwall					
	Height	=		30.0 FT	-	Assume x2 (Culvert Height + 1')
	Thickness	=		1.5 F1	_	
	Width	=		37.7 F1		
	Openings	=		448.0 SF	-	75.0 04
	volume	=		2,046.0 Ci	- =	75.8 CY
	Needle Beam					
	Height	=		2.5 FT	-	
	Width	=		16.0 FT	-	
	Depth	=		3.0 FT	-	
	Volume			480.0 CF	=	17.8 CY
	Exterior Walls					
	Edge Wall Height	=		30.0 FT	-	
	Edge Wall Length	=		20.0 FT	-	total each side
	Edge Wall Thickness	=		2.0 FT	-	
	Interior Wall Height			30.0 FT	-	
	Interior Wall Length			14.0 FT	-	
	Inteiror Wall Thickness			1.7 FT	-	
	Volume	=		6,200.0 CF	= =	229.6 CY
	CONCRETE		TOTAL		=	3,162.2 CY
	Steel Rebar					Assumed 1.2% volume of concrete Culvert referenced
	STEEL REBAR		TOTAL		=	37.9 CY Rebar as an example used
						250.8 TONS approx. 0.8% steel
						per volume
Sheetpile Endwalls						
	Number	=		2.0 EA	Ą	x2 Endwalls per opening (HW/TW)
	Width	=		80.0 FT		40 ft off each side of culvert
	Height	=		30.0 FT	-	Assume PZ27 sheetpile, 30' long sheets
	Sheetpile Area	=		4,800.0 SF	:	30' Long Sheets, 160' Span PZ-27
	Concrete Cap	=		4.0 SF	:	Assume 2'x2' cap with PZ27 sheets
	Concrete Volume	=		640.0 CF		23.7 CY Concrete
MISC METALS						
	Structure Railing	=		120.0 LF		Per each end
	Endwall Railing	=		82.0 LF		Per each end
	TOTAL RAILING	=		404.0 LF		3 6° Tali Steel Kalling
	Ladders	=		2.0 EA	ΑСН	
	height	=		25.5 FT	EA =	51.0 FT TOTAL
	Casting				· · · · · Coto	Arren Clare width of each how
		=		96.0 SF		Approx. 6 long, width of each bay
	TOTAL Grating	-		384.0 SF		Steel Grating
NEW GATES						
	No gates at this structure	е				
Backfill						
	Assume Culvert is backfil	lled as	part of leve	ee constructio	'n	
KIP RAP						
	common both sides					
	number of placements	=		2.0 EA	4	1 each side

Length	=	13	6.0 FT		Assume width of new canal
Width	=		2.0 FT		Assume same as bottom width of excavation
thickness	=		3.0 FT		Assumed
Volume	=	81	6.0 CF/EA	=	30.2 CY/EA
RIPRAP		TOTAL	-	=	60.4 CY Riprap
Geotextile Filter Fabric	=	1.63	2.0 SE		Fabric
Geotextile Filter Fublic		1,00	2.0 51		
Boat Barrier					
boat barrier					
	=		2.0 EA		
Plies for Buoys	=		3.0 EA		Assume barrier has 3 points (2 at shore, 1 at canal)
Length	=	17	0.0 FT/EA		
Total Length	=	34	0.0 FT		Buoy style barrier
Total Piles	=		6.0 EA		
SWPPP					
Floating Silt Boom	=	98	0.0 FT		Assumed
Silt Fence	=	6,49	2.0 FT		Assumed
Control Building					
Size	=	28	8.0 SF		12x24
Electrical	-	NEEDED			
Communications	_	NEEDED			
communications	-	NEEDED			
Modular Precast Concrete Structure					
Exterior Walls			_		
Height	=	1	2.0 FT		
Perimeter Length	=	7	2.0 FT		
Thickness	=		4.0 IN		
Volume	=	28	8.0	=	10.7 CY
Interior Wall					
Height	=	1	2.0 FT		
Length	=	1	2.0 FT		
Thickness	=		4.0 IN		
Volume	=	4	8.0	=	18 CY
volume			0.0		
Elaar Slab					
	_				
Inickness	=		0.0 11		
Area	=	28	8.0 SF		
Volume	=	14	4.0 CF	=	5.3 CY
Roof			_		
Thickness	=		5.0 IN		
Area	=	28	8.0 SF		
Volume	=	12	0.0 CF	=	4.4 CY
Fuel Pad	=	96	5.0 CF		Assume 8'x12'x12" thick reinforced concrete slab on grade
	=		3.6 CY		pad
CONCRETE		ΤΟΤΑΙ		=	25.8 CY
		101/L		-	
Total Dears	_		20 64		
	-				
Size	=	4 -0" x /	-0		
Conduit Boxes	=		1.0 EA/DUO	ĸ	
Lock Boxes	=		1.0 EA/DO	ĸ	

Fire Extinguishers	=	2.0 EA			
26" x 26" Exhaust Hoods	=	1.0 EA			
30" x 30" Exhaust Hoods	=	1.0 EA			
30" x 30"Intake Hoods	=	2.0 EA			
18" x 18" Intake Air Hood	=	1.0 EA			
18" x 18" Exhaust Hood	=	1.0 EA			
20" Exhaust Fan	=	1.0 EA	Co	olair CBA20L, 1 HP, 4702 CFM @ 3/8" SP	
12" Exhaust Fan	=	1.0 EA	Co	olair CDU12F17, 1/6 HP, 1210 CFM @ 1/4" SP	
Generator Fuel Tank	=	1,000.0 GALLON	l i		
Gravel Pad	=	216.0 CF	Ass	sume 50% greater area than building, 6" thick	
	=	8.0 CY			
Filter Fabric		472.0 SF			

Quantities Summary

Coffer dam:	1,115.3	LF	
Coffer dam:	76,053.3	SF	
Excavation:	32,701.2	CY	
Concrete:	3,162.2	CY	
Steel Rebar:	37.9	CY (?)	
Steel Rebar:	250.8	TONS	
Sheetpile:	4,800.0	SF	PZ27x160LFx30FT
Cap:	23.7	CY	
Railing:	404.0	LF	
Grate:	384.0	SF	
Ladders:	2.0	EA	25' EA
Gates:	0	EA	
Seals:	0.0	LF	
Backfill:	40,876.5	LCY	
Rip-rap:	60.4	CY	
Geofabric:	1,632.0	SF	
Boat Barrier:	340.0	LF	
Barrier Piles:	6.0	EA	
Floating Curtain:	980.0	LF	
Silt Fence:	6,492.0	LF	
Control bld.:	25.8	CY	Concrete
Total Doors	2.0	EA	Size 4'-0" x 7'-0"
Conduit Boxes	1.0	EA/DOOR	
Lock Boxes	1.0	EA/DOOR	
Fire Extinguishers	2.0	EA	
26" x 26" Exhaust Hoods	1.0	EA	
30" x 30" Exhaust Hoods	1.0	EA	
30" x 30"Intake Hoods	2.0	EA	
18" x 18" Intake Air Hood	1.0	EA	
18" x 18" Exhaust Hood	1.0	EA	
20" Exhaust Fan	1.0	EA	
12" Exhaust Fan	1.0	EA	
Generator Fuel Tank:	1,000.0	GALLONS	
CTRL BLDG Gravel Pad	8.0	CY	
CTRL BLDG Pad Fabric	472.0	SF	

Feature of Work:	OFFSITE OUTFALL STRUCTURES (OOS-1 thru OOS-8)
Scope Given:	• OOS-1 thru OOS-8 will be a fixed weir outfall control structure with a bleeder. Invert elevation of bleeder will be equal to the estimated SHWT elevation of the existing wetland that will drain to OOS-1 thru OOS-8.
Reference for Scope Basis:	
Scope Assumptions:	 Assume Ditch Bottom Inlet structure can be utilized with 36" RCP across a property line
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized.
Sequence of Work:	
Key Outstanding Questions/Issues	
Questions/1350es	



Feature of Work: OFFSITE OUTFALL STRUCTURES (OOS-1 thru OOS-8)									
Quantity Take Off:									
OOS Quantity	=	8.0 ea		Total all OOS-1 th	ıru OOS-5				
FDOT Type D Ditch Botto	om Inle	t with Bleed Orifice							
Quantity	=	1.0 ea		8.0 ea	Type D Inlet				
Depth	=	10.0 FT	Assume 10' deep						
36" RCP pipe to CNL-1									
Length	=	100.0 LF	Assumed	800.0 LF	36" RCP Pipe				
Diameter	=	3.0 FT	Assumed 36"						
Excavation									
Depth	=	12.0 FT	Assume Depth +2						
Bottom Width	=	11.0 FT	Dia. + 4' each way						
Top Width	=	59.0 FT	2:1 @ Depth						
Volume	=	42,000.0 CF							
Volume per OOS	=	1,555.6 CY		12,444.4 CY	Excavation				
Dewatering									
Area	=	9,480.0 SF		75,840.0 SF	Dewatering				
		Assume Top Width x Length and 10' each way							

Feature of Work:	STRUCTURE AGI-PS-1: RELOCATED AGI INFLOW PUMP STATIONS (REPLACES DEMO'D PUMP STATION AT AGI R12)
Scope Given:	Demo'd Pump Station AGI-PS-1 needs to be replaced at AGI R12.
Reference for Scope Basis:	
Scope Assumptions:	 Assume farm/agricultural pump station requiring installing existing pumps at new platform.
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized. Plans and specifications for recent
	similar work were utilized to capture the necessary scope and assumptions to construct the reature.
Somere of Marke	
Sequence of WOrk:	
Questions/Issues:	

Feature of Work:		ES AGI PS-1:	AGRICI	TULTU	RAL PUMP ST	TATION (DEMOLITION	AND RE-	
	CONSTRUC		T C						
		Quantity	Take C	DTT:					
Assume similar to Pump Station 356									
Seepage Pump Station Excavation									
Length	=	105.0	FT						
Total Depth	=	21.5	FT						
Thickness of Organic	=	7.0	FT						
Thickness of Rippable Rock	=	14.5	FT						
Slope1	=	1.0	:1						
Slope2	=	1.0	:1						
Bottom Width	=	15.0	FT						
Top Width	=	58.0	FT						
Cross Section	=	784.8	SF						
Cross Section Organic	=	357.0	SF						
Cross Section of Cap Rock	=	427.8	SF						
Organic Volume	=	37,485.0	CF	=	1,388.3	BCY	=	1,735.4 LCY	
Cap Rock Volume	=	44,913.8	CF	=	1,663.5	BCY	=	2,495.2 LCY	
Backfill	=	8,239.9	CF	=	305.2	BCY	=	423.1 LCY	
Assume Backfill is 10% of excavated quantity.									
Assume Clear and Grub similar to work	=	18.0	ACRE	=	87,120.0	SY			
area for the Merritt Pumping Station									
Inflow and Outflow Canal Excavation									
	-	700.0	FT						
Total Denth	_	17.0	FT						
	_	7.0	FT						
Thickness of Common	=	-	FT						
Thickness of Cap Rock	=	10.0	FT						
Slope1	=	2.0	:1						
Slope2	=	2.0	:1						
Bottom Width	=	40.0	FT						
Top Width	=	108.0	FT						
Surface Area of Caral	_	75 600 0	с г	_	1 7		_	8 400 0 SV	
	_	15,000.0		_	17 059 2		=	8,400.0 St	
Can Bock Volume	-	400,000.0	CF	_	15 555 6	BCY	-	21,324.1 LCT	
	-	420,000.0	CI	-	13,333.0	DCT	-	23,333.5 LCT	
Levee Degrade									
Length		730.0	FT		Assume Degra	de of leve	e required due to	location of	
Height		10.4	FT		new pump sta	ition			
Slope1		2.0	:1						
Slope2		2.0	:1						
Top width		10.0	FT						
Bottom width		51.6	FT						
Cross Section	=	320.3	SF						
Surface Area of Levee	=	39,946.6	SF	=	0.9	ACRE			
Volume	=	233,833.6	CF	=	8,660.5	BCY	=	9,786.4 LCY	
base area of levee	=	37,668.0	SF	=	4,185.3	SY	=	0.9 Acre	
side slopes of levee	=	32,646.6	SF	=	3,627.4	SY	=	0.7 Acre	
roadway area	=	7,300.0	SF	=	811.1	SY	=	0.2 Acre	

Removal of existing S-356 Temporary Pump Station and backfill of Temporary Pump Station Intake

Excavation volume for removal of Piping	=	67,240.0	CF	Assume excavation area is 6,724 SF and excavation is 10 ft dee			ep.	
	=	2,490.4	BCY	=	3,113.0 LCY			
Intake Backfill								
Length	=	142.5	FT		Assume averaged length is	142.5 ft		
Height	=	10.0	FT		Assume average depth is 1	0 ft		
Slope1	=	2.0	:1		assume side slope of 2:1			
Slope2	=	2.0	:1					
Bottom Width	=	30.0	FT		Assume Bottom width of 3	0 ft with top	width at 70 f	t.
Top Width	=	70.0	FT					
Cross Section	=	500.0	SF					
Backfill Volume	=	71,250.0	CF	=	2,638.9 ECY	=	2,981.9	LCY
new surface area of backfill	=	9,975.0	SF	=	1,108.3 SY	=	0.2	Acre
Total Backfill removed temp. pump station	=	5,642.2	ECY	=	6,375.7 LCY			

Care and Diversion of Water

Construction Sequence:

- 1 Construct perimeter concrete ring beam and rock anchors.
- 2 Place Sheet piling and connect piling to concrete ring beam. Excavate. Assume sheet pile length of 36 ft
- 3 3Install rock anchors for concrete seal slab. Anchor length 17'-6" slab rock anchor.
- 4 Place Concrete Seal slab. 6'-0" thick and dimensions of sheet pile
- 5 Dewater cofferdam and prepare top of concrete base mat slab
- 6 Place concrete walls to elevation 9'-0" at pump structure monolith prior to abandoning or removing in place cofferdam sheet piles. Remove ring beams in inlet and outlet.
- 7 install lateral bracing for walls.

8 Construct service bridge slab. Remainder of walls and operating floor slab.

9 Install sheet pile wing walls.

# of pump station Bays	=	4.0			
Cofferdam width per pump station bay	=	15.0	ft		Assume Per S-101
Total width length	=	60.0	ft		
Length (Up and downstream) of Cofferdam	=	90.0	ft		Assume per S-101
Area of Cofferdam sheet pile to remain in place	=	10,800.0	SF		
Area of cofferdam to be removed	=	7,200.0	SF		
Total Perimeter Length					
(length of sheet pile/ring beam)	=	300.0	ft		
Length of Sheet pile to Be utilized as wing wall	=	186.0	ft		
Volume of ring beam (Reinforced Concrete	=	70.4	CY		Per detail S-103
# of 54' ring beam anchors @ 10' OC	=	30.0	ea		Per detail S-101
# of 17'-6" uplift slab rock anchors	=	54.0	ea		
Volume of Concrete seal/uplift slab	=	1,200.0	СҮ		Assume 6' thick
Width of each Bay	=	15.0	ft		Assumed per similar PS-357
Length of Operating Floor	=	45.0	ft		
Width of Operating Floor	=	60.0	ft		
Horizontal concrete volume	=	800.0	CY		
Vertical Concrete	=	1,500.0	CY		
Service Bridge Elevated Flatwork	=	190.1	CY		Total Elevated Flatwork = 446.4 CY
Operating Floor (Elevated Flatwork	=	225.0	CY		
Elevated Vertical Work					
(Operating floor to service bridge)	=	31.3	CY		
Roof slab / Metal Deck	=	220.0	CY		
Loading Truck Ramp (horizontal Concrete)	=	4,903.0	SF	=	272.4 CY Assumed From Merritt Pump Station
SF of Generator, Electric and Office/Control	=	900.0	SF		Assume Gen/Elec/Office room is 20ftx45ft

Volume of Concrete for Gen, Elec and Office	=	1,500.0	CF	=	55.6 CY	Assume 1.67 ft thick	
Assume 10 18"x18"x26" Tall Columns	=	43.3	CY				
Tilt Up 7-1/2" Thick Precast Panels	=	5,250.0	SF	A	ssume similar to Merr	itt Pump Station	
CMU Wall Dimension (Exterior Surface Area)	=	8,500.0	SF				
Roof 32" Double tee units 56 ft long required	=	8.0	each				
Intake Basin Concrete	=	89.0	CY				
Discharge Basin Concrete Apron	=	133.3	CY	Assume 36"	thick concrete		
Stone Protection Riprap discharge	=	1,688.9	CY	Assume 5 ft	thick layer of riprap lir	ning the C-625W canal upstream	
				60 ft and do	wnstream 60 ft		
Stone Protection inlet	=	750.0	CY	Assume 36"	thick layer of riprap lin	ning the sides and bottom for	
				150' upstrea	am		
Trash Rack Surface Area (total)	=	1,680.0	SF	Assume Tras	sh rake is 28 ft tall and	covers the width of the operating	
				floor each in	ndividual covers the wi	dth of the bays (14 ft)	
Roll Up Garage Door	=	168.0	SF	Assume Roll	up garage door 12'x1	4'	
# of Doors	=	4.0	ea	Assume 1 se	et of double doors and	two other doors	
# louver openings	=	8.0	ea	Assume 8 lo	uver openings 7'-4" so	uare	
Overhead Crane	=	2.0	ea	Assume 2 ov	verhead cranes @ 25 t	ons each	
Power Line Connection	=	2,500.0	LF	Assume pow	ver available 2500 lf fr	om site	
Septic tank system	=	1.0	ea	Assume 1 septic tank system			
Potable water	=	1.0	ea	Assume 1 potable water well will be required			
Generator Fuel Tank	=	2000 Gallon	ea	Assume five 2000 gallon fuel tanks required			
Fuel Pad dimensions	=	2,000.0	SF	Assume two 100'x20'x8" thick reinforced concrete slab on gra			
		49.4	CY				
Discharge Piping							
48" discharge pipe		15.0	LF/ea	Assume Pun	nps will have a 48" Dis	charge Pipe	
Concrete Encasement		146.6	CY	Assume 2 ft	of concrete to encase	piping	
Floor Grating	=	240.0	SF	Assume 14'	x4 ft wide for each pu	mp bay.	
Ladders	=	120.0	VLF	Assume 30 f	ft per pump bay		
Railings	=	180.0	LF	Assume a ha	andrail on the up and o	lownstream side and one a width	
				of the opera	iting floor		
Haul road length	=	21,120.0	FT				
Haul road width	=	14.0	FT				
Haul road thickness	=	1.0	FT				
Area	=	295,680.0	SF	=	32,853.3 SY		
Chain link Fence	=	2,280.0	LF	Assume Sim	ilar to Merritt Pump S	tation	
Silt Fence	=	3,700.0	LF	Assume sim	ilar to Merritt Pump St	tation	
Silt Boom	=	600.0	LF	Assume similar to Merritt Pump Station			

Feature of Work:	OFFSITE DRAINAGE COLLECTION DITCH OUTFALL STRUCTURE (ODCD-OS-1)
Scope Given:	ODCD-OS-1 will be a fixed weir overflow structure for the ODCD and CNL-1 Reach 7 that will outflow to existing FBR structure PC15N via a ditch, which in turn will outflow to C-41A.
Reference for Scope Basis:	
Scope Assumptions:	 Assume Ditch Bottom Inlet structure can be utilized with 36" RCP
Class of Estimate	Class 3 -Baseline (Feasibility/DPR/LRR)
Estimate Methodology:	When possible a corollary approach to the estimate development was utilized.
Sequence of Work:	
Key Outstanding Questions/Issues:	




LAKE OKEECHOBEE COMPONENT A RESERVOIR (LOCAR) FEASIBILITY STUDY

CONTRACT 7 – RESERVOIR RECREATION AMENITIES

• Construct Recreation Amenities

ATTACHMENT 2

PRODUCTION RATE CALCULATIONS



Lake Okeechobee Component A Reservoir (LOCAR) User Defined Production Rate Calculations SKV

JOB NO.: DATE: 10/5/2023

CSI TASK:

EXCAVATE, PUSH MUCK TO STOCKPILE [Dozer]

Excavate Muck Crew

SM

PRODUCTION



96 cy/crew hr

CSI TASK:

EXCAVATE BLASTED ROCK TO STOCKPILE, LEVEES [3.5-cy Hydraul. Excav.]

Excavate Blasted Rock Large Levee Crew

PRODUCTION

3.5	cy bucket
0.90	% fill
55	min/hr
0.80	cycle/min
5	no. of excavators

695 cy/crew hr

CSI TASK:

LOAD AND HAUL ROCK, TO/FROM PROCESS PLANT [on site, 10-mile]

Load and Haul Blasted Rock On-Site Cew

PRODUCTION

	31.5 cy truck 0.95 % fill 7.2 min. for loading 5 mi. to disposal location 18 mph haul speed 3.6 min. dump time 55 min/hr		
QUANTITY PER TRUCK	4 no. of trucks 29.9 cy/truck 0.80 hr		
		149 cy/hr	->



Lake Okeechobee Component A Reservoir (LOCAR) User Defined Production Rate Calculations SKV

JOB NO.: DATE: 10/5/2023

CSI TASK:

PUSH MUCK TO PLACE, FROM STOCKPILE [Dozer]

Excavate Muck Crew

SM

PRODUCTION

3 cy bucket 0.85 % fill 55 min/hr 0.70 cycle/min

99 cy/crew hr

369 cy/crew hr

CSI TASK:

CANAL/CULVERT EXCAVATION TO STOCKPILE [3.5-cy Hydraul. Excav.]

Excavate Canals Crew

PRODUCTION

3.5cy bucket0.85% fill55min/hr0.75cycle/min3no. of excavators

CSI TASK:

FILL AND COMPACT RANDOM FILL, CANALS [Dozer, Compactors]

Fill and Compact Crew [Canals]

PRODUCTION

4 cy bucket 0.85 % fill 55 min/hr 0.63 cycle/min

116 cy/crew hr

CSI TASK:

FILL AND COMPACT ROAD STONE

Fill and Compact Road Base Crew

PRODUCTION

3 cy bucket 0.85 % fill 55 min/hr 1.25 cycle/min

175 cy/crew hr

SUBJECT:	User Defined Production Rate Calculations	
MADE BY:	SKV	JOB NO.:
CHECKED BY:	SM	DATE: 10/5/202
<u>CSI TASK:</u>		
MATERIAL HANDLING BI	ETWEEN LOCAL STOCKPILE, LEVEES	
[Dozer]		
	Material Handling/Push Large Crew	
PRODUCTION		
PRODUCTION	5 cy per cycle	
	0.85 % fill	
	0.43 cvcle/min	
	3 no. of dozers	
		300 cy/crew hr
	-	
CSI TASK:		
CANAL CLEANING CREV	<u>v</u>	
[Dozers]	_	
	Canal Cleaning Crew	
PRODUCTION		
<u>I Roboo non</u>	0.3 min/lf to clean out	
		200 00 lf/br
	-	200.00 lf/hr
001740%		200.00 lf/hr
<u>CSI TASK:</u>		200.00 lf/hr
<u>CSI TASK:</u> PLACE BLANKET DRAIN	, SAND	200.00 lf/hr
<u>CSI TASK:</u> <u>PLACE BLANKET DRAIN</u> [Front End Loader, Comp	, <u>SAND</u> pactor]	200.00 lf/hr
<u>CSI TASK:</u> <u>PLACE BLANKET DRAIN</u> [Front End Loader, Comp	. <u>SAND</u> pactor] Sand Blanket Crew	200.00 lf/hr
<u>CSI TASK:</u> <u>PLACE BLANKET DRAIN</u> [Front End Loader, Comp PRODUCTION	, <u>SAND</u> pactor] Sand Blanket Crew	200.00 lf/hr
<u>CSI TASK:</u> <u>PLACE BLANKET DRAIN</u> [Front End Loader, Comp <u>PRODUCTION</u>	. <u>, SAND</u> p actor] Sand Blanket Crew 3 cy per cycle	200.00 lf/hr
<u>CSI TASK:</u> <u>PLACE BLANKET DRAIN</u> [Front End Loader, Comp <u>PRODUCTION</u>	, <u>SAND</u> pactor] Sand Blanket Crew 3 cy per cycle 0.85 % fill	200.00 lf/hr
<u>CSI TASK:</u> <u>PLACE BLANKET DRAIN</u> [Front End Loader, Comp <u>PRODUCTION</u>	<u>, SAND</u> bactor] Sand Blanket Crew 3 cy per cycle 0.85 % fill 55 min/hr 0.85 cycle/min	200.00 lf/hr
<u>CSI TASK:</u> <u>PLACE BLANKET DRAIN</u> [Front End Loader, Comp <u>PRODUCTION</u>	, <u>SAND</u> bactor] Sand Blanket Crew 3 cy per cycle 0.85 % fill 55 min/hr 0.85 cycle/min 1 no. of loaders	200.00 lf/hr
<u>CSI TASK:</u> <u>PLACE BLANKET DRAIN</u> [Front End Loader, Comp <u>PRODUCTION</u>	, <u>SAND</u> bactor] Sand Blanket Crew 3 cy per cycle 0.85 % fill 55 min/hr 0.85 cycle/min 1 no. of loaders	
<u>CSI TASK:</u> <u>PLACE BLANKET DRAIN</u> [Front End Loader, Comp <u>PRODUCTION</u>	, <u>SAND</u> pactor] Sand Blanket Crew 3 cy per cycle 0.85 % fill 55 min/hr 0.85 cycle/min 1 no. of loaders	
<u>CSI TASK:</u> <u>PLACE BLANKET DRAIN</u> [Front End Loader, Comp <u>PRODUCTION</u> <u>CSI TASK:</u>	, <u>SAND</u> bactor] Sand Blanket Crew 3 cy per cycle 0.85 % fill 55 min/hr 0.85 cycle/min 1 no. of loaders	
<u>CSI TASK:</u> <u>PLACE BLANKET DRAIN</u> [Front End Loader, Comp <u>PRODUCTION</u> <u>CSI TASK:</u> <u>EXCAVATE AND LOAD B</u> [3.5-cy hydraul. Excavato	Sand Blanket Crew 3 cy per cycle 0.85 % fill 55 min/hr 0.85 cycle/min 1 no. of loaders CORROW MATERIAL prs]	
<u>CSI TASK:</u> <u>PLACE BLANKET DRAIN</u> [Front End Loader, Comp <u>PRODUCTION</u> <u>CSI TASK:</u> <u>EXCAVATE AND LOAD B</u> [3.5-cy hydraul. Excavato	, <u>SAND</u> bactor] Sand Blanket Crew 3 cy per cycle 0.85 % fill 55 min/hr 0.85 cycle/min 1 no. of loaders	
CSI TASK: PLACE BLANKET DRAIN [Front End Loader, Comp PRODUCTION CSI TASK: EXCAVATE AND LOAD B [3.5-cy hydraul. Excavato PRODUCTION	, <u>SAND</u> bactor] Sand Blanket Crew 3 cy per cycle 0.85 % fill 55 min/hr 0.85 cycle/min 1 no. of loaders CORROW MATERIAL prs] Excavate Canal Crew	
CSI TASK: PLACE BLANKET DRAIN [Front End Loader, Comp PRODUCTION CSI TASK: EXCAVATE AND LOAD B [3.5-cy hydraul. Excavato PRODUCTION	A SAND pactor] Sand Blanket Crew 3 cy per cycle 0.85 % fill 55 min/hr 0.85 cycle/min 1 no. of loaders CORROW MATERIAL Drs] Excavate Canal Crew 3.5 cy per cycle	
CSI TASK: PLACE BLANKET DRAIN [Front End Loader, Comp PRODUCTION CSI TASK: EXCAVATE AND LOAD B [3.5-cy hydraul. Excavato PRODUCTION	A SAND pactor] Sand Blanket Crew 3 cy per cycle 0.85 % fill 55 min/hr 0.85 cycle/min 1 no. of loaders CORROW MATERIAL prs] Excavate Canal Crew 3.5 cy per cycle 0.90 % fill	
CSI TASK: PLACE BLANKET DRAIN [Front End Loader, Comp PRODUCTION CSI TASK: EXCAVATE AND LOAD B [3.5-cy hydraul. Excavato PRODUCTION	A SAND pactor] Sand Blanket Crew 3 cy per cycle 0.85 % fill 55 min/hr 0.85 cycle/min 1 no. of loaders SORROW MATERIAL prs] Excavate Canal Crew 3.5 cy per cycle 0.90 % fill 55 min/hr 1 7 cycle/min	
CSI TASK: PLACE BLANKET DRAIN [Front End Loader, Comp PRODUCTION CSI TASK: EXCAVATE AND LOAD B [3.5-cy hydraul. Excavato PRODUCTION	Sand Blanket Crew 3 cy per cycle 0.85 % fill 55 min/hr 0.85 cycle/min 1 no. of loaders SORROW MATERIAL prs] Excavate Canal Crew 3.5 cy per cycle 0.90 % fill 55 min/hr 1.7 cycle/min 1 no. of loaders	
CSI TASK: PLACE BLANKET DRAIN [Front End Loader, Comp PRODUCTION CSI TASK: EXCAVATE AND LOAD B [3.5-cy hydraul. Excavato PRODUCTION	Sand Blanket Crew 3 cy per cycle 0.85 % fill 55 min/hr 0.85 cycle/min 1 no. of loaders SORROW MATERIAL brs] Excavate Canal Crew 3.5 cy per cycle 0.90 % fill 55 min/hr 1.7 cycle/min 1 no. of loaders	



Lake Okeechobee Component A Reservoir (LOCAR) User Defined Production Rate Calculations SKV SM

JOB NO.: DATE: 10/5/2023

CSI TASK:

HAUL BORROW, TO/FROM STOCKPILE [on-site]

On-Site Haul Crew

PRODUCTION

	31.5 0.95 8.0 1 8.5 4.0	cy truck % fill min. for loading mi. to disposal location mph haul speed min. dump time	
	55 1	min/hr	
	4		
QUANTITY PER TRUCK	29.9	cy/truck	
DURATION OF HAULING	0.47	hr	
		250 cy/	'nr

CSI TASK:

FILL AND COMPACT BORROW FILL, DAM EMBANKMENT [Front End Loader, Compactor]

Fill and Compact Random Fill Crew

PRODUCTION 3 cy bucket 0.85 % fill 55 min/hr 0.93 cycle/min 2 no. of loaders 260 cy/crew hr <u>260 cy/crew hr</u> <u>260 cy/crew hr</u> Sand Blanket Crew

PRODUCTION



280 cy/crew hr

TITLE: SUBJECT: MADE BY:	Lake Okeechobee Component A Reservoir (LOCAR) User Defined Production Rate Calculations SKV	JOB NO.:
CHECKED BY:	SM	DATE: 10/5/2023
<u>CSI TASK:</u>		
<u>MATERIAL SPREADING</u> [Dozer]		
	Material Handling/Push Crew	
PRODUCTION		
	4 cy per trip	
	55 min/hr	
	2 no. of loaders	
		160 cy/crew hr
CSITASK:		
EXCAVATE RIPRAP		
	Riprap Crew	
PRODUCTION		
	4 cy bucket	
	50 min/hr	
	0.30 cycle/min 1 no. of loaders	
		40 cy/crew hr
CSI TASK:		
OUTFALL EXCAVATION		
	Evenueto Conol Crow	
	Excavale Canal Crew	
PRODUCTION	3.5 cy per cycle	
	0.85 % fill 55 min/hr	
	0.5 cycle/min	
		95. ov/orow.hr
CSI TASK:		
SOIL EXCAVATION [3.5-cy hydraul. Excavators]		
	Hydraulic Excavation Crew	
PRODUCTION	25	
	3.5 cy per cycle 0.90 % fill	
	55 min/hr 0.7 cycle/min	
	1 no. of excavators	
	_	120 cy/crew hr

TITLE: SUBJECT: MADE BY: CHECKED BY:	Lake Okeechobee Component A Reservoir (LOCAR) User Defined Production Rate Calculations SKV SM	JOB NO.: DATE: 10/5/2023
CSI TASK:		
PIPE EXCAVATION [3.5-cy hydraul. Excavators]		
	Excavate Canals Crew	
<u>PRODUCTION</u>	3.5 cy per cycle 0.80 % fill 50 min/hr 0.6 cycle/min 1 no. of excavators	
		82 cy/crew hr ►
CSI TASK:		
PUMP STATION EXCAVATION [4-cy hydraul. Excavators]	l	
	Pump Station Excavation Crew	
PRODUCTION	4.0 cy per cycle 0.90 % fill 55 min/hr 0.6 cycle/min 1 no. of excavators	
		119 cy/crew hr
CSI TASK:		
FILL AND COMPACT, COFFEF	RDAM r]	
	Earthen Fill Crew	
PRODUCTION	5.0cy per cycle0.95% fill55min/hr1.1cycle/min1no. of excavators	
		292 cy/crew hr
CSI TASK:		
COFFERDAM EXCAVATION [Hydraul. Excavator]		
	Excavate Canals Crew	
PRODUCTION	3.5 cy per cycle 0.90 % fill 55 min/hr 1.1 cycle/min 1 no. of excavators	
		187 cy/crew hr



Lake Okeechobee Component A Reservoir (LOCAR) User Defined Production Rate Calculations SKV SM

JOB NO.: DATE: 10/5/2023

CSI TASK:

HAUL COFFERDAM MATERIAL TO NEXT SITE [2-mile approx.]

	Off Highway Haul Crew	
PRODUCTION	 41 cy truck 0.95 % fill 8.5 min. for loading 2 mi. to disposal location 15 mph haul speed 4.3 min. dump time 55 min/hr 1 no. of trucks 	
QUANTITY PER TRUCK	39.0 cy/truck	
DURATION OF HAULING	0.52 hr	
		75 cv/br

CSI TASK:

HAUL EXCESS MATERIAL TO RESERVOIR STOCKPILE [5-mile approx.]

Off Highway Haul Crew

PRODUCTION		
	41 cy truck 0.95 % fill 8.5 min. for loading 5 mi. to disposal location 20 mph haul speed 4.3 min. dump time 55 min/hr 1 no. of trucks	
QUANTITY PER TRUCK	39.0 cy/truck	
DURATION OF HAULING	0.78 hr	
		50 cy/hr
CSI TASK:		
MATERIAL SHORT HAUL [1-mile approx.]		
	Off Highway Haul Crew	
PRODUCTION	41 cy truck 0.95 % fill 8.5 min. for loading 1 mi. to disposal location 10 mph haul speed 4.3 min. dump time 55 min/hr 1 no. of trucks	
QUANTITY PER TRUCK	39.0 cy/truck	
DURATION OF HAULING	0.45 hr	
		87 cy/hr

TITLE:	Lake Okeechobee Component A Reservoir (LOCAR	L)
MADE BY:	User Defined Production Rate Calculations	JOB NO.:
CHECKED BY:	SM	DATE: 10/5/2023
COLTACK.		
CSITASK:		
CLEARING AND GRUBBING		
	Clear and Grub Crew	
PRODUCTION		
Robochow	480.0 min/acre	
		0.405
		0.125 acre/hr
CSITASK:		
FILL AND COMPACT, SAND		
[Front End Loader, Compacto	or]	
	Sand Fill Crew	
PRODUCTION		
<u>PRODUCTION</u>	3.0 cy per cycle	
	0.95 % fill	
	55 min/hr 1.6 cycle/min	
	1 no. of excavators	
		250 ov/orow br
	· · · ·	
CSITASK:		
RIPRAP MATERIAL HAULING	FROM OFFSITE	
[16-cy truck, 70-mile haul, 35-	mph avg.]	
	16-cy Truck Crew	
PRODUCTION		
Robochow	16 cy truck	
	0.90 % fill	
	5.0 min. for loading 70 mi, to disposal location	
	35 mph haul speed	
	2.5 min. dump time	
	55 min/hr 1 no. of trucks	
QUANTITY PER TRUCK	14.4 cy/truck	
DURATION OF HAULING	4.50 hr	
		3.2 cy/br
	-	5.2 Cy/m
RIPRAP PLACEMENT		
	Riprap Crew	
PRODUCTION		
	3.0 cy per cycle	
	0.90 % fill	
	0.3 cvcle/min	
	1 no. of excavators	
		37.1 cv/crew.hr
	-	• • • • • •



Lake Okeechobee Component A Reservoir (LOCAR) User Defined Production Rate Calculations SKV SM

JOB NO.: DATE: 10/5/2023

CSI TASK:

SOIL BENTONITE WALL, SPOILS SPREADING [1-mile haul, on-site]

	Spoils Disposal Crew	
PRODUCTION		
	 31.5 cy truck 0.90 % fill 11.0 min. for loading 1 mi. to disposal location 5 mph haul speed 5.5 min. dump time 45 min/hr 4 no. of trucks 	
QUANTITY PER TRUCK	28.4 cy/truck	
DURATION OF HAULING	0.90 hr	
		125 cy/hr ►

ATTACHMENT 3

TENTATIVE PROJECT SCHEDULE

OD Start 4738 01-Jan-25 4738 01-Jan-25 4738 01-Jan-25 1095 01-Jan-25 1095 01-Jan-25 0 01-Jan-25 4738 01-Jan-25 0 03-Jan-27 0 03-Jan-28* 3276 03-Jan-28 0 0 1098 01-Jan-25 109 01-Jan-25 1098 01-Jan-25	Finish 21-Dec-37 21-Dec-37 21-Dec-37 31-Dec-27 21-Dec-37 22-Dec-36 22-Dec-36 21-Dec-37 03-Jan-28 03-Jan-28 03-Jan-28	2025 Q Q Q Q ♦ Start De	2026		2027 QQQQ t	2028 QQQQC Design/P	2029 Q Q Q Q rocurement Pr 1 (AGIs + Fnd Project NTP	2030 QQQQQ nase Prep) Tentativ	2031 QQQQ NTP	20 2 Q Q
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1098 01-Jan-25	03-Jan-28			· ·		Design &	Engineering C	ontract # 5 Re	servoir Dam	Structure
1098 01-Jan-25	03-Jan-28					Design &	Engineering C	ontract # 6 Re	servoir Perim	eter Car
1098 01-Jan-25	03-Jan-28					Design &	Engineering C	ontract # 7 Re	creation Fea	tures
503 04-Jan-27	03-Jan-29				1 1		Pre-Constr	uction Phase		
140 04-Jan-27	22-Jul-27				🚞 Pre	Construction	n Submittals ph	n 1	· • • • • • • • • • • • • • • • • • • •	
110 26-Jan-27	30-Jun-27				Site	Mobilization	ph1			
150 03-Mar-27	01-Oct-27			🗖	s	ite Access a	nd Haul Road	Construction	ph1	
150 03-Jan-28	04-Aug-28					Pi	re-Constructior	Submittals p	h 2	
150 29-Mar-28	30-Oct-28						Site Mobiliza	tion ph 2		
175 21-Apr-28	03-Jan-29						Site Acces	s and Haul Ro	ad Construc	ion ph 2
3864 21-Apr-27	17-Nov-37			1	1 1	1 1 1				
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400 21-Apr-27	24-May-28			1	1 1	Con	struct New AGI	, Improve/ rer	nove existing	AGI
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220 16-May-27	21-Dec-27			·		Constructio	on Offsite Outf	all Structure 1	,2 & 3	
210 16-May-27	11-Dec-27					Constructio	on Offsite Outfa	all Structure 8	through 14	
270 31-May-27	24-Feb-28					Constru	ction of new A	GI-PS-2 Pump	Station	
150 31-May-27	27-Oct-27					Construction	of Offsite OD	A collection dit	ch ODCD-1	
260 15-Jun-27	29-Feb-28					Constru	ction of new A	GI-PS-1 Pum	Station	
120 28-Oct-27	24-Feb-28					Constru	ction of Offsite	ODA collectio	n ditch ODCI	J-2
110 01-Jan-28	19-Apr-28					Modify	existing AGI	R11		
85 01-Jan-28	25-Mar-28					🔲 Demol	ish AGI R12 In	flow Pump St	ation	
65 21-Jan-28	25-Mar-28					🔲 Remov	/e/ Decommiss	sion AGI R2 ir	flow Pump S	ation
60 26-Mar-28	24-May-28					🗖 Prep	are AGI to its o	operation		
260 25-Oct-27	03-Nov-28						Separator Da	am		
260 25-Oct-27	03-Nov-28						Dam Founda	ation		
140 25-Oct-27	16-May-28					Site	Cleaning, Rec	lamation, Leg	acy Pipe Ren	ioval
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Lake Okeechobee Component A Storage	Reservoir (LOCAR)			LOC	CAR Project F	Preliminary S	Schedule									13-	Dec-23 12:58
Activity ID Activity Name		OD Start	Finish	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
									QQQQ	QQQQ	QQQQ	QQQ				2 Q Q Q	
Sep-Dam-26 Foundation Prepara	tion	200 25-Jan-28	03-Nov-28					Foundation Pre	eparation								
East Cell		658 30-Jul-27	15-Mar-30						East Cel								
East Cell - South Side		300 03-Jan-29	15-Mar-30						East Cel	- South Side							
Dam Foundation		300 03-Jan-29	15-Mar-30						Dam Fou	Indation							
EC-South-48 Site Cleaning, Recla	amation, Legacy Pipe Removal	160 03-Jan-29	21-Aug-29					Site	Cleaning, R	eclamation, L	egacy Pipe R	emoval					
EC-South-58 Foundation Prepara	tion	220 27-Apr-29	15-Mar-30						Foundati	on Preparatio	n						
East Cell - East Side		250 30-Jul-27	27-Jul-28				Eas	st Cell - East Sid	de								
Dam Foundation		250 30-Jul-27	27-Jul-28				Dar	m Foundation									
EC-East-35 Site Cleaning, Recla	amation, Legacy Pipe Removal	140 30-Jul-27	22-Feb-28					ining, Reclamat	ion, Legacy I	Pipe Remova							
EC-East-45 Foundation Prepara	tion	190 25-Oct-27	27-Jul-28				For	Indation Prepar	ation				1 1 1 1 1 1 1 1 1				
East Cell North Side		250 08-Jun-28	07-Jun-29					East C	ell North Sid	e							
Dam Foundation		250 08-Jun-28	07-Jun-29				· · · · · · · · · · · · · · · · · · ·	Dam F	oundation		<u>.</u>		· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·	
EC-North-24 Site Cleaning, Reda	amation, Legacy Pipe Removal	140 08-Jun-28	29-Dec-28					Site Cleaning	g, Reclamatio	on, Legacy Pi	pe Removal						
EC-North-34 Foundation Prepara	tion	190 01-Sep-28	07-Jun-29					Found	ation Prepara	ation							
West Cell		325 14-Jul-28	29-Oct-29					γ	Vest Cell								
West Cell - South Side		250 14-Jul-28	13-Jul-29					West	Cell - South	Side							
Dam Foundation		250 14-Jul-28	13-Jul-29					Dam	Foundation		· · · · ·		· · · · · · · · · · · · · · · · · · ·				
WC-South-2 Site Cleaning, Recla	amation, Legacy Pipe Removal	140 14-Jul-28	06-Feb-29					Site Cleanii	ng, Reclama	tion, Legacy I	ipe Removal						
WC-South-3 Foundation Prepara	ition	190 09-Oct-28	13-Jul-29					Foun	dation Prepa	ration							
West Cell - west Side		165 18-Sep-28	16-May-29					West C	ell - west Sid	e							
Dam Foundation		165 18-Sep-28	16-May-29					Dam Fo	oundation								
WC-West-26 Site Cleaning, Recla	amation, Legacy Pipe Removal	110 18-Sep-28	28-Feb-29					Site Clean	ing, Reclama	tion, Legacy	Pipe Remova						
WC-West-36 Foundation Prepara	tion	115 30-Nov-28	16-May-29					Founda	ition Prepara	tion	· · · · · · · · · · · · · · · · · · ·						
West Cell - North Side		240 14-Nov-28	29-Oct-29					V	Vest Cell - No	orth Side							
Dam Foundation		240 14-Nov-28	29-Oct-29)am Foundat	ion							
WC-North-23 Site Cleaning, Recla	amation, Legacy Pipe Removal	115 14-Nov-28	02-May-29					Site Cle	aning, Recla	mation, Lega	y Pipe Remo	val					
WC-North-33 Foundation Prepara	tion	180 13-Feb-29	29-Oct-29						oundation P	eparation							
CONTRACT 2 : S-84 Site		1390 03-Jan-29	18-Jul-34								.		- cc	NTRACT 2 : S	-84 Site		
C2-S84-1 Improve BR2: Existi	ng Bridge Crossing C-41A	280 03-Jan-29	14-Feb-30						Improve E	R2: Existing	Bridge Crossir	ng C-41A					
C2-S84-2 Construct PS-1 Pun	np Station	1200 01-Feb-29	09-Nov-33								4 4 4		Construct P	S-1 Pump Stat	ion		
C2-S84-3 Improve BR3 and 4	: Bridge Crossings at SW Rucks Diary Rd. and F	180 14-Feb-30	30-Oct-30							Improve BR3	and 4: Bridge	Crossings a	t SW Rucks D	iary Rd. and F	ulmer Ter		
C2-S84-4 Construct Spillway S	S-84+	430 22-Mar-30	08-Dec-31								Construct S	hillway S-84+					
C2-S84-5 Improve BR 5 Bridg	e Crossings at Dirt Access Roads	170 30-Oct-30	08-Jul-31							Imp	ove BR 5 Brid	ge Crossing	s at Dirt Acces	sRoads			
C2-S84-6 Improve BR 6 Bridg	e Crossings at Dirt Access Roads	170 02-Dec-30	05-Aug-31							lmı	orove BR 6 Br	idge Crossin	s at Dirt Acce	ss Roads			
C2 S84 7 Domo S 84 & S 84	/	170 02 Dec 00											De	mo S-84 & S-8	34x		
	ve Odačion Olda	150 12-Dec-35	10-5ui-54											CONT	RACT 3 · Re	eservoir Inflov	v Pump Station
C2 PIPS 1 Construct SPS 1 Sc	p Station Site	1592 29-Dec-28	20 Jul 22									nstruct SPS-	1 Seepage Pu	Imp Station			
C3-RIP3-1 Construct SP3-1 Se		900 29-Dec-20	30-Jul-32			·				i i			i beopage i a		uct Reservoi	r PS-2 Pumr	Station
C3-RIPS-2 Construct Reservoir	PS-2 Pump Station	1590 03-Jan-29	04-May-35	-						netruct BP1	Bridge over P	as Inflow/Ou	tflow Canal			i o z rump	Clation
C3-RIPS-3 Construct BR1: Brid	lge over Res. Inflow/Outflow Canal	300 07-Jun-29	16-Aug-30											utflow(CNIL'2)			
C3-RIPS-4 Construct Inflow-Ou	tflow (CNL-2)	450 05-Aug-31	20-May-33														
C3-RIPS-5 Construct Culvert C	U-1B	400 29-Oct-31	06-Jun-33								1 1 1						
C3-RIPS-6 Construct Culvert C	U-1A	450 29-Oct-31	16-Aug-33										onstruct Culve	ert CU-1A			
CONTRACT 4 : Reservoir Earthwork		2975 30-Oct-28	22-Dec-36													CONTRA	CT4:Reservoi
Separator Dam		1026 06-Nov-28	28-Aug-31							Se Se	parator Dam						
Perimeter Dam		705 06-Nov-28	28-Aug-31							P6	rimeter Dam						
Remaining Level of Effort Second Baseline Actual Work Remaining Work Critical Remaining Work	 Milestone Summary 				Pag	e 2 of 6						Janallia	Tech	l Tetra Tech		ALC: NO	





Sep-Dam-3 Embankment Fill + 3 Months Settlement Period Sep-Dam-4 Soil Cement Sep-Dam-5 Wave Wall Sep-Dam-6 SCADA Structures East Cell East Cell - South Side Perimeter Dam EC-South Side Perimeter Canuth EC-South Side Embankment Fill Ph 1 + 3 Months Settlement Period EC-South-10 Embankment Ph 2 + 3 Months Settlement Period EC-South-10 Embankment Ph 2 + 3 Months Settlement Period EC-South-10 Embankment Ph 2 + 3 Months Settlement Period EC-South-10 Ec-South-10 Ec-South-10 Ec-South-10 Ec-South-11 <th>460 190 160 145 0 2042 2000 1700 420 150 480 300 260 145 1291 250 80 270</th> <th>06-Nov-28 09-Sep-30 05-Dec-30 04-Feb-31 30-Oct-28 03-Jan-29 15-Mar-30 31-Jan-31 01-Sep-32 28-Jan-33 04-May-38 14-Aug-38 5 23-May-30 03-Jan-29 03-Jan-29</th> <th>06-Sep-30 11-Jun-31 24-Jul-31 28-Aug-31 22-Dec-36 22-Dec-36 22-Dec-36 16-Dec-30 30-Sep-32 11-Apr-33 27-Dec-34 15-Jul-36 26-Aug-36 22-Dec-36 22-Dec-36</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Q Q</th>	460 190 160 145 0 2042 2000 1700 420 150 480 300 260 145 1291 250 80 270	06-Nov-28 09-Sep-30 05-Dec-30 04-Feb-31 30-Oct-28 03-Jan-29 15-Mar-30 31-Jan-31 01-Sep-32 28-Jan-33 04-May-38 14-Aug-38 5 23-May-30 03-Jan-29 03-Jan-29	06-Sep-30 11-Jun-31 24-Jul-31 28-Aug-31 22-Dec-36 22-Dec-36 22-Dec-36 16-Dec-30 30-Sep-32 11-Apr-33 27-Dec-34 15-Jul-36 26-Aug-36 22-Dec-36 22-Dec-36						Q Q	
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EC-South-13Soil CementEC-South-16Wa ve WallEC-South-17SCADAPerimeter CamatEcc-South-6EC-South-6Excavate Perimeter CanalEC-South-15Erosion Control and final cleanup of Perimeter CanalToe Road & Maintenance RoadEC-South-11Excavate and sub-base Construction of perimeter roadsEC-South-12Shell RockEC-South-14Road marking and clean up.East Cell - East SidePerimeter DamEC-East-7SB wall work pad & Soil Bentonite Wall Ph 1	300 260 145 1291 250 80 270	04-May-38 14-Aug-38 23-May-38 03-Jan-29 03-Jan-29	15-Jul-36 26-Aug-36 22-Dec-36 27-Feb-34 02-Jap-30		I I I I I I I 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
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EC-South-17 SCADA Perimeter Canal EC-South-6 Excavate Perimeter Canal EC-South-15 Erosion Control and final cleanup of Perimeter Canal Toe Road & Maintenance Road EC-South-11 Excavate and sub-base Construction of perimeter roads EC-South-12 Shell Rock EC-South-14 Road marking and clean up. East Cell - East Side Perimeter Dam EC-East-7 SB wall work pad & Soil Bentonite Wall Ph 1	145 1291 250 80 270	23-May-36 03-Jan-29 03-Jan-29	22-Dec-36 27-Feb-34 02- Jan-30							
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EC-South-11 Excavate and sub-base Construction of perimeter roads EC-South-12 Shell Rock EC-South-14 Road marking and clean up. East Cell - East Side Perimeter Dam EC-East-7 SB wall work pad & Soil Bentonite Wall Ph 1		30-Sep-32	27-Oct-33		1 1 1 1 1 1 1 1 1					
EC-South-12 Shell Rock EC-South-14 Road marking and clean up. East Cell - East Side Perimeter Dam EC-East-7 SB wall work pad & Soil Bentonite Wall Ph 1	90	30-Sep-32	11-Feb-33	_						
EC-South-14 Road marking and clean up. East Cell - East Side Perimeter Dam EC-East-7 SB wall work pad & Soil Bentonite Wall Ph 1	110	11-Feb-33	20-Jul-33							
East Cell - East Side Perimeter Dam EC-East-7 SB wall work pad & Soil Bentonite Wall Ph 1	70	20-Jul-33	27-Oct-33							
Perimeter Dam EC-East-7 SB wall work pad & Soil Bentonite Wall Ph 1	900	03-Jan-29	03-Aug-32							
EC-East-7 SB wall work pad & Soil Bentonite Wall Ph 1	900	03-Jan-29	03-Aug-32							
	190	03-Jan-29	03-Oct-29					SB wall work p	ad & Soil Bentonite	
EC-East-8 Embankment Fill Ph 1 + 3 Months Settlement Period	420	27-Apr-29	31-Dec-30						Embankment Hill	
EC-East-11 Soil Bentonite Wall Ph 2	110	16-Oct-30	28-Mar-31						Soil Bentonite	
EC-East-13 Embankment Ph 2 + 3 Months Settlement Period	300	15-Jan-31	26-Mar-32		· · · ·	 		 		
EC-East-15 Soil Cement	190	17-Sep-31	21-Jun-32							
EC-East-16 Wa ve Wall	160	15-Dec-31	03-Aug-32							
EC-East-17 SCADA	145	15-Dec-31	13-Jul-32							
Perimeter Canal	456	03-Jan-29	24-Oct-30						Perimeter Canal	
EC-East-2 Excavate Perimeter Canal	200	03-Jan-29	17-Oct-29			 		Excavate Per	meter Canal	
EC-East-10 Erosion Control and final cleanup of Perimeter Canal	86	24-Jun-30	24-Oct-30						Erosion Control and	
Too Road & Maintenance Road	280	17_Oct_20	02-Dec-30						Toe Road & Maint	
EC-East-9 Excavate and sub-base Construction of perimeter roads	200	17-001-29	02-Dec-30					Excavate	and sub-base Con	
EC East 12 Shall Book	120	01 Mor 20	20 Aug 20	_				SI	nell Rock	
EC-East-12 Shell Rock	120		20-Aug-30			 			Road marking and	
EC-East-14 Road marking and clean up.	70	20-Aug-30	02-Dec-30							
East Cell North Side	1050	30-Oct-28	10-Jan-33							
Formeter Dam	900	07-Jun-29	10-Jan-33					SB wall	work nad & Soil Ben	
EC-North-2 SB wall work pad & Soli Bentonite Wall Ph 1	190	07-Jun-29	13-Iviar-30	_					Embankme	
EC-North-3 Embankment Fill Ph 1 + 3 Months Settlement Period	420	01-Oct-29	05-Jun-31					 		
EC-North-6 Soil Bentonite Wall Ph 2	110	26-Mar-31	29-Aug-31						Soli Ben	
EC-North-7 Embankment Ph 2 + 3 Months Settlement Period	300	19-Jun-31	27-Aug-32		1 1 1 1 1 1 1 1 1					

Remaining Work

Critical Remaining Work

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Excavate	and sub-base	Construction	of perimeter ro	ads	
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Lake Okeechobee Co	omponent A Storage Reservoir (LOCAR)					LOC	AR Project P	reliminary Scl	hedule				
Activity ID	Activity Name	OD Sta	art	Finish		2025	2026	2027	2028	2029	2030	2031	2032
					Q								
EC-North-10) Soil Cement	190 25	-Feb-32	23-Nov-32									
EC-North-13	3 Wave Wall	160 19	-May-32	10-Jan-33									
EC-North-14	SCADA	145 19	-May-32	16-Dec-32									
Perimeter Ca	anal	660 30	-Oct-28	19-Jun-31								Perir	meter Canal
EC-North-4	Excavate Perimeter Canal	300 30	-Oct-28	14-Jan-30							Excavate	Perimeter Car	nal
EC-North-12	2 Erosion Control and final cleanup of Perimeter Canal	110 13	-Jan-31	19-Jun-31								Eros	ion Control an
Toe Road & I	Maintenance Road	270 14	-Jan-30	11-Feb-31								Toe Road	& Maintenan
EC-North-8	Excavate and sub-base Construction of perimeter roads	80 14	-Jan-30	08-May-30							Excav	/ate and sub-b	ase Construct
EC-North-9	Shell Rock	115 08	-May-30	21-Oct-30								Shell Rock	
EC-North-11	Road marking and clean up.	75 21	-Oct-30	11-Feb-31								🗖 Road ma	rking and clea
West Cell		1175 30	-Oct-28	08-Jul-33									
West Cell - So	puth Side	1175 30	-Oct-28	08-Jul-33						1 1 1	1 1 1		1 1 1
Perimeter Da	am	940 13	-Jul-29	13-Apr-33									
WC-South-2	SB wall work pad & Soil Bentonite Wall Ph 1	190 13	-Jul-29	17-Apr-30							SB wa	II work pad & S	Soil Bentonite
WC-South-3	Embankment Fill Ph 1 + 3 Months Settlement Period	420 07	-Jan-30	08-Sep-31								E	mbankment F
WC-South-5	Soil Bentonite Wall Ph 2	110 26	-Jun-31	04-Dec-31									Soil Bentoni
WC-South-6	Embankment Ph 2 + 3 Months Settlement Period	300 22	-Sep-31	02-Dec-32	_								1 1 1
WC-South-9	Soil Cement	190 26	-Mav-32	02-Mar-33									
WC-South-1	Wave Wall	160 20	-Aug-32	13-Apr-33			+ +	$\begin{array}{cccccccccccccccccccccccccccccccccccc$					
WC-South-1	SCADA	145 20	-Aug-32	23-Mar-33									
Perimeter Ca	anal	660 30	-Oct-28	19-lun-31								Perir	meter Canal
WC-South-4	Excavate Perimeter Canal	230 30	-Oct-28	01-Oct-29							xcavate Peri	meter Canal	
WC-South-1	Frosion Control and final cleanup of Perimeter Canal	80 26	-Feb-31	19-Jun-31								Eros	ion Control an
Toe Road & I	Maintenance Road	460 08	-Sen-31	08-10-33									
WC-South-8	Excavate and sub-base Construction of perimeter roads	230 08	-Sep-31	06-Aug-32									Ex
WC-South-1	Shell Rock	210 03	-Mar-32	03-Jan-33									
WC-South-1	Road marking and clean up	130 03	- Jan-33	08-Jul-33									
West Cell - we	nodu maning and obarr ap.	805 30	-Oct-28	20- Jan-32									West Cell
Perimeter Da	am	670 16	-May-29	20-Jan-32									Perimeter
WC-West-5	SB wall work pad & Soil Bentonite Wall Ph 1	115 16	-May-29	29-Oct-29							SB wall work	pad & Soil Bei	ntonite Wall Pl
WC-West-6	Embankment Fill Ph 1 + 3 Months Settlement Period	290 10	-Aua-29	07-Oct-30								Embankment	Fill Ph 1 + 3 M
WC-West-8	Soil Bentonite Wall Ph 2	90 09	-Aua-30	19-Dec-30								Soil Benton	ite Wall Ph 2
WC-West-9	Embankment Ph 2 + 3 Months Settlement Period	300 04	-Nov-30	20-Jan-32									Embankm
WC-West-10	Soil Cement	170 16	-Apr-31	18-Dec-31			· · · · · · · · · · · · · · · · · · ·					+	Soil Cemen
WC_West_12		110 19	- lun-31	25-Nov-31									Wave Wall
WC West 12		05 10	-Jun 31	03 Nov 31									SCADA
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WC-West-7	Excavate Perimeter Canal	230 30	-001-20	01_Oct_29							xcavate Peri	meter Canal	
WC-West-16	S Erosion Control and final cleanup of Perimeter Canal	80 26	-Feb-31	10-lun-31								Eros	ion Control an
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WC-West-11	Excavate and sub-base Construction of perimeter roads	90 07	-001-30	19-Feb-31								Excavate	and sub-base
WC_West 14	1 Shell Rock	110 10	-Feb_31	25-10-31	_							She	ell Rock
WC West 15	5 Road marking and clean up	70.25	- 101 21	03 Nov 21	_								Road marking
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Critical Remaining Work

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Ac	tivity ID	Activity Name	OD	Start	Finish			2025		20	26		202	27		202	8		202	3		2030			2031	T	20:	32	Ī
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	WC-North-2	SB wall work pad & Soll Bentonite vval Ph 1	190	29-00	t-29 02-Aug-30			1 1		1			1 1 1 1	1			1		1				00			Emh		ont Fi	
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	Toe Road & M	laintenance Road	310	01-Au	g-31 25-Oct-32					1			· ·	1		· ·			1										T
	WC-North-7	Excavate and sub-base Construction of perimeter roads	130	01-Au	g-31 10-Feb-32									1					1				÷		- ; L -	T) e
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	WC-North-13	Road marking and clean up.	70	16-Jul	-32 25-Oct-32															-			1						ľ
	CONTRACT 5 : F	Reservoir Dam Structures	1808	16-Ma	ay-29 30-Jul-36					1				-			-		1										
	C5-RDS-1	Construction of Culvert CU-2	700	16-Ma	ay-29 03-Mar-32					1												:	:	:	; ;			onstru	ct
	C5-RDS-2	Construction of Divider Dam Structure (DDS-1)	650	21-Au	g-29 26-Mar-32					: : :			· ·				-				:	:	:]	:				onstr	u¢
	C5-RDS-3	Construction of Culvert CU-1A	700	24-Au	g-29 10-Jun-32								· ·			· · ·				Ļ						F		Con	st
	C5-RDS-4	Construction of Structure OS-1	400	27-De	ec-34 30-Jul-36		1	1 1		1				1			1		1	1	1	1							
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	Perimeter Cana	I Outfall Structures, PCOS-2 through PCOS 4	460	17-De	ec-29 15-Oct-31														1							• Pe	erimet	er Ca	na
	C6-RPCOS-15	Perimeter Canal Outfall Structures, PCOS-2	320	17-De	ec-29 28-Mar-31															ļ					Perin	neter	- Cana	al Out	fa
	C6-RPCOS-17	Perimeter Canal Outfall Structures, PCOS-3	320	01-Ma	ar-30 09-Jun-31					1			· ·										: 1] Pe	rime	ter Ca	anal C	γ
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	C6-RPCOS-4	Offsite Outfall Structures, OOS-3	275	15-Fel	b-29 22-Mar-30	1											1		1	1		Offs	ite O	utfall	Struc	ture:	s, OOS	S-3	
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Lake Okeechobee C	Component A Storage Reservoir (LOCAR)			LOC	CAR Project P	Preliminary Sc	hedule							13-E)ec-23 12:58
Activity ID	Activity Name	OD Start	Finish									2034 Q Q Q Q			
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CONTRACT 7 : CloseOut-1 CloseOut-11 CloseOut-2 CloseOut	Recreation Features Boat Ramp Recreation Facilities Site Access Roads	330 23-Dec-36 280 23-Dec-36 330 23-Dec-36 200 25-Dec-36 242 24-Apr-37	17-Nov-37 28-Sep-37 17-Nov-37 12-Jul-37 21-Dec-37											Site	CONTRACT Boat: Ramp Recreation F Access Road Close-Out
CloseOut-3 CloseOut-4	Demobilization Pre-Final Punch List	180 24-Apr-37 41 20-Oct-37	20-Oct-37 21-Dec-37												Pre-Final Pt

Remaining Level of Effort Milestone	Page 6 of 6	
Second Baseline Summary		
Actual Work		
Remaining Work		
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ATTACHMENT 4

MCACES SUMMARY PRINTOUT

U.S. Army Corps of Engineers Project : LAKE OKEECHOBEE COMPONENT A RESERVOIR (LOCAR) COE Standard Report Selections

Time 10:36:07

Title Page

LAKE OKEECHOBEE COMPONENT A RESERVOIR (LOCAR)

Estimated by	Tetra Tech, Inc.
Designed by	Tetra Tech, Inc.
Prepared by	Tetra Tech, Inc

Preparation Date1/30/2024Effective Date of Pricing1/30/2024Estimated Construction Time3,864 Days

This report is not copyrighted, but the information contained herein is For Official Use Only.

Labor ID: NLS2021

EQ ID: EP22R03

Currency in US dollars

Print Date Tue 30 January 2024 Eff. Date 1/30/2024

U.S. Army Corps of Engineers Project : LAKE OKEECHOBEE COMPONENT A RESERVOIR (LOCAR) COE Standard Report Selections

Bid Item Summary Report Page 1

Description	Quantity	UOM	ContractCost	ProjectCost	CostOverride
Bid Item Summary Report			1,598,598,800	1,598,598,800	
Lake Okeechobee Component A Reservoir	1.00	LS	1,598,598,800	1,598,598,800	
CONTRACT 1 - S-84 Site	1.00	EA	78,058,658.44 78,058,658	78,058,658.44 78,058,658	
01 13 13 - Pumping Plants	1.00	EA	63,587,852.95 63,587,853	63,587,852.95 63,587,853	
01 15 15 - Floodway Control/Diversion Structure	1.00	LS	14,470,805	14,470,805	
CONTRACT 2 - Reservoir Inflow Pump Station Site	1.00	EA	114,306,636.18 114,306,636	114,306,636.18 114,306,636	
02 09 09 - Channels and Canals	1.00	LS	3,234,108	3,234,108	
02 13 13 - Pumping Plants	1.00	EA	95,154,896.75 95,154,897	95,154,896.75 95,154,897	
02 15 15 - Floodway Control/Diversion Structures	1.00	EA	15,917,631.61 15,917,632	15,917,631.61 15,917,632	
CONTRACT 3 - Reservoir Dam Foundation	1.00	EA	170,498,798.47 170,498,798	170,498,798.47 170,498,798	
03 03 03 - Reservoirs	1.00	EA	170,498,798.47 170,498,798	170,498,798.47 170,498,798	
CONTRACT 4 - Reservoir Earthwork	1.00	EA	1,124,691,638.26 1,124,691,638	1,124,691,638.26 1,124,691,638	
04 03 03 - Reservoirs	1.00	EA	1,119,281,879.29 1,119,281,879	1,119,281,879.29 1,119,281,879	
04 11 11 - Levees & Floodwalls	1.00	EA	5,409,758.97 5,409,759	5,409,758.97 5,409,759	
CONTRACT 5 - Reservoir Dam Structures	1.00	EA	76,395,521.08 76,395,521	76,395,521.08 76,395,521	
05 03 03 - Reservoirs	1.00	EA	16,437,413.65 16,437,414	16,437,413.65 16,437,414	
05 15 15 - Floodway Control/Diversion Structures	1.00	EA	59,958,107.43 59,958,107	59,958,107.43 59,958,107	

Print Date Tue 30 January 2024 Eff. Date 1/30/2024

U.S. Army Corps of Engineers Project : LAKE OKEECHOBEE COMPONENT A RESERVOIR (LOCAR) COE Standard Report Selections

Time 10:36:07

Bid Item Summary Report Page 2

Description	Quantity	UOM	ContractCost	ProjectCost	CostOverride
CONTRACT 6 - Reservoir Perimeter Canal & Outfall Canal Structures	1.00	EA	33,221,920.34 33,221,920	33,221,920.34 33,221,920	
06 09 09 - Channels and Canals	1.00	LS	732,209	732,209	
06 13 13 - Pumping Plants	1.00	EA	12,825,976.83 12,825,977	12,825,976.83 12,825,977	
06 15 15 - Floodway Control/Diversion Structures	1.00	EA	19,663,734.20 19,663,734	19,663,734.20 19,663,734	
CONTRACT 7 - Recreation Features	1.00	EA	1,425,627.19 1,425,627	1,425,627.19 1,425,627	
07 14 14 - Recreational Facilities	1.00	EA	1,425,627.19 1,425,627	1,425,627.19 1,425,627	

ATTACHMENT 5

COST AND SCHEDULE RISK ANALYSIS RISK REGISTER

			-		Project Cost			Project Schedule	
CREF	Risk/Opportunity Event	Risk Event Description	PDT Discussions on Impact and Likelihood	Likelihood (cost)	Impact (cost)	Risk Level (cost)	Likelihood (sched)	Impact (sched)	Risk Level (sched)
Project &	Program Management	(PM)							
PM1	Planning process review revisions	This project will require significant review and approvals from USACE and other entities.	The concern is during development of the required documents delays could be encountered post-submission to various parties. Hard dates are set, and current studies are on track to meet dates.	Very Likely	Negligible	Low	Unlikely	Moderate	Low
PM2	Multiple overlapping projects	There are multiple overlapping projects in the region, and accounting for costs and benefits may be overlapping. Overall system needs to work together to provide benefits.	There are numerous projects within the area that may have different purposes and overlapping features. This may cause accounting and authorization issues due to cost share and project purposes. Current schedule is over 13-years to fully complete, and any issues could be somewhat absorbed within current schedule timeline.	Unlikely	Moderate	Low	Likely	Moderate	Medium
РМЗ	PED start date	PED phase start date is undetermined, and could push out current schedules.	Currently estimated to start in beginning of FY25, likely calendar year 2025 start. But start date for design is key to begin construction on current timeline. Provided schedule has already been moved out, and local sponsors are relatively confident of current dates.	Ukely	Moderate	Nedium	Ukely	Moderate	Medium
PM4	Funding Profile	Project implementation is dependent on both the federal and local sponsor being able to meet financial obligation to meet the project.	Equal contributions or cost share from the sponsor and from USACE will be needed for future work. Progress could vary based on actual financial contributions in funding the project. There have been no funding issues on any previous projects in the area. PDT does not think there will be any significant funding concerns as this project is needed for the area north of Lake Okeechobee.	Unlikely	Moderate	Low	Unlikely	Moderate	Low
РМ5	Escalation/Inflation rates	When dealing with large multiple year projects there are concerns for localized inflation above CWCCIS.	The concern was that due to funding restrictions and multiple contracts that inflation in CWCCIS will be outpaced in future years. However, inflation in this region is not anticipated to rise beyond regular inflation levels used in CWCCIS. Potential shocks to the economy could cause different inflation rates. Per recommendation of USACE, inflation is not to be included in this current risk analysis.	Unlikely	Moderate	Low	Unlikely	Moderate	Low
PM6	Late, and/or during construction scope changes/requests from owners	Concern of late, or after award of contract, changes to scope or requests for betterments.	This has occurred on other projects in region, whether from regulation changes, or sponsor requests. But risk is not assumed to be significant impact overall to costs or schedule.	Ukely	Moderate	Medium	Ukeły	Marginal	Medium
Contract	Acquisition (CA)								
CA1	Large project size/multiple projects and contracts	Most likely due to the large size of the project the project will be broken up into separate contracts. Labor availability is a high risk due to size of project.	Coordination and sequencing may change significantly due to acquisition approach. Some thought has been put into contract acquisition into base case estimate. However schedule and cost could change based on actual implementation. Also, large number of crews likely required could max out space available. Availability of contractors to oversee work could be limited as well. Overlapping contracts are currently assumed in cost and schedule.	Ukely	Significant	High	Ukely	Significant	High
CA2	Borrow/placement conflicts with multiple contracts	Concern for scoping of projects to ensure that the backfill and excavation and structure modifications are in the same contract.	Certain features and structures likely require specific coordination for completion. Current estimate and schedule need more work to balance this risk. Borrow sites are currently assumed to run parallel to the placement locations. If contractors have to go further than currently assumed, haud distances could increase which could increase costs to place embankment materials.	Possible	Moderate	Medium	Unlikely	Marginal	Low

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CRE	Risk/Opportunity Event	Risk Event Description	PDT Discussions on Impact and Likelihood	(cost)	(cost)	(cost)	(sched)	(sched)	(sched)
CA3	Underbid project	Risk of contractor underbidding their work and requiring new contractors to take over	This risk has already happened on other reservoir projects in area. Team needs to ensure contractor(s) is properly prepared, with detailed documents (plans, specs) to accurately bid project. Hard to build this risk into estimate/schedules at this time, but is an overall risk to budgeting and scheduling during construction. If project is underbid though, current cost estimate should still be sufficient to cover cost impacts. Likely a schedule risk only. Risk is also mitigated because project scope is broken up between multiple contracts, such that a single contract underbid should not delay the entire project significantly.	Ukeły	Negligible	Low	Ukeły	Marginal	Medium
CA4	Modifications during construction	On-going projects in area have incurred significant modifications to their contracts.	Design changes slow construction and add delay/changes to complete mods, or work through claims. Properly detailed design documents and reports can help mitigate, but this is simply a moderate risk to most construction projects. Most mods seen on other similar projects in region have been due to different site conditions and caused remodeling and redesign efforts.	Likely	Moderate	Medium	likely	Moderate	Medium
CA5	Bid Protest	Protest and contract does not go to low bidder and leads to legal issues	Protests could lead to legal issues that take significant time to resolve. This litigation could delay selection of contractor and notice to proceed on construction contracts. Risk is off-set some by breaking project into separate construction contracts (currently have seven contracts). Schedule impacts are further mitigated using current project float. Cost is not anticipated to be impacted by this risk, beyond potential schedule delays.	Possible	Marginal	Low	Ukely	Moderate	Medium
CA6	Unplanned contractor activities	With multiple contracts underway at same time, working in close proximity, one contractor's unplanned deviation from schedule could have consequences.	Contractors will be coordinating often to coordinate near term work plans to try and plan around this issue. Deviations could have consequences. Risk is relatively small at beginning of project, however conflicts will have higher impacts as project compresses. Overall, this is considered a low risk due to overall scale of costs and current duration in schedule.	Possible	Marginal	Low	Possible	Marginal	Low
Technical	Design (TD) / Project S	Scope Growth							
TD1	Internal water conveyance	Water comes from long distances (Kissimmee) to reach reservoirs.	There is the possibility of different conveyance needs being required as more design work is performed. Project could require additional piping through the proposed location of the perimeter levees, among other activities not currently included in estimate. Design has accounted for many of the anticipated conveyance needs. Also, the C-41 canal is part of a major regional stormwater management system, and so operation of reservoir cannot affect operation of this system. Further review or analysis could change current design assumptions and features used for conveyance.	Possible	Significant	Medium	Possible	Marginal	Low
TD2	Seepage	Seepage from deeper storage can be significant and is based on limited geotechnical data at this time.	Relatively unknown geotechnical data. There is concern that there could be a need for additional work to mitigate seepage impacts based on current cutoff wall designs. Current design and estimate includes an assumed depth of cutoff wall that typically regulates seepage to manageable levels given typical contractor equipment means and methods. Seepage pumps may need to be resized to accommodate variability in flows.	Likely	Moderate	Medium	Ukely	Negligible	Low
TD3	Flood control operations	Isolated area, dam failure is risk for flood control, and Seminole tribe is in the area.	The stormwater management systems of nearby lands are operational and independent of the reservoir once the project is completed. Project is located in FEMA 100-yr floodplain, and current design takes into consideration compensated storage issues that would otherwise adversely impact surrounding land owners. As such, risk to project cost and schedule is considered low at this time.	Unlikely	Marginal	Low	Unlikely	Marginal	Low

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<u>H.</u>				Likelihood	Impact	Risk Level	Likelihood	Impact	Risk Level
CRE	Risk/Opportunity Event	Risk Event Description	PDT Discussions on Impact and Likelihood	(cost)	(cost)	(cost)	(sched)	(sched)	(sched)
TD4	Pump Station Designs	Current pump station designs are based on previous work, and further design changes could occur.	The Engineering appendix does not provided sufficient information to determine detailed design info for some of the proposed pump stations. It is likely that the pump station and design will need additional work to ensure that the pumps are capable of handling the required rates. As long as pump station redesign does impact procurement of long lead items (ex. pumps, motors, etc.), inpact to schedule should be minimal. Current construction of similar sized pump stations should be constructable well within current schedule. Current quantities and costs for the pump station redeside. There is not a significant risk of the pump station or pump station or pump sizing increasing, but if further analysis requires increases, costs could be significantly impacted.	Possible	Significant	Medium	Possible	Marginal	Low
TD5	Global geo tech assumptions	The team used global assumptions for the material strata for entire project although past experience shows that these can vary throughout the region.	Clay layer is relatively thin, so risk of geotech issues is at bottom of cutoff walls, which is a seepage issue. Could significant cost impact if further geotech analysis shows changes to cutoff wall design is required. Additional geotech information will be developed in PED phase, which could lead to changes in dam cross section.	Likely	Significant	High	ükely	Negligible	Low
TD6	Disposal of excess on site material	Currently there is no design for location or technique of onsite disposal of excess material.	Estimate is based on reasonable assumptions for handling of excess material. Currently assumes wasting any excess on-site in borrow pits, or spread across reservoir. Changes in assumptions are not likely to significantly impact current cost or schedule.	Unlikely	Marginal	Low	Possible	Negligible	Low
TD7	System not performing as intended	There is a technical risk that the system may not perform as expected and that some additional work may be required.	Some reformulation, rework or changes may be required due to unforeseen issues. This will need to be monitored to ensure the system performs as intended and changes are efficiently incorporated into the project	Likely	Significant	High	Unlikely	Negligible	Low
TD8	Wave Wall designs	Wave walls have subsequently been removed from the project and replaced with increased embankment heights.	No risk of this, as it has already occurred and has been incorporated into design and cost products.	Unlikely	Negligible	Low	Unlikely	Negligible	Low
TD9	Survey	Detailed topographic survey has not been completed.	Additional survey will be collected in PED phase which may cause changes to dam footprint and/or cross section. This could have significant impacts to cost and schedule.	Possible	Significant	Medium	Possible	Significant	Medium
TD10	Reorientation of divider dam	Potential to change divider dam from north/south to east/west	Would create longer divider dam and could affect dam cross sections. Changes in fetch length could also impact design of dam cross sections. This is an item that has been discussed, but is considered unlikely to occur, but could see significant impacts to costs and schedule.	Unlikely	Significant	Medium	Unlikely	Significant	Medium
TD11	S83 Relocated	S-83 would be relocated if real estate could not be purchased	If this risk occurs, the S-83 would be in a different location. Cost and schedule already account for the construction of this facility, and no significant new features or issues would be anticipated. As such this is an overall low impact to cost and schedule.	Unlikely	Negligible	Low	Unlikely	Negligible	Low
TD12	DCM Changes	DCM, district design standards, other standard changes.	DCM are not likely to change significantly year to year during the PED phase. Other design standards are considered unlikely to change as well. As such, this is a low risk to both cost and schedule.	Unlikely	Negligible	Low	Unlikely	Negligible	Low
TD13	Internal drainage system	Potential for clogged drainage systems, may need redesign	There is an issue with iron ochre on site. Iron ochre can clog drainage systems. There is potential to change perforated drainage pipes currently in design. This is likely more of a maintenance issue long term.	Unlikely	Negligible	Low	Unlikely	Negligible	Low
TD14	Added project features	Other added features to improve operation of project and improve recreation.	Possible changes will occur near the end of the project. But these changes will be smaller changes, and major dam components will be unaffected. As such, this is considered a low risk to cost and schedule.	Unlikely	Negligible	Low	Unlikely	Negligible	Low

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					Project Cost			Project Schedule	
CREF	Risk/Opportunity Event	Risk Event Description	PDT Discussions on Impact and Likelihood	Likelihood (cost)	Impact (cost)	Risk Level (cost)	Likelihood (sched)	Impact (sched)	Risk Level (sched)
TD15	Modifications to stormwater management system including Lykes Bros. site	Adverse conditions could impact surrounding agricultural operations if appropriate stormwater mitigation is not implemented.	Current estimate includes efforts like above ground impoundments and agricultural pump stations for this issue. Other features and systems need to be designed and incorporated. These would include temporary drainage ditches and other features to be used until the permanent components are constructed. Overall costs for these temporary facilities are accounted for in current estimate and changes would be relatively minor compared to overall project cost.	Possible	Moderate	Medium	Possible	Negligible	Low
TD16	Potential switch from electric to diesel power pump stations	Current design assumes pump stations are electric, but change to diesel would increase overall construction and operation costs.	Project is not designed as a stormwater control facility, as such the need for diesel is not typically required. This reduces the risk of costs associated with having to construct and use diesel pumps. If diesel is required, then additional facility features (storage, containment, generators, etc.) would be required. Historically, electric has been used in similar situations, and it is unlikely the diesel will be required.	Unlikely	Moderate	Low	Unlikely	Marginal	Low
TD17	Integrating tower and spillway	Combining overflow spillways with discharge structures.	Current design does not have discharge structures. Design only has spillways which have a higher failure risk. Therefore there is discussion for including additional discharge structures. Even with complete redesign to incorporate discharge structures, cost and schedule impacts are minor.	Very Likely	Marginal	Medium	Very Likely	Negligible	Low
TD18	Use of 1D hydraulic analysis	Potential of future 2D hydraulic model could change design features	There is small risk of 2D model showing the need for perimeter canal and/or conveyance structure modifications. Design engineers do not think this will add significant costs to the project even if necessary changes are implemented.	Unlikely	Marginal	Low	Unlikely	Marginal	Low
TD19	Depth of cut-off wall	Potential increase in depth of cut-off wall.	This risk is accounted for in TD-2 and TD-5. As such this risk is not modeled.	Unlikely	Negligible	Low	Unlikely	Negligible	Low
TD20	Riprap material type (limestone vs. granite)	Changes in riprap material type assumptions would impact cost.	Current estimate assumes using 90% limestone and 10% granite for unit price development. Further analysis could increase the use of granite, which would increase material and hauling costs. It is unlikely that this change would occur, but overall impacts to the total project cost and schedule would be marginal relative to the total costs/schedule.	Possible	Moderate	Medium	Unlikely	Marginal	Low
Lands and	d Damages (LD)								
LD1	Project Area HTRW	There is the possibility that the Farm Land may have HTRW in the area.	There is a small chance that areas will encounter HTRWs and need additional work to ensure that the area is free of hazardous material prior to starting the construction of the reservoir.	Unlikely	Marginal	Low	Very Likely	Negligible	Low
LD2	Land ownership	All of the land is privately owned and negotiations for sale are on-going. Risk of land owner not agreeing to sale.	Some land owners may be holding out for "right price" for their land. Also, other areas may only require 12,500- acres but owner may choose all or nothing approach for selling their property. These risks are critical, but would likely stop the project, as opposed to increase costs or schedule (so risk is not included in model at this time)	Likely	Marginal	Medium	Ukely	Critical	High
Regulator	ry & Environmental (RE	E)							
RE1	Endangered species on levees and construction sites	Endangered species known to be in area- Snakes, Birds, etc.	Normal endangered species clauses should be included in construction contract to include nesting seasons, work windows, and monitoring plans. There is likely room in our current schedule to account for some species impacts, but overal it could be likely with moderate changes to cost/schedule.	Likely	Moderate	Medium	Ukely	Moderate	Medium
RE2	Water quality legal issues project wide	Water quality in system has been challenged before.	It is assumed that this will be resolved and water quality will be acceptable prior to the construction. Legal action or delays could significantly delay the project if this is not resolved the project will not move forward, this issue must be resolved prior to authorization of the project.	Unlikely	Negligible	Low	Unlikely	Critical	Medium

					Project Cost			Project Schedule	
CREF	Risk/Opportunity Event	Risk Event Description	PDT Discussions on Impact and Likelihood	Likelihood (cost)	Impact (cost)	Risk Level (cost)	Likelihood (sched)	Impact (sched)	Risk Level (sched)
RE3	Cultural resources	Due to the nature of the area historical artifacts may be found during excavation.	During excavation there is the possibility of encountering cultural resources. Due to the small qty of top soil and the current usage of the land as agricultural may decrease the likelihood in this area. Although culturally sensitive material has been found in the area previously.	Very Likely	Negligible	Low	Very Likely	Negligible	Low
RE4	Costs for cultural resources	Cultural Resource preservation.	Ensure adequate costs for cultural resource preservation are added to estimate. This is usually accounted for in PED and CM costs already, and as such is a low risk.	Unlikely	Negligible	Low	Unlikely	Negligible	Low
Construct	ion (CO)	-							
CO1	Fuel price	Due to the large quantity of hauling that will take place on the job there is a chance that fuel prices increasing could impact the job.	It is unknown at this time what the future of fuel prices will do. This will be studied and determined what different increases in how fuel prices will effect the job.	Very Likely	Moderate	High	Likely	Negligible	Low
CO2	Cut/fill quantities based on implementation	Cut/Fill quantities could vary from what is currently in estimate.	The concern is that you will need off site borrow or to create an excavation pit to ensure that all features have sufficient material. Additional processing of onsite materials could be needed. This could also change based once contractor is in field. However, previous projects have not seen significant variance in cu/fill, but impacts of different hauling assumptions could have significant impact on cost.	Possible	Significant	Medium	Possible	Negligible	Low
CO3	Storm water management during construction	The concern is that there will be water influx to the area during a storm.	There is the possibility that the water will need to be pumped or allowed to dry. There is concern that during the process of scheduling the work there will be delays that adversely impact the operations of the features. Lessons learned from previous work also showed that rising groundwater and surface water due to storms is a high risk. Significant dewatering costs are included in estimate, but still a high risk due to variability of contractor pricing and current unknowns at site. Contractor should have built into contract sufficient features to build and maintain water management controls.	Likely	Moderate	Medium	Ukely	Moderate	Medium
CO4	Weather impacts and delays	Extended wet weather and/or large storm events could impact the project.	Wet weather, large storms (hurricanes), flooding, and other weather risks are likely to occur during the construction. Contractor will likely prepare for typical weather impacts, but large events could cause significant delays and rework. Features need to be protected from storms, but contractors should have experience to account for reasonable delays in their overall project schedule	Likely	Moderate	Medium	Likely	Moderate	Medium
Cost and	Schedule (ES)								
ES1	Labor Rates	Local wage rate assumptions could vary from assumed and impact the estimate	Generally wage rates are low in the area however skilled workers generally can command higher wages similar to those in other areas. Wage rates in estimate are based on local market research with additional "incentive/subsistence" hourly add-ons.	Likely	Marginal	Medium	Ukely	Negligible	Low
ES2	Estimate assumptions/like similar	Features were estimated using plans from similar structures with minimal design for the LOWRP. The assumption that local like similar features would be adequate to capture the necessary scope to construct the feature.	This concern has been somewhat addressed for this project. A detailed MCACES and BODR level design have been prepared. However, a significant uncertainty exists for procurement, permit and production rates utilized for project planning stage.	Likely	Moderate	Medium	Likely	Marginal	Medium
ES3	Delays in fabrication equipment (supply chain issues)	Due to the number of specialty fabricated gates, pumps and motors, etc., there could be an impact to the project.	When dealing with specialty materials (gates, pumps etc.) there is always concern that the raw materials may not be available. The risk is either that a premium will have to be paid for the material or equipment or a dealy to the delivery schedule of the material or equipment will cause a delay to the project. Primarily, pump fabrication has seen exceedingly tong lead times. The current schedule has sufficient time to request, fabricate and install the pumps. But delays along this timeline could push out schedule and increase costs.	Likely	Significant	High	Ukely	Significant	High

					_	_	_		
					Project Cost			Project Schedule	
CREF	Risk/Opportunity Event	Risk Event Description	PDT Discussions on Impact and Likelihood	Likelihood (cost)	Impact (cost)	Risk Level (cost)	Likelihood (sched)	Impact (sched)	Risk Level (sched)
ES4	Price quotes	Number of quotes received/used and accuracy of quotes used in current estimate.	The current MCACES uses many pricing sources, including recent bids on other reservoir projects in area. Risk that these bids and costs are simply low bids, or underbid, and thus current costs could be low. However, additional markups have been added to many quotes/bids to increase unit prices and ensure reasonable costs have been developed, and some quotes have been replaced with detailed labor, equipment and material developed cost items. Pump costs have been seeing significant price increases over recent years. Current pump pricing is based on vendor quote provided experienced fabricator. But still a high risk to cost and schedule from potential increases to the pumps. Due to the overall cost of primarily the pumps themselves, cost increases to key materials could be significant to the overall project cost.	Possible	Significant	Medium	Unlikely	Negligible	Low
ES5	Productivity assumptions in estimate and schedule	Differing productivities between estimate and contractors in field.	Schedule has been formatted to account for reasonable productivities observed in similar projects in region. Estimate has been updated with same productivities. Project has been prolonged to account for some conservative productivities. As such there is a likelihood of productivities differing but the impact would be moderate.	Possible	Moderate	Medium	Possible	Moderate	Medium
ES6	Concrete material and source	Availability and pricing of concrete materials could differ from those currently assumed.	The current estimate uses concrete pricing from on-going bid prices in the region, which does not necessarily define the source of the concrete (ex. ready-mix plant, batch plant, etc.). Further refinements to the estimating assumptions though could change the source of the concrete, which could have impacts on the cost and schedule. Due to the overall project cost, this is likely to have a marginal impact, and the schedule has sufficient time to account for potential hauling increases from changes to concrete source locations.	Possible	Marginal	Low	Possible	Marginal	Low
External						_			
EX1	Close out of other projects	Project dependencies may require successful and timely completion of predecessor projects.	Prioritization and closeout of other projects could effect the start and funding for this project. These effects could substantially change the project formulation and execution schedule. This risk will be noted but not modeled.	Likely	Marginal	Medium	ükely	Moderate	Medium
EX2	Political or public opposition to project	There are many different agencies, organizations, and stakeholders in the project vicinity that could oppose portions of the project or its impacts real or perceived.	One public meeting held thus far, which received positive attendance and feedback. At this time, this risk is considered low, but should be continually monitored to gauge potential opposition issues. Local interested parties continue to be engaged during the feasibility process, and will continue to be engaged during PED process.	Unlikely	Moderate	Low	Unlikely	Moderate	Low
END									

ATTACHMENT 6

TOTAL PROJECT COST SUMMARY

PROJECT: Lake Okeechobee Component A Reservoir PROJECT NO: P2 xxxxx

LOCATION: Lake Okeechobee, FL

TPCS

This Estimate reflects the scope and schedule in report; LOCAR Feasibility Report

Civil	Civil Works Work Breakdown Structure		ESTIMATE	D COST				PROJE (Consta	CT FIRST COS nt Dollar Basis	Г))			TOTAL F (FUL	PROJECT COS	т
							F	Program Year Effective Pric	(Budget EC): e Level Date:	2024 1 OCT 23					
WBS <u>NUMBER</u> A	Civil Works <u>Feature & Sub-Feature Description</u> B	COST _(\$K) 	CNTG _(\$K)_ D	CNTG _(%) <i>E</i>	TOTAL (\$K) <i>F</i>	ESC (%) G	COST _(\$K) <i>H</i>	CNTG _(\$K)/	TOTAL _ <u>(\$K)</u> 	Spent Thru: 1-Oct-23 <u>(\$K)</u>	TOTAL FIRST COST <u>(\$K)</u> K	INFLATED _(%)_ _L	COST _(\$K)	CNTG (\$K) <i>N</i>	FULL _(\$K) <i>O</i>
03 09 11 13 14 15	RESERVOIRS CHANNELS & CANALS LEVEES & FLOODWALLS PUMPING PLANT RECREATION FACILITIES FLOODWAY CONTROL & DIVERSION STRU	\$1,306,218 \$3,966 \$5,410 \$171,569 \$1,426 \$110,010	\$718,420 \$2,181 \$2,975 \$94,363 \$784 \$60,506	55.0% 55.0% 55.0% 55.0% 55.0%	\$2,024,638 \$6,148 \$8,385 \$265,932 \$2,210 \$170,516	0.0% 0.0% 0.0% 0.0% 0.0%	\$1,306,218 \$3,966 \$5,410 \$171,569 \$1,426 \$110,010	\$718,420 \$2,181 \$2,975 \$94,363 \$784 \$60,506	\$2,024,638 \$6,148 \$8,385 \$265,932 \$2,210 \$170,516	\$0 \$0 \$0 \$0 \$0 \$0	\$2,024,638 \$6,148 \$8,385 \$265,932 \$2,210 \$170,516	24.9% 19.3% 26.1% 17.4% 38.0% 20.3%	\$1,631,796 \$4,734 \$6,822 \$201,411 \$1,967 \$132,309	\$897,488 \$2,603 \$3,752 \$110,776 \$1,082 \$72,770	\$2,529,285 \$7,337 \$10,574 \$312,187 \$3,048 \$205,078
	CONSTRUCTION ESTIMATE TOTALS:	\$1,598,599	\$879,229	_	\$2,477,828	0.0%	\$1,598,599	\$879,229	\$2,477,828	\$0	\$2,477,828	23.8%	\$1,979,039	\$1,088,471	\$3,067,510
01	LANDS AND DAMAGES	\$130,005	\$89,238	68.6%	\$219,243	0.0%	\$130,005	\$89,238	\$219,243	\$0	\$219,243	6.9%	\$138,987	\$95,404	\$234,391
30	PLANNING, ENGINEERING & DESIGN	\$399,650	\$219,807	55.0%	\$619,457	0.0%	\$399,650	\$219,807	\$619,457	\$0	\$619,457	10.1%	\$440,138	\$242,076	\$682,214
31	CONSTRUCTION MANAGEMENT	\$147,071	\$80,889	55.0%	\$227,960	0.0%	\$147,071	\$80,889	\$227,960	\$0	\$227,960	19.8%	\$176,120	\$96,866	\$272,986
	PROJECT COST TOTALS:	\$2,275,325	\$1,269,164	55.8%	\$3,544,488		\$2,275,325	\$1,269,164	\$3,544,488	\$0	\$3,544,488	20.1%	\$2,734,284	\$1,522,817	\$4,257,100

		CHIEF, COST ENGINEERING, xxx
		PROJECT MANAGER, xxx
		CHIEF, REAL ESTATE, xxx
		CHIEF, PLANNING, xxx
		CHIEF, ENGINEERING, xxx
		CHIEF, OPERATIONS, xxx
		CHIEF, CONSTRUCTION, xxx
		CHIEF, CONTRACTING, xxx
		CHIEF, PM-PB, xxxx
		CHIEF, DPM, xxx
Filename: LO	CAR_TPCS_WORKING.xlsx	

ESTIMATED TOTAL PROJECT COST: \$4,257,100

Printed:1/30/2024

PREPARED: 1/8/2024

DISTRICT: Jacksonville District POC: CHIEF, COST ENGINEERING, xxx

**** CONTRACT COST SUMMARY ****

CONTRACT 1

Lake Okeechobee Component A Reservoir PROJECT: LOCATION: Lake Okeechobee, FL

LOCAR Feasibility Report This Estimate reflects the scope and schedule in report;

Civ	il Works Work Breakdown Structure		ESTIMATE	ED COST			PROJECT (Constant I	FIRST COST Dollar Basis)			TOTAL PRO	DJECT COST (FULLY	FUNDED)	
		Estim Effecti	ate Prepared ve Price Leve	:):	7-Jan-24 1-Oct-23	Progra Effect	am Year (Budg tive Price Leve	et EC): I Date:	2024 1 OCT 23					
			F	RISK BASED										
WBS	Civil Works	COST	CNTG	CNTG	TOTAL	ESC	COST	CNTG	TOTAL	Mid-Point	INFLATED	COST	CNTG	FULL
NUMBER	Feature & Sub-Feature Description	<u>(\$K)</u>	<u>(\$K)</u>	<u>(%)</u>	<u>(\$K)</u>	(%)	<u>(\$K)</u>	<u>(\$K)</u>	<u>(\$K)</u>	Date	<u>(%)</u>	<u>(\$K)</u>	<u>(\$K)</u>	<u>(\$K)</u>
A	PHASE 1 or CONTRACT 1	C	D	E	F	G	п	'	3	P	L	IVI	N	0
03	RESERVOIRS	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$
09	CHANNELS & CANALS	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$
11	LEVEES & FLOODWALLS	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$
13	PUMPING PLANT	\$63,588	\$34,973	55.0%	\$98,561	0.0%	\$63,588	\$34,973	\$98,561	2029Q1	13.8%	\$72,366	\$39,801	\$112,16
14	RECREATION FACILITIES	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$
15	FLOODWAY CONTROL & DIVERSION STRU	\$14,471	\$7,959	55.0%	\$22,430	0.0%	\$14,471	\$7,959	\$22,430	2029Q1	13.8%	\$16,468	\$9,058	\$25,52
						_								
	CONSTRUCTION ESTIMATE TOTALS:	\$78,059	\$42,932	55.0%	\$120,991		\$78,059	\$42,932	\$120,991			\$88,834	\$48,859	\$137,69
01	LANDS AND DAMAGES	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$
30	PLANNING, ENGINEERING & DESIGN													
2	.0% Project Management	\$1,561	\$859	55.0%	\$2,420	0.0%	\$1,561	\$859	\$2,420	2026Q2	5.0%	\$1,639	\$902	\$2,54
2	.0% Planning & Environmental Compliance	\$1,561	\$859	55.0%	\$2,420	0.0%	\$1,561	\$859	\$2,420	2026Q2	5.0%	\$1,639	\$902	\$2,54
9	.0% Engineering & Design	\$7,025	\$3,864	55.0%	\$10,889	0.0%	\$7,025	\$3,864	\$10,889	2026Q2	5.0%	\$7,377	\$4,058	\$11,43
2	.0% Reviews, ATRs, IEPRs, VE	\$1,561	\$859	55.0%	\$2,420	0.0%	\$1,561	\$859	\$2,420	2026Q2	5.0%	\$1,639	\$902	\$2,54
2	.0% Life Cycle Updates (cost, schedule, risks)	\$1,561	\$859	55.0%	\$2,420	0.0%	\$1,561	\$859	\$2,420	2026Q2	5.0%	\$1,639	\$902	\$2,54
1	.0% Contracting & Reprographics	\$781	\$429	55.0%	\$1,210	0.0%	\$781	\$429	\$1,210	2026Q2	5.0%	\$820	\$451	\$1,27
4	.0% Engineering During Construction	\$3,122	\$1,717	55.0%	\$4,840	0.0%	\$3,122	\$1,717	\$4,840	2029Q1	11.5%	\$3,481	\$1,915	\$5,39
2	0% Planning During Construction	\$1,561	\$859	55.0%	\$2,420	0.0%	\$1,561	\$859	\$2,420	2029Q1	11.5%	\$1,741	\$957	\$2,69
0	.5% Project Operations	\$390 \$390	\$215 \$215	55.0%	\$605 \$605	0.0%	\$390 \$390	\$215 \$215	\$605 \$605	2029Q1 2026Q2	5.0%	\$433 \$410	\$239 \$225	\$63
31	CONSTRUCTION MANAGEMENT													
7	2% Construction Management	\$5,620	\$3,091	55.0%	\$8,711	0.0%	\$5,620	\$3,091	\$8,711	2029Q1	11.5%	\$6,266	\$3,446	\$9,71
1	.0% Project Operation:	\$781	\$429	55.0%	\$1,210	0.0%	\$781	\$429	\$1,210	2029Q1	11.5%	\$870	\$479	\$1,34
1	.0% Project Management	\$781	\$429	55.0%	\$1,210	0.0%	\$781	\$429	\$1,210	2029Q1	11.5%	\$870	\$479	\$1,34
	CONTRACT COST TOTALS:	\$104,755	\$57,615		\$162,370		\$104,755	\$57,615	\$162,370	1		\$117,663	\$64,715	\$182,37

PREPARED: 1/8/2024

**** CONTRACT COST SUMMARY ****

CONTRACT 2

 PROJECT:
 Lake Okeechobee Component A Reservoir

 LOCATION:
 Lake Okeechobee, FL

 This Estimate reflects the scope and schedule in report;
 LOCAR Feasibility Report

DISTRICT: Jacksonville District POC: CHIEF, COST ENGINEERING, xxx PREPARED: 1/8/2024

Civi	Works Work Breakdown Structure		ESTIMATE	ED COST			PROJECT (Constant I	FIRST COST Dollar Basis)			TOTAL PRO	DJECT COST (FULLY	FUNDED)	
		Estim Effecti	nate Prepared	l: əl:	7-Jan-24 1-Oct-23	Progra Effect	am Year (Budg tive Price Leve	et EC): I Date:	2024 1 OCT 23					
WBS <u>NUMBER</u> A	Civil Works Feature & Sub-Feature Description B	COST _(\$K) C	CNTG (\$K) D	CNTG (%) <i>E</i>	TOTAL _(<u>\$K)</u> <i>F</i>	ESC (%) G	COST _(\$K)	CNTG (\$K) /	TOTAL _ <u>(\$K)_</u> 	Mid-Point <u>Date</u> P	INFLATED (%) 	COST _(\$K) 	CNTG (\$K) N	FULL _(\$K) <i>O</i>
03 09	PHASE 2 or CONTRACT 2 RESERVOIRS CHANNELS & CANALS	\$0 \$3,234	\$0 \$1,779	55.0% 55.0%	\$0 \$5,013	0.0% 0.0%	\$0 \$3,234	\$0 \$1,779	\$0 \$5,013	0 2031Q1	0.0% 19.8%	\$0 \$3,874	\$0 \$2,131	\$ \$6,00
11 13 14	LEVEES & FLOODWALLS PUMPING PLANT RECREATION FACILITIES	\$0 \$95,155 \$0	\$0 \$52,335 \$0	55.0% 55.0% 55.0%	\$0 \$147,490 \$0	0.0% 0.0%	\$0 \$95,155 \$0	\$0 \$52,335 \$0	\$0 \$147,490 \$0	0 2031Q1 0	0.0% 19.8% 0.0%	\$0 \$113,995 \$0	\$0 \$62,697 \$0	\$ \$176,69 \$
15	FLOODWAY CONTROL & DIVERSION STRU	\$15,918	\$8,755	55.0%	\$24,672	0.0%	\$15,918	\$8,755	\$24,672	2031Q1	19.8%	\$19,069	\$10,488	پ \$29,55
	CONSTRUCTION ESTIMATE TOTALS:	\$114,307	\$62,869	55.0%	\$177,175	-	\$114,307	\$62,869	\$177,175			\$136,939	\$75,316	\$212,25
01	LANDS AND DAMAGES	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$
30	PLANNING, ENGINEERING & DESIGN	\$2.296	¢1 057	EE 09/	¢2 544	0.0%	¢0.006	¢1 057	¢2 =11	202702	7.2%	¢0.454	¢1 240	62.00
2.0	Planning & Environmental Compliance	\$2,200	\$1,207 \$1.257	55.0%	\$3,544 \$3,544	0.0%	\$2,200 \$2,286	\$1,237 \$1.257	\$3,544 \$3,544	2027Q2	7.3%	φ2,404 \$2,454	\$1,349 ¢1 340	\$3,60 \$3,60
2.0	% Engineering & Design	\$10 288	\$5,658	55.0%	\$3,544 \$15,946	0.0%	\$10,288	\$5,658	\$15,946	2027 Q2	7.3%	φ2,434 \$11 041	\$6,073	\$3,00
2.0	% Reviews, ATRs, IEPRs, VE	\$2,286	\$1,257	55.0%	\$3.544	0.0%	\$2.286	\$1,257	\$3.544	2027Q2	7.3%	\$2.454	\$1,349	\$3,80
2.0	10% Life Cycle Updates (cost, schedule, risks)	\$2,286	\$1,257	55.0%	\$3,544	0.0%	\$2,286	\$1,257	\$3,544	2027Q2	7.3%	\$2,454	\$1,349	\$3,80
1.0	0% Contracting & Reprographics	\$1,143	\$629	55.0%	\$1,772	0.0%	\$1,143	\$629	\$1,772	2027Q2	7.3%	\$1,227	\$675	\$1,90
4.0	8% Engineering During Construction	\$4,572	\$2,515	55.0%	\$7,087	0.0%	\$4,572	\$2,515	\$7,087	2031Q1	16.5%	\$5,325	\$2,929	\$8,25
2.0	9% Planning During Construction	\$2,286	\$1,257	55.0%	\$3,544	0.0%	\$2,286	\$1,257	\$3,544	2031Q1	16.5%	\$2,662	\$1,464	\$4,12
0.5	5% Adaptive Management & Monitoring	\$572	\$314	55.0%	\$886	0.0%	\$572	\$314	\$886	2031Q1	16.5%	\$666	\$366	\$1,03
0.5	5% Project Operations	\$572	\$314	55.0%	\$886	0.0%	\$572	\$314	\$886	2027Q2	7.3%	\$613	\$337	\$95
31	CONSTRUCTION MANAGEMENT													
7.2	2% Construction Management	\$8,230	\$4,527	55.0%	\$12,757	0.0%	\$8,230	\$4,527	\$12,757	2031Q1	16.5%	\$9,584	\$5,271	\$14,85
1.0 1.0	% Project Operation:% Project Management	\$1,143 \$1,143	\$629 \$629	55.0% 55.0%	\$1,772 \$1,772	0.0% 0.0%	\$1,143 \$1,143	\$629 \$629	\$1,772 \$1,772	2031Q1 2031Q1	16.5% 16.5%	\$1,331 \$1,331	\$732 \$732	\$2,06 \$2,06
	CONTRACT COST TOTALS:	\$153,400	\$84,370		\$237,769	<u> </u>	\$153,400	\$84,370	\$237,769			\$180,533	\$99,293	\$279,82

DISTRICT: Jacksonville District

POC: CHIEF, COST ENGINEERING, xxx

1/8/2024

PREPARED:

**** CONTRACT COST SUMMARY ****

PROJECT: Lake Okeechobee Component A Reservoir LOCATION: Lake Okeechobee, FL

This Estimate reflects the scope and schedule in report; LOCAR Feasibility Report

Civ	il Works Work Breakdown Structure		ESTIMATE	ED COST			PROJECT (Constant	FIRST COST Dollar Basis)			TOTAL PRO	DJECT COST (FULLY	FUNDED)	
		Estim Effecti	ate Prepared	:):	7-Jan-24 1-Oct-23	Progra Effect	am Year (Budg tive Price Leve	et EC): I Date:	2024 1 OCT 23					
WBS <u>NUMBER</u> A	Civil Works <u>Feature & Sub-Feature Description</u> B	COST _(<u>\$K)</u> C	CNTG _(\$K)	CNTG (%) <i>E</i>	TOTAL (\$K)	ESC (%) G	COST _(\$K)	CNTG _(\$K)/ /	TOTAL (\$K)	Mid-Point <u>Date</u> P	INFLATED (%) 	COST (\$K) M	CNTG (\$K) N	FULL _(\$K) <i>O</i>
03	RESERVOIRS	\$170.499	\$93 774	55.0%	\$264 273	0.0%	\$170 499	\$93 774	\$264 273	203002	17 3%	\$200.067	\$110.037	\$310.10
09	CHANNELS & CANALS	\$170, 4 39 \$0	\$00,774 \$0	55.0%	\$0 \$0	0.0%	\$0, , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	\$00,774 \$0	\$0 \$0	0	0.0%	¢200,007 \$0	\$110,037 \$0	\$J10,10
11	LEVEES & FLOODWALLS	\$0 \$0	\$0	55.0%	\$0	0.0%	\$0	\$0 \$0	\$0 \$0	0	0.0%	\$0 \$0	¢0 \$0	\$
13	PUMPING PLANT	\$0 \$0	\$0	55.0%	\$0 \$0	0.0%	\$0	\$0 \$0	\$0	0	0.0%	\$0 \$0	\$0	\$
14	RECREATION FACILITIES	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$
15	FLOODWAY CONTROL & DIVERSION STRU	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$(
	CONSTRUCTION ESTIMATE TOTALS:	\$170,499	\$93,774	55.0%	\$264,273	_	\$170,499	\$93,774	\$264,273			\$200,067	\$110,037	\$310,10
01	LANDS AND DAMAGES	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$
30	PLANNING, ENGINEERING & DESIGN													
2.	0% Project Management	\$3,410	\$1,875	55.0%	\$5,285	0.0%	\$3,410	\$1,875	\$5,285	2027Q1	6.7%	\$3,640	\$2,002	\$5,64
2.	0% Planning & Environmental Compliance	\$3,410	\$1,875	55.0%	\$5,285	0.0%	\$3,410	\$1,875	\$5,285	2027Q1	6.7%	\$3,640	\$2,002	\$5,642
9.	0% Engineering & Design	\$15,345	\$8,440	55.0%	\$23,785	0.0%	\$15,345	\$8,440	\$23,785	2027Q1	6.7%	\$16,380	\$9,009	\$25,389
2.	0% Reviews, ATRs, IEPRs, VE	\$3,410	\$1,875	55.0%	\$5,285	0.0%	\$3,410	\$1,875	\$5,285	2027Q1	6.7%	\$3,640	\$2,002	\$5,642
2.	0% Life Cycle Updates (cost, schedule, risks)	\$3,410	\$1,875	55.0%	\$5,285	0.0%	\$3,410	\$1,875	\$5,285	2027Q1	6.7%	\$3,640	\$2,002	\$5,642
1.	0% Contracting & Reprographics	\$1,705	\$938	55.0%	\$2,643	0.0%	\$1,705	\$938	\$2,643	2027Q1	6.7%	\$1,820	\$1,001	\$2,82
4.	0% Engineering During Construction	\$6,820	\$3,751 ¢1 075	55.0%	\$10,571	0.0%	\$6,820 \$2,410	\$3,751 ¢1 075	\$10,571	2030Q2	14.6%	\$7,813	\$4,297 ¢2,140	\$12,110
2.	5% Adaptive Management & Monitoring	\$3,410	\$1,675 \$460	55.0%	φ0,200 \$1 321	0.0%	\$3,410 \$852	01,075 ¢160	\$0,200 \$1,321	2030Q2	14.0%	\$3,907 \$977	\$2,149 \$537	\$0,053 \$1,514
0.	5% Project Operations	\$852	\$469	55.0%	\$1,321	0.0%	\$852	\$469	\$1,321	2027Q1	6.7%	\$910	\$501	\$1,41
31	CONSTRUCTION MANAGEMENT													
7.	2% Construction Management	\$12,276	\$6,752	55.0%	\$19,028	0.0%	\$12,276	\$6,752	\$19,028	2030Q2	14.6%	\$14,064	\$7,735	\$21,799
1. 1.	O% Project Operation: Project Management	\$1,705 \$1,705	\$938 \$938	55.0% 55.0%	\$2,643 \$2,643	0.0% 0.0%	\$1,705 \$1,705	\$938 \$938	\$2,643 \$2,643	2030Q2 2030Q2	14.6% 14.6%	\$1,953 \$1,953	\$1,074 \$1,074	\$3,028 \$3,028
	CONTRACT COST TOTALS:	\$228,809	\$125,845		\$354,655		\$228,809	\$125,845	\$354,655			\$264,404	\$145,422	\$409,820

CONTRACT 3
**** CONTRACT COST SUMMARY ****

PROJECT: Lake Okeechobee Component A Reservoir LOCATION: Lake Okeechobee, FL This Estimate reflects the scope and schedule in report;

DISTRICT: Jacksonville District POC: CHIEF, COST ENGINEERING, xxx PREPARED: 1/8/2024

(Civil Wo	orks Work Breakdown Structure		ESTIMATE	ED COST			PROJECT (Constant	FIRST COST Dollar Basis)	TOTAL PROJECT COST (FULLY FUNDED)					
			Estimate Prepared: Effective Price Level:			7-Jan-24 1-Oct-23	Program Year (Budget EC): 2024 Effective Price Level Date: 1 OCT 23				FULLY FUNDED PROJECT ESTIMATE					
WBS <u>NUMBE</u> A	R	Civil Works <u>Feature & Sub-Feature Description</u> B PHASE 4 or CONTRACT 4	COST _(\$K) C	CNTG (\$K) D	CNTG (%) <i>E</i>	TOTAL (\$K) <i>F</i>	ESC (%) G	COST _(\$K)	CNTG (\$K) /	TOTAL (\$K)	Mid-Point <u>Date</u> P	INFLATED 	COST <u>(\$K)</u> <i>M</i>	CNTG (\$K) N	FULL _(\$K) <i>O</i>	
03		RESERVOIRS	\$1,119,282	\$615,605	55.0%	\$1,734,887	0.0%	\$1,119,282	\$615,605	\$1,734,887	2033Q1	26.1%	\$1,411,526	\$776,339	\$2,187,86	
09		CHANNELS & CANALS	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$(
11		LEVEES & FLOODWALLS	\$5,410	\$2,975	55.0%	\$8,385	0.0%	\$5,410	\$2,975	\$8,385	2033Q1	26.1%	\$6,822	\$3,752	\$10,574	
13		PUMPING PLANT	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
14		RECREATION FACILITIES	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
15		FLOODWAY CONTROL & DIVERSION STRU	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$(
		CONSTRUCTION ESTIMATE TOTALS:	\$1,124,692	\$618,580	55.0%	\$1,743,272	-	\$1,124,692	\$618,580	\$1,743,272			\$1,418,348	\$780,091	\$2,198,439	
01		LANDS AND DAMAGES	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$(
30		PLANNING, ENGINEERING & DESIGN														
	2.0%	Project Management	\$22,494	\$12,372	55.0%	\$34,865	0.0%	\$22,494	\$12,372	\$34,865	2027Q1	6.7%	\$24,011	\$13,206	\$37,218	
	2.0%	Planning & Environmental Compliance	\$22,494	\$12,372	55.0%	\$34,865	0.0%	\$22,494	\$12,372	\$34,865	2027Q1	6.7%	\$24,011	\$13,206	\$37,218	
	9.0%	Engineering & Design	\$101,222	\$55,672	55.0%	\$156,894	0.0%	\$101,222	\$55,672	\$156,894	2027Q1	6.7%	\$108,051	\$59,428	\$167,479	
	2.0%	Reviews, ATRs, IEPRs, VE	\$22,494	\$12,372	55.0%	\$34,865	0.0%	\$22,494	\$12,372	\$34,865	2027Q1	6.7%	\$24,011	\$13,206	\$37,218	
	2.0%	Life Cycle Updates (cost, schedule, risks)	\$22,494	\$12,372	55.0%	\$34,865	0.0%	\$22,494	\$12,372	\$34,865	2027Q1	6.7%	\$24,011	\$13,206	\$37,21	
	1.0%	Contracting & Reprographics	\$11,247	\$6,186	55.0%	\$17,433	0.0%	\$11,247	\$6,186	\$17,433	2027Q1	6.7%	\$12,006	\$6,603	\$18,60	
	4.0%	Engineering During Construction	\$44,988	\$24,743	55.0%	\$69,731	0.0%	\$44,988	\$24,743	\$69,731	2033Q1	21.6%	\$54,721	\$30,096	\$84,81	
	2.0%	Adaptive Management & Monitoring	\$22,494 \$5,623	\$12,372	55.0%	\$34,600 \$8,716	0.0%	\$22,494 \$5,623	\$12,372	\$34,805 \$8,716	2033Q1	21.0%	\$27,300 \$6,840	\$15,046 ¢3 762	\$42,40	
	0.5%	Project Operations	\$5,623	\$3,093	55.0%	\$8,716	0.0%	\$5,623	\$3,093	\$8,716	2027Q1	6.7%	\$6,003	\$3,302	\$9,30	
31		CONSTRUCTION MANAGEMENT														
	7.2%	Construction Management	\$80,978	\$44,538	55.0%	\$125,516	0.0%	\$80,978	\$44,538	\$125,516	2033Q1	21.6%	\$98,497	\$54,173	\$152,67	
	1.0%	Project Operation:	\$11,247	\$6,186	55.0%	\$17,433	0.0%	\$11,247	\$6,186	\$17,433	2033Q1	21.6%	\$13,680	\$7,524	\$21,20	
	1.0%	Project Management	\$11,247	\$6,186	55.0%	\$17,433	0.0%	\$11,247	\$6,186	\$17,433	2033Q1	21.6%	\$13,680	\$7,524	\$21,20	
		CONTRACT COST TOTALS:	\$1,509,336	\$830,135		\$2,339,471		\$1,509,336	\$830,135	\$2,339,471			\$1,855,231	\$1,020,377	\$2,875,609	

CONTRACT 4

LOCAR Feasibility Report

DISTRICT: Jacksonville District

POC: CHIEF, COST ENGINEERING, xxx

1/8/2024

PREPARED:

**** CONTRACT COST SUMMARY ****

 PROJECT:
 Lake Okeechobee Component A Reservoir

 LOCATION:
 Lake Okeechobee, FL

 This Estimate reflects the scope and schedule in report;

CONTRACT 5

LOCAR Feasibility Report

Civil V	Works Work Breakdown Structure		ESTIMATE	ED COST			PROJECT (Constant I	FIRST COST Dollar Basis)		TOTAL PROJECT COST (FULLY FUNDED)					
		Estimate Prepared: Effective Price Level:		7-Jan-24 1-Oct-23	Program Year (Budget EC): 2024 Effective Price Level Date: 1 OCT 23				FULLY FUNDED PROJECT ESTIMATE						
WBS <u>NUMBER</u> A	Civil Works <u>Feature & Sub-Feature Description</u> B BHASE 5 or CONTRACT 5	COST (\$K) C	CNTG (\$K) D	CNTG _(%) <i>E</i>	TOTAL _(<u>\$K)</u> <i>F</i>	ESC (%) G	COST _(\$K)	CNTG (\$K)/ _/	TOTAL (\$K)	Mid-Point <u>Date</u> P	INFLATED (%) L	COST _(\$K)	CNTG _(\$K)	FULL _(\$K) <i>O</i>	
03 09 11 13 14 15	RESERVOIRS CHANNELS & CANALS LEVEES & FLOODWALLS PUMPING PLANT RECREATION FACILITIES FLOODWAY CONTROL & DIVERSION STRU	\$16,437 \$0 \$0 \$0 \$0 \$59,958	\$9,041 \$0 \$0 \$0 \$0 \$32,977	55.0% 55.0% 55.0% 55.0% 55.0%	\$25,478 \$0 \$0 \$0 \$0 \$92,935	0.0% 0.0% 0.0% 0.0% 0.0%	\$16,437 \$0 \$0 \$0 \$0 \$59,958	\$9,041 \$0 \$0 \$0 \$0 \$32,977	\$25,478 \$0 \$0 \$0 \$0 \$92,935	2032Q1 0 0 0 2032Q1	22.9% 0.0% 0.0% 0.0% 22.9%	\$20,204 \$0 \$0 \$0 \$0 \$73,697	\$11,112 \$0 \$0 \$0 \$0 \$40,533	\$31,316 \$(\$(\$(\$114,230	
01	CONSTRUCTION ESTIMATE TOTALS: LANDS AND DAMAGES	\$76,396 \$0	\$42,018 \$0	55.0%	\$118,413 \$0	- 0.0%	\$76,396 \$0	\$42,018 \$0	\$118,413 \$0	0	0.0%	\$93,901 \$0	\$51,646 \$0	\$145,54 \$	
30 2.0% 2.0% 9.0% 2.0% 1.0% 4.0% 0.5%	PLANNING, ENGINEERING & DESIGN % Project Management % Planning & Environmental Compliance % Engineering & Design % Reviews, ATRs, IEPRs, VE % Life Cycle Updates (cost, schedule, risks) % Contracting & Reprographics % Engineering During Construction % Planning During Construction % Adaptive Management & Monitoring % Project Operations	\$1,528 \$1,528 \$6,876 \$1,528 \$764 \$3,056 \$1,528 \$382 \$382	\$840 \$840 \$3,782 \$840 \$420 \$1,681 \$840 \$210 \$210	55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0%	\$2,368 \$2,368 \$10,657 \$2,368 \$2,368 \$1,184 \$4,737 \$2,368 \$592 \$592	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	\$1,528 \$1,528 \$6,876 \$1,528 \$764 \$3,056 \$1,528 \$382 \$382 \$382	\$840 \$840 \$3,782 \$840 \$420 \$1,681 \$840 \$210 \$210	\$2,368 \$2,368 \$10,657 \$2,368 \$1,184 \$4,737 \$2,368 \$592 \$592	2027Q2 2027Q2 2027Q2 2027Q2 2027Q2 2027Q2 2032Q1 2032Q1 2032Q1 2032Q1 2032Q1	7.3% 7.3% 7.3% 7.3% 7.3% 19.0% 19.0% 19.0% 7.3%	\$1,640 \$1,640 \$7,379 \$1,640 \$820 \$3,637 \$1,818 \$455 \$410	\$902 \$902 \$4,059 \$902 \$451 \$2,000 \$1,000 \$250 \$225	\$2,54: \$2,54: \$11,43: \$2,54: \$1,27: \$5,63: \$2,81! \$70! \$63:	
31 7.2% 1.0%	CONSTRUCTION MANAGEMENT Construction Management Project Operation: Project Management CONTRACT COST TOTAL S:	\$5,500 \$764 \$764 \$102,523	\$3,025 \$420 \$420 \$56,388	55.0% 55.0% 55.0%	\$8,526 \$1,184 \$1,184 \$158,910	0.0% 0.0% 0.0%	\$5,500 \$764 \$764 \$102,523	\$3,025 \$420 \$420 \$56,388	\$8,526 \$1,184 \$1,184 \$158,910	2032Q1 2032Q1 2032Q1	19.0% 19.0% 19.0%	\$6,546 \$909 \$909 \$123,344	\$3,601 \$500 \$500 \$67,839	\$10,14: \$1,40! \$1,40! \$191-18 :	

**** CONTRACT COST SUMMARY ****

 PROJECT:
 Lake Okeechobee Component A Reservoir

 LOCATION:
 Lake Okeechobee, FL

 This Estimate reflects the scope and schedule in report;

LOCAR Feasibility Report

DISTRICT: Jacksonville District POC: CHIEF, COST ENGINEERING, xxx PREPARED: 1/8/2024

Civil V	Vorks Work Breakdown Structure		ESTIMATE	D COST			PROJECT (Constant I	FIRST COST Dollar Basis)		TOTAL PROJECT COST (FULLY FUNDED)					
		Estimate Prepared: Effective Price Level:			7-Jan-24 1-Oct-23	Pi E	rogram Year (E Effective Price	Budget EC): Level Date:	2024 1 OCT 23	FULLY FUNDED PROJECT ESTIMATE					
WBS <u>NUMBER</u> A	Civil Works Feature & Sub-Feature Description B	COST (\$K) C	CNTG (\$K) D	CNTG _(%) <i>E</i>	TOTAL (\$K) <i>F</i>	ESC (%) G	COST <u>(\$K)</u> <i>H</i>	CNTG (\$K) I	TOTAL _ <u>(\$K)</u> 	Mid-Point <u>Date</u> P	INFLATED (%) 	COST _(\$K)	CNTG _(\$K)	FULL _(\$K) <i>O</i>	
03	PHASE 6 or CONTRACT 6	0.2	¢0.	EE 0%	0.2	0.0%	¢O	¢0.	0.2	0	0.0%	0.9	¢0	¢1	
03	RESERVOIRS	\$U	\$U # 100	55.0%	\$U	0.0%	\$U	\$U # 100	\$U	0	0.0%	\$U	\$U	ېد 1 مې	
09	CHANNELS & CANALS	\$732	\$403	55.0%	\$1,135	0.0%	\$732	\$403	\$1,135	2030Q2	17.3%	\$859	\$473	\$1,33	
11	LEVEES & FLOODWALLS	\$0	\$U ©7.054	55.0%	\$0	0.0%	\$0	\$U ©7.054	\$0	0	0.0%	\$U	\$U #0.270	ېد د د د +	
13		\$12,826	\$7,054	55.0%	\$19,880	0.0%	\$12,826	\$7,054	\$19,880	2030Q2	17.3%	\$15,050	\$8,278	\$23,320	
14	RECREATION FACILITIES	\$0 \$19.664	\$0 \$10 815	55.0% 55.0%	\$0 \$30 479	0.0%	\$0 \$19.664	\$0 \$10 815	\$0 \$30 479	203002	0.0%	\$U \$23.074	\$U \$12.691	\$1 \$35.76	
	CONSTRUCTION ESTIMATE TOTALS:	\$33,222	\$18,272	55.0%	\$51,494	-	\$33,222	\$18,272	\$51,494			\$38,983	\$21,441	\$60,424	
01	LANDS AND DAMAGES	\$0	\$0	0.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$(
30	PLANNING, ENGINEERING & DESIGN														
2.0%	6 Project Management	\$664	\$365	55.0%	\$1,030	0.0%	\$664	\$365	\$1,030	2027Q2	7.3%	\$713	\$392	\$1,10	
2.0%	6 Planning & Environmental Compliance	\$664	\$365	55.0%	\$1,030	0.0%	\$664	\$365	\$1,030	2027Q2	7.3%	\$713	\$392	\$1,10	
9.0%	Engineering & Design	\$2,990	\$1,644	55.0%	\$4,634	0.0%	\$2,990	\$1,644	\$4,634	2027Q2	7.3%	\$3,209	\$1,765	\$4,97	
2.0%	6 Reviews, ATRs, IEPRs, VE	\$664	\$365	55.0%	\$1,030	0.0%	\$664	\$365	\$1,030	2027Q2	7.3%	\$713	\$392	\$1,10	
2.0%	Life Cycle Updates (cost, schedule, risks)	\$664	\$365	55.0%	\$1,030	0.0%	\$664	\$365	\$1,030	2027Q2	7.3%	\$713	\$392	\$1,10	
1.0%	G Contracting & Reprographics	\$332	\$183	55.0%	\$515	0.0%	\$332	\$183	\$515	2027Q2	7.3%	\$357	\$196	\$55.	
4.0%	Bengineering During Construction	\$1,329	\$731 \$205	55.0%	\$2,060	0.0%	\$1,329	\$731 \$265	\$2,060 \$1,020	2030Q2	14.0%	\$1,522 \$704	\$637	\$2,30	
2.0%	Adaptive Management & Menitoring	\$004 \$166	დე1 დე1	55.0%	\$1,030 \$257	0.0%	\$004 \$166	დე1 დე1	\$1,030 \$257	2030Q2	14.0%	\$701 \$100	\$419 ¢105	\$1,18 ¢70	
0.5%	6 Project Operations	\$166	\$91	55.0%	\$257 \$257	0.0%	\$166	\$91	\$257	2030Q2 2027Q2	7.3%	\$178	\$98	\$27	
31															
7 2%	Construction Management	\$2 392	\$1.316	55.0%	\$3 708	0.0%	\$2 392	\$1.316	\$3 708	203002	14.6%	\$2 740	\$1,507	\$4 74	
1.0%	Project Operation:	\$332	\$183	55.0%	\$515	0.0%	\$332	\$183	\$515	203002	14.6%	\$2,140 \$281	\$209	φ 1,2 1 ¢ 5 QI	
1.0%	6 Project Management	\$332	\$183	55.0%	\$515	0.0%	\$332	\$183	\$515	2030Q2	14.6%	\$381	\$209	\$59	
	CONTRACT COST TOTALS:	\$44,584	\$24,521		\$69,105	1	\$44,584	\$24,521	\$69,105			\$51,555	\$28,355	\$79,910	

CONTRACT 6

**** CONTRACT COST SUMMARY ****

 PROJECT:
 Lake Okeechobee Component A Reservoir

 LOCATION:
 Lake Okeechobee, FL

 This Estimate reflects the scope and schedule in report;
 LOCAR Feasibility Report

DISTRICT: Jacksonville District POC: CHIEF, COST ENGINEERING, xxx PREPARED: 1/8/2024

Civ	il Works Work Breakdown Structure	ESTIMATED COST					PROJECT (Constant I	FIRST COST Dollar Basis)		TOTAL PROJECT COST (FULLY FUNDED)					
		Estimate Prepared: Effective Price Level:		7-Jan-24 1-Oct-23	Program Year (Budget EC): 2024 Effective Price Level Date: 1 OCT 23				FULLY FUNDED PROJECT ESTIMATE						
WBS <u>NUMBER</u> A	Civil Works Feature & Sub-Feature Description B BHASE 7 or CONTRACT 7	COST (\$K) C	CNTG (\$K) D	CNTG (%) <i>E</i>	TOTAL (\$K) <i>F</i>	ESC (%) G	COST _(\$K)	CNTG (\$K)/ _/	TOTAL (\$K)	Mid-Point <u>Date</u> P	INFLATED (%) 	COST _(\$K)	CNTG _(\$K)	FULL _(\$K) <i>O</i>	
03	RESERVOIRS	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$(
09	CHANNELS & CANALS	\$0 \$0	\$0	55.0%	\$0 \$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0 \$0	\$0	\$C \$(
11	LEVEES & FLOODWALLS	\$0 \$0	\$0	55.0%	\$0 \$0	0.0%	\$0	\$0 \$0	\$0	0	0.0%	\$0 \$0	\$0	\$0	
13	PUMPING PLANT	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
14	RECREATION FACILITIES	\$1,426	\$784	55.0%	\$2.210	0.0%	\$1,426	\$784	\$2.210	2036Q3	38.0%	\$1,967	\$1,082	\$3.048	
15	FLOODWAY CONTROL & DIVERSION STRU	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$C	
	CONSTRUCTION ESTIMATE TOTALS	<u>\$1.426</u>	¢794		\$2 210	_	<u>\$1 426</u>		 \$2.210					¢3.041	
	CONSTRUCTION ESTIMATE TOTALS.	\$1,420	Φ/04	55.0%	\$2,21U		φ1,420	φ <i>1</i> 04	\$2,210			\$1,907	\$1,062	\$ 3, 0 4 0	
01	LANDS AND DAMAGES	\$0	\$0	55.0%	\$0	0.0%	\$0	\$0	\$0	0	0.0%	\$0	\$0	\$0	
30	PLANNING, ENGINEERING & DESIGN														
2	.0% Project Management	\$29	\$16	55.0%	\$44	0.0%	\$29	\$16	\$44	2030Q4	15.8%	\$33	\$18	\$51	
2	.0% Planning & Environmental Compliance	\$29	\$16	55.0%	\$44	0.0%	\$29	\$16	\$44	2030Q4	15.8%	\$33	\$18	\$51	
9	.0% Engineering & Design	\$128	\$71	55.0%	\$199	0.0%	\$128	\$71	\$199	2030Q4	15.8%	\$149	\$82	\$230	
2	.0% Reviews, ATRS, IEPRS, VE	\$29	\$10	55.0%	\$44	0.0%	\$29	\$10	\$44	2030Q4	15.8%	\$33 \$22	\$18	\$5.	
2	Contracting & Reprographics	φ29 ¢14	۵۱¢ ۵۹	55.0%	\$44 ¢22	0.0%	\$∠9 ¢14	¢۵ مارد	ຈຸ44 ¢ວວ	2030Q4	15.8%	დეკე დეკ	\$16 ¢0	\$0. ¢24	
4	0% Engineering During Construction	\$57	\$31	55.0%	\$88	0.0%	\$57	\$31	\$88	2036Q3	31.1%	\$75	φJ \$41	\$116	
2	.0% Planning During Construction	\$29	\$16	55.0%	\$44	0.0%	\$29	\$16	\$44	2036Q3	31.1%	\$37	\$21	\$58	
0	.5% Adaptive Management & Monitoring	\$7	\$4	55.0%	\$11	0.0%	\$7	\$4	\$11	2036Q3	31.1%	\$9	\$5	\$14	
0	.5% Project Operations	\$7	\$4	55.0%	\$11	0.0%	\$7	\$4	\$11	2030Q4	15.8%	\$8	\$5	\$13	
31	CONSTRUCTION MANAGEMENT														
7	Construction Management	\$103	\$56	55.0%	\$159	0.0%	\$103	\$56	\$159	2036Q3	31.1%	\$135	\$/4	\$209	
1	.0% Project Operation: .0% Project Management	\$14 \$14	\$8 \$8	55.0% 55.0%	\$22 \$22	0.0%	\$14 \$14	\$8 \$8	\$22 \$22	2036Q3 2036Q3	31.1% 31.1%	\$19 \$19	\$10 \$10	\$29 \$29	
	CONTRACT COST TOTALS:	\$1,913	\$1,052		\$2,965		\$1,913	\$1,052	\$2,965			\$2,566	\$1,411	\$3,977	

CONTRACT 7

**** CONTRACT COST SUMMARY ****

REAL ESTATE ONLY

 PROJECT:
 Lake Okeechobee Component A Reservoir

 LOCATION:
 Lake Okeechobee, FL

 This Estimate reflects the scope and schedule in report;

LOCAR Feasibility Report

Civil	Works Work Breakdown Structure	ESTIMATED COST					PROJECT (Constant I	FIRST COST Dollar Basis)		TOTAL PROJECT COST (FULLY FUNDED)					
		Estimate Prepared: Effective Price Level:		7-Jan-24 1-Oct-23	P	rogram Year (E Effective Price	Budget EC): Level Date:	2024 1 OCT 23	FULLY FUNDED PROJECT ESTIMATE						
WBS <u>NUMBER</u> A	Civil Works Feature & Sub-Feature Description B	COST (\$K) C	CNTG (\$K) D	CNTG (%) <i>E</i>	TOTAL _(\$K)	ESC (%) G	COST _(\$K)	CNTG _(\$K)/	TOTAL (\$K)	Mid-Point <u>Date</u> <i>P</i>	INFLATED (%) L	COST _(\$K)	CNTG (\$K) N	FULL (\$K) O	
03 09 11 13 14 15	RESERVOIRS CHANNELS & CANALS LEVEES & FLOODWALLS PUMPING PLANT RECREATION FACILITIES FLOODWAY CONTROL & DIVERSION STRU	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	55.0% 55.0% 55.0% 55.0% 55.0%	\$0 \$0 \$0 \$0 \$0 \$0	0.0% 0.0% 0.0% 0.0% 0.0%	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	0 0 0 0 0	0.0% 0.0% 0.0% 0.0% 0.0%	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	
01	CONSTRUCTION ESTIMATE TOTALS: LANDS AND DAMAGES	\$0 \$130,005	\$0 \$89,238	0.0%	0 219,243	- 0.0%	\$0 \$130,005	\$0 \$89,238	\$0 \$219,243	2026Q4	6.9%	\$0 \$138,987	\$0 \$95,404	\$C \$234,391	
30 2.0' 2.0' 2.0' 2.0' 1.0' 4.0' 2.0' 5.5'	PLANNING, ENGINEERING & DESIGN % Project Management % Planning & Environmental Compliance % Engineering & Design % Reviews, ATRs, IEPRs, VE % Life Cycle Updates (cost, schedule, risks) % Contracting & Reprographics % Engineering During Construction % Planning During Construction % Adaptive Management & Monitoring % Project Operations	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0% 55.0%	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 0	0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$	
31 7.2' 1.0' 1.0'	CONSTRUCTION MANAGEMENT Construction Management Project Operation: Project Management	\$0 \$0 \$0	\$0 \$0 \$0	55.0% 55.0% 55.0%	0 0 0 219 243	0.0% 0.0% 0.0%	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0 \$219 243	0 0 0	0.0% 0.0% 0.0%	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$(\$(\$234 3 91	

PREPARED: 1/8/2024

ATTACHMENT 7

DESIGN MATURITY DETERMINATION FOR COST CERTIFICATION

Design Maturity Determination for Cost Certification

Date: P2 Designation/Project Name:

The Chief of Engineering is responsible for the technical content and engineering sufficiency for all engineering products produced by the command. As such, I have performed the Management Control Evaluation per Engineer Regulation (ER) 1110-2-1150, Engineering and Design for Civil Works Projects, Appendix H, Internal Management Control Review Checklist.

The current design Choose an item. require HQ approval (i.e., engineering waivers), requiring a deviation from mandatory requirements and mandatory standards, as defined in ERs, Engineering Manuals, Engineering Technical letters, and Engineering Circulars.

The current hydrology and hydraulics modeling is at ____% design maturity, per reference (h) below.

The current geotechnical data and subsurface investigations are at ____% design maturity, per reference (h) below. Subsurface investigations shall also include investigations of potential borrow and spoil areas.

The current survey data is at ____% design maturity, per reference (h) below.

Other major technical and/or scope assumptions and risks include the following, which will be refined as the design progresses.

The aggregate for all features is _____% design maturity. Therefore, per the CECW-EC memorandum dated 05-June-2023, I certify that the design deliverables used to generate the cost products for this project and the estimate meet the requirements for a Choose an item estimate, as per reference (a) below. Design risks, impacts and remaining efforts are summarized on page 2.

Considering risks and assumptions noted above, along with all other concerns documented in the Risk Register, the Cost and Schedule Risk Analysis has developed a contingency of _____% at the ____% confidence level for the defined project scope.

Chief of Engineering

Printed Name

Lucine Dadian

Signature

Design Maturity Determination for Cost Certification, Remaining Work

If an engineering waiver is required, list the risks and remaining design work needed to mitigate this issue in the current design. Identify remaining effort to complete the design required for 100% design.

Identify remaining effort to complete geotechnical design effort required for 100% design. List the risks and cost and schedule impacts needed to mitigate this issue in the current design.

Identify remaining effort required to complete H&H required for 100% design. List the risks and cost and schedule impacts needed to mitigate this issue in the current design.

Identify remaining effort needed to complete survey data required for 100% design. List the risks and cost and schedule impacts needed to mitigate this issue in the current design.

If the project is anticipated to be executed in parts, provide a design assessment (percent complete) of each part/phase below.

References:

- a. ER 1110-2-1302 Civil Works Cost Engineering
- b. CECW-EC memorandum dated 05-June-2023MFR, Guidance on Cost Engineering Products update for Civil Works Projects in accordance with Engineer Regulation 1110-2-1302 – Civil Works Cost Engineering
- c. ER 1165-2-217 Civil Works Review Policy
- d. ER 1110-2-1150 Engineering and Design for Civil Works Projects
- e. ER 1110-3-12 Quality Management
- f. ER 1110-345-700 Design Analysis, Drawings and Specifications
- g. EM 5-1-11 Project Delivery Business Process (PDBP)
- h. Engineering and Construction Bulletin (ECB) 2023-9 Civil Works Design Milestone Checklists

Design Maturity Determination for Cost Certification – Instructions

Paragraph 1 – Design Date: Use the drop-down menu to populate the date of the design.

Paragraph 1 – Project Information: Enter the P2 Project number and Project name.

Paragraph 3 – Engineering Waivers: Use the drop-down menu to populate this field with either "Does," or "Does not." If an engineering waiver is needed, or anticipated to be needed, provide the specific waiver required for the Project. A waiver is any deviation from current mandatory standards, as indicated.

Paragraph 4 – Hydrology and Hydraulics: Populate this field with the % design maturity.

Paragraph 5 – Geotechnical Information: Populate this field with the % design maturity.

Paragraph 6 – Survey Data: Populate this field with the % design maturity.

Paragraph 7 – Other Technical Assumptions and/or Scope: Enter any other major technical assumptions or scope assumptions here. Only include assumptions that pertain to design. Template discussion fields are provided as a courtesy. Please include additional pages as necessary.

Paragraph 8 – Signature: Print the name and title and provide the signature for the District's Chief of Engineering. This authority cannot be delegated; however, the Deputy Chief of Engineering and Design may sign the form in the absence of the Chief of Engineering. All fillable fields must be populated (use N/A if not applicable) in order for the document to be signed.

Page 2 – Remaining Work: Identify the current baseline design assumptions and the remaining design effort and risks to complete 100% design for the authorized project. If the project is to be broken into parts or phases, provide details on the aggregate design level of each phase and anticipated timeline for completion.

This form is required for all Civil Works projects for initial Cost Certification and Recertification, based on Policy Clarification MFR dated 05 June 2023, *Guidance on Cost Engineering Products update for Civil Works Projects in accordance with Engineer Regulation 1110-2-1302 – Civil Works Cost Engineering.* The Point of Contact for this action is Mr. Mukesh Kumar, Cost Engineering Community of Practice Leader, CECW-EC, Mukesh.Kumar@usace.army.mil. Version 1: 01 October 2023.