Sunshine
Water Control District

REGULAR MEETING AGENDA

December 9, 2020

Sunshine
Water Control District

December 2, 2020

ATTENDEES:
Please identify yourself each time you speak to facilitate accurate transcription of meeting minutes.

Board of Supervisors
Sunshine Water Control District

Dear Board Members:

The Board of Supervisors of the Sunshine Water Control District will hold a Regular Meeting on December 9, 2020, at 6:30 p.m., at La Quinta Inn Coral Springs, 3701 N. University Drive, Coral Springs, Florida 33065. The agenda is as follows:

1. Call to Order
2. Roll Call
3. Pledge of Allegiance
4. Public Comments **[3-Minute Time Limit]** *(Comments should be made from the microphone to ensure recording. Please state your name prior to speaking.)*
5. Administration of Oath of Office to Newly Appointed Board Member, Joe Morera [SEAT 1] *(the following to be provided in a separate package)*
   - A. Guide to Sunshine Amendment and Code of Ethics for Public Officers and Employees
   - B. Membership, Obligations and Responsibilities
   - C. Financial Disclosure Forms
     - I. Form 1: Statement of Financial Interests
     - II. Form 1X: Amendment to Form 1, Statement of Financial Interests
     - III. Form 1F: Final Statement of Financial Interests
   - D. Form 8B – Memorandum of Voting Conflict
6. Consideration of Resolution 2021-01, Designating the Officers of the District and Providing for an Effective Date
7. Presentation: Benefits Plan Renewal for FY2021
8. Acceptance of Unaudited Financial Statements as of October 31, 2020

9. Approval of November 4, 2020 Regular Meeting Minutes

10. Public Comments

11. Supervisors' Communications

12. Staff Reports

A. District Counsel: *Lewis, Longman & Walker, P.A.*

- Discussion: Request for Legal Fee Increase

B. District Engineer: *Craig A. Smith & Associates*

I. Presentation: Monthly Engineer's Report

- Permit Application – CRB Geological & Environmental Services, Inc., on Behalf of Pan American Group - Monitoring Well Abandonment

II. Presentation: Radise International Geotechnical Report for Six Canal Crossings for the West Outfall Canal

C. District Engineering Consultant: *John McKune*

D. District Field Supervisor: *Cory Selchan*

E. District Manager: *Wrathell, Hunt & Associates, LLC*

- NEXT MEETING DATE: January 13, 2021 at 6:30 P.M.
  - QUORUM CHECK

Joe Morera	☐ IN PERSON	☐ PHONE	☐ NO
Daniel Prudhomme	☐ IN PERSON	☐ PHONE	☐ NO
Ivan Ortiz	☐ IN PERSON	☐ PHONE	☐ NO

13. Adjournment

Should you have any questions, please contact me directly at (561) 346-5294.

Sincerely,

Cindy Cerbone

Cindy Cerbone
District Manager

FOR BOARD MEMBERS AND STAFF TO ATTEND BY TELEPHONE
CALL-IN NUMBER: 1-888-354-0094
CONFERENCE ID: 8518503

SUNSHINE
WATER CONTROL DISTRICT

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RESOLUTION 2021-01

A RESOLUTION OF THE BOARD OF SUPERVISORS OF THE SUNSHINE WATER CONTROL DISTRICT DESIGNATING THE OFFICERS OF THE DISTRICT AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the Sunshine Water Control District is a local unit of special-purpose government created and existing pursuant to Chapter 298, Florida Statues, being situated entirely within Broward County, Florida; and

WHEREAS, the Board of Supervisors of the Sunshine Water Control District desires to appoint the below recited persons to the offices specified.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF SUPERVISORS OF THE SUNSHINE WATER CONTROL DISTRICT:

1. **DISTRICT OFFICERS.** The District officers are as follows:

_____ is appointed President

_____ is appointed Vice President

_____ is appointed Secretary

Craig Wrathell is appointed Treasurer

Jeff Pinder is appointed Assistant Treasurer

Craig Wrathell is appointed Assistant Secretary

Cindy Cerbone is appointed Assistant Secretary

Daniel Rom is appointed Assistant Secretary

2. **CONFLICTS:** All Resolutions or parts of Resolutions in conflict herewith are hereby repealed to the extent of such conflict.

3. **EFFECTIVE DATE**: This Resolution shall become effective immediately upon its adoption.

Adopted this 9th day of December, 2020.

ATTEST:	**SUNSHINE WATER CONTROL DISTRICT**
_____	_____
Secretary/Assistant Secretary	President/Vice President, Board of Supervisors

SUNSHINE
WATER CONTROL DISTRICT

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SUNSHINE
WATER CONTROL DISTRICT
FINANCIAL STATEMENTS
UNAUDITED
OCTOBER 31, 2020

SUNSHINE
WATER CONTROL DISTRICT
BALANCE SHEET
GOVERNMENTAL FUNDS
OCTOBER 31, 2020

	General Fund	Debt Service Fund Series 2011	Debt Service Fund Series 2018	Total Governmental Funds
ASSETS				
Centennial Bank	$ 3,258,321	$ -	$ -	$ 3,258,321
Centennial Bank - escrow	80,760	-	-	80,760
Investments				
State Board of Administration				
A Investment account	5,119	-	-	5,119
A Bank maintenance reserve account	2,681	-	-	2,681
A Renewal & replacement reserve account	1,995	-	-	1,995
A Equipment replacement reserve account	210	-	-	210
Centennial Bank - MMA	259,028	-	-	259,028
FineMark Bank - MMA	249,015	-	-	249,015
FineMark Bank - ICS	9,147,749	-	-	9,147,749
Iberia Bank - MMA	5,529	-	-	5,529
Debt service - Wells Fargo	-	61	-	61
Debt service - Regions	-	-	287,432	287,432
Reserve - Wells Fargo	-	83	-	83
Undeposited funds	21,410	-	-	21,410
Due from general fund	-	-	5	5
Total assets	$13,031,817	$ 144	$ 287,437	$ 13,319,398
LIABILITIES				
Liabilities:				
Accounts payable	$ 35,092	$ -	$ -	$ 35,092
Due to debt service	5	-	-	5
Deposits payable/trash bonds	144,500	-	-	144,500
Cost recovery deposits	16,594	-	-	16,594
Pension payable	4,272	-	-	4,272
Total liabilities	200,463	-	-	200,463
FUND BALANCES				
Assigned:				
3 months working capital	1,441,052	-	-	1,441,052
Disaster recovery	3,000,000	-	-	3,000,000
Truck replacement	114,000	-	-	114,000
Restricted for				
Debt service	-	144	287,437	287,581
Unassigned	8,276,302	-	-	8,276,302
Total fund balances	12,831,354	144	287,437	13,118,935
Total liabilities and fund balances	$13,031,817	$ 144	$ 287,437	$ 13,319,398

SUNSHINE
WATER CONTROL DISTRICT
STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES
GENERAL FUND
FOR THE PERIOD ENDED OCTOBER 31, 2020

	Current Month	Year to Date	Adopted Budget	% of Budget
REVENUES				
Assessments	$ 26	$ 26	$ 3,286,254	0%
Interest and miscellaneous	593	593	9,000	7%
Permit review fees	2,450	2,450	4,200	58%
Cost recovery	-	-	17,500	0%
Total revenues	3,069	3,069	3,316,954	0%
EXPENDITURES				
Administrative				
Supervisors	-	-	1,800	0%
Supervisors reimbursement	-	-	7,500	0%
Management/accounting/recording	5,163	5,163	61,960	8%
DSF & CPF accounting	1,206	1,206	14,474	8%
Dissemination fee	83	83	1,000	8%
Arbitrage rebate calculation	-	-	750	0%
Trustee	1,000	1,000	5,000	20%
Audit	-	-	11,200	0%
Legal	-	-	95,000	0%
Human resource services	594	594	7,123	8%
Communication	-	-	7,500	0%
Dues/subscriptions	4,175	4,175	4,500	93%
Rent - operations facility	-	-	45,873	0%
Insurance	22,575	22,575	30,994	73%
Legal advertising	-	-	2,500	0%
Office supplies and expenses	-	-	1,500	0%
Postage	-	-	1,200	0%
Postage-ROW clearing	-	-	500	0%
Printing and binding	117	117	1,400	8%
Website	-	-	3,000	0%
ADA website compliance	-	-	210	0%
Contingencies	-	-	5,000	0%
Total administrative expenses	34,913	34,913	309,984	11%
Field operations				
Salaries and wages	42,725	42,725	438,375	10%
FICA taxes	3,268	3,268	33,536	10%
Special pay	-	-	1,650	0%
Bonus program	-	-	1,000	0%
401a retirement plan	4,213	4,213	43,838	10%
Health insurance	15,999	15,999	278,434	6%
Workers' compensation insurance	11,605	11,605	21,000	55%
Engineering	-	-	75,000	0%
Engineering - capital outlay westchester	-	-	10,000	0%
Engineering - capital outlay ps1 & ps2			201,860	

SUNSHINE
WATER CONTROL DISTRICT
STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES
GENERAL FUND
FOR THE PERIOD ENDED OCTOBER 31, 2020

	Current Month	Year to Date	Adopted Budget	% of Budget
Consulting engineer services	-	-	25,000	0%
Cost recovery	-	-	17,500	0%
Water quality testing	-	-	5,224	0%
Telephone	-	-	1,800	0%
Electric	-	-	85,000	0%
Insurance	51,723	51,723	38,000	136%
Repairs and maintenance				
Canal banks	-	-	20,000	0%
Canal dredging	-	-	50,000	0%
Culvert inspection & cleaning	-	-	100,000	0%
Dumpster service	-	-	13,000	0%
Truck & tractor	-	-	21,000	0%
Other	-	-	21,000	0%
Operating supplies				
Chemicals	-	-	90,000	0%
Fuel	-	-	20,000	0%
Fuel-pump station generator	-	-	35,000	0%
Triploid carp	-	-	19,755	0%
Uniforms	-	-	3,217	0%
Other	-	-	4,000	0%
Permit fees, licenses, schools	-	-	5,000	0%
Capital outlay - westchester	-	-	50,087	0%
Capital outlay - pump station 1 & 2	-	-	3,576,385	0%
Field equipment	-	-	35,000	0%
Pump station telemetry	-	-	40,000	0%
Contingencies	-	-	5,000	0%
Total field operations	129,533	129,533	5,385,661	2%
Other fees and charges				
Tax collector	-	-	34,232	0%
Property appraiser	-	-	34,232	0%
Property tax bills - fire & EMS assessment	-	-	100	0%
Total other fees & charges	-	-	68,564	0%
Total expenditures	164,446	164,446	5,764,209	3%

SUNSHINE
WATER CONTROL DISTRICT
STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES
GENERAL FUND
FOR THE PERIOD ENDED OCTOBER 31, 2020

	Current Month	Year to Date	Adopted Budget	% of Budget
Excess/(deficiency) of revenues over/(under) expenditures	(161,377)	(161,377)	(2,447,255)	
OTHER FINANCING SOURCES/(USES)				
Transfers in - from DSF Series 2018	3	3	408,255	0%
Total other financing sources/(uses)	3	3	408,255	0%
Net increase/(decrease) of fund balance	(161,374)	(161,374)	(2,039,000)	
Fund balance - beginning	12,992,728	12,992,728	9,580,392	
Fund balance - ending				
Assigned:				
3 months working capital	1,441,052	1,441,052	1,441,052	
Disaster recovery	3,000,000	3,000,000	3,000,000	
Truck replacement	114,000	114,000	114,000	
Unassigned	8,276,302	8,276,302	2,986,340	
Total fund balance - ending	$12,831,354	$ 12,831,354	$ 7,541,392	

SUNSHINE
WATER CONTROL DISTRICT
STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES
DEBT SERVICE FUND SERIES 2011
FOR THE PERIOD ENDED OCTOBER 31, 2020

	Current Month	Year To Date
REVENUES	$ -	$ -
Total revenues	-	-
EXPENDITURES	-	-
Total expenditures	-	-
Excess/(deficiency) of revenues over/(under) expenditures	-	-
Fund balances - beginning	144	144
Fund balances - ending	$ 144	$ 144

SUNSHINE
WATER CONTROL DISTRICT
STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES
DEBT SERVICE FUND SERIES 2018
FOR THE PERIOD ENDED OCTOBER 31, 2020

	Current Month	Year To Date	Amended Budget	% of Budget
REVENUES				
Assessment levy: on-roll	$ 7	$ 7	$ 916,037	0%
Interest	1	1	-	N/A
Total revenues	8	8	916,037	0%
EXPENDITURES				
Debt service				
Interest	-	-	531,668	0%
Total debt service	-	-	531,668	0%
Other fees and charges				
Tax collector	-	-	9,542	0%
Property appraiser	-	-	9,542	0%
Total other fees and charges	-	-	19,084	0%
Total expenditures	-	-	550,752	0%
Excess/(deficiency) of revenues over/(under) expenditures	8	8	365,285	0%
OTHER FINANCING SOURCES/(USES)				
Transfers (out) - to GF	(3)	(3)	(408,255)	0%
Total other financing sources/(uses)	(3)	(3)	(408,255)	0%
Net increase/(decrease) in fund balance	5	5	(42,970)	
Fund balances - beginning	287,432	287,432	264,985	
Fund balances - ending	$ 287,437	$ 287,437	$ 222,015	

SUNSHINE
Water Control District
Special Assessment Revenue Improvement Bonds, Series 2018
$11,685,000

Debt Service Schedule

Date	Principal	Coupon	Interest	Total P+I
11/01/2020		-	280,440.00	280,440.00
05/01/2021		4.800%	251,227.50	251,227.50
11/01/2021		-	222,015.00	222,015.00
05/01/2022		4.800%	222,015.00	222,015.00
11/01/2022		-	222,015.00	222,015.00
05/01/2023	430,000.00	4.800%	222,015.00	652,015.00
11/01/2023		-	213,845.00	213,845.00
05/01/2024	450,000.00	4.800%	213,845.00	663,845.00
11/01/2024		-	205,295.00	205,295.00
05/01/2025	465,000.00	4.800%	205,295.00	670,295.00
11/01/2025		-	196,460.00	196,460.00
05/01/2026	480,000.00	4.800%	196,460.00	676,460.00
11/01/2026		-	187,340.00	187,340.00
05/01/2027	500,000.00	4.800%	187,340.00	687,340.00
11/01/2027		-	177,840.00	177,840.00
05/01/2028	520,000.00	4.800%	177,840.00	697,840.00
11/01/2028		-	167,960.00	167,960.00
05/01/2029	540,000.00	4.800%	167,960.00	707,960.00
11/01/2029		-	157,700.00	157,700.00
05/01/2030	560,000.00	4.800%	157,700.00	717,700.00
11/01/2030		-	147,060.00	147,060.00
05/01/2031	580,000.00	4.800%	147,060.00	727,060.00
11/01/2031		-	136,040.00	136,040.00
05/01/2032	600,000.00	4.800%	136,040.00	736,040.00
11/01/2032		-	124,640.00	124,640.00
05/01/2033	625,000.00	4.800%	124,640.00	749,640.00
11/01/2033		-	112,765.00	112,765.00
05/01/2034	650,000.00	4.800%	112,765.00	762,765.00
11/01/2034		-	100,415.00	100,415.00
05/01/2035	675,000.00	4.800%	100,415.00	775,415.00
11/01/2035		-	87,590.00	87,590.00
05/01/2036	695,000.00	4.800%	87,590.00	782,590.00
11/01/2036		-	74,385.00	74,385.00
05/01/2037	730,000.00	4.800%	74,385.00	804,385.00
11/01/2037		-	60,515.00	60,515.00
05/01/2038	750,000.00	4.800%	60,515.00	810,515.00
11/01/2038		-	46,265.00	46,265.00
05/01/2039	780,000.00	4.800%	46,265.00	826,265.00
11/01/2039		-	31,445.00	31,445.00
05/01/2040	810,000.00	4.800%	31,445.00	841,445.00
11/01/2040		-	16,055.00	16,055.00
05/01/2041	845,000.00	4.800%	16,055.00	861,055.00
Total	**$11,685,000.00**	**-**	**$5,906,957.50**	**$17,591,957.50**

SUNSHINE
WATER CONTROL DISTRICT

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MINUTES OF MEETING
SUNSHINE WATER CONTROL DISTRICT

The Board of Supervisors of the Sunshine Water Control District held a Regular Meeting on November 4, 2020, at 6:30 p.m., at La Quinta Inn Coral Springs, 3701 N. University Drive, Coral Springs, Florida 33065

Present were:

Daniel Prudhomme	Vice President
Ivan Ortiz	Secretary

Also present were:

Cindy Cerbone	District Manager
Daniel Rom	Wrathell, Hunt and Associates, LLC (WHA)
Al Malefatto	District Counsel
Orlando Rubio	District Engineer
Steve Smith	District Engineer
Cory Selchan	Field Superintendent

FIRST ORDER OF BUSINESS **Call to Order**

Ms. Cerbone called the meeting to order at 6:33 p.m.

SECOND ORDER OF BUSINESS **Roll Call**

Supervisors Prudhomme and Ortiz were present. Supervisor Morera was not present.

THIRD ORDER OF BUSINESS **Pledge of Allegiance**

All present recited the Pledge of Allegiance.

FOURTH ORDER OF BUSINESS **Public Comments [3-Minute Time Limit]**

There were no public comments.

FIFTH ORDER OF BUSINESS **Discussion/Consideration: Appointment of Candidate to Fill Unexpired Term of Seat 1: *Term Expires March 2021***

Ms. Cerbone recalled that Mr. Morera previously resigned his Seat to be effective November 3, 2020, to run for the City Commission. As Mr. Morera did not prevail in the election, he expressed interest in filling his former seat, which was now vacant. The Board was under no obligation to appoint Mr. Morera and could appoint another individual or defer the decision to the December meeting.

Mr. Prudhomme nominated Mr. Joe Morera to fill Seat 1.

No other nominations were made.

On MOTION by Mr. Ortiz and seconded by Mr. Prudhomme, with all in favor, the appointment of Mr. Morera to fill Seat 1, Term Expires March 2021, was approved.

Mr. Morera would be notified of his appointment to fill the unexpired term of Seat 1 and the Oath of Office would be administered at the December meeting.

SIXTH ORDER OF BUSINESS **Administration of Oath of Office to Newly Appointed Board Member *(the following to be provided in a separate package)***

A. Guide to Sunshine Amendment and Code of Ethics for Public Officers and Employees

B. Membership, Obligations and Responsibilities

C. Financial Disclosure Forms

I. Form 1: Statement of Financial Interests

II. Form 1X: Amendment to Form 1, Statement of Financial Interests

III. Form 1F: Final Statement of Financial Interests

D. Form 8B – Memorandum of Voting Conflict

This item was deferred.

SEVENTH ORDER OF BUSINESS **Consideration of Resolution 2021-01, Electing the Officers of the District and Providing for an Effective Date**

This item was deferred.

EIGHTH ORDER OF BUSINESS **Acceptance of Unaudited Financial Statements as of September 30, 2020**

Ms. Cerbone presented the Unaudited Financial Statements as of September 30, 2020. Asked why the Debt Service Fund Series 2011 balance cannot be closed out, Ms. Cerbone stated those funds are held by a different Trustee than the Series 2018 bonds and, although Staff provided information to the former Trustee to transfer the funds, additional information is needed. The Accounting team was in the process of conveying the additional information.

On MOTION by Mr. Ortiz and seconded by Mr. Prudhomme, with all in favor, the Unaudited Financial Statements as of September 30, 2020, were accepted.

NINTH ORDER OF BUSINESS **Approval of October 14, 2020 Regular Meeting Minutes**

Ms. Cerbone presented the October 14, 2020 Regular Meeting Minutes. Edits submitted to Management by Mr. Malefatto were included in the minutes for signature in the emailed agenda.

On MOTION by Mr. Ortiz and seconded by Mr. Prudhomme, with all in favor, the October 14, 2020 Regular Meeting Minutes, incorporating edits previously submitted to Management, were approved.

TENTH ORDER OF BUSINESS **Public Comments**

There being no public comments, the next item followed.

ELEVENTH ORDER OF BUSINESS Supervisors' Communications

Mr. Prudhomme stated that Mr. Morera is a diligent campaigner and was astonished by the election results.

Mr. Ortiz stated that he was pleased that Mr. Morera would be returning to the Board.

TWELFTH ORDER OF BUSINESS Staff Reports

A. District Counsel: *Lewis, Longman & Walker, P.A.*

There being no report, the next item followed.

B. District Engineer: *Craig A. Smith & Associates*

- **Presentation: Monthly Engineer's Report**

Mr. Rubio gave an update on the Electrical Engineering Services for Pump Stations #1 and #2, permitting and the status of the Geotechnical Services from Radise International.

C. District Engineering Consultant: *John McKune*

There being no report, the next item followed.

D. District Field Supervisor: *Cory Selchan*

Mr. Selchan reported the following:

- Rainfall in the past month was at 12.81"; average October rainfall is 5" to 6".
- There was an enormous rain event on Saturday that caused numerous resident complaints. The Police Department's report that the canal banks overflowed and roads were flooded was unfounded and untrue.
- The pump stations performed very well.
- The generator was repaired.

Discussion ensued regarding the recent rain events, flooding potential, current technology, the drainage systems and canals.

E. District Manager: *Wrathell, Hunt & Associates, LLC*

Ms .Cerbone reported the following:

- She was recently contacted by a property owner and manager of another property in the same area regarding flooding in the Corporate Park and asked if the District had a plan in place to address it.

Discussion ensued regarding ongoing flooding issues in the Corporate Park, the City's engagement of Chen More Associates (CMA) to address stormwater issues and street-related drainage.

- Ms. Cerbone would refer Mr. Argenti to Mr. John Biggie, another property owner in the Corporate Park.
- Ms. Cerbone would present insurance information, on behalf of the agent, at the next meeting. The benefits plan must be reviewed in December for a January 1, 2021 renewal date.

Discussion ensued regarding plans to acknowledge Mr. Selchan's team this holiday season, such as a holiday luncheon, special pay or a gift card and the applicable amount.

On MOTION by Mr. Ortiz and seconded by Mr. Prudhomme, with all in favor, issuing a $50 gift card or special pay to CDD employees, was approved.

- **NEXT MEETING DATE: December 9, 2020 at 6:30 P.M.**
  - **QUORUM CHECK**

The next meeting will be held on December 9, 2020.

THIRTEENTH ORDER OF BUSINESS Adjournment

There being no further business to discuss, the meeting adjourned.

On MOTION by Mr. Ortiz and seconded by Mr. Prudhomme, with all in favor, the meeting adjourned at 7:27 p.m.

[SIGNATURES APPEAR ON THE FOLLOWING PAGE]

_____	_____
Secretary/Assistant Secretary	President/Vice President

SUNSHINE
WATER CONTROL DISTRICT

12A

LEWIS LONGMAN WALKER

Attorneys at Law
llw-law.com
Reply To: West Palm Beach

MEMORANDUM

TO: Sunshine Water Control District Board of Supervisors

FROM: Alfred J. Malefatto, Esquire

COPY: Cindy Cerbone and Daniel Rom

DATE: November 24, 2020

SUBJECT: SWCD Legal Fees

On behalf of our firm, I am respectfully requesting an increase in the hourly rate for legal fees we charge to the Sunshine Water Control District. The attached list shows the incremental hourly rate increases since LLW began representing the District in 2009. We typically charge our governmental and special district clients a reduced standard hourly rate, which is currently $335.00 per hour, and which will be increasing to $345.00 per hour on January 1, 2021. Our hourly rate for Sunshine Water Control District is below that, $300.00. By comparison, my standard hourly rate is $455.00 per hour, increasing to $465.00 per hour on January 1. Accordingly, we request approval of an increase in our hourly rate for our representation of the District to $315.00 per hour beginning January 1. That rate will still be lower than our standard governmental rate by $30.00 per hour, and significantly less than my standard billing rate. I am pleased to point out that our cumulative fees for the fiscal year ending September 30, 2020 were below the budgeted amount ($63,151 actual/$120,000 budgeted). This is largely due to the fact that the IBI litigation settled. The budget for legal fees for the current fiscal year has been lowered, also because the litigation settled, to $95,000. I am confident that, barring any unforeseen circumstances, even with the requested hourly rate increase we will come in at or under budget for the current fiscal year.

In closing, I would like to say it is a pleasure serving as your District Counsel, and I look forward to continuing to do so, regardless of your decision on our request.

JACKSONVILLE
245 Riverside Ave., Suite 510
Jacksonville, Florida 32202
T: 904.353.6410
F: 904.353.7619

ST. PETERSBURG
100 Second Ave., South Suite 501-S
St. Petersburg, Florida 33701
T: 727.245.0820
F: 727.290.4057

TALLAHASSEE
315 South Calhoun St., Suite 830
Tallahassee, Florida 32301
T: 850.222.5702
F: 850.224.9242

TAMPA
301 West Platt St.
Suite 364
Tampa, FL 33606
T: 813.775.2331

WEST PALM BEACH
515 North Flagler Dr., Suite 1500
West Palm Beach, Florida 33401
T: 561.640.0820
F: 561.640.8202

LLW Legal Fees

Please find below the incremental rate increases for Sunshine Water Control District since LLW began representing the District in 2009.

1/1/2009	$250.00
1/1/2010	$250.00
1/1/2011	$260.00
1/1/2012	$265.00
1/1/2013	$275.00
1/1/2014	$275.00
1/1/2015	$285.00
1/1/2016	$295.00
1/1/2017	$295.00
4/1/2018	$300.00

SUNSHINE
WATER CONTROL DISTRICT

12BI

CRAIG A. SMITH & ASSOCIATES
21045 Commercial Trail • Boca Raton, FL 33486
CONSULTING ENGINEERS • SURVEYORS • UTILITY LOCATORS
www.craigasmith.com

December 2, 2020

Board of Supervisors
Sunshine Water Control District
2300 Glades Road, Suite 410W
Boca Raton, Florida 33073

RE: SUNSHINE WATER CONTROL DISTRICT
MONTHLY ENGINEER'S REPORT (MER) (December 9, 2020)
October 28, 2020 – December 2, 2020
CAS PROJECT NO. 15-1826

Dear Board of Supervisors:

Craig A. Smith & Associates, Inc. (CAS) is pleased to provide you with the MER summarizing activity performed by this office on behalf of SWCD during the referenced period including future work. Anything of significance occurring after this writing will be brought up at the December 9, 2020 BOS meeting.

Electrical Engineering Services for Pump Station 1 and Pump Station 2

A progress meeting was held on 11.10.2020 with pertinent SWCD team members regarding the design and direction of the electrical repairs at both pump stations. A summary of the meeting minutes is provided as follows:

1. Currently and due to October/November severe weather conditions, SWCD has been manually operating pumps on a rotational basis instead of 4 pumps running at the same time at each station due to power issues.
2. Auto transformers will be used at both stations in lieu of solid state soft starters.
3. SEC will pick up shop drawings from previous contractor from CAS' office within the week (completed week of 11.26.2020).
4. Supervisory control and data acquisition (SCADA) will be reconnected at this time and a SWCD system wide SCADA system will be visited in the future as a separate project.
5. Single large generators will be used with portable generator connections.
6. Fuel tank sizing is to be based on 1 week run time and maintenance requirements on this item is to be provided.
7. Climate control is not required for the electrical equipment
8. The purchasing large items (generators & motors) was discussed. For tax saving purposes, SWCD will purchase these items via the use of a publicly awarded contract for similar items or after the construction bid is awarded, directly purchase said items from vendor and pay the contractor net difference to install these items.
9. Soil conditions are to be made suitable for proposed generators.

10. Tentative project schedule will be updated by the end of the week for SEC related items.

11. CAS to finalize pump motor size recommendation at PS2; SEC will develop plans for 300 HP motor tentatively.

12. Discussion ensued after SEC-Larry left the meeting about having Larry attend a board meeting to provide a project update; considering January 2021 board meeting.

13. Flow Optimizers is to be contacted on status of the Vortex Suppression Cones by CAS (completed via email from Flow Optimizers – Delivery to occur near or on 12.7.2020).

Permitting

- SWCD Permit recommendation is made for the abandonment of two monitoring wells at Canal "MM" north of Sample Road.

- CAS received a communication from Chen Moore & Associates (CMA), consultants for the City of Coral Springs, regarding drainage improvements within the private drainage easements of the Corporate Park inquiring about ROW permitting. CMA was told work in or adjacent to a SWCD ROW will require permitting.

Geotechnical Services status from Radise International & West Outfall Canal (WOFC)

A progress meeting was held on 11.24.2020 with pertinent SWCD team members regarding the status of the pending report and its content; construction methods/approach and construction costs. As previously discussed, Radise International (RI) will present its findings to the December 9, 2020 BOS meeting. Additional slope stability analysis were performed with a pump-down elevation of 3 ft-NGVD following the discussions in the progress meeting.

As a point of reference, the following table is provided which shows the alternatives RI evaluated with their associated costs for the Coral Spring Drive Bridge.

No.	Description	Construction Cost ($)	OH, Markup &Profit ($)	Subtotal ($)	Contingency ($)	Total Estimate ($)
			(26%)		(20%)	
3.3.6.a	Lag Board Shoring	$ 1,391,251	$ 361,725	$ 1,752,977	$ 350,595	$ 2,103,572
3.3.6.b	Exterior Retaining Wall (ERW)	$ 2,164,131	$ 562,674	$ 2,726,806	$ 545,361	$ 3,272,167
3.3.6.c	Bridge Deck Removal (BDR)	$3,096,615	$805,120	$3,901,734	$780,347	$4,682,081
3.3.6.d	Design/Build	TBD	TBD	TBD	TBD	TBD

The RI report for the Coral Springs Drive Bridge is attached and the remaining 5 canal crossings will be submitted on or before 12.9.2020.

The next recommended WOFC phase to be targeted is Phase 2. The limits of Phase 2 lie between PS2 and just north of Riverside Drive. In addition to the canal modification within these limits, work in this phase is to involve work under Riverside Dr., the necessary structural engineering to lower PS2 concrete intake area and the addition of the recommended triplex cross bar system in the intake area to address vortexing at the surface of the water. Note that survey of this canal phase has been performed and removal of encroachments have been addressed. Design and permitting can occur in this current fiscal year with construction to commence in the dry season of 2022.

We continue to look forward to working with the SWCD staff on current and future important projects. Should there be any questions, I can be reached at the letterhead numbers shown or by electronic mail at orubio@craigasmith.com.

Sincerely,

CRAIG A. SMITH & ASSOCIATES

Orlando A. Rubio, PE
Sr. Supervising Engineer

Enclosures: ROW Permit Recommendations (1)

cc: **SWCD -** Cory Selchan, John McKune, PE (via e-mail)
WHA - Cindy Cerbone, Debbie Tudor, Daphne Gillyard, Daniel Rom (via e-mail)
CAS - Steve C. Smith, PE, (via e-mail)

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December 2, 2020

Craig A. Smith & Associates
21045 Commercial Trail
Boca Raton, FL 33486

Attn: Orlando A. Rubio, P.E.
Direct Phone: 561-314-4445, Ext. 203
Cell Phone: 954-815-5911
E-mail: ORubio@craigasmith.com

RE: Geotechnical Engineering Services Report – Phase 2
Coral Springs Drive Bridge Evaluation
Sunshine Water Control District
West Outfall Canal Improvements - Bridges
Broward County, Florida
RADISE Project No: 191007

Dear Mr. Rubio,

RADISE International, LC (RADISE) is pleased to submit this Geotechnical Engineering Services Report Phase 2 for the above referenced project. RADISE has completed these services in general accordance with our proposal dated August 28, 2019.

This report provides our geotechnical recommendations relative to the Coral Springs Drive bridge structure.

We appreciate the opportunity to work with you on this project. Should you have any questions regarding the report, or if we can be of further assistance as this project develops, please contact us at (561) 841-0103.

Sincerely,

RADISE International, LC
Florida Certificate of Authorization No.8901

Andrew Nixon, P.E.
Operations Manager
Florida Registration No. 71458

Thomas Mullin, P.E.
Chief Geotechnical Engineer
Florida Registration No. 43366

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1.0 INTRODUCTION

This report has been prepared to aid in the evaluation and the design of the West Outfall Canal Improvements project, for the Sunshine Water Control District West Outfall Canal located in Coral Springs, Broward County, Florida. The project site is located at the general location shown on the attached *Vicinity Map*, Sheet 1. This report addresses the reported highest priority bridge crossing at Coral Springs Drive.

A subsurface exploration program and laboratory testing program was completed for the bridges associated with the West Outfall Canal Improvements project, and the results were presented in the Geotechnical Engineering Services Report – Phase 1, dated December 13, 2019. That report includes relevant geotechnical exploration data, subsurface groundwater information and laboratory data.

The primary purpose of the Phase 2 engineering review as described herein, is to review the existing site conditions and recent construction improvements relative to the need to implement any future construction modifications to the bridge structure canal area.

The assessments and recommendations presented in this report are based upon our interpretation of the subsurface information revealed by the test borings as well as prior construction improvements and as-built conditions thereof already affected at the bridge crossing.

2.0 PROJECT DESCRIPTION

The project is in the City of Coral Springs, Florida. It is our understanding that it is proposed to widen the West Outfall Canal approximately 1.4 miles southward to the existing pump station structure located south of Riverside Drive. Existing canal cross section widening improvements have been designed and partially completed to the Cypress Park vehicular bridge. However, the canal intersects four (4) vehicular bridges, one (1) pedestrian bridge structure and one (1) utility pipe canal crossing along the proposed project alignment. All these structures have narrower canal sections beneath the crossings which are anticipated to intermittently constrict conveyance at the crossings to varying degrees. RADISE was sub-contracted to provide geotechnical engineering and preliminary concept design services to investigate, review, address and accommodate potential canal improvements to be potentially implemented under the following existing crossings:

- **Coral Springs Drive Vehicular Bridge** – Four lane divided roadway, prestressed concrete pile supported bridges (2) with rip-rap slope protection.

- Cypress Park Vehicular Bridge – Two lane, prestressed concrete pile supported bridge with rip-rap slope protection.

- Cypress Park Pedestrian Bridge – Pedestrian sidewalk bridge, believed to belikely supported on shallow foundations. Abutment foundations protected by a concrete headwall.

- Cypress Park Aerial Utility Crossing – Aerial pipeline crossing, middle bent supported by prestressed concrete piles, end bents either supported on shallow foundations or prestressed concrete piles. No slope protection on canal banks.

- Atlantic Boulevard Vehicular Bridge – Six lane divided roadway, prestressed concrete pile supported bridge with gravity walls and concrete covered slopes. Additional canal spanning arched pipe crossing.

- Riverside Vehicular Bridge – Two lane, prestressed concrete pile supported bridge with gravity walls and concrete covered canal slopes.

This report addresses the upstream **Coral Springs Drive Bridge** crossing, which is located approximately 1.4 miles north and is the farthest upstream from the existing pump station structure located south of Riverside Drive.

3.0 PROJECT OVERVIEW

3.1 Bridge Description and Overview

As can be seen in the following photographs, the Coral Springs Drive bridge consists of two (2) separate, 3-lane wide bridges for the north/south travel lanes of the roadway. The bridges are supported by two (2) end-bents generally located at the crest of the existing canal banks. An intermediate bent supports a series of pre-caste bridge sections (approximately 33’ and 37’ in length) for each travel lane. The series of precast slabs span the canal section from each end bent to the intermediate bent generally located near the center of the existing canal. Ten (10) -foot wide roadway approach slabs provide the roadway transition from the small earthen approach embankment sections onto the bridge end-bent supports.

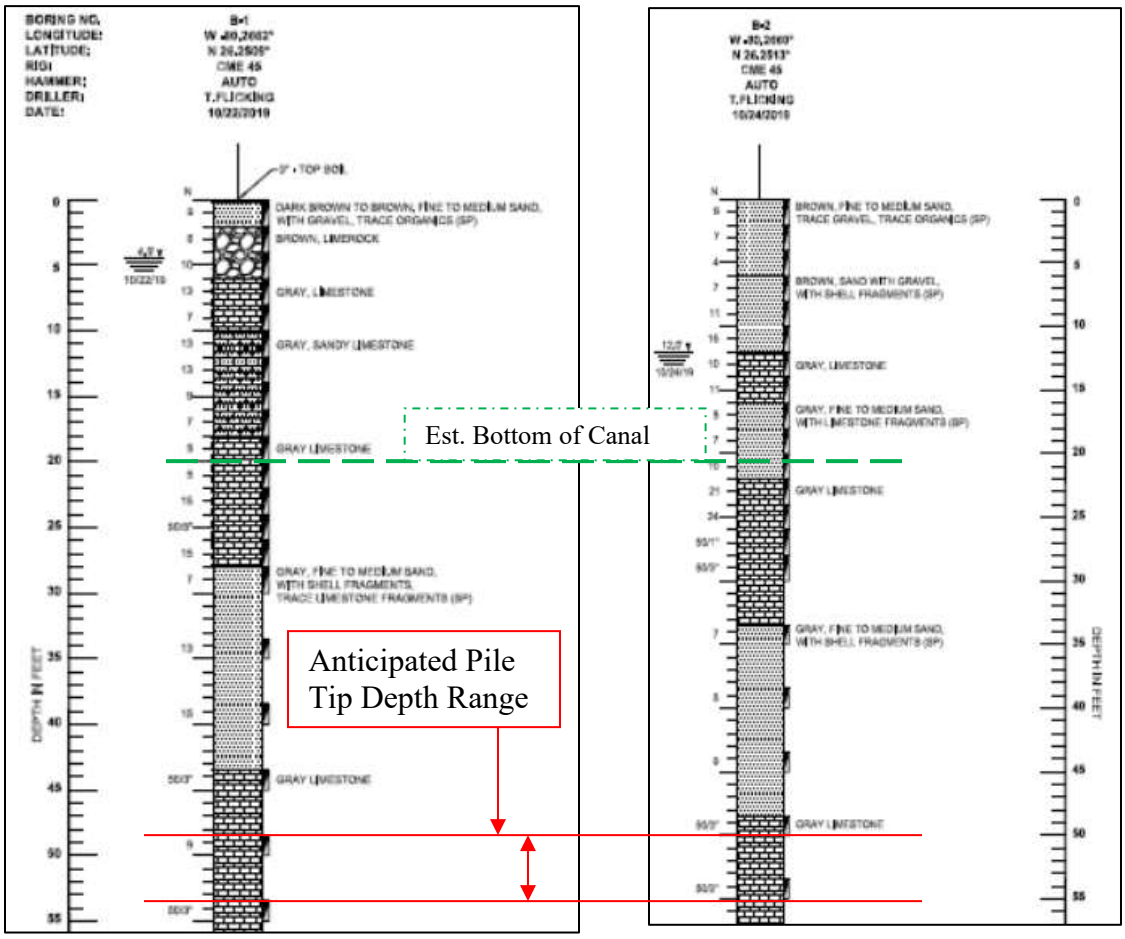
Bridge to canal clearances are higher on the southeastern side of the bridges compared to the northwestern side due to the super elevation of the curved Coral Springs Drive roadway thru the area. Clearance on the southeast side of the bridge to a canal water level is on the order of 7.5 feet while clearance on the south side of the bridge is on the order of 4.5 feet. These clearances are estimated relative to a canal water surface of +7.5 feet and may be greater at lower operational water levels in the canal.

South Side of South Bridge
View looking North

North Side of North Bridge
View Looking South

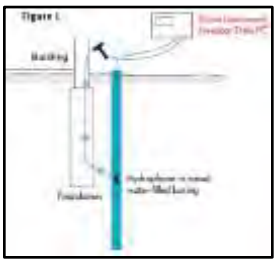
The intermediate bents are supported by 9 concrete piling beneath each travel lane. The pile support configuration for the end-bents is unknown but is expected to be on the same order of magnitude as the intermediate bents. The depth of the installed concrete piling is unknown at the present time and will need to be further investigated and evaluated during any subsequent design phase efforts.

From a geotechnical perspective, the review of the B-1 and B-2 boring logs drilled for this bridge, indicate the ground conditions consist of approximately 6 to 12-feet of upper sandy fill and/or gravel and sand fill. This upper layer is underlain by intermittent layers of typically weakly to moderately cemented limestones and uncemented sands to a depth of around 28 to 33 feet below the prevailing grade at the boring location. At this depth the subsurface conditions transition into typically loose to medium dense sands to depths on the order of 43 to 48 feet. Below these sands, the ground conditions encountered a typically well-cemented limestone layer with SPT-N values in excess of 50 bpf.

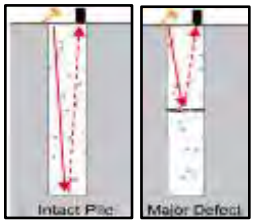


From a piling installation perspective, it is reasonable and logical to anticipate, based on this authors' experience, that the concrete piles driven for the bridge foundations were likely driven to a hard, end-bearing condition and seated into the well-cemented limestone below a depth of about 45 feet as shown on the above boring logs. This depth would provide adequate axial capacity for lateral piling capacity resistance as well as being of an enough depth to provide enough embedment (i.e. 25 to 30 feet) below the estimated bottom of the canal for lateral piling capacity resistance. The lateral capacity of the existing piles is further supported by the upper portion of the bridge piling below the canal bottom, being embedded in a weak to moderately cemented limestone. This upper cemented limestone will add significant lateral resistance capacity to the piling.

The unknown embedment depth of the piling may become a concern for the design of any Canal crossing improvements. Correspondingly, we would recommend that an Unknown Foundation Study in the form of Parallel Seismic Testing (PST) and/or Pile Integrity Testing (PIT) be conducted should a more formal design efforts be authorized. Brief discussions of same are as follows:



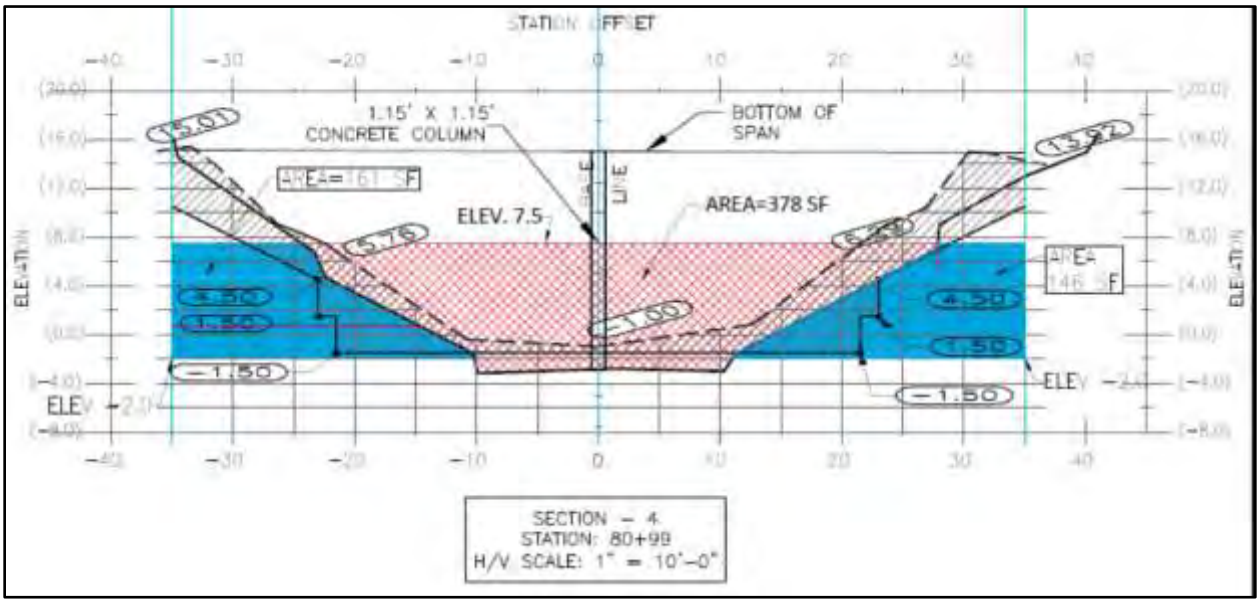
Parallel Seismic Testing (PST) - Parallel Seismic involves hitting any part of the structure that is connected to the pile or (or hitting the foundation itself, if accessible) and receiving compressional and/or shear waves travelling down the foundation by a hydrophone or a geophone receiver. With PST, one relies on identifying direct arrival times of compressional and shear waves at the receiver locations, as well as the wave amplitudes. The PS investigation is typically performed at 30-60cm vertical receiver intervals in the borehole.



Pile Integrity Testing (PIT) - Low Strain Impact Pile Integrity Testing (PIT) is a non-destructive pile testing method for integrity assessments of drilled shafts and driven concrete piles. Test results can be used to estimate pile length. If major defects exist, test results may also be interpreted to estimate

3.2 Canal Description and Overview

It is understood that the primary concern with this bridge crossing is the increased flow regime and head drop which reportedly occurs thru and beneath the existing bridge sections during full canal pumping operations. The canals are generally designed with upper slopes of 4:H:1V to a couple of feet below the normal canal operational level of +7.5 feet elevation. Canal slopes more than 2-feet below the water depth are reportedly being re-designed with 2H:1V slopes.



For the Coral Springs Drive bridge, the canal north of the bridge has a current invert elevation of -1.5 feet and a canal bottom width of 43 feet. At a canal elevation of +7.5 feet, the upstream design canal cross-section is calculated to have a cross-sectional flow area of about 658 sf.

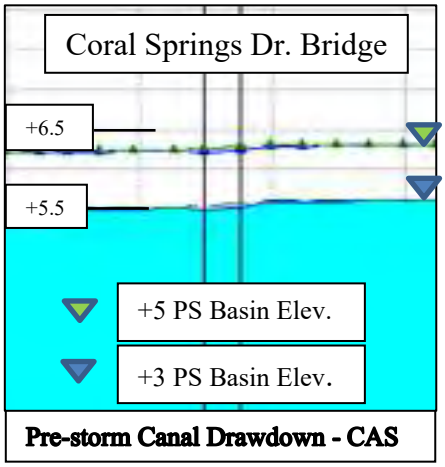
From hydraulic canal flow/pumping information provided by CAS Engineers, it is understood that the maximum flow velocity in the canal is 468 cfs with all four (4) pumps running at the downstream pumping station. With a new upstream Phase 1B canal cross-sectional area of 658 sf, such a flow would equate to a mean average flow velocity in the upstream canal cross-section of

around 468cfs/658sf = 0.70^{+} ft/sec. However, it is to be noted that lower canal elevations will occur during pre-storm drawdowns elevations would increase canal flow velocities. For example, at a +5.5 canal elevation at a full pumping flow of 468 cfs, average canal flow rates would increase to 468cfs/(658-150=) 518 sf = 0.90 fps Flow velocities would be lessor near the canal side banks and canal bottom due to "drag" effects. Flow velocities in the center of the canal away from the canal containment materials would be somewhat higher.

A review of the As-Built cross-sections for the completed Coral Springs Drive canal improvements, indicates that the currently completed canal section beneath the bridge has about 378 sf of cross-sectional area for both the upstream (Sta 80+98.53) entry and downstream (Sta 82+04.50) exit locations beneath the bridge crossing respectively. At this reduced canal cross-sectional area and at a water surface elevation of +7.5, the average canal flow velocities beneath the bridge would be calculated at 468 cfs/378 sf = 1.24 ft/s.

From a worst-case canal flow perspective, it is understood that canal pumping occasionally occurs in advance of approaching significant potential rainfall events such as from hurricanes and tropical storms. Such advance storm drawdowns would be infrequent and only of relatively short duration on an annual basis.

This advance pre-storm pumping at a 468 cfs volume, would inherently lower the canal water surface therein increasing flow velocities at the canal crossing locations. At a +6.3-foot canal water level elevation during a pump station basin +5-foot elevation drawdown, the existing flow cross-section beneath the bridge reduces from 378 sf to 316 sf and the flow rate increases to 1.48 fps. At a lower +5.6-foot canal water level elevation during a pump station basin +3 elevation drawdown, the existing flow section beneath the bridge reduces to 282 sf and the canal flow rate increases to 1.66 fps. Had the original stair-stepped gabion design been constructed, the drawdown flow velocity at a +5.6-foot elevation, would be estimated at about 468 cfs/(282 sf + ~70 sf) = 1.33 cfs.



Pre-storm Canal Drawdown - CAS

For the Coral Springs Drive bridge area, the flow velocity potentially increases to a maximum of about 1.7 fps during the worst-case pre-storm drawdown pumping activities. This flow rate is only about 24% higher than the original gabion stepped section design promulgation and, as will be subsequently discussed, is well below tolerable and acceptable flow rates for such lined canal sections.

From a canal design perspective, this author frequently designs linear canal sections for the SFWMD in natural sandy soils at canal flow velocities of up to 2 ft/sec. It is anticipated that soil/sand particle movements would remain stable with water flow velocities as high as 2 ft/sec (+/-) as indicated by the USACE "Hydraulic Design of Flood Control Channels – Table 2-5" (Ref EM_1110-2-1601). However, once canal flows begin to exceed 1.5 fps, rip rap or other slope protection system begin to be considered by this author from an erosion protection perspective. This also applies to locations where canal necking or expansion occurs.

Table 2-5
Suggested Maximum Permissible Mean Channel Velocities

Channel Material	Mean Channel Velocity, fps
Fine Sand	2.0
Coarse Sand	4.0
Fine Gravel	6.0
Earth	
Sandy Silt	2.0
Silt Clay	3.5
Clay	6.0
Grass-lined Earth (slopes less than 5%)	
Bermuda Grass	
Sandy Silt	6.0
Silt Clay	8.0
Kentucky Blue Grass	
Sandy Silt	5.0
Silt Clay	7.0
Poor Rock (usually sedimentary)	10.0
Soft Sandstone	8.0
Soft Shale	3.5
Good Rock (usually igneous or hard metamorphic)	20.0

In the case of the Coral Springs Drive bridge crossing, a rip-rap section has already been previously provided and installed. In this authors opinion, such rip rap armoring is more than adequate for canal side slope and bottom erosion protection given the relatively low but visually noticeable canal velocities thru the bridge area.

For canal sections excavated in the South Florida limestones, canal velocities up to 10 ft/sec are commonly allowed for canal designs depending on the degree of cementation of the canal side-bank and bottom in-situ materials. A slightly lower 3.5 to 8 fps design velocity range is also commonly designed for rip-rapped canal side slopes. Correspondingly, it is felt that the existing riprap system at the Coral Spring Drive bridge crossing is adequate and acceptable can provide adequate protection of the canal bottom and side slopes from a velocity and erosion protection perspective.

3.3 Canal Widening Options

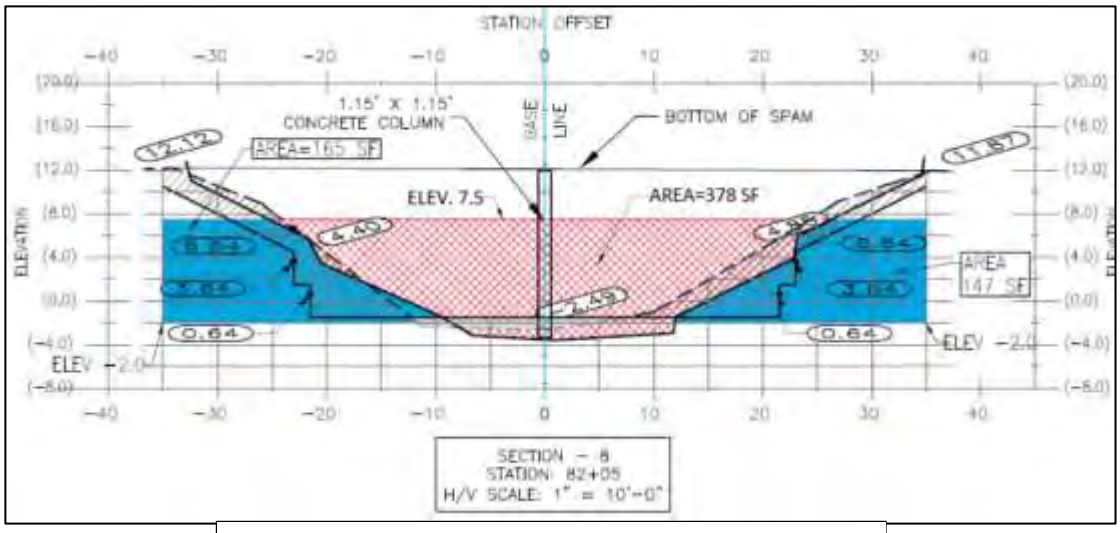
From discussions with CAS staff, it is understood that there is a stated desire to look at additional canal widening and deepening options through the Coral Springs Drive bridge, as well as all other crossing areas. The intent is to identify alternatives which may be implemented to increase the bridge area canal cross section, provide a relatively uniform canal invert elevation along the canal without "humps" and reduce average canal flow velocities and head drops through the crossing areas. Hydraulic canal modeling provided by CAS indicates there is only a small 0.1- 0.2-foot (+/-) head drop across the Coral Springs Drive bridge footprint.

From a geotechnical engineering perspective, there are several issues of concern which need to be reviewed, discussed and considered prior to going forward with any options for further canal improvements.

1. Review of the as-built drawings for the current Coral Springs Drive bridge improvements, indicate that the bottom of the bridge deck is surveyed at Elevations varying from +12 ft at its lowest point (North) to +15 ft at its highest point (South) elevation as compared to a design canal water level of around +7.5 feet. This provides for a minimum deck/water clearance of around 4.5 feet on the northwest side of the bridge and 7.5 feet on the southeast

side of the bridge. This clearance can be increased by lowering the canal water levels or by temporary cofferdam construction like prior work at the bridge.

2. Preliminary review of the As-Built bridge cross-sections indicate that the side banks of the canal beneath the bridge interior of the end bent piling would need to be lowered to an elevation of around a -1.5 to -2 foot elevation in order to provide a canal cross-sectional area of around 658 sf comparable to the improved upstream canal section. This XS area is designed to provide the 468 cfs flow volume at about a 0.88 fps flow velocity during pre-dewatering drawdown to elevation +3.0 ft-NGVD at the pumping station. Such an



excavation would expose from 14 to 17 feet of the end-bent concrete piling and pile cap respectively, above the needed excavation level. Therefore, approximately 11 to 14 feet of piling would need to be exposed assuming a 3-foot deep end bent pile cap.

3. In considering any canal widening approach beneath the bridges, an initial evaluation of the canal side slope seepage and slope stability needs to be made to assess slope stability issues associated with steeping of the slopes. For modeling purposes, the soil profiles encountered were used to model soils layers in the bridge crossing areas. For the Coral Springs Drive vehicular bridge, the soil layering profile shown in the borings was modeled as provided on Sheet 1 in attached Appendix A. following plots present the results of canal side slope seepage and stability analysis modeling of exposed canal side slopes in sand.

   Seepage analysis for the project was performed using the SEEP/W component of the Geo-Studio Package developed by GEO-SLOPE International Ltd. in accordance with US Army Corps of Engineers (USACE) Engineer Manual (EM) 1110-2-1901, "Engineering and Design – Seepage Analysis and Control for Dams". SEEP/W is a finite element program that performs seepage analysis and determines seepage paths and rates, phreatic surfaces, pore water pressures and exit gradients. Slope stability analyses were performed using the SLOPE/W component of the Geo-Studio Package. SLOPE/W is a limit-equilibrium slope stability program which utilizes Grid and Radius methods to determine the slip surface with the lowest factor of safety (i.e., the critical slip surface) by computing the factor of safety for many trial slip surfaces.

The pore pressures generated during seepage analysis modeling are imported into the SLOPE/W program as opposed to using a simple hydrostatic elevation based on an estimated phreatic surface. This approach allows for the reasonably more accurate assessment of any artesian pressures and exit gradients to be incorporated into the slope stability analyses. The phreatic surface for different conditions was either obtained from seepage analysis or input into the cross-section.

For the canal side slopes, a range of slope angles for the lower slope sections below Elev. +7.5 were evaluated for stability at slope angles from 1H:1V to 2.5H:1V were evaluated. The results of the seepage and slope stability modeling are included in the attached Appendix A and are summarized in the Table 1 below.

Table 1 – Summary of Canal Side Slope Stabilities

Model/Case No.	Slope Ratio	Canal Water Level	Boundary Ground Water Level	Slope Factor of Safety (FOS) – Left (South) Side	Slope Factor of Safety (FOS) – Right (North) Side
		(Feet)	(Feet)		
1	1H:1V	7.5	10.0	0.6	0.6
2	1.5H:1V	7.5	10.0	0.9	0.8
3	1.75H:1V	7.5	10.0	1.05	0.96
4	2H:1V	7.5	10.0	1.20	1.10
5	2H:1V	5.5	10.0	1.15	1.00
6	2.5H:1V	7.5	10.0	1.46	1.35
7	2.5H:1V	5.5	10.0	1.40	1.22

Review of the canal side slope modeling output indicates that when side slopes begin to exceed about 1.75H:1V, the slopes become unstable and will begin to slough into the canal. Slopes of 2H:1V are marginally stable at depressed water levels of 5.5 feet in the Canal but are more stable at normal operating water levels of 7.5 feet. It is noted as expected, that the sandier subsurface profile on the north side of the canal generally exhibits a lower FOS compared to the south side ground profile containing thicker limestone layers. Canal side slopes have adequate FOS's for 2.5H:1V slopes at both the 7.5 and 5.5 elevation operational water levels in the canals.

The results of these stability analyses generally indicate that attempts to increase the beneath bridge canal cross-sections by simply steepening canal side slopes beneath the bridge, will not provide a significant cross-sectional increase and will decrease side slope stabilities to FOS's approaching 1.0 as slopes approach a 2H:1V ratio. Correspondingly, such steepening is not generally recommended for the sandier soil profiles of this bridge crossing site.

4. Assuming #2 above is an option, a vertical side slope behind the end bent piling and below the bent pile cap of 11 to 14 feet in height would need to be provided. Small bobcat excavators can easily operate with such head clearance to remove the existing rip rap and

side bank soils. Canal dewatering would be required to elevation -3.0 feet or below to facilitate construction likely necessitating a dewatering system with well points installed adjacent to the front piling faces and a hung header pipe system anchored to the sides of the end bent pile caps.

5. One of the primary difficulties and concerns with #2 through #4 above, is that the soils and backfill used to construct the bridge approach embankments, primarily consist of loose to slightly medium dense, non-cohesive sand/gravelly soils. During the more recent canal improvement work in the bridge area, it has been reported by CAS, that sloughing of the non-cohesive soils did occur to some degree. Such sloughing could potentially occur between the piling which would undermine the end bent cap and potentially propagate behind the cap thus potentially undermining the roadway and bridge approach transition slabs. The relatively short 10-foot approach slab is likely well reinforced and capable of bridging over some minor loss of ground adjacent to the land side of the end bent cap. Major sloughing and loss of ground behind the cap would inherently result in some settlement of the bridge approach slab not supported by the pile supported end bent cap. The slab section supported by the end bent pile supported cap would not settle should such erosion occur.
6. Given #5 above, a design would need to be provided which safely retains the embankment soils behind the back face of the exposed piling and end bent cap. This can be accomplished by 1 of 3 anticipated methodologies or approaches:

   a. **Lag Board Shoring (LBS) Approach** – This approach is a historically older approach which involves slowly and progressively excavating the soil between and behind the backside of the piles and then constructing the wall retention system by inserting/sliding in pre-cut treated or hardened plastic lagging boards. The boards would be inserted behind the backside edges of the piles as the excavation slowly progresses downward with depth. With non-cohesive granular soils, the lower exposed soil height needs to be minimized to the depth of the lagging elements to be inserted to mitigate against sloughing of the approach embankment sands.

Example: H-Piles w/Lagging Boards

   The advantage of this type of an approach is that the work is performed and completed beneath the existing bridge spans without the need for significant disruption of vehicular traffic upon the Coral Springs Drive bridge. A significant disadvantage is that dewatering of the canal and wall installation areas will be required. Also, seepage or other water flows from the backside roadway embankment soils could potentially washout materials from behind the lagging creating a potential void beneath the overlying approach apron slab. Work would need to be completed in the dryer winter and early spring months when rainfall amounts are less however, even during such drier months, unexpected significant rainfall events may adversely impact site construction activities. Such adverse impacts may potentially lead to construction claims for

additional costs and contract time extensions particularly in the more wet periods of the year.

This LBS method does have some additional associated risks with its construction particularly if groundwater or other water seepage conditions can occur in the granular fill material being retained. Seepage or other water flows in the approach roadway embankment soils could potentially washout soils behind the lagging creating a potential void beneath the overlying approach apron slab.

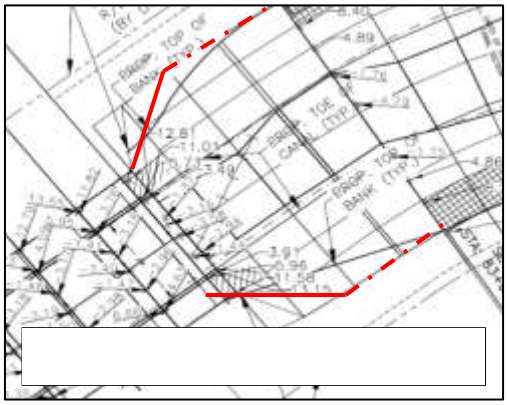
While this approach may be feasible, the need to excavate below the prevailing groundwater to a bench elevation of -3 feet would likely necessitate that a dewatering system be designed, installed and properly operated and maintained by the selected Contractor to assure that saturated soils would not wash out from behind any advancing lagging boards with depth. Water levels behind any advancing retention system will need to be kept well below the excavation level to mitigate against washouts and sloughing and to prevent loss of ground behind the wall.

Once the excavation is completed, the bottom of the lagging forms would need to be stabilized against future erosion with a poured concrete seal slab constructed out onto the bench elevation at the base of the LBS. To provide for long-term wall stability, the areas between the piles would need to be poured in with a reinforced wall as the wooden lagging is only a temporary retention system material which would degrade/rot-out with time from insect attack and the general environmental aging process. This concrete could be extended further out and over the bench area if desired or the bench area could be provided with rip rap or a Uniform Section Mattress, or other suitable canal bottom erosion protection system.

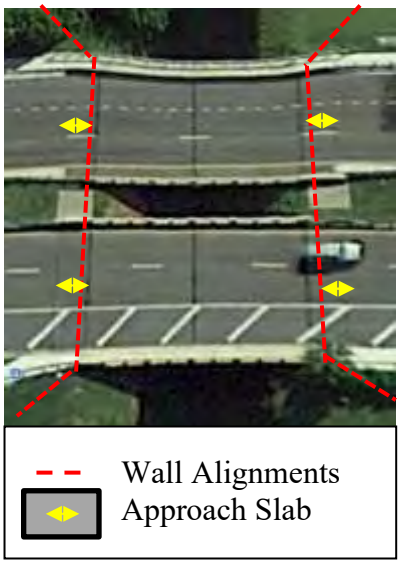
Finally, the active earth pressures being applied to the lagging, will transfer the lateral soil loads onto the piling therein potentially causing the piles and end bent pile cap to rotate/move inward slightly towards the canal in strain/bending response to the newly applied lateral loads. Such lateral movement would stop when the end bent, and precast bridge spans become in contact therein potentially reducing or eliminating expansion joint movement capacity at the end bent and intermediate bent expansion joint locations. For this reason, such a design would necessarily require a row of tie-back anchors be drilled, braced and tensioned to support and absorb the additional wall/pile loadings and to mitigate against pile movements associated with these loads.

Such tiebacks or an alternate system of soil nails, can be employed to retain the boarded and or stabilized/ excavation face. Such walls are generally constructed from the top down installation process coincident with the progression of the excavation. Typically, soil is excavated in three to six feet deep stages. After each excavation stage, slightly inclined holes are drilled into the exposed face at typically three to six-foot centers. In the case of these walls, anchors would likely be installed mid-way between the existing pilings. Tension-resisting steel bars are inserted into the holes and grouted in place and then the bars are tensioned to restrain the soil. A drainage layer system is installed on the exposed face, followed by the application of reinforced shotcrete wall facing

Because of the vertical wall canal side slope section beneath the bridge, a transitional wing wall will need to be provided to transition from the overall wider sloped canal section into the below bridge vertical section. This would need to be provided by a retaining wall installation exterior to the bridge. The wall could be constructed of sheet piling, tangent Augered Cast-in Place piling or other properly designed retention system. The wall would need to extend out to near the top of the adjacent canal bank.



b. Exterior Retaining Wall (ERW) Approach – This approach involves temporarily removing the roadway bridge approach slabs on each side of the bridge and then installing a full-depth retaining wall system along the backside face of the end-bent pile cap. A 25 to 30 feet deep wall installation would be required consisting of either steel sheet piling or preferably a system of overlapping tangent installed Augered Cast-In-Place (ACIP) piling, 16" Dia. (min.). The construction sequence involves rerouting traffic onto one bridge, removal of the two (2) approach slabs and adjacent ancillary items for each closed roadway lane, and installation of canal retaining and wing walls behind the end-bents. Retaining wall installation would be followed by re-construction of the approach slabs and any ancillary adjacent infrastructure including sidewalks, guardrails and existing piping re-connections as appropriate.



It is noted that this ERW approach could also be constructed with more costly steel sheet piling. However, sheet piling does corrode with time even when coated. Additionally, sheet piling installation would require more roadway downtime and would have potential vibration associated impacts to the bridge, its support piling as well as noise and possibly vibration related impacts to nearby residents.

ACIP piles can be installed more quickly, are vibration-free, are more cost-effective to install. Designs can be promulgated to allow for and include a small gap between the new piles and end bent pile cap. Such a small gap would help accommodate some small rotation of the ACIP, however, such a design would necessarily require a row of tie-back anchors be drilled, braced and tensioned to support the additional wall/pile loadings and to mitigate against significant pile movements associated with these loads.

Once the ACIP piles are installed, the approach slab can quickly be replaced with a high strength rapid cure concrete to minimize roadway downtime. As with the LBS design option, wing walls will be needed to transition the wider upstream and downstream canals sections into the beneath bridge vertical wall section. These can similarly be constructed using tangent ACIP piles or sheet piling.

After the ACIP piles are subsequently cured to design strengths, excavation work beneath the bridge could progress in a dewatered excavation. The side bank soils would simply be progressively excavated to the interior canal face of the hardened overlapping ACIP piles and then deeper to the targeted canal invert elevation.

This option has the primary disadvantage that the minimal ancillary traffic across the bridge, will need to be temporarily re-routed while the approach slabs for each roadway bridge structures are removed, retaining walls installed and the approach slabs and walkways reconstructed. Existing utilities located on the sides of the bridge will need to be temporarily disconnected and/or re-located during the quick piling installation beneath the utility alignment. Additionally, identification of and clearances for the location of other presently unknown buried utilities (i.e. Horizontally Directionally Drilled installations) beneath the canal would need to be affected.

c. Bridge Deck Removal (BDR) Approach From an alternative canal excavation perspective, a BDR approach would provide for the potential temporary removal of the existing sectional precast bridge decks to facilitate work within the canal without canal system operational impacts. Such temporary removal would facilitate canal excavation and any canal lining work in the wet without the need of canal dewatering system installations, operation, maintenance and removal. Once the bridge deck sections are removed, permanent steel sheet piling retaining walls could be installed and backfilled with flowable fill and necessary canal excavation and riprap work could be completed with standard and/or long-reach excavation equipment within the removed pre-cast bridge deck areas. Quartered bridge/canal sections would be excavated, leveled and rip rapped (as-needed) to complete the canal re-design and construction work from on-land areas adjacent to the bridge in each quarter area of the bridge.

This option has the primary disadvantage that traffic disruption and MOT plans will need to be developed, approved by local traffic management authorities and then implemented to temporarily re-route traffic onto one bridge and then onto the other bridge to complete the project one bridge at a time.

Existing utilities located on the sides of the bridges would need to be temporarily terminated or re-located during the wing wall piling installation beneath the utility alignment. Additionally, identification of and clearances for the location of other presently unknown buried utilities (i.e. Horizontally Directionally Drilled installations) beneath the canal would need to be affected. No overhead power lines were observed in the bridge area, so power line feeds are assumed to be buried in nature. Permitting with appropriate utility companies would be required.

d. Design Build Approach – The nature of the work described in 3.3.6.a thru 3.3.6.c inherently involves specialty geotechnical construction work such as lag boarding installation, tie-back installation, sheet piling or ACIP installation work and shotcreting as examples. Given the specialty nature of some of the more critical and difficult construction work efforts, consideration has been given to projects of this nature to prepare preliminary plans and design criteria/specifications describing the general nature of the work to be completed and then issue an RFP for a Design/Build (D/B) option approach.

In this manner, the design, construction, performance and construction liability rests solely on the shoulder of the selected and contracted Design Build team. The preliminary contract documents could also be tailored to provide for an extended Warranty period beyond the traditional Design/Bid/Build 1-year Warranty performance period.

4.0 ALTERNATIVES PRELIMINARY COST ESTIMATES

To help facilitate and assist in the decision-making process, Appendix B attached hereto, contains a preliminary Cost Estimate for the different alternatives describes in subsection 3.3.6.a, 3.3.6.b and 3.3.6.c discussed earlier herein. A summary of the provided cost estimates is provided in the following Table 2 below.

Table 2: Summary of Alternative Cost Estimates

No.	Description	Construction Cost ($)	OH, Markup &Profit ($)	Subtotal ($)	Contingency ($)	Total Estimate ($)
			(26%)		(20%)	
3.3.6.a	Lag Board Shoring	$ 1,391,251	$ 361,725	$ 1,752,977	$ 350,595	$ 2,103,572
3.3.6.b	Exterior Retaining Wall (ERW)	$ 2,164,131	$ 562,674	$ 2,726,806	$ 545,361	$ 3,272,167

3.3.6.c	Bridge Deck Removal (BDR)	$3,096,615	$805,120	$3,901,734	$780,347	$4,682,081
3.3.6.d	Design/Build	TBD	TBD	TBD	TBD	TBD

Review of the costing data indicates that the Lag Board Shoring approach is the most cost effective for this crossing. This approach, however, is considered to be the riskier approach due to the lag board installation process, canal and end-bent dewatering required and the potential for some loss of ground in sand soils behind the advancing lag board installations with depth below the exterior ground water levels.

The ERW approach is the second most costly approach primarily due to the need to provide MOT traffic diversions to shut down one bridge at a time, removal and replacement of the approach slabs to the bridge, temporary utility system disconnects and re-connects and installation of ACIP tangent piling walls. Coordination with local transportation agencies, permitting and public involvement/notifications will be important aspects of any follow-on design and construction management efforts.

The Bridge Deck Removal and replacement/reconstruction is the most costly approach due to the need to provide MOT traffic diversions to shut down one bridge at a time, removal and replacement of the bridge decks, temporary utility system disconnects and re-connects and installation of steel sheet piling walls. Costing analysis has assumed that the bridge deck slabs will have to be re-constructed as new as some damage during removal is anticipated. Additionally, design code changes over the years will likely require changes in the decking design section and reinforcement which is unknown for the existing deck slabs. This BDR approach is considered to have the least canal operational impacts as the in-canal excavation work and riprap placement should be capable of being completed in the wet with long reach backhoe equipment operating from behind the end bent wall areas.

5.0 CONCLUSION AND RECOMMENDATIONS

From a remedial action approach, the **3.3.6.a. Lag Board Shoring (LBS) Approach** is the most economical remedial construction option. This option will provide resilience from a long-term performance and maintenance perspective and the LBS Approach will approximately match total cross-sectional canal areas with the upgraded upstream and downstream canal widening projects which have been completed. This option does have some installation risk from a construction Lag Board installation and dewatering perspective. Additionally, along with all other remedial options, the LBS approach does have a minor disadvantage in that existing utility infrastructure may need to be temporarily disrupted to facilitate the LBS wingwall construction.

Based on the review of the subsurface conditions encountered in the borings along with evaluations of the canal design and as-built conditions, it is this authors opinion that the current as-built canal condition beneath the bridge is acceptable from a technical flow perspective condition. Given the technical capacity and sufficiency of the presently completed canal improvements as previously discussed, a costly remediation option may not be warranted or necessary. The computed maximum canal flow velocities for the currently constructed condition, are below the USACE

guidance criteria for the erosion of sands without riprap erosion protection. Increased canal flow velocities within the currently remediated canal section of up to 1.66 fps may be experienced for a worst-case advance storm pre- drawdown, +3-foot Pump station drawdown, condition. This canal flow rate is well below tolerable USACE guidance flow ranges of 2.0 fps for sands and up to 8.0 fps for rip rap lined canals. Additionally, the beneath bridge canal invert is already constructed at a -2.5 as-built elevation. Thus, there will be no "hump" in the canal bottom elevation beneath the bridge which will further inhibit smooth flows within the canal. Finally, the head drop/loss beneath the bridge structure in reasonably low at reportedly around a few inches or less.

6.0 LIMITATIONS

This report is intended for geotechnical and preliminary concept design discussion purposes only, and does not document or detect the presence, or absence, of any environmental conditions at the site, nor is it intended to perform an environmental assessment of the site.

The analysis, discussions and recommendations presented in this report are based upon our interpretation of the subsurface information revealed by the test borings. The report does not reflect variations in subsurface conditions that may exist between or beyond these borings. Variations in soil and groundwater conditions should be expected, the nature and extent of which might not become evident until construction is undertaken.

RADISE International warrants that the professional services performed and presented in this report, are prepared for Craig A. Smith & Associates and are based upon typical standard of care recognized principles and practices in the discipline of geotechnical engineering and hydrogeology at this place and point in time, for this project site. No other warranties are expressed or implied.

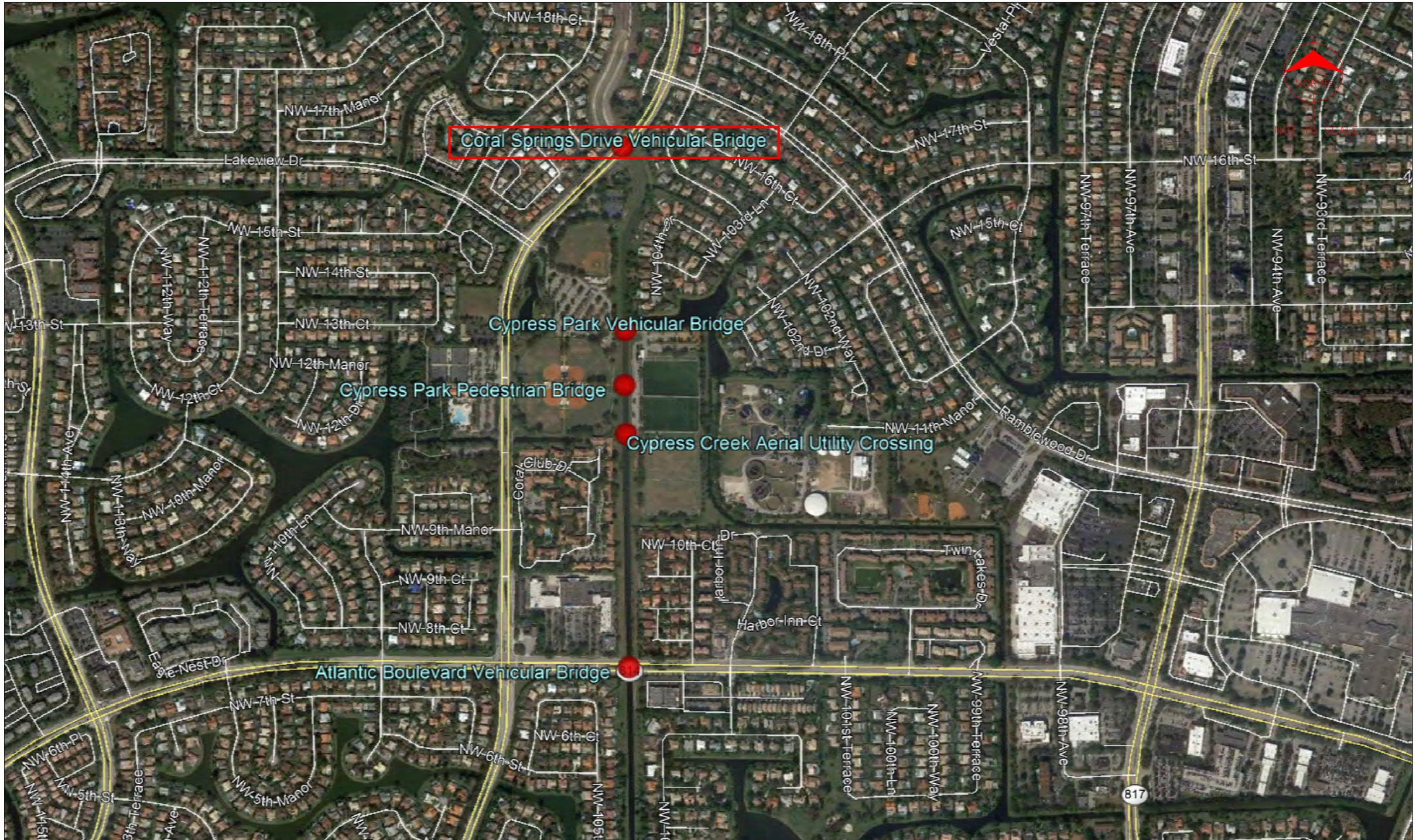
-oOo-

RADISE appreciates the opportunity to be of service to you. Please feel free to contact us at 561-841-0103 if you have any questions or comments regarding this report.

Respectfully submitted
RADISE International, L.C.

Attachments;

Appendix A - Results of Canal Side Slope Seepage and Stability Modeling
Appendix B - Cost Estimating Data



REVISIONS

Date.	By	Descriptions	Date.	By	Descriptions

	Names	Dates
Drawn by	AK	11/22/2019
Checked by	NK	11/22/2019
Designed by	AB	11/22/2019
Checked by	AB	11/22/2019
Approved by		

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URL : http:// www.radise.net

SUNSHINE WATER CONTROL DISTRICT

COUNTY	CLIENT
BROWARD	CRAIG A. SMITH & ASSOCIATES

SCALE: VERTICAL N.T.S.

SCALE: HORIZONTAL N.T.S.

SHEET TITLE: VICINITY MAP

PROJECT NAME: WEST OUTFALL CANAL IMPROVEMENTS BRIDGES

SHEET NO. 1

RADISE PROJECT NO: 191007

REVISIONS							Names	Dates
Date.	By	Descriptions	Date.	By	Descriptions	Drawn by	AK	11/22/2019
						Checked by	NK	11/22/2019
						Designed by	AB	11/22/2019
						Checked by	AB	11/22/2019
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SUNSHINE WATER CONTROL DISTRICT

COUNTY	CLIENT
BROWARD	CRAIG A. SMITH & ASSOCIATES

SCALE: VERTICAL N.T.S.

SCALE: HORIZONTAL N.T.S.

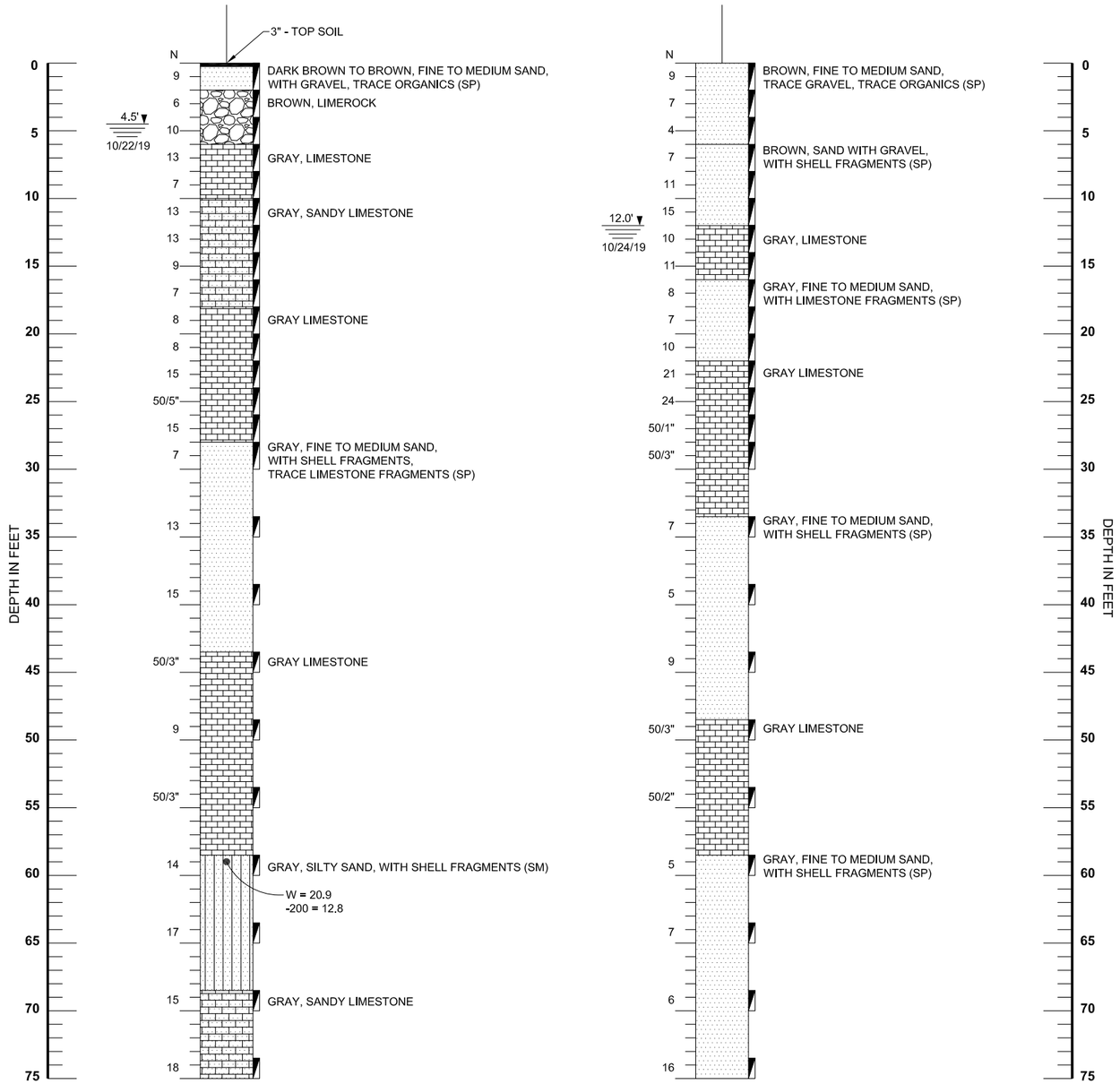
SHEET TITLE: BORING LOCATION PLAN

SHEET NO. 2A

PROJECT NAME: WEST OUTFALL CANAL IMPROVEMENTS CORAL SPRINGS DRIVE VEHICULAR BRIDGE

RADISE PROJECT NO: 191007

	B-1	B-2
BORING NO.	B-1	B-2
LONGITUDE:	W -80.2662°	W -80.2660°
LATITUDE:	N 26.2509°	N 26.2513°
RIG:	CME 45	CME 45
HAMMER:	AUTO	AUTO
DRILLER:	T.FLICKING	T.FLICKING
DATE:	10/22/2019	10/24/2019



B.T. @ 75'
BELOW EXISTING GRADES

B.T. @ 75'
BELOW EXISTING GRADES

LEGEND

- SAND (SP, SP-SM)
- LIMEROCK
- TOPSOIL
- SANDY LIMESTONE
- SILTY SAND (SM)
- LIMESTONE

B.T @ 75'	BORING TERMINATED AT 75 FEET BELOW THE EXISTING GROUND SURFACE
B-1	STANDARD PENETRATION TEST (SPT) BORING AND NUMBER
N	STANDARD PENETRATION RESISTANCE-BLOWS PER FOOT USING AUTOMATIC HAMMER
	SAMPLING INTERVAL
4.5' ▼ 10/22/19	GROUNDWATER LEVEL IN FEET AND DRILLING DATE
W	MOISTURE CONTENT (%)
OC	ORGANIC CONTENT (%)
-200	AMOUNT PASSING US STANDARD 200 SIEVE (%)
SP, SP-SM	UNIFIED SOIL CLASSIFICATION SYSTEM GROUP SYMBOL (ASTM D 2487)

NOTES:

1. BORINGS WERE DRILLED BETWEEN 10/22/2019 AND 11/08/1
   SPT BORINGS WERE PERFORMED USING A CME-45C AUTOMATIC HAMMER DRILLING RIG (ASTM D1586)
2. STRATA BOUNDARIES ARE APPROXIMATE AND REPRESEN
   SOIL STRATA AT EACH TEST HOLE LOCATION ONLY. SOIL TRANSITIONS MAY BE MORE GRADUAL THAN IMPLIED.
3. GROUNDWATER LEVELS SHOWN ON THE SUBSURFACE PROFILES REPRESENT GROUNDWATER SURFACES ON TH DATES SHOWN. GROUNDWATER LEVEL FLUCTUATIONS SHOULD BE ANTICIPATED THROUGHOUT THE YEAR.
4. AFTER COMPLETION OF DRILLING, BOREHOLES WERE BACKFILLED WITH GROUT. ASPHALT PAVEMENT WAS PATCHED USING ASPHALT COLD PATCH, WHERE NECESSA

STANDARD PENETRATION TEST DATA *

SPOON INSIDE DIA.	1.375 INCH
SPOON OUTSIDE DIA.	2 INCHES
AVG. HAMMER DROP	30 INCHES
HAMMER WEIGHT	140 POUNDS
GRANULAR MATERIALS	AUTOMATIC HAMMER SPT N - VALUE
RELATIVE DENSITY	BLOWS/FOOT
VERY LOOSE	LESS THAN 3
LOOSE	3 - 8
MEDIUM	8 - 24
DENSE	24 - 40
VERY DENSE	GREATER THAN 40
SILTS AND CLAYS	AUTOMATIC HAMMER SPT N - VALUE
CONSISTENCY	BLOWS/FOOT
VERY SOFT	LESS THAN 1
SOFT	1 - 3
FIRM	3 - 6
STIFF	6 - 12
VERY STIFF	12 - 24
HARD	GREATER THAN 24

*FDOT SOILS AND FOUNDATIONS HANDBOOK 2018

REVISIONS

Date.	By	Descriptions	Date.	By	Descriptions

	Names	Dates
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SUNSHINE WATER CONTROL DISTRICT

COUNTY	CLIENT
BROWARD	CRAIG A. SMITH & ASSOCIATES

SCALE: VERTICAL N.T.S.
SCALE: HORIZONTAL N.T.S.

SHEET TITLE: SUBSURFACE PROFILES

SHEET NO. 3A

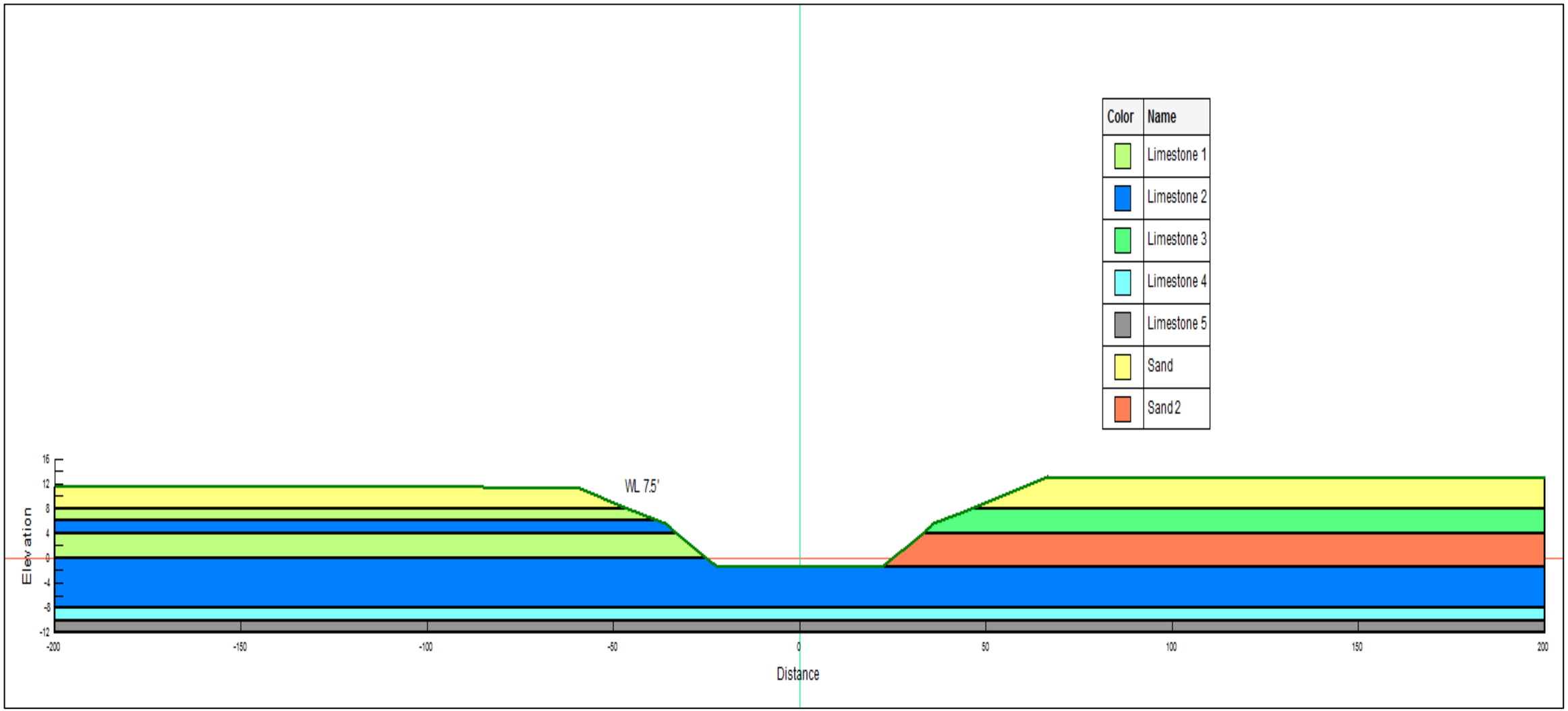
PROJECT NAME: WEST OUTFALL CANAL IMPROVEMENTS CORAL SPRINGS DRIVE VEHICULAR BRIDGE

RADISE PROJECT NO: 191007

Appendix A

Results of
Canal Side Slope Seepage
and
Stability Modeling

Model/Case No.	Slope Ratio	Canal Water Level	Boundary Ground Water Level	Slope Factor of Safety (FOS) – Left side	Slope Factor of Safety (FOS) – Right Side
		(Feet)	(Feet)		
1	1H:1V	7.5	10.0	0.6	0.6
2	1.5H:1V	7.5	10.0	0.9	0.8
3	1.75H:1V	7.5	10.0	1.05	0.96
4	2H:1V	7.5	10.0	1.20	1.10
5	2H:1V	5.5	10.0	1.15	1.00
6	2.5H:1V	7.5	10.0	1.46	1.35
7	2.5H:1V	5.5	10.0	1.40	1.22



CORAL SPRINGS DRIVE VEHICULAR BRIDGE
OVERAL SUBSURFACE PROFILE
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY

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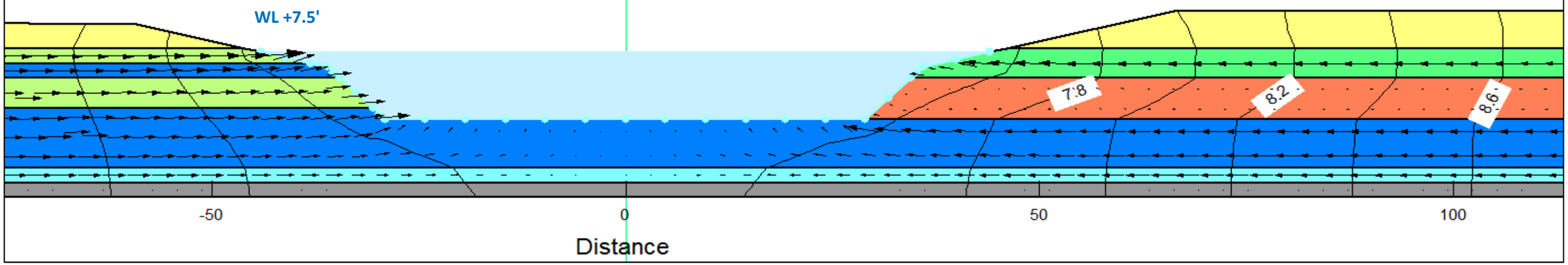
SHEET A-1

RADISE Project Number: 191007

Color	Name	Model	Sat Kx (ft/d)	Ky'/Kx' Ratio
	Limestone 1	Saturated / Unsaturated		0.1
	Limestone 2	Saturated / Unsaturated		0.1
	Limestone 3	Saturated / Unsaturated		0.1
	Limestone 4	Saturated Only	200	0.1
	Limestone 5	Saturated Only	10	0.1
	Sand	Saturated / Unsaturated		0.1
	Sand 2	Saturated Only	20	0.1



CORAL SPRINGS DRIVE VEHICULAR BRIDGE
SEEPAGE ANALYSIS
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
1H:1V CANAL SLOPES

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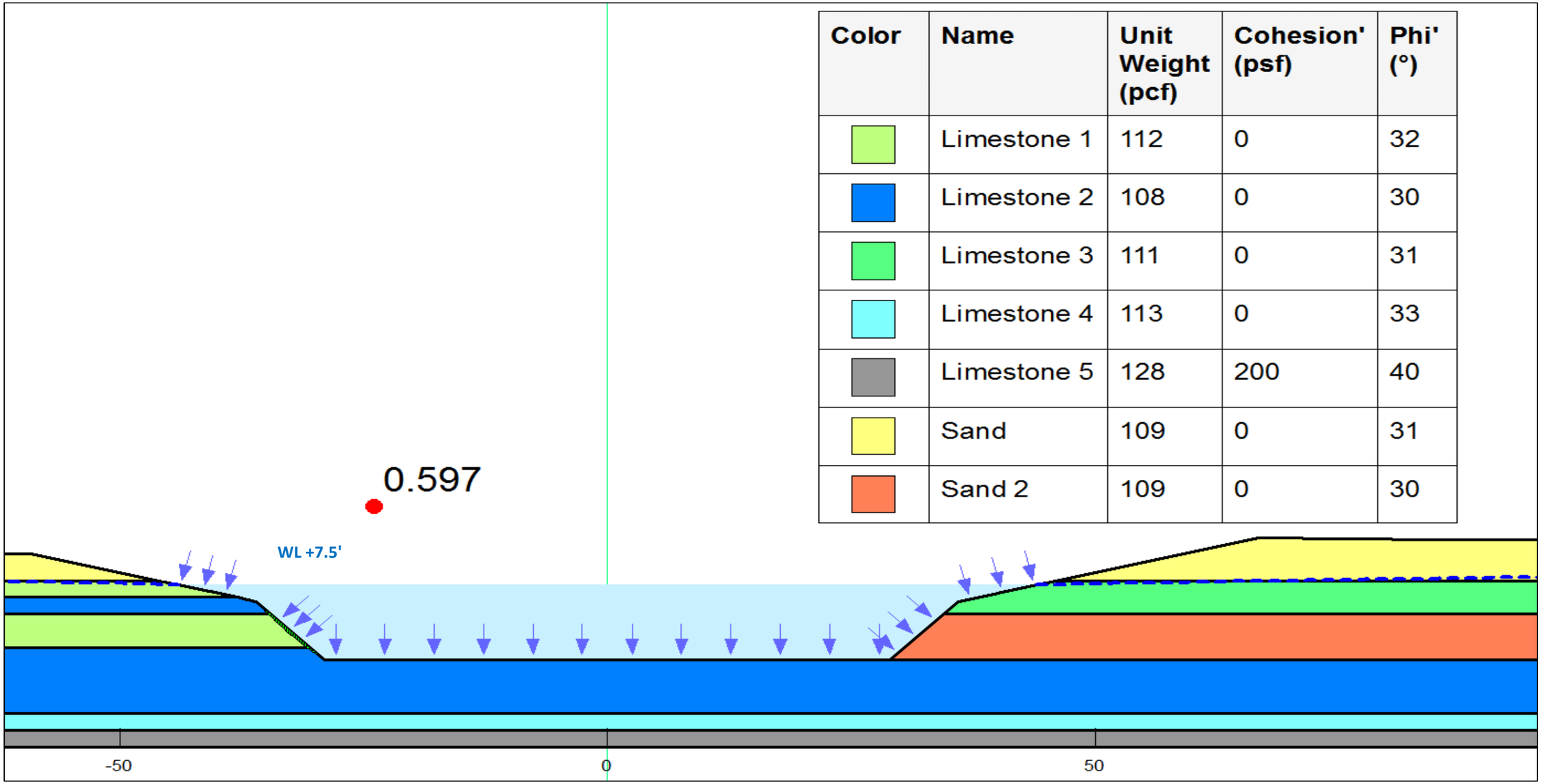
SHEET A - 2a

RADISE Project Number: 191007



Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 1	112	0	32
	Limestone 2	108	0	30
	Limestone 3	111	0	31
	Limestone 4	113	0	33
	Limestone 5	128	200	40
	Sand	109	0	31
	Sand 2	109	0	30

CORAL SPRINGS DRIVE VEHICULAR BRIDGE
LEFT SLOPE STABILITY
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
1H:1V CANAL SLOPES

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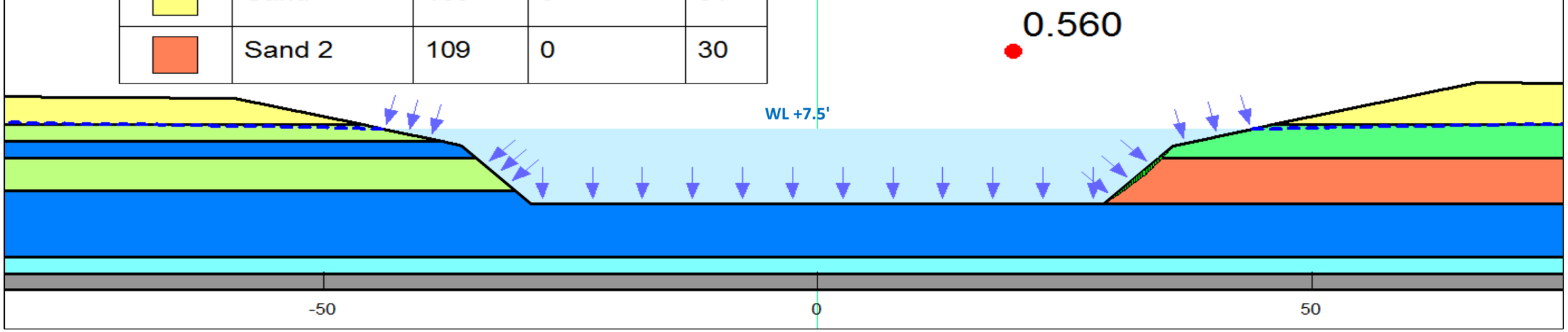
SHEET A - 2b

Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 1	112	0	32
	Limestone 2	108	0	30
	Limestone 3	111	0	31
	Limestone 4	113	0	33
	Limestone 5	128	200	40
	Sand	109	0	31
	Sand 2	109	0	30



CORAL SPRINGS DRIVE VEHICULAR BRIDGE
RIGHT SLOPE STABILITY
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
1H:1V CANAL SLOPES

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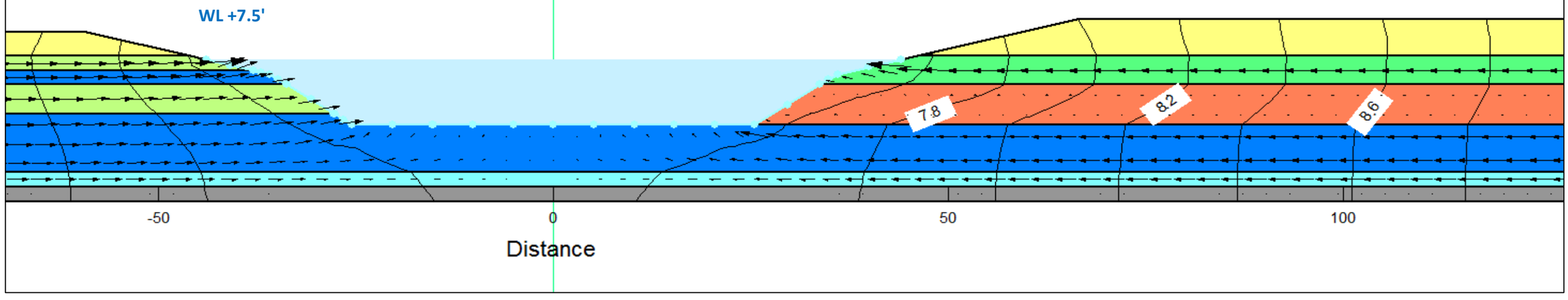
SHEET A - 2c

RADISE Project Number: 191007

Color	Name	Model	Sat Kx (ft/d)	Ky'/Kx' Ratio
	Limestone 1	Saturated / Unsaturated		0.1
	Limestone 2	Saturated / Unsaturated		0.1
	Limestone 3	Saturated / Unsaturated		0.1
	Limestone 4	Saturated Only	200	0.1
	Limestone 5	Saturated Only	10	0.1
	Sand	Saturated / Unsaturated		0.1
	Sand 2	Saturated Only	20	0.1



CORAL SPRINGS DRIVE VEHICULAR BRIDGE

SEEPAGE ANALYSIS

WEST OUTFALL CANAL IMPROVEMENTS BRIDGES

BROWARD COUNTY

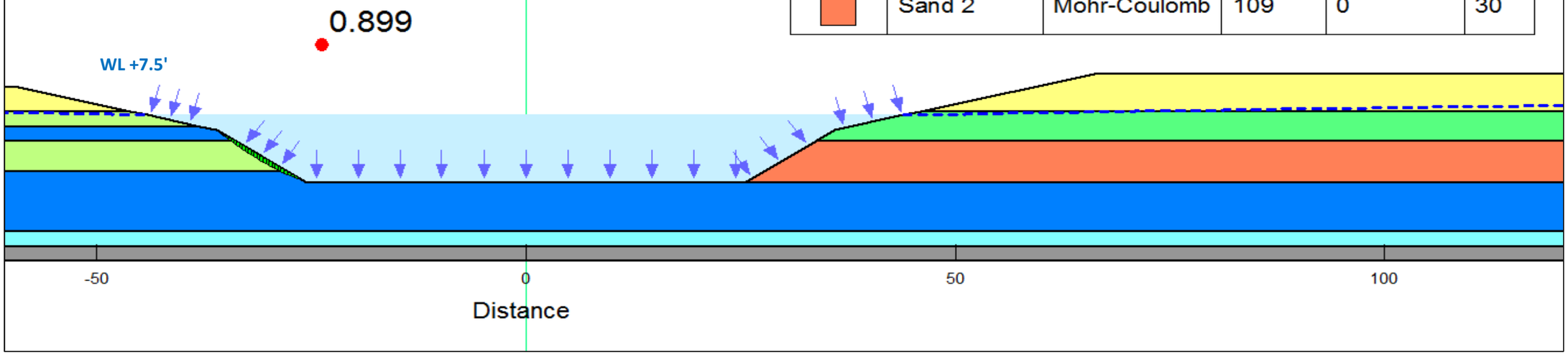
1.5H: 1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A - 3a

RADISE Project Number: 191007

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 1	Mohr-Coulomb	112	0	32
	Limestone 2	Mohr-Coulomb	108	0	30
	Limestone 3	Mohr-Coulomb	111	0	31
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Sand	Mohr-Coulomb	109	0	31
	Sand 2	Mohr-Coulomb	109	0	30



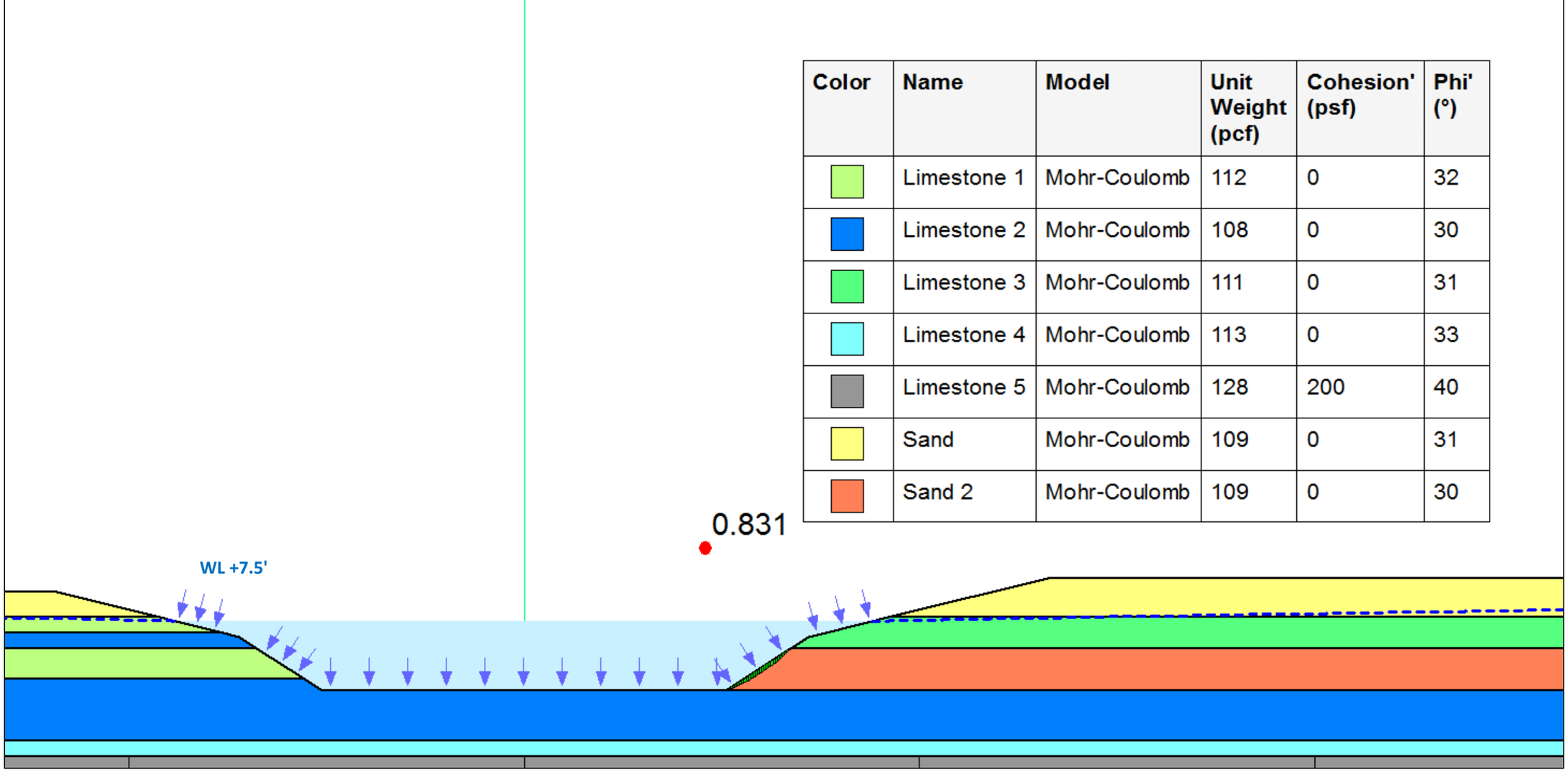
CORAL SPRINGS DRIVE VEHICULAR BRIDGE
LEFT SLOPE STABILITY
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
1.5H:1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A - 3b

RADISE Project Number: 191007

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 1	Mohr-Coulomb	112	0	32
	Limestone 2	Mohr-Coulomb	108	0	30
	Limestone 3	Mohr-Coulomb	111	0	31
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Sand	Mohr-Coulomb	109	0	31
	Sand 2	Mohr-Coulomb	109	0	30



CORAL SPRINGS DRIVE VEHICULAR BRIDGE
RIGHT SLOPE STABILITY
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
1.5H:1V CANAL SLOPES

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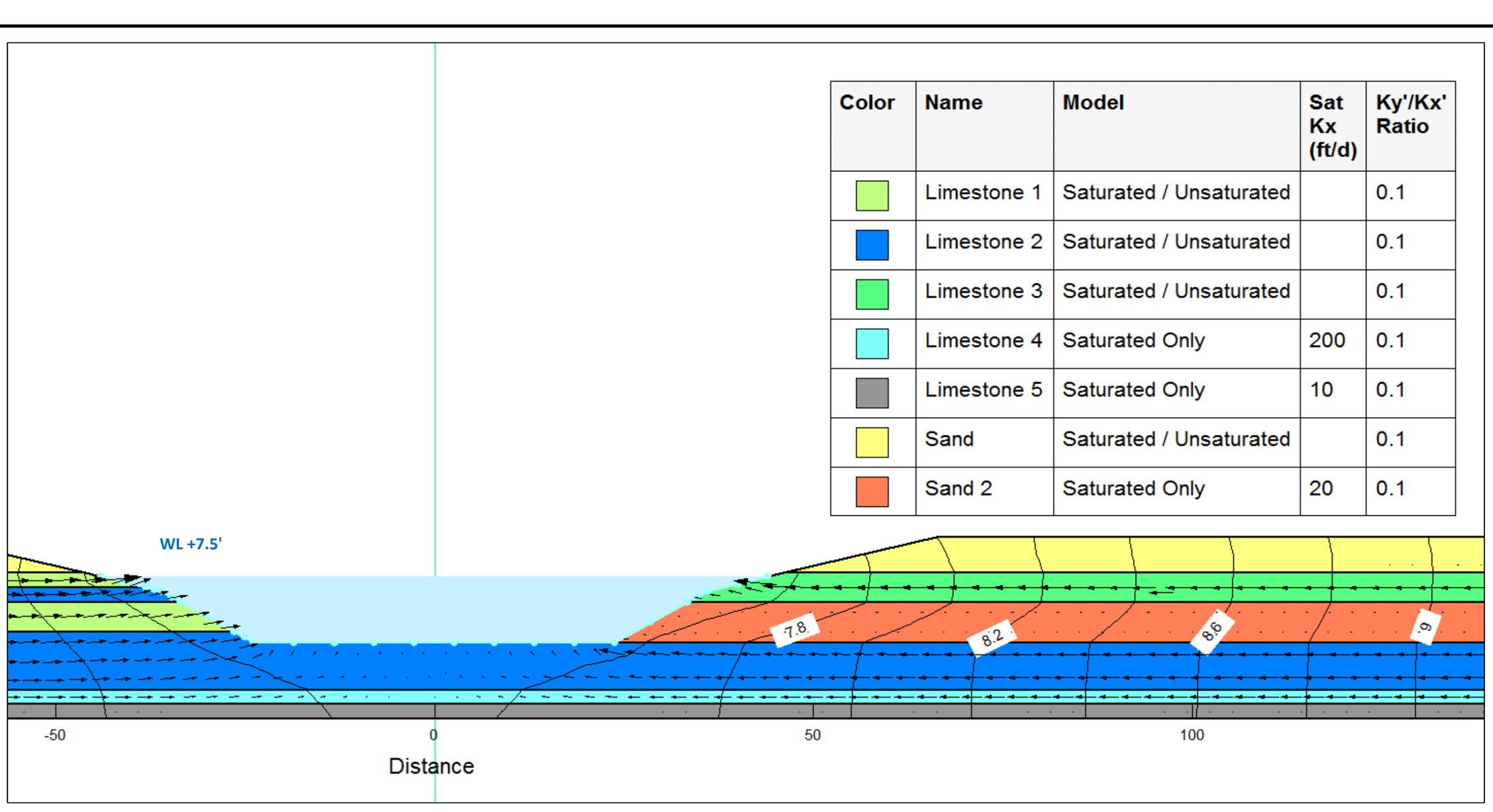
SHEET A- 3c

RADISE Project Number: 191007

Color	Name	Model	Sat Kx (ft/d)	Ky'/Kx' Ratio
	Limestone 1	Saturated / Unsaturated		0.1
	Limestone 2	Saturated / Unsaturated		0.1
	Limestone 3	Saturated / Unsaturated		0.1
	Limestone 4	Saturated Only	200	0.1
	Limestone 5	Saturated Only	10	0.1
	Sand	Saturated / Unsaturated		0.1
	Sand 2	Saturated Only	20	0.1



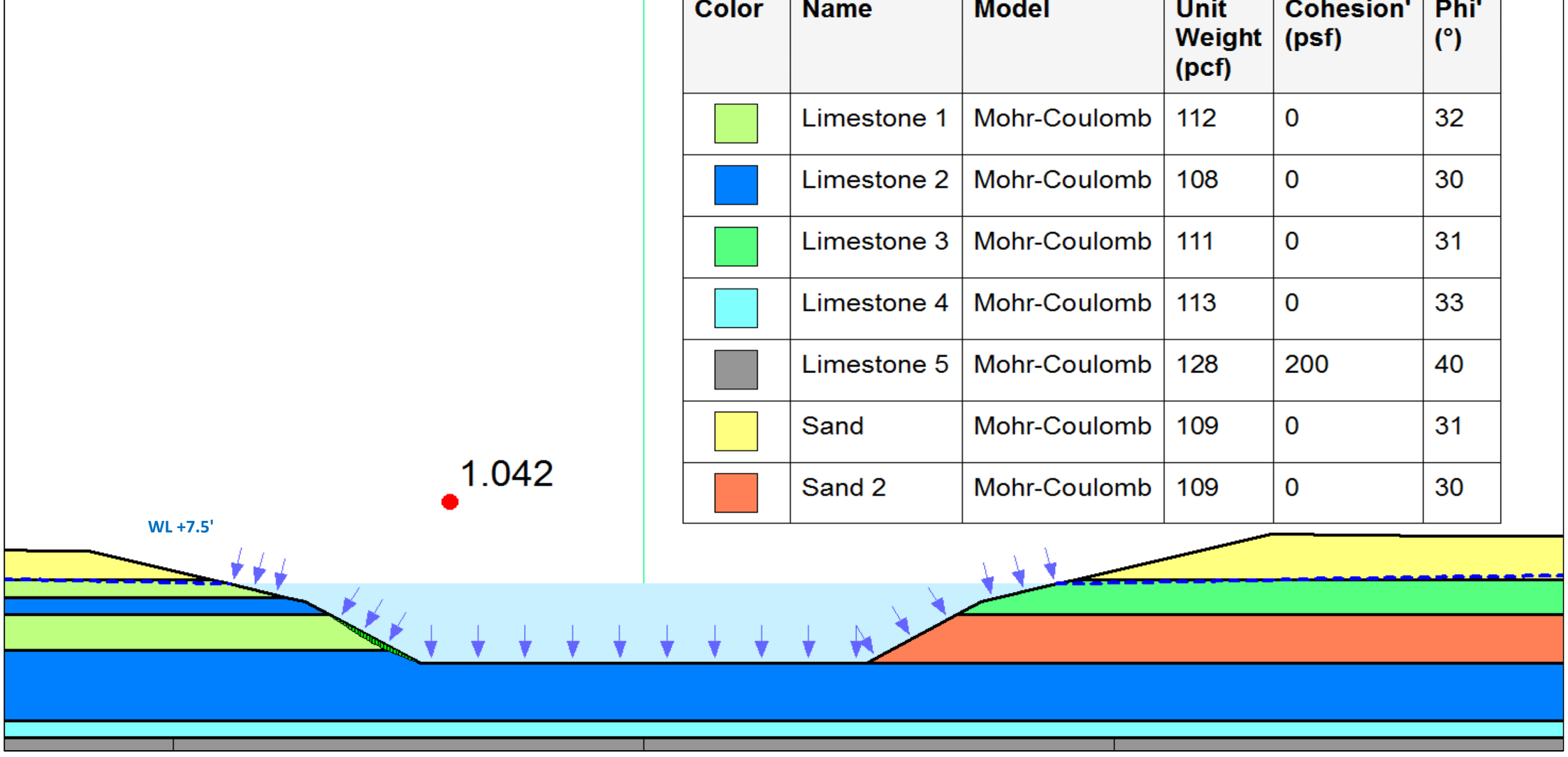
CORAL SPRINGS DRIVE VEHICULAR BRIDGE
SEEPAGE ANALYSIS
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
1.75H:1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A - 4a

RADISE Project Number: 191007

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 1	Mohr-Coulomb	112	0	32
	Limestone 2	Mohr-Coulomb	108	0	30
	Limestone 3	Mohr-Coulomb	111	0	31
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Sand	Mohr-Coulomb	109	0	31
	Sand 2	Mohr-Coulomb	109	0	30

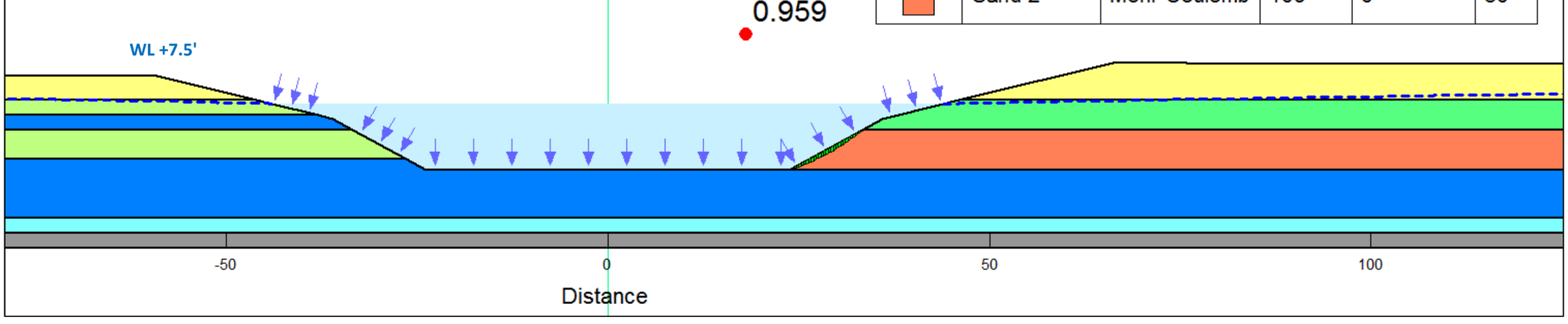


CORAL SPRINGS DRIVE VEHICULAR BRIDGE
LEFT SLOPE STABILITY
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
1.75H:1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A - 4b

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 1	Mohr-Coulomb	112	0	32
	Limestone 2	Mohr-Coulomb	108	0	30
	Limestone 3	Mohr-Coulomb	111	0	31
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Sand	Mohr-Coulomb	109	0	31
	Sand 2	Mohr-Coulomb	109	0	30

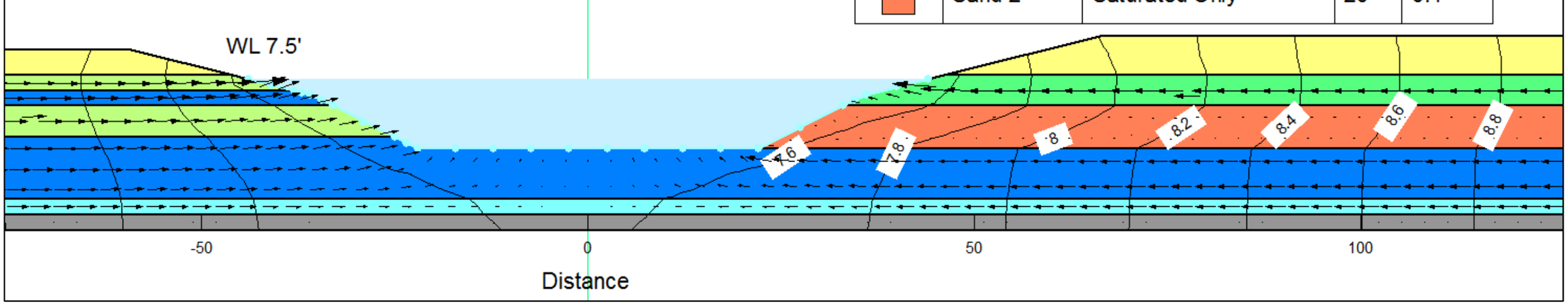


CORAL SPRINGS DRIVE VEHICULAR BRIDGE
RIGHT SLOPE STABILITY
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
1.75H: 1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A - 4c

Color	Name	Model	Sat Kx (ft/d)	Ky'/Kx' Ratio
	Limestone 1	Saturated / Unsaturated		0.1
	Limestone 2	Saturated / Unsaturated		0.1
	Limestone 3	Saturated / Unsaturated		0.1
	Limestone 4	Saturated Only	200	0.1
	Limestone 5	Saturated Only	10	0.1
	Sand	Saturated / Unsaturated		0.1
	Sand 2	Saturated Only	20	0.1



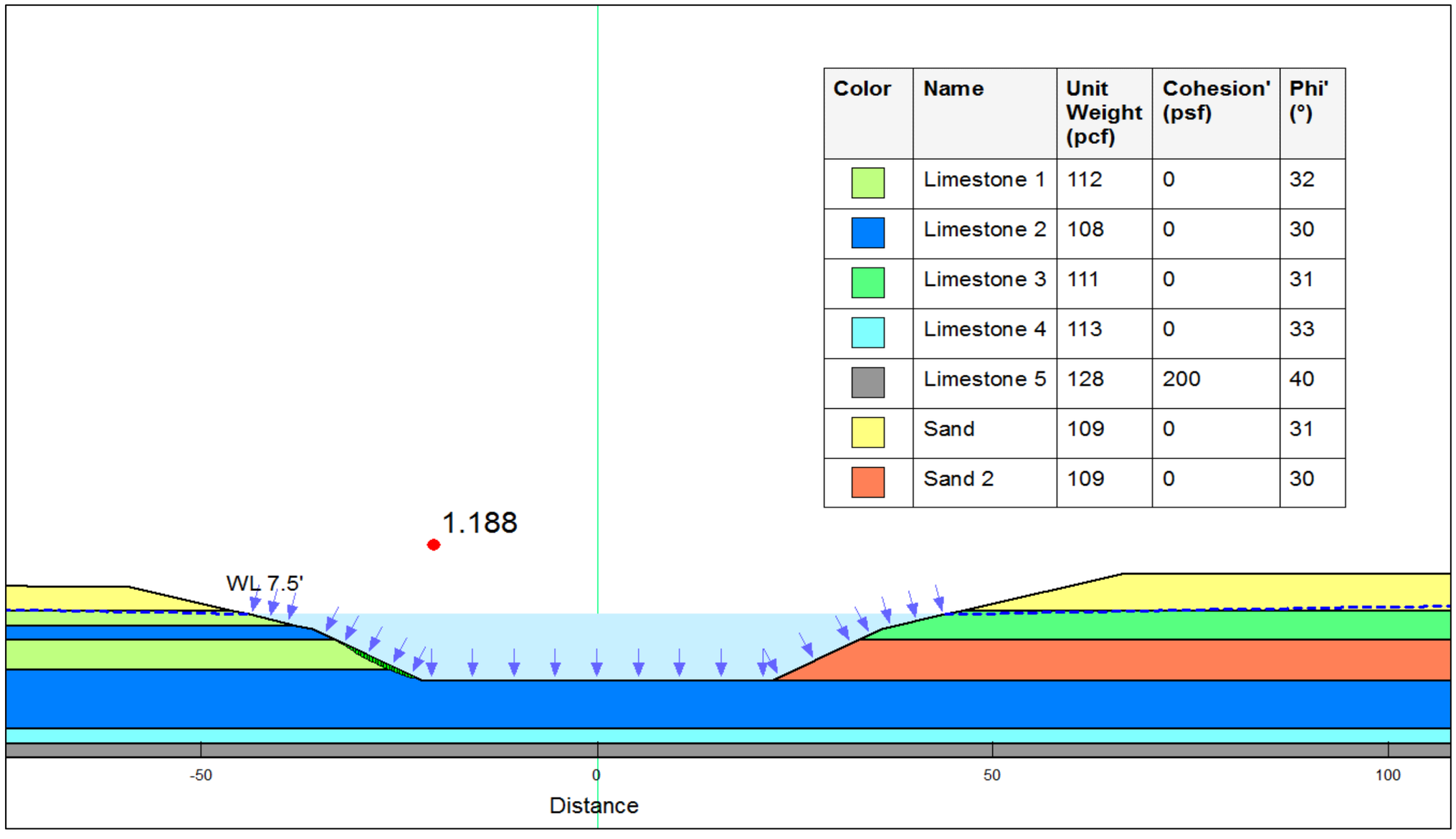
CORAL SPRINGS DRIVE VEHICULAR BRIDGE
SEEPAGE ANALYSIS
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
2H:1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A -5a

RADISE Project Number: 191007

Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 1	112	0	32
	Limestone 2	108	0	30
	Limestone 3	111	0	31
	Limestone 4	113	0	33
	Limestone 5	128	200	40
	Sand	109	0	31
	Sand 2	109	0	30



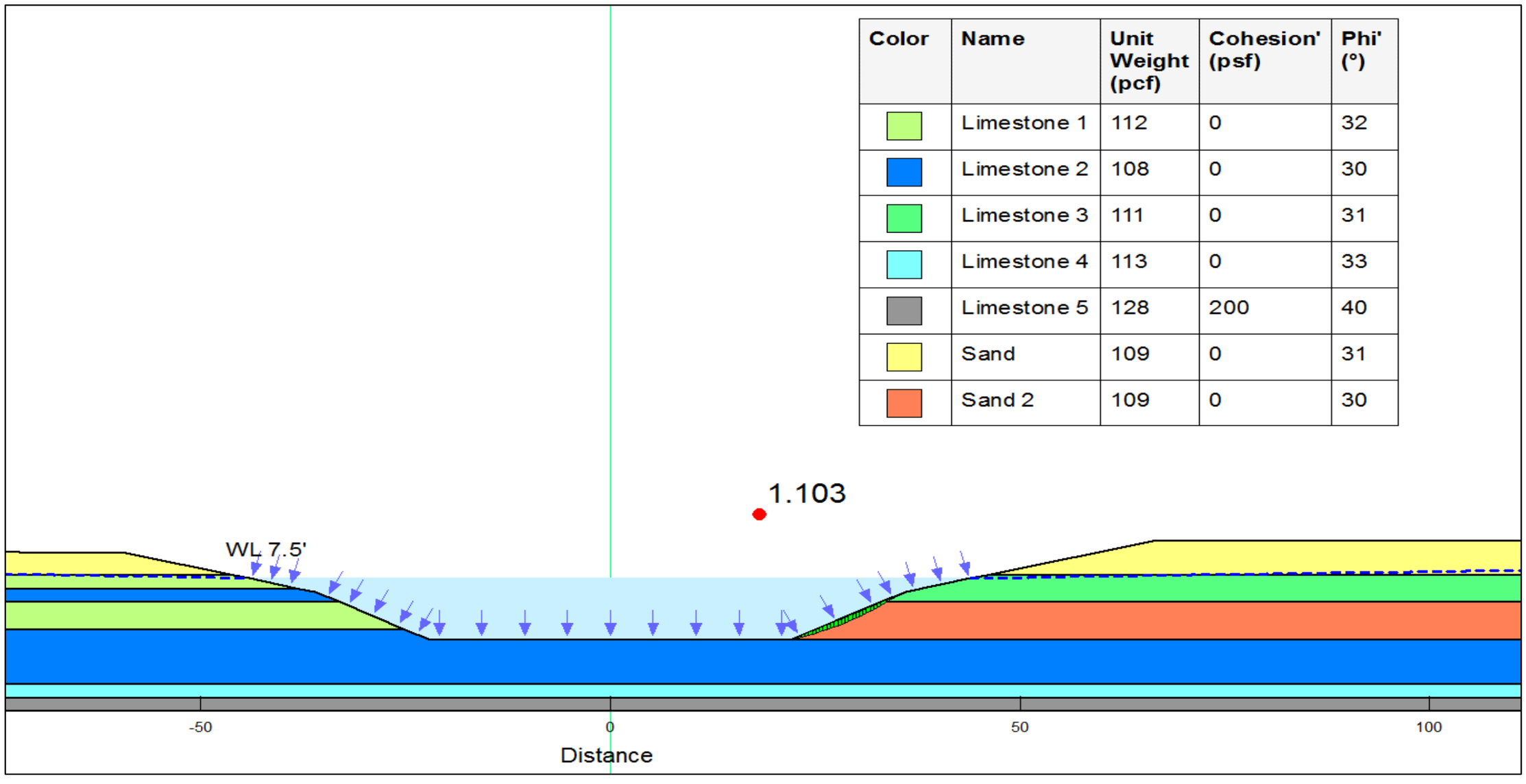
CORAL SPRINGS DRIVE VEHICULAR BRIDGE
LEFT SLOPE STABILITY
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
2H:1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A - 5b

RADISE Project Number: 191007

Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 1	112	0	32
	Limestone 2	108	0	30
	Limestone 3	111	0	31
	Limestone 4	113	0	33
	Limestone 5	128	200	40
	Sand	109	0	31
	Sand 2	109	0	30



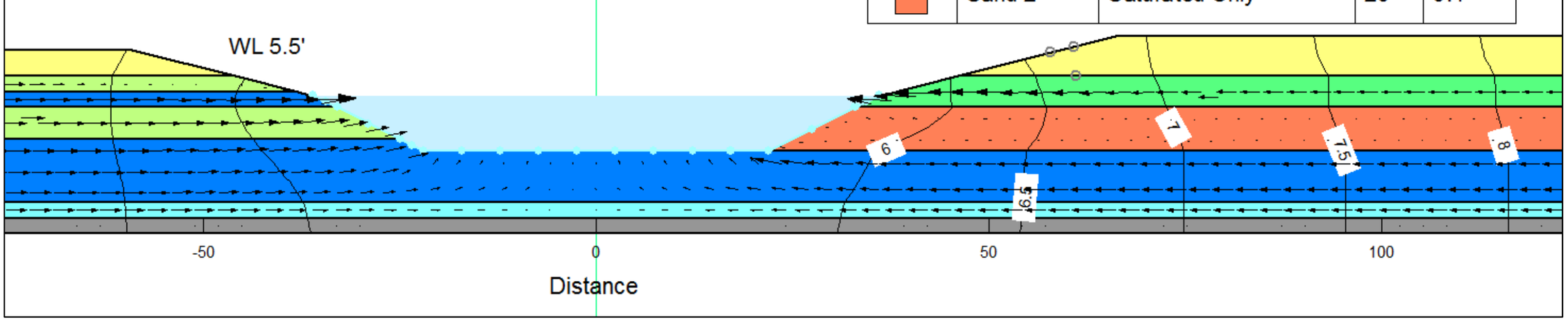
CORAL SPRINGS DRIVE VEHICULAR BRIDGE
RIGHT SLOPE STABILITY
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
2H:1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A - 5c

RADISE Project Number: 191007

Color	Name	Model	Sat Kx (ft/d)	Ky'/Kx' Ratio
	Limestone 1	Saturated / Unsaturated		0.1
	Limestone 2	Saturated / Unsaturated		0.1
	Limestone 3	Saturated / Unsaturated		0.1
	Limestone 4	Saturated Only	200	0.1
	Limestone 5	Saturated Only	10	0.1
	Sand	Saturated / Unsaturated		0.1
	Sand 2	Saturated Only	20	0.1



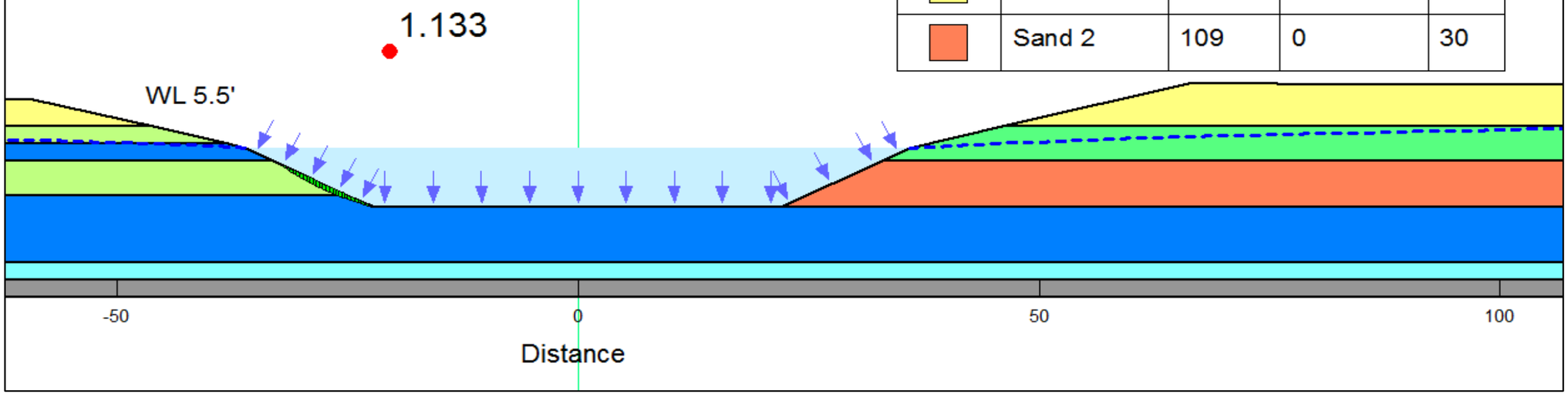
CORAL SPRINGS DRIVE VEHICULAR BRIDGE
SEEPAGE ANALYSIS (CANAL WL5.5')
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
2H:1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A -6a

RADISE Project Number: 191007

Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 1	112	0	32
	Limestone 2	108	0	30
	Limestone 3	111	0	31
	Limestone 4	113	0	33
	Limestone 5	128	200	40
	Sand	109	0	31
	Sand 2	109	0	30



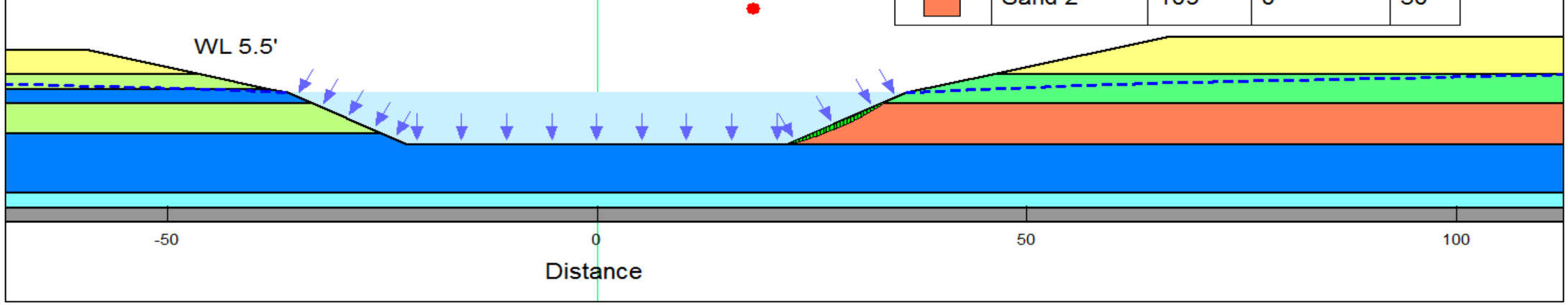
CORAL SPRINGS DRIVE VEHICULAR BRIDGE
LEFT SLOPE STABILITY (CANAL WL 5.5')
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
2H:1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A - 6b

RADISE Project Number: 191007

Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 1	112	0	32
	Limestone 2	108	0	30
	Limestone 3	111	0	31
	Limestone 4	113	0	33
	Limestone 5	128	200	40
	Sand	109	0	31
	Sand 2	109	0	30



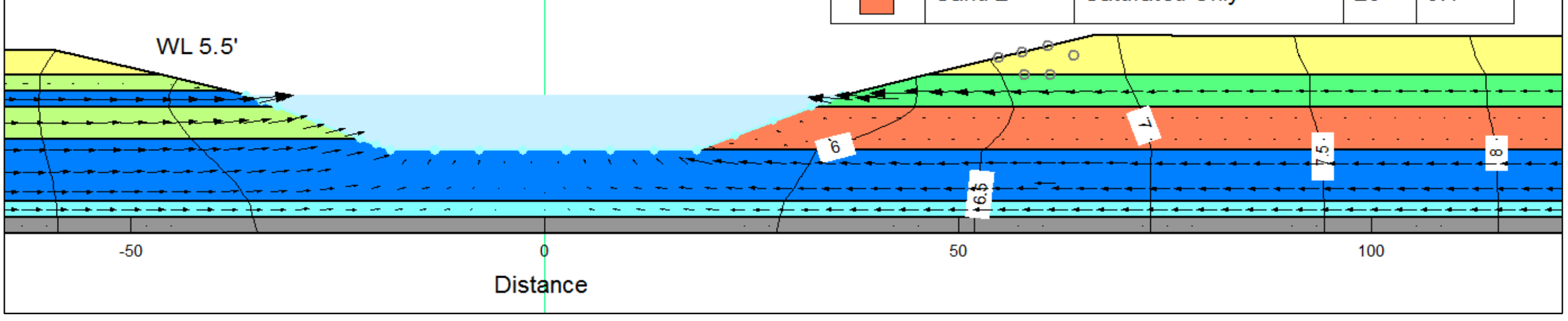
CORAL SPRINGS DRIVE VEHICULAR BRIDGE
RIGHT SLOPE STABILITY (CANAL WL 5.5')
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
2H:1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A - 6c

RADISE Project Number: 191007

Color	Name	Model	Sat Kx (ft/d)	Ky'/Kx' Ratio
	Limestone 1	Saturated / Unsaturated		0.1
	Limestone 2	Saturated / Unsaturated		0.1
	Limestone 3	Saturated / Unsaturated		0.1
	Limestone 4	Saturated Only	200	0.1
	Limestone 5	Saturated Only	10	0.1
	Sand	Saturated / Unsaturated		0.1
	Sand 2	Saturated Only	20	0.1



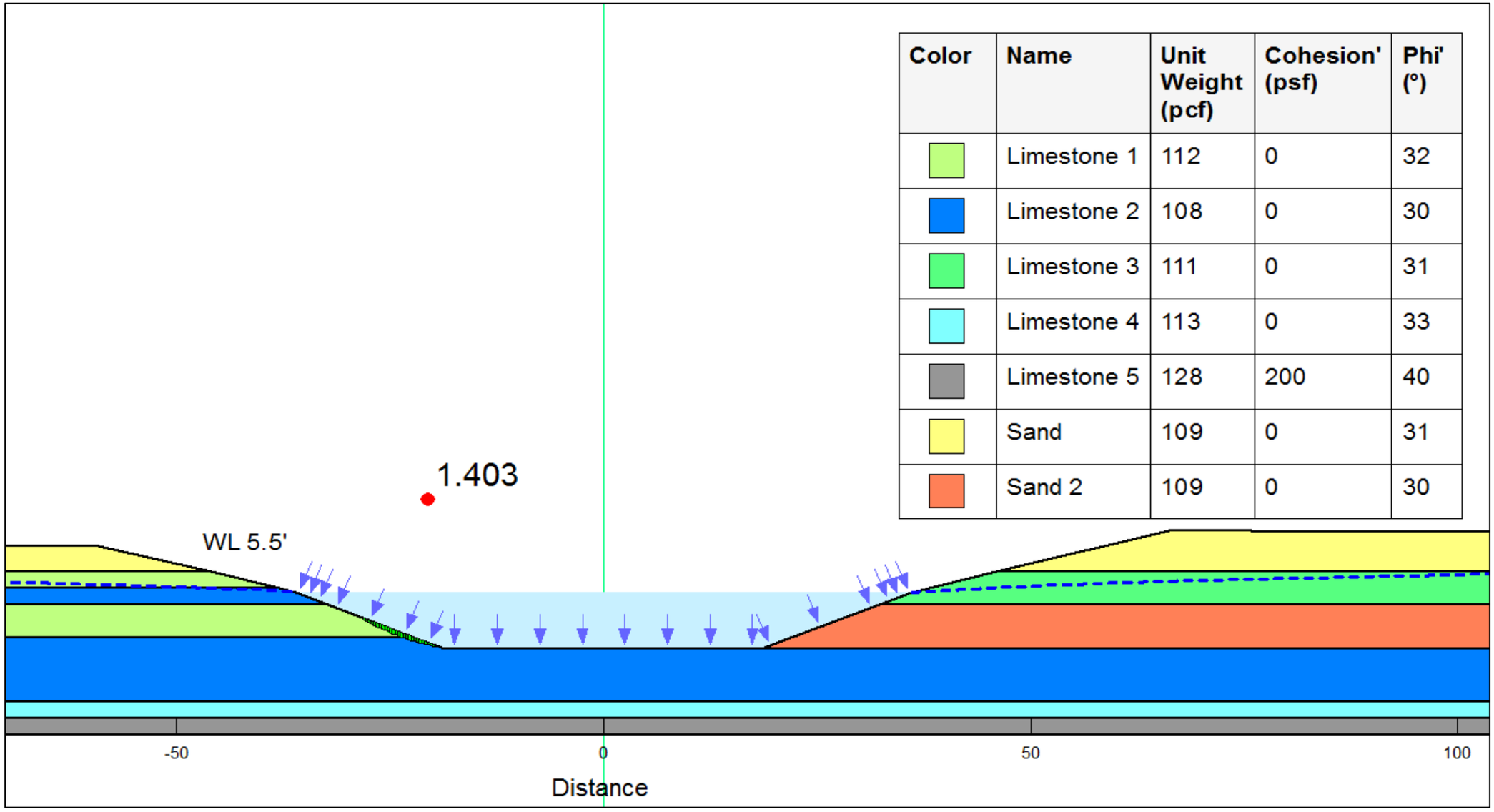
CORAL SPRINGS DRIVE VEHICULAR BRIDGE
SEEPAGE ANALYSIS (CANAL WL5.5')
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
2.5H:1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A -7a

RADISE Project Number: 191007

Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 1	112	0	32
	Limestone 2	108	0	30
	Limestone 3	111	0	31
	Limestone 4	113	0	33
	Limestone 5	128	200	40
	Sand	109	0	31
	Sand 2	109	0	30



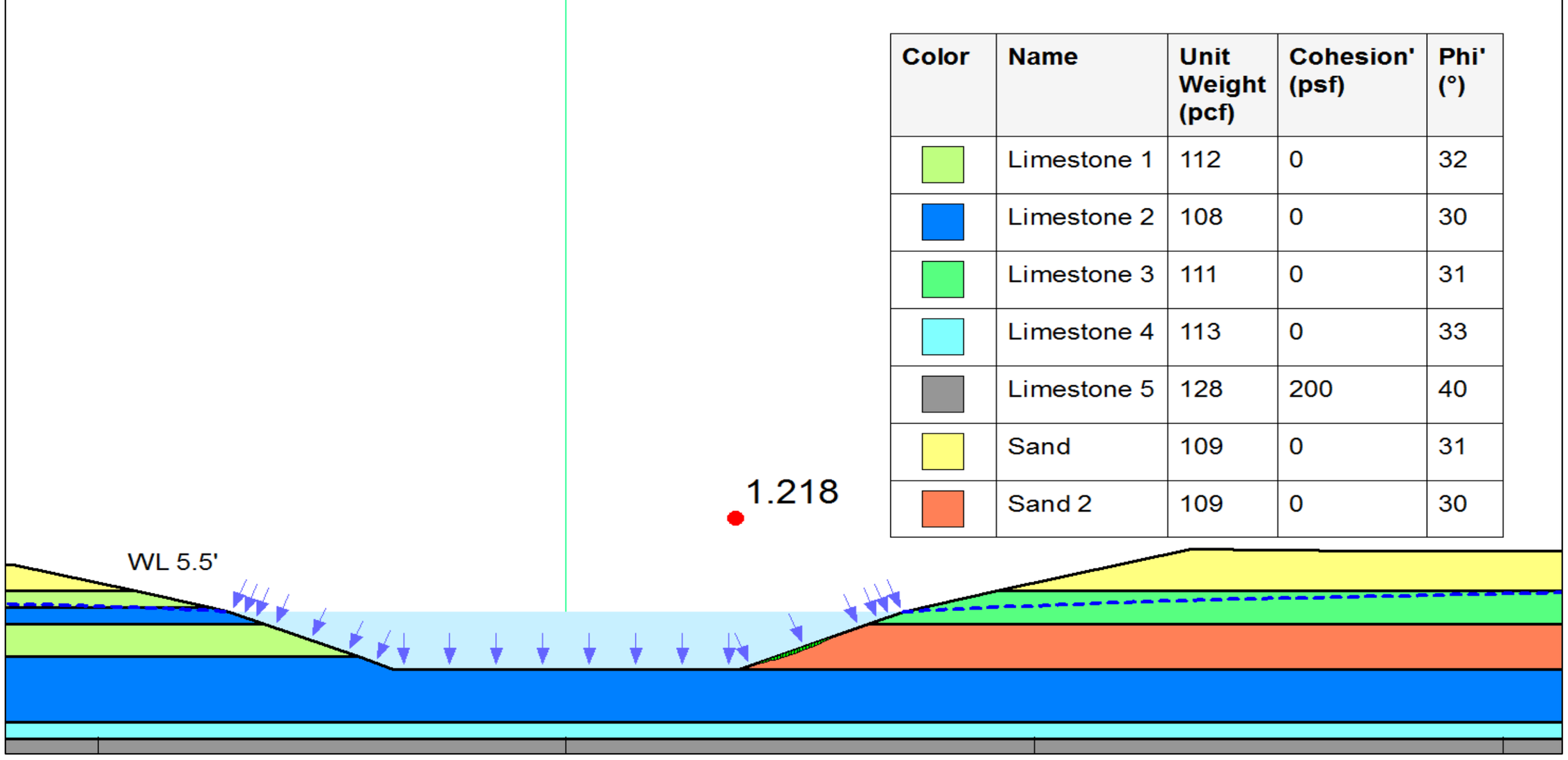
CORAL SPRINGS DRIVE VEHICULAR BRIDGE
LEFT SLOPE STABILITY (CANAL WL 5.5')
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
2.5H:1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A - 7b

RADISE Project Number: 191007

Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 1	112	0	32
	Limestone 2	108	0	30
	Limestone 3	111	0	31
	Limestone 4	113	0	33
	Limestone 5	128	200	40
	Sand	109	0	31
	Sand 2	109	0	30



CORAL SPRINGS DRIVE VEHICULAR BRIDGE
RIGHT SLOPE STABILITY (CANAL WL 5.5')
WEST OUTFALL CANAL IMPROVEMENTS BRIDGES
BROWARD COUNTY
2.5H:1V CANAL SLOPES

RADISE
Infrastructure Engineers • Software Developers

SHEET A - 7c

RADISE Project Number: 191007

Appendix B

Cost Estimating Data

SWCD Costing Spreadsheet

Bridge ID : Coral Springs Drive

	ID.	Item	No. of Items	No. of Units		$/Unit	Cost		Notes
				Units/Item	Units				
General Work Item Listing									
General Work Item Listing	1	Submittals	1		ea.	$ 500.00	$ -		
	2	GC Site Mobilization	1		ea.	10%	$ -		10% of Construction Cost
	3a	Dewatering Aqui-Dam	1		Feet	$ 350.00	$ -		
	b	Dewatering/Month	1		Month	$ 68,200.00	$ -		Assume 6 Months Duration__
	4	Canal Excavation	4		cy	$ 15.00	$ -		(165/2 cf/ft X 75')/27
	5	Lag Board Shoring	4		sf	$ 20.00	$ -		9 Sect. (15' high X 3.7sf/ft)
	6	Tie-Back Equip. Mobilization	1		ea.	$ 10,000.00	$ -		
	7	Tieback Installation	4		LF	$ 41.25	$ -		Assume 10 X 40' long
	8	Shotcrete Equipment Mob.	4		ea.	$ 10,000.00	$ -		Each Bridge Abutment
	9	Shotcrete Facing	4		sf	$ 73.41	$ -		Assume 40 Wide X 15' High
	10	Concrete Seal Slab	4		sf	$ 14.81	$ -		Each Bridge Abutment
	11	Sheetpile Equipment Mob/Setup	0		ea.	$ 10,000.00	$ -		
	12	Sheetpile Wing Walls	0		sf	$ 40.00	$ -		40' wide X 26.5' long (Avg)
	13	SheetpileWing Wall Caps	0		LF	$ 120.00	$ -		40' long
	14	Riprap Canal	4		sf	$ 13.50	$ -		Assume 40' X 75 '
	15	Cleanup and Demob	1		ea.	$ 14,500.00	$ -		
	16	MOT - N.Bound	1		ea.	$ 75,000.00	$ -		
	17	MOT - S.Bound	1		ea.	$ 75,000.00	$ -		
	18	Approach Slab Demolition	4		sf	$ 12.50	$ -		10' Wide X 40' Long
	19	Utility Terminates	6		ea.	$ 3,666.67	$ -		3 Locations each Side of Bridges
	20	ACIP Equipment Mob/Setup	4		ea.	$ 7,500.00	$ -		2 Bridges X 2 Locations/Bridge
	21	ACIPPiles - End Bent Walls	4		LF	$ 40.00	$ -		33 Piles (18" D) X 42 lf/pile
	22	ACIP Piles - Wing Walls	4		LF	$ 40.00	$ -		33 Piles X 26.5 lf/pile (Avg.)
	23	ACIP Pile - Wing Wall Caps	4		LF	$ 120.00	$ -		40' long
	24	Sheetpile End Bent Walls	0		sf	$ 54.67	$ -		40' wide X 42' long
	25	Approach Slab Reconstruction	4		sf	$ 26.62	$ -		10' Wide X 40' Long
	26	Utility Reconnects	4		ea.	$ 3,666.67	$ -		2 Locations each Side of Bridge
	27	Remove Pre-cast Deck Slabs	4		ea.	$ 32,500.00	$ -		2 Bridges X 4 Locations/Bridge
	28	Reconstruct Pre-cast Deck Slab	4		ea.	$ 347,325.00	$ -		2 Bridges X 2 Locations/Bridge
	29	Remove MOT/Median Re-construct	2		ea.	$ 25,000.00	$ -		1 -each side canal
	30	Profit, Markup, and OH				26%			
	31	Contingency				25%			

3.3.6.a. Lag Board Shoring Approach									**$2,103,572**
h	1	Submittals	1	20	ea.	$ 500.00	$ 10,000.00		
	2	GC Site Mobilization	1	1	ea.	$ 125,568.31	$ 125,568.31		10% of Construction Cost
	3a	Dewatering Aqui-Dam	1	100	Feet	$ 350.00	$ 35,000.00		Install and Remove
	3b	Dewatering/Month	1	6	Month	$ 68,200.00	$ 409,200.00		Assume 6 Months Duration

Lag Board Shoring Apptoac

	4	Canal Excavation	4	450	cy	$ 15.00	$ 27,000.00		((165+147)/2 cf/f X 75')/27		
	5	Lag Board Shoring	4	500	sf	$ 20.00	$ 40,000.00		9 Sect. (15' high X 3.7sf/ft)		
	6	Tie-Back Equip. Mobilization	4	1	ea.	$ 10,000.00	$ 40,000.00		1 each bridge abutment		
	7	Tieback Installation	4	400	LF	$ 45.00	$ 72,000.00		Assume 10 X 40' long		
	8	Shotcrete Equipment Mob.	4	1	ea.	$ 10,000.00	$ 40,000.00		Each Bridge Abutment		
	9	Shotcrete Facing	4	600	sf	$ 73.41	$ 176,190.48		Assume 40 Wide X 15' High		
	10	Concrete Seal Slab	4	550	sf	$ 14.81	$ 32,592.59		Each Bridge Abutment		
	11	Sheetpile Equipment Mob/Setup	2	1	ea.	$ 10,000.00	$ 20,000.00				
	12	Sheetpile Wing Walls & 1/2 Median	4	1050	sf	$ 40.00	$ 168,000.00		40' wide X 26.5' long (Avg)		
	13	SheetpileWing Wall Caps	4	40	LF	$ 120.00	$ 19,200.00		40' long		
	14	Riprap Canal	4	3000	sf	$ 13.50	$ 162,000.00		Assume 40' X 75 '		
	15	Cleanup and Demob	1	1	ea.	$ 14,500.00	$ 14,500.00				
							Construction $	**OH, Mu, Profit**	**Subtotal .**	**Contingency**	**Total Est.**
							$1,391,251	$361,725	$1,752,977	$350,595	$2,103,572

3.3.6.b. Exterior Retaining Wall Approach									**$3,272,167**		
	1	Submittals	1	20	ea.	$ 500.00	$ 10,000.00				
	2	GC Site Mobilization	1	1	ea.	$ 167,848.31	$ 167,848.31		10% of Construction Cost		
	3a	Dewatering Aqui-Dam	1	100	Feet	$ 350.00	$ 35,000.00				
	3b	Dewatering/Month	1	4	Month	$ 68,200.00	$ 272,800.00				
	16	MOT - N.Side	1	1	ea.	$ 75,000.00	$ 75,000.00		Remove Curb/Median Temp Pave.		
	17	MOT - S.Side	1	1	ea.	$ 75,000.00	$ 75,000.00				
	18	Approach Slab Demolition	4	400	sf	$ 12.50	$ 20,000.00		10' Wide X 40' Long each		
	19	Utility Terminates	6	1	ea.	$ 3,666.67	$ 22,000.00		3 Locations each Side of Bridges		
	20	ACIP Equipment Mob/Setup	4	1	ea.	$ 7,500.00	$ 30,000.00		2 Bridges X 2 Locations/Bridge		
	21	ACIP Piles - End Bent & 1/2 Median	4	1680	LF	$ 40.00	$ 268,800.00		40 Piles (18" D) X 42 lf/pile		
	22	ACIP Piles - Wing Walls	4	838	LF	$ 40.00	$ 134,080.00		33 Piles X 26.5 lf/pile (Avg.)		
	23	ACIP Pile - Wing Wall Caps	4	40	LF	$ 120.00	$ 19,200.00		40' long		
	25	Approach Slab Reconstruction	4	400	sf	$ 26.62	$ 42,586.67		10' Wide X 40' Long		
	26	Utility Reconnects	4	2	ea.	$ 3,666.67	$ 29,333.33		2 Locations each Side of Bridge		
	3	Dewatering/Month	1	6	Month	$ 68,200.00	$ 409,200.00		Assume 6 Months Duration		
	4	Canal Excavation	4	450	cy	$ 15.00	$ 27,000.00		((165+147)/2 cf/f X 75')/27		
	6	Tie-Back Equip. Mobilization	1	1	ea.	$ 10,000.00	$ 10,000.00				
	7	Tieback Installation	4	400	LF	$ 41.25	$ 66,000.00		Assume 10 X 40' long		
	8	Shotcrete Equipment Mob.	4	1	ea.	$ 10,000.00	$ 40,000.00		Each Bridge Abutment		
	9	Shotcrete Facing	4	600	sf	$ 73.41	$ 176,190.48		Assume 40 Wide X 15' High		
	10	Concrete Seal Slab	4	550	sf	$ 14.81	$ 32,592.59		Each Bridge Abutment		
	14	Riprap Canal	4	3000	sf	$ 13.50	$ 162,000.00		Assume 40' X 75 '		
	29	Remove MOT/Median Re-construct	1	1	ea.	$ 25,000.00	$ 25,000.00				
	15	Cleanup and Demob	1	1	ea.	$ 14,500.00	$ 14,500.00				
							Construction $	**OH, Mu, Profit**	**Subtotal .**	**Contingency**	**Total Est.**
							$2,164,131	$562,674	$2,726,806	$545,361	$3,272,167

Exterior Retaining Wall Approach

3.3.6.c - Bridge Deck Removal Approach									$4,682,081		
Re	1	Submittals	1	20	ea.	$ 500.00	$ 10,000.00				
	2	GC Site Mobilization	1	1	ea.	$ 280,601.33	$ 280,601.33		10% of Construction Cost		
	16	MOT - N.Bound	1	1	ea.	$ 75,000.00	$ 75,000.00				
	17	MOT - S.Bound	1	1	ea.	$ 75,000.00	$ 75,000.00				
	19	Utility Terminates	6	1	ea.	$ 3,666.67	$ 22,000.00		3 Locations each Side of Bridges		
	27	Remove Pre-cast Deck Slab	4	4	ea.	$ 32,500.00	$ 520,000.00		2 Bridges X 8-10' Wide Slabs/Bridge		
	11	Sheetpile Equipment Mob/Setup	2	1	ea.	$ 10,000.00	$ 20,000.00				
	24	Sheetpile End Bent & 1/2 Median	2	1680	sf	$ 54.67	$ 183,680.00		40' wide X 42' long		
	12	Sheetpile Wing Walls	4	1050	sf	$ 40.00	$ 168,000.00		40' wide X 26.5' long (Avg)		
	13	SheetpileWing Wall Caps	4	40	LF	$ 120.00	$ 19,200.00		40' long		
	4	Canal Excavation	4	450	cy	$ 15.00	$ 27,000.00		((165+147)/2 cf/f X 75')/27		
	6	Tie-Back Equip. Mobilization	1	1	ea.	$ 10,000.00	$ 10,000.00				
	7	Tieback Installation	4	400	LF	$ 41.25	$ 66,000.00		Assume 10 X 40' long		
	14	Riprap Canal	4	3000	sf	$ 13.50	$ 162,000.00		Assume 40' X 75 ' ea.		
	28	Reconstruct Pre-cast Deck Slab	4	1	ea.	$ 347,325.00	$ 1,389,300.00		2 Bridges X 2 Locations/Bridge		
	26	Utility Reconnects	4	2	ea.	$ 3,666.67	$ 29,333.33		2 Locations each Side of Bridge		
	29	Remove MOT/Median Re-construct	1	1	ea.	$ 25,000.00	$ 25,000.00				
	15	Cleanup and Demob	1	1	ea.	$ 14,500.00	$ 14,500.00				
							Construction $	**OH, Mu, Profit**	**Subtotal .**	**Contingency**	**Total Est.**
							$3,096,615	$805,120	$3,901,734	$780,347	$4,682,081

CRAIG A. SMITH & ASSOCIATES
21045 Commercial Trail • Boca Raton, FL 33486
CONSULTING ENGINEERS • SURVEYORS • UTILITY LOCATORS
www.craigasmith.com

November 25, 2020

Board of Supervisors
Sunshine Water Control District
2300 Glades Road, Suite 410W
Boca Raton, Florida 33073

RE: SWCD RIGHT-OF-WAY (ROW) PERMIT APPLICATION – Canal "MM"
Monitoring Well Abandonment
Project Site: Intersection of Sample Road & Canal "MM"
CAS PROJECT NO. 15-1826

Dear Board of Supervisors:

We have reviewed a R/W permit application submitted by CRB Geological & Environmental Services, Inc on behalf of Pan American Group for the abandonment of two monitoring wells within the SWCD Right-of-way Canal "MM". According to the applicant, the monitoring has been completed. Via a letter from the Broward County Environmental Engineering and Permitting Division, the wells are required to be abandoned in accordance with Chapter 62-671, Florida Administrative Code. The applicant has met SWCD applicable criteria and we recommend that the SWCD Board of Supervisors issue a Right-of-Way Permit to the applicant, subject to the following Special Conditions to be made part of the Permit:

1. All work must be in compliance with the latest SWCD Permit Criteria Manual.
2. Permittee will ensure that all necessary Sediment & Erosion Control devices will be utilized at the SWCD right-of-way during construction. Canal banks are to be fully restored.
3. Certified As-builts of the installed utility shall be submitted upon project completion.
4. Trash bond ($2,500) shall be submitted prior to permit issuance and the Contractor shall repair and replace any SWCD facilities damaged during construction at no cost to the District.
5. All applicable permits and approvals for Work shall be obtained.
6. SWCD shall be notified at least 48 hours prior to construction.

This permit recommendation is planned to be submitted to December 9, 2020 Regular Board Meeting and the applicant is advised that no construction is to take place until the Board takes a favorable action on this project and the permit is executed by SWCD Staff.

Sincerely,

CRAIG A. SMITH & ASSOCIATES

Orlando A. Rubio, PE
Sr. Supervising Engineer

cc: CRB Geological & Environmental Services, Inc - Brad Compton (via e-mail bcompton@crbgeo.com)
WHA - Cindy Cerbone, Debbie Tudor, Daphne Gillyard, Daniel Rom (via e-mail)
SWCD - Cory Selchan, Field Superintendent (via e-mail)
CAS – Stephen C. Smith (via e-mail)

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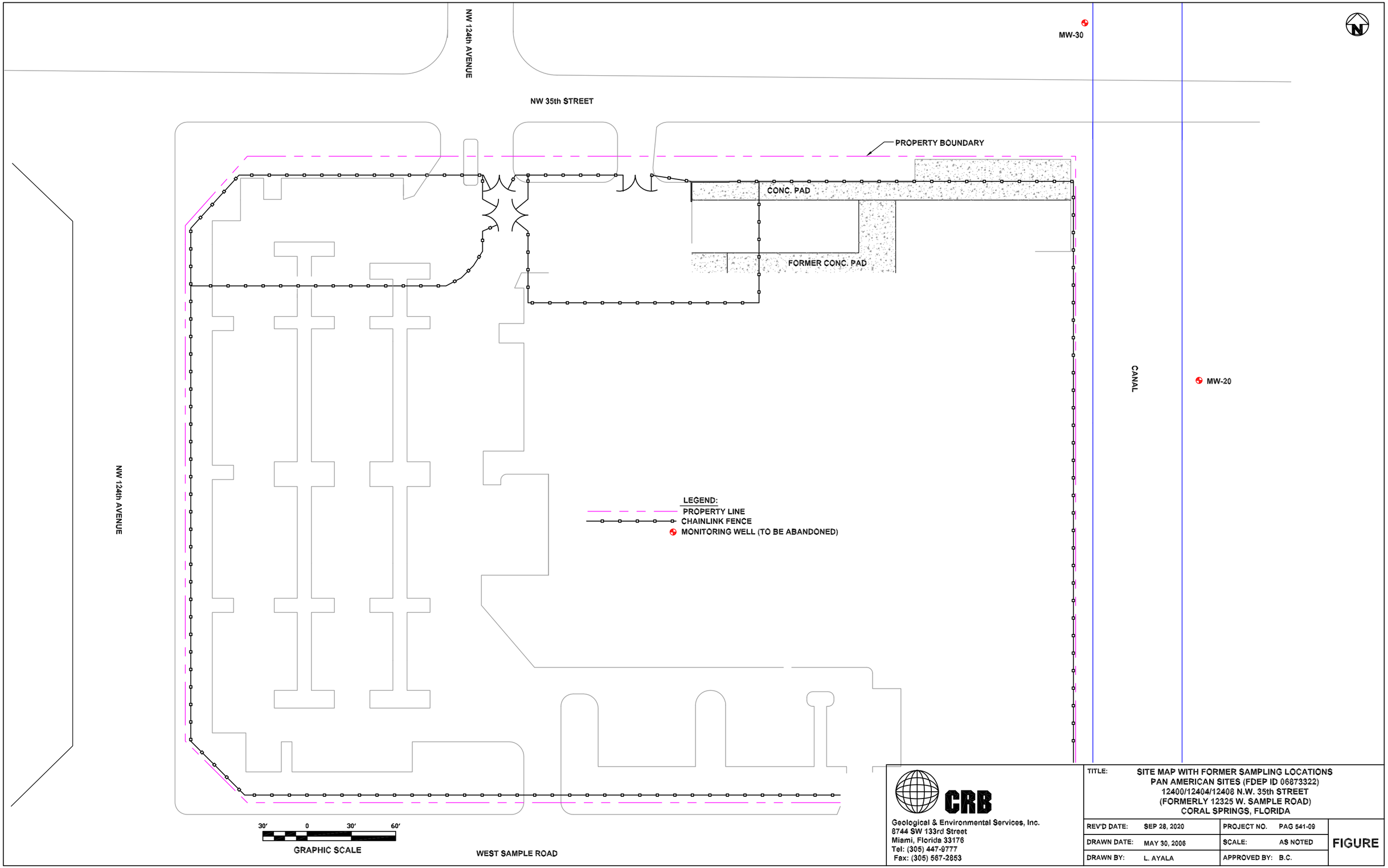

CRB
Geological & Environmental Services, Inc.
8744 SW 133rd Street
Miami, Florida 33176
Tel: (305) 447-9777
Fax: (305) 567-2853

TITLE: SITE MAP WITH FORMER SAMPLING LOCATIONS
PAN AMERICAN SITES (FDEP ID 06873322)
12400/12404/12408 N.W. 35th STREET
(FORMERLY 12325 W. SAMPLE ROAD)
CORAL SPRINGS, FLORIDA

REV'D DATE:	SEP 28, 2020	PROJECT NO.	PAG 541-09
DRAWN DATE:	MAY 30, 2006	SCALE:	AS NOTED
DRAWN BY:	L. AYALA	APPROVED BY:	B.C.

FIGURE

PAG 541...\09...\Reports\WAR\CAD\F2- Site Map

Environmental Protection and Growth Management Department
ENVIRONMENTAL ENGINEERING AND PERMITTING DIVISION
1 North University Drive, Mailbox 201, Plantation, Florida 33324 • 954-519-1483 • FAX 954-519-1412

September 22, 2020

Carlos Lopez-Cantera
Pan American Sites
2151 South Le Jeune Road, Suite 300
Coral Gables, Florida 33134

RE: **Recorded Declaration of Restrictive Covenant (RDRC)**
Pan American Coral Springs Brownfield Site (a.k.a. New Industrial Techniques)
12400 / 12404 / 12408 NW 35th Street (previously 12325 West Sample Road)
Coral Springs, Florida 33065
Brownfield Site ID# BF061501001
Discharge Date: December 13, 2002; EAR License # 0663

Dear Mr. Lopez-Cantera:

The Broward County Environmental Engineering and Permitting Division has reviewed the RDRC dated and received via email September 3, 2020 for the referenced site, prepared and submitted by your consultant, The Goldstein Environmental Law Firm, P.A. The RDRC is recorded as Instrument No. 116710206, Pages 1 to 11 in Broward County Public Records on September 3, 2020.

Please be advised that you are required to properly abandon all monitoring wells, except any monitoring wells required for compliance monitoring in accordance with Chapter 62-761, Florida Administrative Code (FAC), or any other required licenses. The monitoring wells must be abandoned in accordance with the requirements of Rule 62-532.500(5), FAC, which states that casings are to be filled from bottom to top with neat cement grout.

Please detail these activities in a Well Abandonment Report, to be submitted to the Division no later than **December 2, 2020.** Alternately, should the only monitoring wells on site be monitoring wells required for compliance monitoring, please provide the Division with a signed statement to that effect. Upon receipt and approval of the Well Abandonment Report, a No Further Action with Controls approval letter will be issued to you and the referenced discharge will be inactivated by the Division. If you have any questions or concerns, please contact me at (954) 519-1478 or dvanlandingham@broward.org.

Sincerely,
ENVIRONMENTAL ENGINEERING AND PERMITTING DIVISION

David Vanlandingham, P.E., Engineering Unit Supervisor
Cleanup and Waste Regulation Section

ec: -Norman Arrazola, P.E., Broward County Cleanup and Waste Regulation Section
-Carlos Lopez-Cantera, Pan American Sites
-Michael R. Goldstein, Esq., The Goldstein Environmental Law Firm, P.A.
-Megan Johnson, Justin L. Cross, FDEP
-FDEP SE District

SUNSHINE
WATER CONTROL DISTRICT

12E

SUNSHINE WATER CONTROL DISTRICT		
BOARD OF SUPERVISORS FISCAL YEAR 2020/2021 MEETING SCHEDULE		
LOCATION *La Quinta Inn Coral Springs, 3701 N. University Drive, Coral Springs, Florida 33065*		
DATE	**POTENTIAL DISCUSSION/FOCUS**	**TIME**
October 14, 2020	**Regular Meeting**	**6:30 PM**
November 4, 2020*	**Regular Meeting**	**6:30 PM**
December 9, 2020	**Regular Meeting**	**6:30 PM**
January 13, 2021	**Regular Meeting**	**6:30 PM**
February 10, 2021	**Regular Meeting**	**6:30 PM**
March 10, 2021	**Landowners' Meeting & Regular Meeting**	**6:30 PM**
April 14, 2021	**Regular Meeting**	**6:30 PM**
May 12, 2021	**Regular Meeting**	**6:30 PM**
June 9, 2021	**Regular Meeting**	**6:30 PM**
July 14, 2021	**Regular Meeting**	**6:30 PM**
August 11, 202	**Regular Meeting**	**6:30 PM**
September 8, 2021	**Public Hearing & Regular Meeting**	**6:30 PM**

Exceptions:

November meeting is one (1) week earlier to accommodate Veteran's Day Holiday

In the event that the COVID-19 public health emergency prevents the meetings from occurring in-person, the District may conduct the meetings by telephone or video conferencing communications media technology pursuant to governmental orders, including but not limited to Executive Orders 20-52, 20-69, 20-150, 20-179 and 20-193 issued by Governor, and any extensions or supplements thereof, and pursuant to Section 120.54(5)(b)2., Florida Statutes.