



# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

TEL: (561) 747-5700

FAX: (561) 747-9929

D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## AGENDA

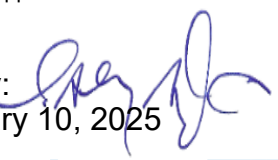
### REGULAR MEETING # 02-2025

**FEBRUARY 20, 2025 – 7:00 PM AT DISTRICT OFFICES**

ALSO, THE MEETING WILL BE AVAILABLE TO THE PUBLIC ONLINE AT:  
[LOXAHATCHEERIVER.ORG/PUBLICMEETING](http://LOXAHATCHEERIVER.ORG/PUBLICMEETING)

1. Call to Order & Pledge of Allegiance
2. Administrative Matters
  - A. Roll Call
  - B. Previous Meeting Minutes **Page 3**
  - C. Additions and Deletions to the Agenda
3. Comments from the Public
4. Status Updates
  - A. Loxahatchee River Watershed **Page 9**
  - B. Loxahatchee River District Dashboard **Page 10**
5. Consent Agenda (see next page) **Page 11**
6. Regular Agenda
  - A. Consent Agenda Items Pulled for Discussion
  - B. 25-002-00141 2500 Jupiter Park Drive Site Improvements  
– Qualification of Firms **Page 259**
  - C. Annual Audit for Fiscal Year 2024 **Page 263** **Page 264**
  - D. Chapter 31-10 Schedule of Rates, Fees, and Charges (Rate Study)
7. Reports (see next page) Pulled for Discussion
8. Future Business **Page 356**
9. Board Comments
10. Adjournment

“...if a person decides to appeal any decision made by the Board, with respect to any matter considered at such meeting or hearing, he/she will need a record of the proceedings, and that, for such purpose, he/she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.”

Submitted by:   
Date: February 10, 2025

**Gordon M. Boggie**  
CHAIRMAN

**Kevin L. Baker**  
BOARD MEMBER

**Stephen B. Rockoff**  
BOARD MEMBER

**Dr. Matt H. Rostock**  
BOARD MEMBER

## 5. CONSENT AGENDA

All items listed in this portion of the agenda are considered routine and will be enacted by one motion. There will be no separate discussion of these items unless requested by a Board member or citizen; in which event, the item will be removed and considered under the regular agenda.

- A. 2966 Jamaica Drive - Preliminary Assessment [Page 12](#)
- B. 31-10: Jamaica Drive Phase 2 - Subregional Line Charge [Page 16](#)
- C. Manual of Minimum Construction Standards and Technical Specifications  
– to approve revisions [Page 18](#)
- D. Water Leak Credit Policy - to review and approve [Page 242](#)
- E. Easement Abandonment - PCN # 00-42-40-33-08-015-0010 [Page 244](#)
- F. Portable Generator - to approve purchase [Page 251](#)
- G. Fixed Asset Disposal - to approve disposal [Page 256](#)
- H. Change Order to Current Contract - to approve modifications [Page 257](#)

## 7. REPORTS

- A. Neighborhood Sewering [Page 295](#)
- B. Legal Counsel's Report [Page 296](#)
- C. Director's Report [Page 300](#)



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## MEMORANDUM

TO: Governing Board  
FROM: D. Albrey Arrington, Ph.D., Executive Director  
DATE: February 14, 2025  
SUBJECT: Approval of Meeting Minutes

Attached herewith are the minutes for the Regular Meeting of January 16<sup>th</sup>, 2025. As such, the following motion is presented for your consideration:

**“THAT THE GOVERNING BOARD** approve the minutes of the Regular Meeting of January 16<sup>th</sup>, 2025 as submitted.”

**Stephen B. Rockoff**  
CHAIRMAN

**Kevin L. Baker**  
BOARD MEMBER

**Gordon M. Boggie**  
BOARD MEMBER

**Dr. Matt H. Rostock**  
BOARD MEMBER

**Clinton R. Yerkes**  
BOARD MEMBER

Ref: #01-2025

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT  
REGULAR MEETING - MINUTES  
JANUARY 16, 2025

1. CALL TO ORDER

Chairman Rockoff called the Regular Meeting of January 16, 2025 to order at 7:00 PM.

2. ADMINISTRATIVE MATTERS

A. ROLL CALL

The following Board Members were in attendance:

Mr. Baker  
Mr. Boggie  
Mr. Rockoff  
Dr. Rostock  
Mr. Yerkes

Staff Members in attendance were Dr. Arrington, Mr. Dean, Mr. Howard, Mr. Pugsley, Ms. Fraraccio, Dr. Chen and Ms. Jones (via GotoWebinar). Consultants in attendance were Mr. Curtis Shenkman and Mr. Hunter Shenkman with Shenkman & Shenkman, P.A.,

B. PREVIOUS MEETING MINUTES

The minutes of the Regular Meeting of December 19, 2024 were presented for approval and the following motion was made:

“THAT THE GOVERNING BOARD approve the minutes of the Regular Meeting of December 19, 2024 as submitted.”

MOTION: Made by Dr. Rostock, Seconded by Mr. Yerkes  
Passed Unanimously.

C. ELECTION OF OFFICERS

“THAT THE GOVERNING BOARD elect: Mr. Boggie to serve as Chairman, Mr. Baker to serve as Vice Chairman, Dr. Rostock to serve as Treasurer, Mr. Rockoff to serve as Secretary of the Governing Board of the Loxahatchee River Environmental Control District.”

MOTION: Made by Mr. Baker, Seconded by Mr. Boggie  
Passed Unanimously.



D. ADDITIONS & DELETIONS TO THE AGENDA

Delete 5E & Pull for discussion 5F

3. COMMENTS FROM THE PUBLIC

No public comments were received.

4. STATUS UPDATES

A. LOXAHATCHEE WATERSHED STATUS

Mr. Pugsley presented on what PFAS (per- and polyfluoroalkyl) substances are, where they come from and how they can detrimentally impact the environment and the health/welfare of the public. A summary of recent PFAS laboratory analyses performed at the plant were also provided.

B. LOXAHATCHEE RIVER DISTRICT DASHBOARD

Dr. Arrington reviewed the District Dashboard.

5. CONSENT AGENDA

MOTION: Made by Dr. Rostock, Seconded by Mr. Rockoff  
Passed unanimously.

“THAT THE GOVERNING BOARD approve the Consent Agenda of January 16, 2025 pulling 5F and deleting item 5E.”

The following motions were approved as a result of the Board’s adoption of the Consent Agenda:

A. Authorization to Execute Reports (Res.2025-01)

“**THAT THE GOVERNING BOARD** approve Resolution 2025-01 authorizing specific signatures for execution of all reports required under the Florida Statutes.”

B. Employee Retirement Plan Trustee Designation – to designate Trustee

“**THAT THE GOVERNING BOARD** elects Dr. Matt Rostock to serve as Trustee for the Loxahatchee River Environmental Control District Money Purchase Plan and Trust.”

C. Governing Board Appointments and Liaisons

“**THAT THE GOVERNING BOARD** adopt the chart of Governing Board appointments and liaisons for the 2025 calendar year.”

D. Procurement Policy and Procedures – to approve policy updates

**“THAT THE DISTRICT GOVERNING BOARD** ratify and approve the attached Procurement Policy and direct the Executive Director to implement the policy with an effective date of January 17, 2025, and allow for the next review take place in May 2027.”

G. Fixed Asset Disposal – to approve disposal

<u>Description</u>	<u>Serial Number</u>	<u>Condition</u>	<u>Estimated Value</u>
2 HP Barnes Pump	C1684049-0514	Beyond Repair	\$100
2 HP Barnes Pump	C1837898-0817	Beyond Repair	\$100
2 HP Barnes Pump	C1462623-0310	Beyond Repair	\$100
2 HP Barnes Pump	C1272542-0207	Beyond Repair	\$100
2 HP Barnes Pump	C940795-01033	Beyond Repair	\$100
2 HP Barnes Pump	BAR-LMP9	Beyond Repair	\$100

**“THAT THE GOVERNING BOARD** authorize the Executive Director to dispose of the items listed in the schedule above in accordance with the District’s Disposal of Surplus Tangible Personal Property Policy.”

H. Change Orders to Current Contracts - to approve modifications

No Change Orders were presented for Board consideration this month.

6. REGULAR AGENDA

A. CONSENT AGENDA ITEMS PULLED FOR DISCUSSION

Clarifier No. 4 Rehabilitation – to approve contract

**“THAT THE DISTRICT GOVERNING BOARD** authorize the Executive Director to execute a purchase order to Ovivo USA, LLC in the amount of \$220,260.00 and a 10% contingency in the amount of \$22,026.00. Board authorization is contingent upon Ovivo USA, LLC deleting language within their standard Terms & Conditions requiring the District to indemnify Ovivo, under any circumstance and including the Government Rider.”

MOTION: Made by Mr. Baker, Seconded by Mr. Rockoff  
Passed Unanimously.

B. County Line Road Utility Relocations – Recommendation of Award

**“THAT THE DISTRICT GOVERNING BOARD** award ITB 23-004-00126 to Accurate Drilling Systems, Inc. in the amount of \$1,308,000.00 in accordance with their Bid submitted on January 7, 2025 and a contingency amount of \$131,000.00.”

MOTION: Made by Mr. Rockoff, Seconded by Dr. Rostock  
Passed Unanimously.

C. Florida-FIT Cash Pool

**“THAT THE GOVERNING BOARD** authorize the Executive Director to open a Cash Pool account with Florida Fixed Income Trust and allocate Treasury proceeds in Florida PRIME and Florida Fixed Income Trust up to our Investment Policy limits.”

MOTION: Made by Dr. Rostock, Seconded by Mr. Rockoff  
Passed Unanimously.

7. REPORTS

- A. NEIGHBORHOOD SEWERING
- B. LEGAL COUNSEL’S REPORT
- C. DIRECTOR’S REPORT

8. FUTURE BUSINESS

Future Business stood as written.

9. COMMENTS FROM THE BOARD

Mr. Baker noted the pothole at the entrance to our 20 acres was repaired by Sierra Square, which is a requirement of the easement they possess over our property.

Dr. Rostock raised his prior inquiry about the potential of installing a LRD sign, potentially in combination with the existing Jupiter Commerce Park sign, at or near the intersection of Central Blvd and Jupiter Park Drive. Staff indicated that they will follow-up with him on this matter.

10. ADJOURNMENT

“That the regular meeting of January 16, 2025 adjourns at 8:19 PM.”

MOTION: Made by Mr. Rockoff, Seconded by Dr. Rostock,  
Passed Unanimously.

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BOARD CHAIRMAN

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BOARD SECRETARY

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RECORDING SECRETARY



## Loxahatchee River Watershed Status Pollution Reduction Plan Update

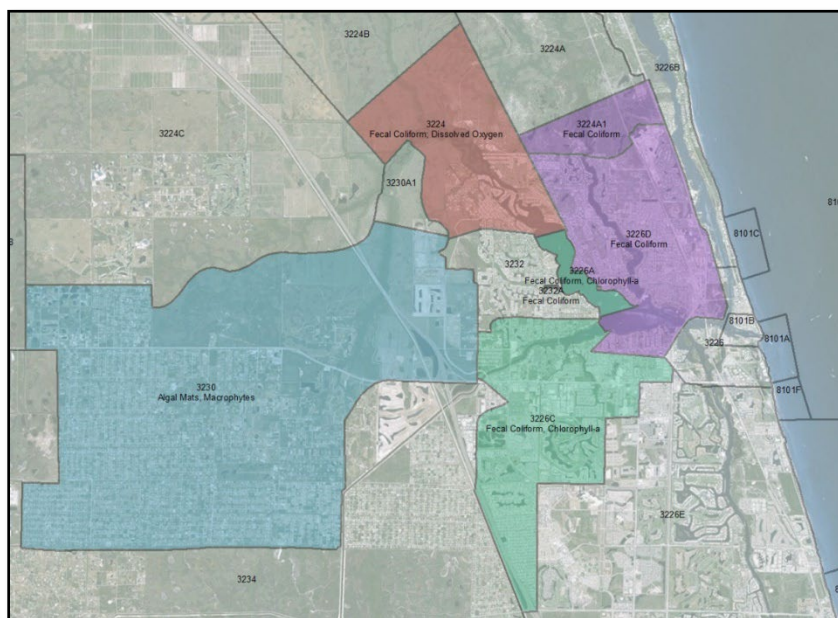
It has now been 5 years since the Florida Department of Environmental Protection finalized the *Loxahatchee River Pollution Reduction Plan* that was developed in coordination with the members for Loxahatchee River Management Coordinating Council (LRMCC). This plan provides the background and information for implementing a voluntary pollutant reduction plan to restore water quality impairments in the Loxahatchee River. At our meeting we will provide a brief overview of this plan, the need for the plan, and highlight some of the water quality improvement projects completed and scheduled.

### Loxahatchee River Pollutant Reduction Plan

developed by the  
Stakeholders in the Loxahatchee River Basin


with support from the  
Division of Environmental Assessment and Restoration  
Water Quality Assessment Program  
Florida Department of Environmental Protection

February 2020



# LOXAHATCHEE RIVER DISTRICT'S EXECUTIVE DASHBOARD



		Stewardship	Pre-Treatment	Collection & Transmission		Wastewater Treatment			Reclaimed Water	EHS	General Business					River Health		
		# People educated at RC	Grease Interceptor Inspections	Customer Service	Unauthorized Discharge of Sewage	Mean Daily Incoming Flow	Permit exceedance	NANO Blend to Reuse (@ 511)	Delivery of Reclaimed Water	Employee Safety	Cash Available	Revenue (excluding assessment & capital contrib.)	Operating Expenses	Capital Projects		Minimum Flow Compliance	Salinity @ NB seagrass beds	River Water Quality
Units		% of Target	% requiring pump out	# blockages with damage in home	Gallons; # impacting surface waters	million gallons/day	# occurrences	Max Specific Conductance (umhos/cm)	# days demand not met	# of OSHA recordable injuries	\$	% of Budget	% of Budget	% within budget	average # days behind schedule	# Days MFL Violation	‰	Fecal Coliform Bacteria (cfu/100ml)
Green Level		≥ 90%	≤ 15	Zero	<704; 0	< 7.7	Zero	<1542	<2	Zero	≥ \$15,609,500	≥ 95%	≥ 85% but ≤ 105%	≥80%	≤ 30	0	min ≥ 20 ‰	≤ 1 site > 200
Yellow		< 90%	≤ 25	1	≤1,500; 0	< 8.8	1	≤1875	≥ 2	-	< \$15,609,500	≥ 90%	≥ 80%	≥60%	≤ 60	1	min ≥ 10 ‰	≤ 3 sites >200
Red		<75%	> 25	≥ 2	>1,500; ≥1	≥ 8.8	≥ 2	>1875	≥ 9	≥ 1	< \$10,406,330	< 90%	< 80% or > 105%	< 60%	> 60	≥ 2	min < 10 ‰	≥ 4 sites > 200
2022 Baseline		1,319	12	0.1	395	6.8	0	1,268	3	0	\$ 44,372,235	101%	91%	83%	51	1	22.6	3
2023 Baseline		1,451	13	0.0	1,124	7.0	0	1,296	6	0	\$ 44,656,875	106%	94%	90%	39	2	23	4
2024 Baseline		1,433	14	0.3	863	6.9	0	1,136	4	2	\$ 41,441,586	100%	95%	72%	52	5	22	2
2024	Jan	1,178	14	0	2,275; 0	7.4	0	1,209	1	1	\$ 41,429,932	104%	96%	87%	64	0	19.9	2
	Feb	1,689	15	0	2,405; 1	7.5	0	1,239	2	0	\$ 42,298,111	104%	95%	87%	51	0	25.3	1
	Mar	1,697	17	0	70; 0	7.4	0	1,101	3	0	\$ 41,568,281	103%	93%	65%	49	0	24.4	0
	Apr	1,162	15	0	2,858; 1	6.9	0	1,133	1	0	\$ 40,736,583	102%	92%	70%	37	7	32.5	1
	May	1,153	14	0	30; 0	6.6	0	1,146	15	1	\$ 42,588,420	102%	93%	62%	52	31	31.0	1
	June	2,870	9	0	20; 0	6.4	0	1,173	13	0	\$ 40,955,647	102%	92%	65%	67	22	20.1	6
	July	2,120	10	0	150; 0	6.3	0	1,075	1	0	\$ 41,437,745	103%	91%	68%	69	0	20.7	3
	Aug	1,258	14	0	2270; 0	6.5	0	1,098	7	0	\$ 42,122,353	102%	91%	73%	75	0	22.2	7
	Sept	970	14	0	70; 0	7.0	0	1,082	5	0	\$ 41,233,651	102%	90%	70%	59	0	16.2	6
	Oct	1,250	12	3	69; 0	7.5	0	1,159	4	0	\$ 40,298,745	89%	96%	see Kris' new Project Report		0	4.5	1
	Nov	1,007	14	0	81; 0	6.9	0	1,089	0	0	\$ 41,266,064	92%	110%		26	0	14.5	1
	Dec	841	18	0	60; 0	6.9	0	1,130	1	0	\$ 41,363,495	96%	101%		23	0	31.5	0
2025	Jan	1,363	14	0	57; 0	7.1	0	1,127	0	0	\$ 41,057,266	99%	99%	85%	30	6	30.7	1
Consecutive Months at Green		1	1	3	5	188	45	171	3	8	184	2	2	1	3	0	2	4
Metric Owner		O'Neill	Pugsley	Dean	Dean	Pugsley	Pugsley	Pugsley	Dean	Horchar	Fraraccio	Fraraccio	Fraraccio	Dean	Dean	Howard	Howard	Howard

**Metric**  
MFL Compliance

**Explanation**  
The salinity component of the MFL criteria was exceeded on 6 days in January (i.e., the 20-day rolling average of salinity at Kitching Creek mouth exceeded 2.0 ppt), though average flow durign this period was 39 cfs and flows were less than 35 cfs on 2 days. For more information, see Bud's report.



# LOXAHATCHEE RIVER DISTRICT

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D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

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## MEMORANDUM

**TO:** Governing Board  
**FROM:** Administration Staff  
**DATE:** February 10, 2025  
**SUBJECT:** Consent Agenda

All items listed below are considered routine and will be enacted by one motion. There will be no separate discussion of these items unless requested by a Board Member or citizen, in which event, the item will be removed and considered under the regular agenda.

This month's consent agenda consists of the following items:

- A. 2966 Jamaica Drive - Preliminary Assessment
- B. 31-10: Jamaica Drive Phase 2 - Subregional Line Charge
- C. Manual of Minimum Construction Standards and Technical Specifications  
– to approve revisions
- D. Water Leak Credit Policy - to review and approve
- E. Easement Abandonment - PCN # 00-42-40-33-08-015-0010
- F. Portable Generator - to approve purchase
- G. Fixed Asset Disposal - to approve disposal
- H. Change Order to Current Contract - to approve modifications

Should you have any questions regarding these items, I would be pleased to discuss them further with you.

The following Motion is provided for Board consideration:

**“THAT THE GOVERNING BOARD approve the Consent Agenda of February 20<sup>th</sup>, 2025 as presented.”**

Signed:

  
D. Albrey Arrington, Ph.D.  
Executive Director

Gordon M. Boggie  
CHAIRMAN

Kevin L. Baker  
BOARD MEMBER

Stephen B. Rockoff  
BOARD MEMBER

Dr. Matt H. Rostock  
BOARD MEMBER

Water Reclamation – Environmental Education – River Restoration

CURTIS L.  
SHENKMAN  
*Board Certified  
Real Estate Attorney*

HUNTER C.  
SHENKMAN  
*Attorney*

**SHENKMAN & SHENKMAN P.A.**  
**ATTORNEY & COUNSELOR AT LAW**  
**2151 S. ALTERNATE A1A, SUITE 1000**  
**JUPITER, FL 33477**  
**561-822-3939 FAX 561-898-2266**  
**CURTIS@PALMBEACHLAWYER.LAW**

**PARALEGALS**  
BONNIE HARRIS  
DENISE B. PAOLUCCI  
CAROLINA INMAN

Sent by email JANUARY 23 2025

D. Albery Arrington, PhD., Executive Director  
Loxahatchee River Environmental Control District  
2500 Jupiter Drive  
Jupiter, Florida 33458-8964

**RE:Resolution 2025-02 and Preliminary Assessment Roll for 2966 JAMAICA DRIVE**

Dear Dr. Arrington:

Please attach to this letter is Resolution 2025-02, Exhibit "A" Preliminary Assessment Roll, & Exhibit "B" Map & most recent list of property owners as part of the Resolution.

In the Resolution, Sections 2 and 7, the "Board of Adjustment" public hearing and "Governing Board" meeting to confirm the "final" assessment roll is proposed for MARCH 20, 2025. Preparation is necessary of the Notice to be published and mailed out by **Friday, MARCH 7, 2025.**

A **SUGGESTED MOTION** for the Board at the FEBRUARY 20, 2025 meeting is as follows:

"THAT THE GOVERNING BOARD approve Resolution **2025-02** adopting the **2966 JAMAICA DRIVE** Preliminary Assessment Roll."

Sincerely,

*Curtis L. Shenkman*

Curtis L. Shenkman



## **LRECD RESOLUTION NO. 2025-02**

A RESOLUTION OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT RELATING TO THE **2966 JAMAICA DRIVE** ASSESSMENT AREA IMPROVEMENTS; ADOPTING THE PRELIMINARY ASSESSMENT ROLL FOR **2966 JAMAICA DRIVE** ASSESSMENT AREA IMPROVEMENTS AS PREPARED BY THE DISTRICT CLERK AND ATTACHED HERETO AS EXHIBITS “A” AND “B”; AUTHORIZING THE DISTRICT GOVERNING BOARD TO ACT AS THE BOARD OF ADJUSTMENT; PROVIDING FOR THE FURNISHING OF TEN DAYS’ WRITTEN NOTICE TO ALL PROPERTY OWNERS AFFECTED; DIRECTING THAT AN AFFIDAVIT OF PUBLICATION BE OBTAINED; REQUIRING THE FILING OF THE PROOF OF PUBLICATION AND OF THE WRITTEN NOTICE; MAKING REFERENCE TO RESOLUTION NO. **2024-10** PROVIDING FOR THE PUBLICATION OF THE NOTICE OF THE MEETING TO CONSIDER CONFIRMATION OF THE PRELIMINARY ASSESSMENT ROLL; DIRECTING THAT AN AFFIDAVIT OF PUBLICATION BE OBTAINED; REQUIRING THE FILING OF THE PROOF OF PUBLICATION; PROVIDING FOR CONSISTENCY; PROVIDING FOR SEVERABILITY; PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Governing Board of the Loxahatchee River Environmental Control District (hereinafter called the “District” has authorized the sewer improvements to the **2966 JAMAICA DRIVE** Assessment Area in **PALM BEACH** County, Florida.

WHEREAS, the Governing Board has considered the presentation of the District Engineer and considered such recommendations to be in accordance with the requests and the best interests of the citizens of the District.

WHEREAS, the Governing Board has considered the improvements to be in accordance with the best interests of the citizens of the **2966 JAMAICA DRIVE** Assessment Area.

WHEREAS, the District’s previous Resolution **2024-10** was approved by the District’s Governing Board and directed the preparation of the Assessment Roll.

WHEREAS, the District Clerk has prepared the Preliminary Assessment Roll attached hereto as Exhibits “A” and “B”.

NOW THEREFORE, BE IT RESOLVED BY THE GOVERNING BOARD OF THE DISTRICT, THAT:

Section 1. The District adopts the Preliminary Assessment Roll in the form as attached hereto as Exhibits “A” and “B”.

RESOLUTION 2025-02  
OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

Section 2. The District Clerk is directed to publish a Notice stating that the District's Governing Board shall act as the **Board of Adjustment** at a hearing to be held on the **20<sup>th</sup> day of March, 2025** at the District's Governing Board meeting chambers, Jupiter, Florida. Such Notice shall be published at least ten (10) days in advance of such hearing, once in a newspaper published in Martin County and once in a newspaper published in Palm Beach County. Such Notice shall state that at the hearing, the Governing Board will hear objections of all interested persons to the confirmation of such resolution. Such Notice shall state in brief and general terms a description of the improvements with the location thereof and shall also state that plans, specifications, estimates, and the tentative apportionment of cost thereof are on file in the office of the District. The District Clerk is directed to mail a copy of such Notice to each of the affected property owners at least ten (10) days in advance of the hearing.

Section 3. During the Board of Adjustment hearing, such affected property owner may present information to the Governing Board in relation to his Special Assessment and the project, provided that such property owners must submit in writing to the District either prior to or at the time of said meeting of the Board of Adjustment their objections to the Special Assessment.

Section 4. The District Clerk is directed to obtain from the publisher of the newspaper(s) used for publication herein an affidavit confirming the publication of the Notice of the Hearing of the Governing Board as the Board of Adjustment as set forth herein.

Section 5. The District Clerk shall file Proof of Publication and Proof of Written Notice to the affected property owners at the Board of Adjustment hearing.

Section 6. Resolutions No. **2024-10 and 2025-02** of the District shall be a part of the record to be considered by the Governing Board at the aforescribed hearing when the Governing Board sits as the Board of Adjustment.

Section 7. The District Clerk is directed to publish a Notice stating that at the meeting of the Governing Board to be held on **March 20, 2025** at the District Governing Board meeting chambers, Jupiter, Florida, all interested persons may appear and file written objections to the confirmation of the Final Assessment Roll. Such Notice shall be published at least twelve (12) days in advance of such meeting, once in a newspaper published in Martin County and once in a newspaper published in Palm Beach County. Such Notice shall state the class of the improvement and the location thereof by terminal points and route. Such Notice shall also be mailed to those interested parties requesting such in writing.

Section 8. The District Clerk is directed to obtain from the publisher of the newspaper(s) used for publication herein an affidavit confirming the publication of the Notice of the Meeting of the Governing Board to confirm the Final Assessment Roll.

Section 9. All Resolutions or parts of Resolutions in conflict herewith are hereby repealed to the extent of such conflict.

RESOLUTION 2025-02  
OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

Section 10. In the event that any portion of this Resolution is found to be unconstitutional or illegal, it shall be severed herefrom without affecting the validity or enforceability of the remaining portions of this Resolution.

Section 11. This Resolution shall become effective upon its passage and adoption.

PASSED AND ADOPTED BY THE GOVERNING BOARD OF THE LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT, THIS 20<sup>th</sup> day of **February, 2025.**

LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

VOTE

\_\_\_\_\_  
GORDON M. BOGGIE

\_\_\_\_\_  
KEVIN L. BAKER

\_\_\_\_\_  
DR. MATT H. ROSTOCK

\_\_\_\_\_  
STEPHEN B. ROCKOFF



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## MEMORANDUM

**TO:** D. Albrey Arrington, Ph.D., Executive Director  
**FROM:** Kris Dean, P.E., Deputy Executive Director  
**DATE:** February 13, 2025  
**SUBJECT:** Chapter 31-10 – Subregional Line Charge for Jamaica Drive Phase 2

Staff have designed, permitted, and constructed a low pressure sewer collection and transmission system to serve Jamaica Drive Phase 2. This system has capacity to serve 4 lots on Jamaica Drive.

Because of the sequence of facility design and construction, this project, essentially a low pressure force main and associated appurtenances, is proposed to be paid for using our subregional line charge mechanism, i.e., LRD Rule Chapter 31-10.005(5). Previously, we have implemented seven subregional line charges (i.e., 31-10.005(5)(a - g)), and this will be our eighth (31-10.005(5)(h)).

In order to equitably distribute costs for the Jamaica Drive Phase 2 subregional collection and transmission system, staff have quantified the number of equivalent connections (~wastewater flow) the Jamaica Drive Phase 2 Subregional Collection Facilities will likely serve. Based on the best available information, LRD staff have determined the Jamaica Drive Phase 2 Subregional Collection Facilities will serve 7 equivalent connections (i.e., 2965, 2966, 15053, and 15071 Jamaica Drive; four properties each with 4 or more toilets).

When we divide the cost of the Jamaica Drive Phase 2 Subregional Collection Facilities (\$5,740.02) by the number of equivalent connections those facilities will ultimately serve (7 equivalent connections), we find the Jamaica Drive Phase 2 Subregional Collection Facilities cost is \$820.00 per equivalent connection.

Therefore, Staff have drafted proposed revisions to Rule 31-10.005(5) incorporating the Jamaica Drive Phase 2 Subregional Line Charge at \$820.00 per equivalent connection. Pursuant to existing rule language, subregional line charges are adjusted annually based on the 10-Year Treasury Rate published by the US Department of Treasury on February 1st. To facilitate your review, we have provided the suggested revisions to LRD Rule 31- 10.005(5) in red at the top of the following page.

**Gordon M. Boggie**  
CHAIRMAN

**Kevin L. Baker**  
BOARD MEMBER

**Stephen B. Rockoff**  
BOARD MEMBER

**Dr. Matt H. Rostock**  
BOARD MEMBER

**Proposed text to be added to Chapter 31-10.5(5):**

*(h) Jamaica Drive Phase 2 Subregional Line Charge for Jamaica Drive Phase 2 Subregional Collection Facilities. The rate of the Jamaica Drive Phase 2 Subregional Line Charge shall be \$820.00 per Equivalent Connection. Commitment of service shall not exceed those total capacity limitations as authorized for commitment by the Governing Board of the District. The full amount of the Subregional Line Charges shall be due and payable at the time commitment of service is made, except those buildings or structures having certificates of occupancy prior to the date this facility is deemed available, may finance this Subregional Line Charge over twenty (20) years at a fixed interest rate equal to the current Wall Street Journal Prime Rate plus two (2.0%) percent, but not to exceed 8%, existing at the time commitment of service is made, with no prepayment penalty, to be collected by Non-Ad Valorem tax roll.*

No Board action is requested at this time. Staff will return to the Board on March 20, 2025 seeking formal approval of the proposed revisions to Chapter 31-10 to include this subregional line charge.

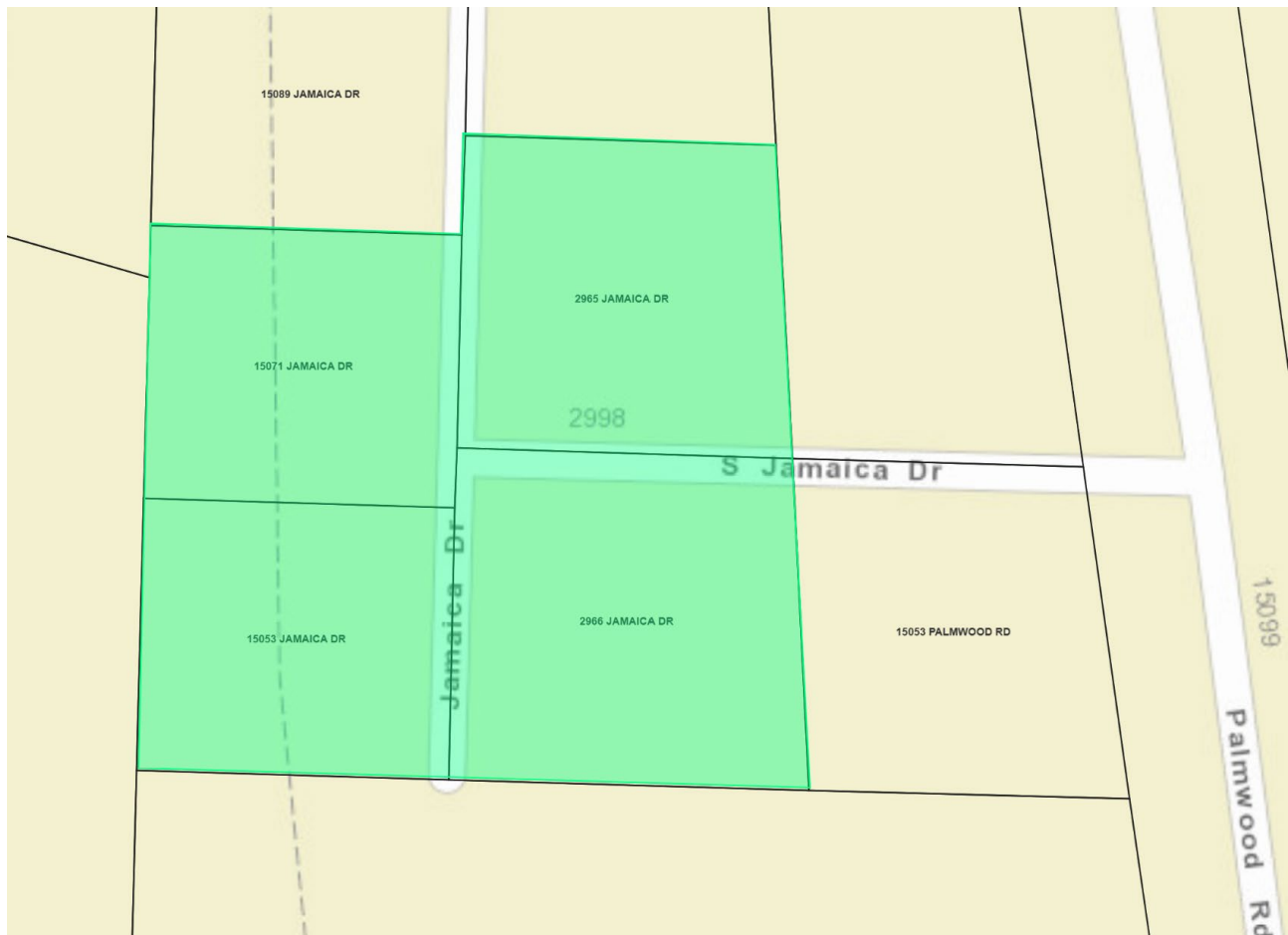


Figure 1. Properties subject to the Jamaica Drive Phase 2 Subregional Line Charge



# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

TEL: (561) 747-5700

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D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

TO: D. Albrey Arrington, Ph.D., Executive Director

FROM: Kris Dean, P.E., Deputy Executive Director  
Courtney Jones, P.E., Director of Engineering

DATE: February 20, 2025

SUBJECT: Manual of Minimum Construction Standards and Technical Specifications – February 2025 Update

In April of 1983 the Governing Board approved the District's first "Manual of Minimum Construction Standards and Technical Specifications". Since the initial adoption, this document has been updated from time to time as codes, rules, materials, and methods have changed and improved over time.

Staff have implemented a Standards Review Committee to manage change control of the construction standards and technical specifications. This Committee meets quarterly and follows strict procedures governing change requests, investigation, recommendation/authorization and implementation of changes to the construction standards and technical specifications.

This February, Engineering Services is updating the Manual of Minimum Construction Standards and Technical Specifications. Detailed updates can be reviewed in the Manual of Minimum Construction Standards and Technical Specifications, as summarized below and attached:

1. Throughout document – Typographical and numbering errors
2. Section 10.02.4 – Updated language to require electronic plan submittal only.
3. Section 10.04.3 – Updated language for consistency.
4. Section 10.04.4 – Updated language to require electronic record drawing submittal only.
5. Section 10.04.8 – Updated language for consistency.
6. Section 10.06 – Removing language requiring estoppel for easement encroachment requests.
7. Section 10.07 – Added definition for Director of Operations and updated language for consistency.
8. Section 20.04.1 – Updated language for consistency.
9. Section 20.07 –
  - a. Updated pipe material at conflict crossing from DIP to PVC.
  - b. Updated language for separation requirements to specify a minimum horizontal distance for all paralleling utilities.
10. Section 110.07 – Addition of Permax CTF as approved coating product.
11. Section 110.013 – Corrected reference from ANSI B16.5 (steel fittings) to ANSI B16.42 (ductile iron fittings).

**Gordon M. Boggie**

CHAIRMAN

**Kevin L. Baker**

BOARD MEMBER

**Stephen B. Rockoff**

BOARD MEMBER

**Dr. Matt H. Rostock**

BOARD MEMBER

**Water Reclamation – Environmental Education – River Restoration**

12. Section 120.01.2 – Updated cement type to current material.
13. Section 122.01.1 – Addition of statement to clarify that private pump stations are prohibited for grease waste conveyance.
14. Section 130.08 – Updated language to clarify difference in valve boxes for plug valves / gate valves (conventional sewer and I.Q. systems) vs. ball valves (low-pressure system).
15. Section 150.04 – Added language regarding lift station access driveway
16. Section 151.09.4 – Updated language regarding wet well lid elevation to match details.
17. Section 160.07 & 160.08 –
  - a. Updating UPS, ATS and Panel PC to latest software / product as previous standard products are no longer manufactured.
  - b. Updating panel PC specific options as coordinated with Information Services input.
18. Section 180.09 – Addition of Section 180.09 for flow meter requirements
19. Section 181.07 – Updating language for PLC to be compatible with latest versions of Windows operating system.
20. Section 200 – Revised current officers.
21. Standard Details LP-1 through LP-3
  - a. General clean-up of the details and added references to other District Standards
22. Standard Detail LP-5 – Clarify notes on detail for simplex vs. duplex requirements.
23. Standard Details LP-6 – Note clarifications.
24. Standard Detail LP-9 –
  - a. Note clarifications.
  - b. Revised e-tap configuration to be similar to the Residential Simplex e-tap.
25. Standard Detail LP-12, LP-12 ALT – Add valve box clarification for station isolation valve.
26. Standard Detail LP-13 – Update notes to clarify seal-offs above junction box and terminal strip inside junction box to be consistent with Standard Detail SD-33.
27. Standard Detail LP-16 – Clarify screw cap for generator receptacle for commercial duplex station.
28. Standard Detail SD-5 – Updated Note 8 to clarify larger access openings required for interceptors with chimney's greater than 12".
29. Standard Details SD- to SD-9 – Updates to visually clarify intent of detail.
30. Standard Detail SD-26 – Update force main drain assembly to be in line with e-tap.
31. Standard Detail SD-31 –
  - a. Visually clarified orientation of check valve
  - b. Updated wet well and valve vault hatches to removing locking hasp potential trip hazard and require recessed locking mechanism and handle.
  - c. Updated e-tap configuration to match low point drain detail
  - d. Added clarification note regarding length of stand-off plates for pipe supports
  - e. Clerical update to Note 12



- f. Clarification on depiction of drain between wet well and valve vault
  - g. Note 48 – Added clarification regarding drop bowl elevation
  - h. Note 40 – Clarification regarding washer shape
- 32. Standard Detail SD-34 – Updated standard products due to products no longer being available
  - a. Control Breaker – change from SQD FAL 12012 to SQD HDL36030
  - b. Main Breaker – change from SQD FAL 36 to SQD HDL36100
  - c. Emergency Breaker– change from SQD FAL 36 to SQD HDL36100
  - d. Elapsed Time Meter – change from STEMCO Engler Model 7-10 to Redington 710-0002, 115VAC/60Hz
  - e. Lightning Arrestor – change from Intermatic AG6503 to SQD 6671 SDSA3650, 600V 3 Phase
  - f. Intrinsically Safe Barrier (ISB) – update product # from EB3C-R05A to EB3C-R05AN
- 33. Standard Details SD-35 to SD-39 – Updated to reflect final version of RTU panel standard which includes storm mode relay.
- 34. Forms & Agreements –
  - a. Application for Service – add line for email address
  - b. Addition of Industrial Pretreatment Form
  - c. Addition of Low-Pressure Maintenance Agreement
  - d. Indemnity Agreement Form – Remove “Director of Engineering” title from return address on form
  - e. Addition of License for Maintenance of Low Pressure Sewer System Pump Station
  - f. Addition of Individual Industrial User Survey & Permit Application
  - g. Addition of One-Time Compliance Report for Dental Dischargers
  - h. Addition of QR Codes to Individual Industrial User Survey Permit Application, Grease Interceptor Questionnaire, and One Time Compliance Report for Dental Dischargers

Staff recommend the following motion:

**“THAT THE DISTRICT GOVERNING BOARD ratify and approve the Loxahatchee River Environmental Control District’s “Manual of Minimum Construction Standards and Technical Specifications”, as of February 20, 2025, and authorize the Director of Engineering and Executive Director to update the Construction Standards and Technical Specifications from time to time, and periodically present it to the Governing Board for ratification and approval.”**



**LOXAHATCHEE RIVER**  
**ENVIRONMENTAL CONTROL DISTRICT**



**MANUAL OF MINIMUM CONSTRUCTION  
STANDARDS AND TECHNICAL SPECIFICATIONS  
FOR  
LOXAHATCHEE RIVER DISTRICT**

D. Albrey Arrington, Ph.D.  
Executive Director

Kris Dean, P.E.  
Deputy Executive Director

Courtney Jones, P.E.  
Director of Engineering

Revision: ~~September~~ February 2025~~2023~~

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FORMS & AGREEMENTS (CONT'D):

Grease Interceptor Questionnaire

Application to Abandon/Terminate Easement

Sewer Easement Deed

Termination / Abandonment of Easement

Bill of Sale

Indemnity Agreement

[License for Maintenance of Low Pressure Sewer System  
Pump Station](#)

[Individual Industrial User Survey & Permit Application](#)

[One-Time Compliance Report for Dental Dischargers](#)

## SECTION 10

### ADMINISTRATIVE AND GENERAL

#### 10.01 General

The purpose of this manual is to provide the minimum construction standards for design and construction work associated with wastewater systems within the District and is intended to supplement the requirements of other regulatory agencies. The Design Engineer is to use good engineering judgment in the design of wastewater systems. The Design Engineer and the Contractor are responsible for providing sound, workable, and long lasting systems.

The intent of this section is to provide members of the development community with a brief introduction to the Loxahatchee River Environmental Control District, also referred to as “District”, its function, and procedures.

The Loxahatchee River Environmental Control District is an agency of government which was created in 1971 for the purpose of providing utility and other environmental services within the 72 square mile basin of the Loxahatchee River. Currently, the District owns, operates, and regulates the regional wastewater system serving Tequesta, Jupiter, Juno Beach, Juno, and the unincorporated areas of northern Palm Beach and southern Martin Counties.

The District offices are located at 2500 Jupiter Park Drive, Jupiter, Florida. The offices are open between 8:00 A.M. and 5:00 P.M. weekdays. The telephone number during working hours is (561) 747-5700. For emergency situations outside of normal office hours, the telephone number is (561) 747-5708. The District website can be found at <http://www.loxahatcheeriver.org>.

With specific regard to new development, the District’s legislated policy is to provide the required utility services to the area now and as it continues to grow. It is, therefore, the agency’s intent to work closely with new development to assure that the utility services can be provided in a manner which is both timely and consistent with the standards and specifications set forth in this manual.

Please note that the District’s “Manual of Minimum Construction Standards and Technical Specifications” may change from time to time. All projects will be subject to the current District, local, state and federal rules and regulations at the time of submittal of final engineering drawings for approval.

#### 10.02 Procedures Prior to Construction

##### 10.02.1 Introductory Meeting

It is highly recommended that the project representative (s) (owner, engineers) meet with the District’s Deputy Executive Director early in the planning stages of the development. At such time a determination of sewer and reuse water availability will be made, and financial impacts will be reviewed.

#### 10.02.2 Developer Agreement

The submittal of a properly executed agreement, along with payment for certain charges, is required before the District will review the engineering plans. Copies of the District's Standard Developer Agreement and District Rule Chapter 31-10, which addresses the charges, are available online at the District's website: <https://loxahatcheeriver.org/> or at the District offices.

#### 10.02.3 District Installed Facilities

During the introductory meeting the developer may wish to discuss the availability of District installed regional and sub regional facilities to serve the proposed project, although, this program is limited to larger developments.

The District currently maintains a program where sub regional lift stations may be constructed by and paid for by the District. A sub regional facility must be designated and approved by the District Governing Board. Staff will take no action for recommending designation of a facility for installation until a developer agreement is executed and all fees are paid.

Staff reviews and assesses the project based upon economic feasibility, consistency with the District Master Plan and its current and future demand. To promote stable and effective communication between the District and the Developer, we will require the Developer to coordinate all communication through the Engineer of Record.

In designating a sub-regional facility, the following items are the responsibility of the owner/developer:

Provide the District with any project information necessary for the design of lift station(s) and force mains(s).

Provide, at developer's expense, all necessary electrical service to the lift station site in conjunction with construction activities.

Provide suitable access to lift station and force main sites for District and contractor's vehicles and equipment. Paved asphaltic concrete or reinforced concrete access drives will be provided (Min.16' wide) prior to acceptance.

Provide appropriately sized sanitary sewer gravity lines that are necessary to serve adjoining properties in conjunction with lift station construction. Sewer lines to adjoining properties must be activated concurrent with lift station, or upon demand from the District.

The last collection manhole, just upstream of the lift station, should be placed in a manner to minimize road, lane or sidewalk closures should by-pass operations be needed at the lift station. The District may require this last collection manhole to be placed inside the lift station easement.

Provide all clearing, grubbing and rough grading of the lift station and force main sites prior to construction.

Provide survey requirements and staking of the lift station and force main upon request from the District. Staking shall include provision of one stake at center of the proposed wet well, with 50' offsets and bench mark. Force main shall be staked at center line with 10' offsets every 100 feet, with a set bench mark. All survey work shall be performed by a professional surveyor licensed in the State of Florida.

Developer shall convey a deed to the lift station property prior to construction, and all required easements as follows:

Permanent Easements:

- a. Lift Station - 40' x 40'
- b. Force Mains - 10' wide minimum
- c. Gravity Mains - 15' wide minimum for sewers

Temporary Construction Easements:

- a. Lift Station - 100' x 100'
- b. Force Mains - 30' wide minimum
- c. Gravity Mains - 50' wide minimum

Variations on easements shall be considered on a case by case basis where full functionality to service existing and all future anticipated needs, access, maintenance and bypass operations can be accommodated with alternate configurations acceptable to the District and approved by Engineering Services.

Developer is required to maintain separation requirements as detailed in Section 20.07 and Standard Detail SD-29. Developer's contractor will be responsible to make gravity line connections from the system collection manhole to the lift station after the construction of the wet well has been completed.

District staff will work in conjunction with the developer's project engineer to plan for the service area. Station design will be performed by the District. Construction will be contracted for by the District and inspected by District personnel.

#### 10.02.4 Developer Installed Facilities - Plan Review and Approval

An initial electronic plan submittal (.PDF format) is recommended. Submittal should contain; one (1) complete set of plans including sewer, reuse, water and drainage systems, and paving and grading details. Upon review, the design engineer will be notified of acceptance or comments which need to be addressed. District staff will work with the Developer's Engineer of Record to address the final design of Developer installed facilities.

Final submittal for approval will require ~~additional plan sets, to include~~ one (1) electronic set of plans (sewer, reuse, water, drainage, paving, grading and landscaping) (.PDF format), electronic AutoCAD plan files, ~~two (2) hardcopies full size (24x36) sets for District files, two (2) hardcopies~~ one (1) electric (.PDF format) of executed Florida Department of Environmental Protection and/or Palm Beach County Health Department permit applications. ~~for District files, plus any additional sets required by the engineer or owner.~~

District approval of utility plans and specifications, as well as sign off on the Florida Department of Environmental Protection/Health Department application, is required.

Plan review will be for technical sufficiency of design for incorporation into the District's system. This review, as well as plan approval by the District, does not relieve the design engineer of his liabilities or responsibility for a properly detailed design. District Engineering staff will be available to work with the design engineer to assure the plans meet the requirements set forth in this manual.

All plan submittals must be signed and sealed by a Professional Engineer, registered in the State of Florida. Plans which are marked "Preliminary" or "Draft" will not be approved.

Supplemental data to be furnished with the final plans submitted for approval includes the following:

1. Project Summary
  - a. Number of residential units being served or non-residential uses.
  - b. Number of Manholes
  - c. L.F. of Gravity Main (for each pipe size)
  - d. L.F. of Force Main (for each pipe size)
  - e. Number of Lift Stations and depth of each
2. Basis of determination of design capacity and design flow.
3. Calculations and plot of system head curves.
4. Calculations of pump cycle times.
5. Wet well floatation calculations.
6. Landscaping plan that includes the proposed sewer facilities on the plan to determine if the necessary setbacks are provided.
7. Preliminary phasing plan (for entirety of project) that includes a table indicating number and type of lots (i.e., multifamily, single family, etc.) and the year those lots require DOH certifications.

#### 10.03 Developer Installed Facilities - Procedures During Construction



#### 10.03.1 Periodic Inspection

Throughout construction, the ~~D~~developer will look to his ~~consulting~~contracted engineering firm for progress by periodic inspections. District Engineering staff will periodically check the site during construction for progress. If problems are encountered during construction, it will be the ~~d~~Developer's responsibility through his contracted engineers, to resolve them to the District's satisfaction. Any revision of substance to the approved plans shall be submitted to the District for approval prior to incorporation into the work.

#### 10.03.2 Pre-Final Inspection Submittals

1. Approximately 60 days prior to construction completion, the Developer's Engineer of Record shall provide the Deputy Executive Director the following for review and approval:
  - a. A signed and sealed cost of construction of the sewer improvements. This information will be used to establish the value of the maintenance bond.
  - b. A final Phasing Plan. The Phasing Plan should encompass the project in its entirety and is solely at the discretion of the District as to timing and extent of phases.
2. Upon receipt of the above information the Deputy Executive Director will prepare a letter to the Owner, with copy to the engineer, with the Bill of Sale and easement forms prepared for execution, along with a listing of administrative items to be provided prior to District inspection of facilities for acceptance.

#### 10.04 Developer Installed Facilities - Procedures Following Construction

##### 10.04.1 Project Completion

A project is not considered complete and prepared for District final inspection until such time as:

1. All sewer system construction is completed in accordance with plans and specifications and inspected and certified by the engineer.
2. Where sewers are constructed in paved areas, at least the 1<sup>st</sup> lift of asphalt has been provided.
3. Areas over lines and laterals, which are not proposed to be paved, shall be brought to finish compacted grade.

##### 10.04.2 Project Completion Submittals

Upon Completion of Construction, but before District final inspection, submit the following items in forms acceptable to the District:

1. Bill of Sale
2. Grant of Easement: The Developer shall convey all required easements as follows:

Permanent Easements:

- a. Lift Station - 40' x 40'
- b. Force Mains - 10' wide minimum
- c. Gravity Mains - 15' wide minimum for sewers

Temporary Construction Easements:

- a. Lift Station - 100' x 100'
- b. Force Mains - 30' wide minimum
- c. Gravity Mains - 50' wide minimum

Variations on easements shall be considered on a case by case basis where full functionality to service existing and all future anticipated needs, access, maintenance and bypass operations can be accommodated with alternate configurations acceptable to the District and approved by Engineering Services.

3. Maintenance Bond: From a surety company and executed by an attorney-in-fact for the surety company with a certified copy of his Power-Of Attorney attached to the Bond; or a
4. Letter of Credit: From a financial institution and in a form acceptable to the District.
5. Record Drawings: Submit one (1) blackline copy of the record drawings, signed and sealed by a Florida licensed Professional Surveyor & Mapper. Record drawings must comply with District Standard Detail SD-29 "Record Drawing Submittal Guide".
6. Department of Environmental Protection Certificate of Completion Executed by Owner and Certifying Engineer.
7. Letter of Certification from the Engineer of Record
8. Performance Test Results: infiltration/exfiltration, pressure, leakage and pump start-up test records. All documents must be signed and sealed by the Engineer of Record.
9. Copy of Site Plan and Recorded Plat indicating all building numbers and street names.
10. Payment for all buildings connected to the system.

#### 10.04.3 Final Inspection

After the Owner and Project Engineer have provided the documents as outlined in Section 10.04.2, and all punch list items have been remedied, the District engineering staff will conduct a final inspection and recommend acceptance or denial. If acceptance is denied, a letter will be sent to the ~~Project Engineer~~Engineer of Record advising of the denial and reasons for such. Subsequently, the ~~project engineer~~Engineer of Record should address the comments and request scheduling a final reinspection. It should be noted that after the final inspection, any comments to the initial Record Drawing submittal shall be provided to the Engineer of Record for any remedies.

#### 10.04.4 Final Record Drawings

After District Engineering staff has completed the final inspection and all work is to the satisfaction of the District Engineer, the final Record Drawings shall be submitted to the District, as follows:

1. ~~Two (2) final black line~~One (1) electronic submittal (.pdf format) of the final record drawings, signed and sealed by a Florida licensed Professional Surveyor & Mapper. This record drawing shall meet the technical standards for "Record Survey" set forth by the Florida Board of Professional surveyors and mappers, pursuant to Chapter 472 of the Florida Statutes and Chapter 61G17-6, Florida Administrative Code.
2. One electronic submittal with the record drawing in AutoCAD 2020 or later format and PDF format. Only one (1) AutoCAD file shall be accepted containing the entire record drawing (additional files used for x-referencing are acceptable) and one Adobe Acrobat file with the entire record drawing as seen on the paper copy. The District will no longer accept separate AutoCAD and/or Adobe Acrobat files for separate record drawing pages. The AutoCAD files must be established in state plane coordinate system, NAD 83, Florida East Zone. The vertical datum referenced shall be NGVD 29.

#### 10.04.5 One Year Maintenance Bond and Inspection

Prior to acceptance by the District, a maintenance bond, which will remain in effect for one year from the date of District acceptance of the system, must be provided to the District. Shortly before the expiration of the one-year maintenance bond, the District will reinspect the system in a manner similar to the final inspection (i.e., broken pipes, deflection, infiltration, etc.) The District will advise the ~~D~~developer of any defects found, unless of an emergency nature, during this inspection and will require correction to be made prior to expiration of the maintenance bond.

Should adequate progress, in the opinion of the District, not be made in correcting the deficiencies, the District will look to the bonding company to pay for corrective action taken by the District.

A Letter of Credit drawn upon a financial institution licensed in the State of Florida, and in a form acceptable to the District may be provided in lieu of a maintenance bond.

#### 10.04.6 District Acceptance

Upon satisfactory finding of the final inspection, the Department of Environmental Protection/Health Department Certification of Completion will be executed by the Executive Director, thereby, accepting the system for operation and maintenance.

#### 10.04.7 Operation and Maintenance

With the exception of service laterals which lie beyond right-of-way or easement lines, or in common areas of ownership, the wastewater system serving the development will be operated and maintained by the District's personnel, who are well trained and responsive to the needs of the community.

#### 10.04.8 Utility Billing

The District's ~~accounting department~~Finance Department will continue to work with the Developer in the collection of connection charges as new buildings are tied into the system, and in the billing of quarterly service charges.

#### 10.05 Termination/Abandonment of Easements

The District will consider requests for termination and abandonment of exclusive and non-exclusive easements from underlying property owners.

Requests for termination and abandonment of exclusive and non-exclusive easements are at the sole discretion of the District and require an application, payment of fees, are subject to Engineering Services Department review and require District Governing Board approval.

Termination or abandonment of exclusive and non-exclusive easements shall be compliant with District's Manual of Minimum Construction Standards and Technical Specifications, be compliant with Federal, State and Local codes and regulations, include a risk/benefit analysis, provide for reasonably identified future uses, resolve any existing conflicts, address any restraints and/or limitations at the site and reimburse the District for any cost paid by the District for the easement, or portion thereof, adjusted for current value using the historical Consumer Price Index for Urban Customers (CPI-U).

#### 10.06 Easement Encroachment Requests

The District will consider requests from underlying property owners &/or their lessees who desire to install non-permanent / removable structures / improvements on their property within the District's easement (an "Installation").

The Installation of non-permanent / removable structures / improvements include but are not limited to fencing, signage, retaining walls, mailboxes, etc. Structures / improvements must be able to be removed by District staff using District equipment.

Requests for easement encroachments are at the sole discretion of the District. Applicants requesting Installations of non-permanent / removable structures/improvements within a District easement shall provide the following information to Engineering Services:

- Installation Plans - Plans which clearly and legibly identifies the location of the easement in relation to the nearest public right-of-way and shows requested Installation in relation to the District's easement. Plans should include applicable details related to the Installation.
- Evidence of title - the application shall state the source of applicant's ownership of interest in and to the easement, and a reference to the recording information for that document.
- Evidence of charges paid - the application shall state that all District charges have been paid. ~~The applicant shall provide an estoppel certificate from the District confirming same.~~
- Indemnity Agreement – Indemnity Agreement signed by the applicant, joined by the Property Owner if a lessee is the applicant.

Engineering Services review shall include:

- Compliance with the District's Manual of Minimum Construction Standards and Technical Specifications

Engineering Services review shall be provided to the Executive Director. The District Governing Board delegates authority to the Executive Director to approve or deny these requests. Engineering Services shall retain records in perpetuity for these requests.

#### 10.07 Definitions and Abbreviations

The term "Owner" or "District" shall mean the Loxahatchee River Environmental Control District.

The term "Director" shall mean the Executive Director of the Loxahatchee River Environmental Control District.

The term "Deputy Executive Director" shall mean the Deputy Executive Director of the Loxahatchee River Environmental Control District.

The term "Director of Operations" shall mean the Director of Operations or Plant Manager of the Loxahatchee River Environmental Control District.

The term "Engineer" or "Design Engineer" or "Engineer of Record" shall be the engineer registered in the State of Florida that signs and seals the plans of a developer or other person or entity.

The term “District Engineer” shall be the engineer designated by the District, whether acting directly or as an authorized agent of the District, acting within the scope of duties entrusted to them.

The abbreviation listed below shall have the meaning set forth opposite each:

AASHTO	American Association of State Highway Transportation Officials
ACI	American Concrete Institute
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Material
AWWA	American Water Works Association
NEC	National Electric Code
NEMA	National Electric Manufacturers Association
AWG	American or Brown and Sharpe Wire Gage
NPT	National Pipe Thread
WOG	Water, Oil, Gas

**END OF SECTION 10**

## **SECTION 20**

### **DESIGN CRITERIA**

#### **20.01      General**

The requirements of this section are a minimum and nothing herein shall be construed to eliminate consideration of a design based on a rational procedure not covered by such requirements. Standards or minimum requirements set forth in this Manual are not intended to relieve the Developer, Contractor, or Design Engineer from complying with good engineering and construction practices under specific conditions which require a higher degree of procedure, standards, or requirements. Where the Developer, Contractor, or Design Engineer is not capable of following the requirements of the Manual due to certain site conditions, any deviation from the requirements set forth in the Manual shall first be approved by the District. It is intended that the requirements of this section shall be applicable in all cases where the facilities being constructed or to be constructed shall be owned and/or operated and maintained by the District.

#### **20.02      Design Capacity**

Gravity sewer systems should be designed for the estimated ultimate tributary population. Parts of the system that can be readily increased in capacity such as lift stations may be submitted for approval based on phased implementation. The basis of design for all projects shall accompany the plan documents.

#### **20.03      Design Flow**

Sewer system Average Daily Flow (ADF) designs shall be based on the design flows as listed in Chapter 64E-6 of the Florida Administrative Code.

##### **20.03.1      Peak Hourly Flow**

Peak Hourly Flow (PHF) shall be utilized for the sizing of all gravity sewers, force mains and lift station pump sizing. Peak hourly flow peaking factor (PF) shall follow Figure 1 - Ratio of Peak Hourly Flow to Design Average Flow, of the “Recommended Standards for Wastewater Facilities”, by the Waste Water Committee of the Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, latest edition.

For low pressure sewer systems, all low pressure mains and the District’s approved grinder pump systems (centrifugal) shall be sized based upon the estimated peak design flow. The estimated peak design shall follow either Part 4 – Design Flows, of the “Design and Specification Guidelines for Low Pressure Sewer Systems”, by the FDEP, latest edition or Chapter 2, “Manual – Alternative Wastewater Collection Systems”, by the EPA, latest edition.

## 20.04 Gravity Sewers

### 20.04.1 New Construction

The basic design criteria for gravity sewers shall be as follows:

Pipe material – all new gravity sewer shall be of PVC construction. Use of epoxy coated D.I.P. will only be allowed with prior approval from the District Engineer.

The minimum gravity sewer pipe line diameter – All new gravity sewer mains (manhole to manhole) shall be a minimum of 8-inches in diameter.

The minimum depth of cover shall be as follows: 3'-6" for DIP or PVC C-900 and 4'-0" for PVC SDR-26. Any cover that is proposed to be less than 4'-0" must be given prior approval by the ~~Director of Engineering~~ District Engineer.

Straight alignment and constant slope between manholes.

All manholes shall be precast concrete with monolithic bases and concentric conical cone sections.

Manholes are required at the end of each line; at all changes in grade, size or alignment. Stubs eight (8) inches or larger will require a manhole at the terminus point.

Manholes shall be spaced not greater than 400 feet for sewers fifteen (15) inches in diameter or less, 450 feet for sewers eighteen (18) inches in diameter or greater.

Five-foot drop manholes (internal type) are to be provided for a sewer entering a manhole at an elevation twenty-four 24 inches or more above the lowest manhole channel invert. (See Standard Details).

A positive 0.1-foot grade differential shall be provided between the upstream and downstream invert on all manholes.

All sewers shall be designed and constructed to give mean velocities, when flowing full, of not less than 2.0 feet per second, based on Kutter's formula using an "n" value of 0.013. The following are minimum slopes allowed:

<u>Sewer Size</u>	<u>Slope in Ft/100 Ft</u>
8-inch	0.40
10-inch	0.28
12-inch	0.22
15-inch	0.15
18-inch	0.12
21-inch	0.10



24-inch	0.08
27-inch	0.067
30-inch	0.058
36-inch	0.046

When possible, slopes at least 10% above the minimums shown are preferred. However, in no case will slopes be designed which would provide a mean velocity less than 2.0 feet per second when flowing full, based on an “n” value of 0.013.

When a smaller sewer joins a larger one, the invert of the larger sewer should be lowered sufficiently to maintain the same energy gradient. An approximate method for securing these results is to place the 0.8 depth point of both sewers at the same elevation.

Intersecting sewers shall not meet at an alignment angle of less than 90 degrees to downstream flow.

Manholes deeper than 14 feet from the lowest invert to the manhole rim, manholes with a force main discharge, manholes with inside drops and the last collection manhole just upstream of a lift station, shall be given a minimum 0.5-inch coat of Sewper Coat, Strong Seal, Refratta HAC 100 or other approved calcium aluminate corrosion barrier.

The last collection manhole, just upstream of the lift station, should be placed in a manner to minimize road, lane or sidewalk closures should by-pass operations be needed at the lift station. The District may require this last collection manhole to be placed inside the lift station easement.

In addition to the above requirements, gravity sewer design shall follow Recommended Standards for Wastewater Facilities, at a minimum.

#### 20.04.2 Adjustments to Existing Sewer Infrastructure

There may be instances where an area is being redeveloped or when a new developer takes ownership of a project from a previous developer and wishes to make modifications to already constructed, but not yet activated sewer facilities. The following criteria shall apply:

It is advised that developers of redesigned projects meet with the District Engineer to conduct a pre-application meeting and/or conduct due diligence prior to submitting final engineering plans to discuss the proper procedure for obtaining approval for any modifications.

This manual is updated from time to time, thus any comments provided at a pre-application/due diligence meeting should be considered conceptual in nature and

may no longer be applicable by the time final engineering drawings are submitted to the District for approval (See Section 10.01).

Services may be abandoned on a gravity run (manhole to manhole) and the service must be entirely removed, including the mainline wye fitting. The repair(s) must be completed using two sleeves and one spool piece per abandoned service.

Lift stations and all related appurtenances must be brought up to current District standards if they haven't been installed.

The District will accept all gravity and force mains as constructed and re-inspect them based upon the District standards at the time the project was approved. However, additional appurtenances may be required to be installed, such as air release/vacuum valves or inline valves should the District Engineer require them. Additionally, all setbacks shall be based upon the current ~~District~~ District standards.

The District will accept all previously agreed to sewer easement widths, though the extent of the easements may require modifications should any infrastructure be removed or added.

Any new infrastructure proposed by the new developer shall meet all current District standards.

## 20.05      Submersible Pumping Stations

The basic design criteria for pump stations are as follows:

Sized to handle the peak hourly flows from the tributary areas with the largest pumping unit out of service (firm capacity).

Total dynamic head based on static head, lift station friction losses and pipeline friction factor (C) of 120. Pumping units shall be capable of operating based on a C=100 and not "running out" based on a C=140.

Pumping units capable of passing spheres of at least three (3) inches in diameter.

Under normal conditions, pumps operate under a positive suction head.

Controls included to automatically alternate the pumps in use.

Maximum pump speed of submersible pumps shall not be greater than 1800 rpm unless specifically allowed otherwise by the District Engineer.

All electrical and mechanical equipment shall be installed 1 foot minimum above the Base Flood Elevation.

Lift stations shall be provided with remote telemetry (Data Flow Systems radio telemetry or cellular telemetry) and wetwell level instrumentation.

Detailed specifications and drawings for submersible pump stations and appurtenances are included elsewhere in this manual. Site specific designs and requirements not covered under this manual will be reviewed on a case by case basis. Additional design criteria for these stations are contained in the “Recommended Standards for Wastewater Facilities”, by the Water Supply Committee of the Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, latest edition as referenced by the Florida Department of Environmental Protection.

All wet wells shall be designed to resist flotation based on a base flood event plus 1 foot at the site, without consideration of the weight of the pumps, with a safety factor of at least 1.0. Flotation calculations based on a unit weight of concrete of 130 pounds per cubic foot shall be submitted to the District for review with all pump station plans

Wet well cycle times shall be 10 minutes minimum 30 minutes maximum; based on the formula:

$$T = \frac{V}{Q-S} + \frac{V}{S}$$

Where:

T = Cycle time (minutes)

V = Effective volume of wet well (gallons)

Q = Pumping rate (gpm)

S = Average daily flow (gpm)

All lift stations shall be given a 1.0-inch coat of Sewper Coat, Strong Seal, Refratta HAC 100 or other approved calcium aluminate corrosion barrier.

## 20.06 Force Main

The basic design criteria for force mains are as follows:

Pipe material – C-900 PVC, epoxy lined ductile iron pipe or HDPE (DR-11 min).

Minimum size - 4-inch diameter.

Minimum velocity - 2 feet per second.

Maximum velocity - 8 feet per second.

Minimum depth of cover - 3 feet.

Branches of intersecting force mains shall be provided with appropriate valves such that one branch may be shut down for maintenance and repair without interrupting the flow of other branches. Stubouts on a force main, placed in anticipation of future connections, shall be equipped with a valve to allow such connections without interruption of service.

At all times, the force main shall be laid per the design elevations approved by the District. An automatic air release valve shall be placed at all high points of all force mains with a diameter of (4) inches or larger, as indicated on the construction plans and approved by the District.

All automatic air release/air vacuum valves shall be placed in a manhole as provided in the District's standard details.

Force main design drawings are to indicate elevations at all high points and all low points with constant slopes in between such points. Low point drains shall be placed at all low points in the force main profile.

Approved restrained joints shall be provided at all force main bends.

Terminal ends of force main (permanent or temporary) shall be as shown on the District Standard Details.

#### 20.07      Separation Requirements

Sanitary sewers crossing under water mains shall be laid to provide a minimum vertical separation of twelve (12) inches between the invert of the upper pipe and the crown of the lower pipe. Where this minimum separation cannot be maintained, the crossing shall be arranged so that the joints are equidistant from the point of crossing with no less than ten (10) feet between any two joints and both pipes shall be D.I.P. Where there is no alternative to sewer pipes crossing over a water main, the criteria for the minimum separation between lines and joints in the above, shall be required and both pipes shall be D.I.P. irrespective of separation.

Where storm sewers cross above or below sanitary sewer mains, the minimum vertical separation between the outside of the storm sewer main and the outside of the sanitary sewer main is twelve (12) inches. Where the minimum separation cannot be maintained, the sewer main shall be constructed of ~~DIP~~-PVC at the conflict with one full joint (min. 20 feet) centered on the conflict for pressure mains and C-900, DR18 inside DI or steel sleeve for gravity mains.

The minimum vertical separation between sanitary sewer mains and any other utility other than those listed above is twelve (12) inches. Vertical separations of less than six (6) inches, will not be accepted.

Maintain ten (10) feet horizontal distance between water mains, storm pipes and sanitary sewer mains unless reduced separation is allowed by the FDEP, Palm Beach County Health Department and the District Engineer. Separations greater than ten (10) feet may be required for drainage pipes larger than 48-inches in diameter. No horizontal separations less than 3 feet between District facilities and other utilities shall be accepted.

All gravity sewers shall be placed in the center of any roadway and within any easements. The minimum gravity sewer easement is 15' wide.

No landscaping or surface features (i.e., walls, fences, fountains, etc.) shall be placed in a manner that would adversely affect access to utility easements or District infrastructure. Trees shall be a minimum of 10' away from any gravity sewer main or service line/lateral. This may be reduced to 7' with the use of an approved root barrier system.

All gravity sewer mains shall be a minimum of 10' horizontally from any structures. This setback shall be measured from the outside edge of the pipe to the nearest part of the structure, including underground (i.e., footers) or above ground (i.e., roof overhangs) features.

#### 20.08        Sewer Use Regulations

The Loxahatchee River Environmental Control District has adopted certain rules and regulations regarding the acceptability and pretreatment requirements for certain types of wastewaters. These rules and regulations are published in Chapter 31-13 of the District Rules and may be amended from time to time. Prospective users of the system should contact the District Deputy Executive Director for information regarding the above referenced rules and the Director of Operations for compatibility of the anticipated wastewater with the District's facilities.

**END OF SECTION 20**

## SECTION 30

### MISCELLANEOUS REQUIREMENTS

#### 30.01 Lines, Grades and Measurements

Alignment and grade of all pipe, tunnels and borings shall be continuously controlled by use of lasers or other acceptable method. Laser alignment and grade through the pipeline is the preferred method. The District Engineer shall be permitted at any time to check the lines, elevations, reference marks, laser, etc., set by the Contractor or the Design Engineer.

#### 30.02 Work to Conform

The maximum allowed vertical deviation of any single gravity pipe, tunnel or boring from plan grade shall be three percent (3%) of inside diameter. No single gravity pipe shall vary in horizontal alignment right or left, from the pipe centerline by more than five percent (5%) of inside diameter. Force main joint deflections shall be limited by AWWA Standards and manufacturer's recommendation.

#### 30.03 Pipeline location

Pipelines shall not be located closer to an existing or proposed structure than the horizontal distance obtained when drawing a 45-degree angle from the proposed invert of the pipeline to bottom outside face of the footing. In no case shall this distance be less than ten (10) feet. Pipelines shall be located as indicated on the drawings, but the Design Engineer is responsible to make such modifications in location as may be found desirable to avoid interference with existing structures or for other reasons, which are not material to the interest of the District and which do not otherwise conflict with any other statement or criteria set forth in this manual. The District should be notified of such changes in a timely fashion and such changes shall be recorded on Record Drawings.

#### 30.04 Pipe Adapters

When joining pipes of different types, District approved transition sleeves, adapters, and couplings shall be used.

#### 30.05 Fittings and Stoppers

Branches, stub-outs and fittings shall be laid as indicated in the Standard Details and shown on the approved drawings. Open ends of pipe and branches shall be closed with nonmetallic "wing nut" expansion stoppers secured in place in an acceptable manner. Stoppers shall be designed to remain in place and watertight during infiltration tests.

## 30.06 Service Lines

### a. General

Service lines shall be as shown on the Standard Details. Service lines for a single lot shall be a minimum of 4 inches in diameter; for two lots, a minimum of 6-inches in diameter. Where three or more lots are connected to a single service line, the service line shall be considered a gravity sewer, shall be a minimum of 8-inches in diameter, and shall be in accordance with the criteria covering District maintained gravity sewers. Exceptions to these requirements may be made in specific instances where constructability, environmental impacts or excessive costs require an alternate to these criteria. These exceptions shall be considered non-conforming connections and subject to correction to District Standards if and when criteria used in determining constructability, environmental impacts or excessive costs are no longer valid.

### b. Easements, Implied Grant of Way of Necessity and Statutory Way of Necessity

If a residential property requires an easement across another residential property to gain access to District sewers the easement shall be conveyed to the District using the District's Standard Easement Agreement. Easements shall only be allowed when no District maintained sanitary sewer is available for connection in public right of way or existing easements adjacent to the property and constructability, environmental impacts or excessive costs render construction of new sewer facilities in public right of way or existing easements adjacent to the property non-viable.

The District recognizes Florida Statutes 704.01, (1) Implied grant of way of necessity, and (2) Statutory way of necessity, may be applicable in providing sanitary sewer service to a property.

In the case of Implied Grant of Way of Necessity there may be instances where a sanitary sewer service existed to a property and that property was then divided into multiple properties each using the existing sanitary sewer service. In these instances the District recognizes the Implied Grant of Way of Necessity for each property's use of the sanitary sewer service under a "grandfather" clause but considers the connection/s non-conforming in that properties may be served by facilities not owned and maintained by the District and/or properties may be served by facilities that may be inadequately sized and/or one property may be served by facilities that cross another property and are not in a District Standard Easement. In these instances, the District shall require the sanitary sewer connections using an Implied Grant of Way of Necessity for sewer service be corrected to current District Standards when renovation or redevelopment of any of the affected properties occurs.

In the case of Statutory Way of Necessity there may be instances where a property is shut off or hemmed in from access to sanitary sewer service by lands, fencing or other improvements. In these instances the District, with agreement from the shut off or hemmed in property, may act on behalf of the shut off or hemmed in property and use and maintain an easement over, under, through and upon the lands which lie between the said shut-off or hemmed-in lands and public right of way or existing easements to supply sanitary sewer service to the shut-off or hemmed-in land granted the shut-off or hemmed-in land is using the lands that lie between for personal ingress and egress. The District considers sanitary sewer connections using Statutory Way of Necessity to be non-conforming in that properties are served by facilities that cross another property and are not in a District Standard Easement. In these instances the District shall require the sanitary sewer connections using a Statutory Way of Necessity for sewer service be corrected to current District Standards when renovation or redevelopment of the property over which a Statutory Way of Necessity is used occurs, or when a public right of way or utility easement becomes accessible to the shut-off or hemmed in property.

c. **Maintenance Responsibility**

The service line (lateral) cleanout will usually delineate the point of responsibility between the District and the property owner; however, the following variations do exist:

1. Multi-family Units - Public right-of-way - Owner's responsibility to the right-of-way line.
2. Multi-family Units - Non-Public right-of-way - Owner's responsibility to the main line connection.
3. Commercial Buildings - Owner's responsibility to the main line.
4. Condominium with Common Areas - Non-Public right-of-way Owner's responsibility to the main line connection.
5. Condominium with Common Areas Adjacent to Public right-of-way - District assumes responsibility within the public right-of-way.

30.07 **Service Line Markers**

A service line marker shall be installed 12-inches {minimum} above the service wye adjacent to the cleanout of each service line. The service line markers shall be Electronic System, Sanitary Marker 1258, as manufactured by 3M.

30.08 **Bolts, Anchor Bolts, and Nuts**



Anchor bolts shall have suitable washers and, where so required, their nuts shall be hexagonal. All anchor bolts, nuts, washers, plates, and bolt sleeves shall be galvanized unless otherwise indicated or specified.

Expansion bolts shall have malleable iron and lead composition elements or the required number of units and sizes.

Bolts, anchor bolts, nuts and washers specified to be stainless steel shall be type 316 stainless steel.

Anchor bolts and expansion bolts shall be set accurately. If anchor bolts are set before the concrete has been placed, they shall be carefully held in suitable templates of approved design. If anchor or expansion bolts are set after the concrete has been placed, all necessary drilling and grouting or caulking shall be done, and care shall be taken not to damage the structure or finish by cracking, chipping, spalling, or otherwise during the drilling and caulking.

#### 30.09            Concrete Inserts

Concrete inserts shall be designed to safely support the maximum load that can be imposed by the bolts used in the inserts. Inserts shall be of a type which will permit locking of the bolt head or nut. All inserts shall be galvanized.

#### 30.10            Protection against Electrolysis

Where dissimilar metals are used in conjunction with each other, suitable insulation shall be provided between adjoining surfaces so as to eliminate direct contact with any resultant electrolysis. The insulation shall be bituminous impregnated felt, heavy bituminous coatings, nonmetallic separators or washers, or other approved materials.

### **END OF SECTION 30**

## **SECTION 100**

### **EXCAVATION, PIPE EMBEDMENT, FILL AND GRADING**

#### **100.01      Description**

All excavations shall be made in such manner and to such widths as will provide suitable room for building the structures or laying and jointing the piping. All sheeting, bracing, supports, coffer dams, pumping and draining shall be performed to render the bottom of the excavations firm, dry and acceptable in all respects.

#### **100.02      Sheeting and Bracing**

Sheeting and bracing shall be furnished as may be necessary to support the sides of the excavation and to prevent any movement of earth which could in any way diminish the width of the excavation to less than that necessary for proper construction, or could otherwise injure or delay the work, or endanger adjacent structures.

All timber sheeting and bracing shall be left in place unless otherwise directed by the Design Engineer to remove same or cut off at a specified elevation.

All sheeting and bracing, including trench boxes not to be left in place, shall be carefully removed in such manner as not to endanger the construction or other structures. All voids left or caused by the withdrawal of sheeting shall be backfilled immediately with approved material and compacted by ramming with tools especially adapted to that purpose, by watering, or by other means as may be directed by the Design Engineer.

#### **100.03      Drainage**

##### **100.03.01      General**

To ensure proper conditions at all times during construction, all means shall be used to intercept and/or remove promptly and dispose properly of all water entering trenches and other excavations. Such excavations shall be kept dry until the structures, pipes and appurtenances to be built therein have been completed to such extent that they will not be floated or otherwise damaged.

All water pumped or drained from the work shall be disposed of in a suitable manner without undue interference with other work, damage to pavements, other surfaces, or property. Suitable temporary pipes, flumes, or channels shall be provided for water that may flow along or across the site of the work. All requirements of all regulatory agencies regarding dewatering and the discharge of water from the project shall be complied with.

All labor, materials, tools, and equipment shall be provided, as necessary, to properly control the quality of the discharge from the dewatering operations as described herein. All applicable laws, rules and regulations governing the discharge of water from dewatering operations shall be

complied with. All dewatering shall be accomplished by the use of sanded well points and other techniques deemed necessary by the Contractor to properly dewater the trench excavations.

The water discharged from the Contractor's dewatering operation shall not exceed the turbidity limits promulgated by the State of Florida Department of Environmental Protection discharge standards for the Loxahatchee River or its tributaries.

Unless otherwise directed by the Design Engineer, an approved siltation tank shall be installed ahead of dewatering discharge points. In addition, silt screens and other devices and techniques may be required to maintain the discharge quality at turbidity levels below the required limits.

Any and all methods approved by the Design Engineer to control the bacteriological quality of well point discharge into existing drainage ditches and/or canals shall be utilized. Levels for fecal coliform in a discharge which ultimately leads to the Loxahatchee River, shall not exceed those promulgated by the State of Florida Department of Environmental Protection discharge standards.

#### 100.03.02     Drainage Well-point System

If it is necessary to drain the soil and prevent saturated soil from flowing into the excavation, an efficient drain well-point system will be utilized. The well points shall be designed especially for this service. The pumping unit shall be designed for use with the well-points and shall be capable of maintaining a high vacuum and of handling large volumes of air and water at the same time.

#### 100.04         Trench Excavation

Where pipe is to be laid in rock bedding or concrete cradle, the trench may be excavated by machinery to, or to just below, the designated subgrade, provided that the material remaining at the bottom of the trench is not disturbed.

If the trench is excavated below the designated subgrade, the undercut shall be backfilled with compacted bedding rock, uniformly graded from 1/4-inch size.

#### 100.05         Depth of Trench

Trenches shall be excavated to such points as will permit the pipe to be laid at the elevations, slopes, or depths of cover indicated and at uniform slopes between indicated elevations.

#### 100.06         Width of Trench

Pipe trenches shall be made as narrow as practicable and shall not be widened by scraping or loosening materials from the sides. Every effort shall be made to keep the sides of the trenches firm and undisturbed until backfilling has been completed and consolidated.

Trenches shall be excavated with approximately vertical sides between the elevation of the center of the pipe and an elevation one (1) foot above the top of the pipe.

#### 100.07        Trench Excavation in Fill

If pipe is to be laid in embankments or other recently filled material, the material shall first be placed to the top of the fill or to go to a height of at least three (3) feet above the top of the pipe, whichever is the lesser. Particular care shall be taken to ensure maximum consolidation of material under the pipe location. The pipe trench shall be excavated as though in undisturbed material.

#### 100.08        Unauthorized Excavation

If bottom of any excavation is taken out or disturbed beyond the limits indicated or prescribed, the resulting void shall be backfilled with embedment material compacted to a minimum of 90% of AASHTO T-180 or to the standards of the applicable agency having jurisdiction.

#### 100.09        Elimination of Unsuitable Material

Pipe bedding shall extend a minimum of 4 inches below the pipe. The pipe shall be supported on suitable material ascertained by the Design Engineer following good engineering practices.

#### 100.10        Backfilling

As soon as practicable after the pipes have been laid, or the structures have been built and are structurally adequate to support the loads, including construction loads to which they will be subjected, the backfilling shall be started and thereafter it shall proceed until its completion.

##### 100.10.1      Backfill Materials

The nature of the materials will govern both their acceptability for backfill and the methods best suited for their placement and compaction in the backfill. The materials and the methods shall both be subject to the approval and direction of the Design Engineer. No stone or rock fragment larger than 3 inches in greatest dimension shall be placed in the backfill nor shall large masses of backfill material be dropped into the trench in such a manner as to endanger the pipeline. If necessary, a timber grillage shall be used to break the fall of material dropped from a height of more than 5 feet. Pieces of bituminous pavement shall be excluded from the backfill unless their use is expressly permitted, in which case they shall be broken up as directed.

##### 100.10.2      Embedment Materials

Three broad classes of material shall be used for bedding, haunching, and pipe side support.

CLASS 1 - Angular, 1/4-inch to 3/4-inch graded stone, of which 100% passes a 1-inch sieve such as coral, slag, cinders, crushed stone, crushed shells, or bedding rock.

CLASS 2 - Coarse sands and gravels with maximum

particle size 3/4 inch including variously graded sands and gravels containing small percentages of fines, generally granular and non-cohesive, either wet or dry. Soil Types GW, GP, SW, and SP are included in this class.

CLASS 3 - Fine sand and clayey gravels, including fine sands, sand-clay mixtures, and gravel-clay mixtures. Soil Types GM, GC, SM, and SC are included in this class. Included in Class 3 are existing soil types classified as select backfill.

Class 1, Class 2, or Class 3 material shall be used for bedding material to the top of the pipe. Special care must be taken to ensure Class 1, 2, or 3 material is worked under the pipe haunch. Class 2 or 3 material shall be compacted to a minimum of 98% density per AASHTO T -180. The District has the option, at any time, to take density tests to confirm the 98% compaction. Precautions shall be taken to prevent movement of the pipe when placing and compacting material under the pipe haunches.

If Class 2 or 3 material is used for bedding and haunching, a dry trench shall be maintained.

Under certain conditions, the Engineer may be faced with an unusual amount of water running in the trench which he may find necessary to remove in order to properly install and compact the embedment material. The Engineer may elect to remove the water with trench side pumps through the use of Class 1 material for bedding. The depth of Class 1 material will depend upon the amount of water but take care to ensure that the trench wall soil material is such that it will not be removed from the area adjacent to the bedding as a result of the running water. The Engineer may also elect to utilize well points or under drain to control excessive ground water. If Class 1 material is used as bedding and under drain, it must be utilized at least up to the top of the pipe.

#### 100.10.3 Zone Around Pipe

The zone around the pipe shall be backfilled with the materials and to the densities and limits indicated on the details.

#### 100.10.4 Compaction

Compaction shall be accomplished by tamping, or under appropriate construction techniques to achieve the required densities.

#### 100.10.5 Maximum Density

Unless specified otherwise, the percent of maximum density referred to in these specifications refers to the maximum density obtained when the material is laboratory tested in accordance with the procedures outlined in Designation AASHTO T-180, Latest Revision or as otherwise required

by the governmental agency having jurisdiction over the finished roadway. Field densities shall be determined by a testing laboratory using accepted methods.

100.10.6      Miscellaneous Requirements

Whatever method of compacting backfill is used, care shall be taken that stones and lumps shall not become nested and that all voids between stones shall be completely filled with fine materials. Only approved quantities of stones and rock fragments shall be used in the backfill.

All voids left by the removal of sheeting shall be completely backfilled with suitable material, thoroughly compacted.

**END OF SECTION 100**

## **SECTION 107**

### **HORIZONTAL DIRECTIONAL DRILL**

#### **107.01      General**

This specification covers installation of 4" and larger diameter HDPE pipe using horizontal directional drill methods. Installations shall comply with FDOT Standard Specification (Latest Edition) Section 555, ASTM F1962 and this specification.

#### **107.02      Material and Equipment**

The drilling fluid shall be a bentonite drilling fluid with or without polymer additives. All materials shall be NSF/ANSI 60 certified.

Pipe and fittings shall comply with Section 110.

Tracking/Steering equipment shall require a walk-over tracking system. The tracking/steering equipment shall place the pilot bore with a maximum horizontal tolerance of +/- 5% of directional bore pipe depth below grade.

After placement the contractor shall utilize a magnetic locating system utilizing a DC or AC current and a surveyed surface loop coil to as-built the final directional bore installation location in place. The surface loop shall be surveyed in by a Florida Licensed Professional Land Surveyor and georeferenced to State Plane Coordinates in NAD83, Florida East Zone and vertical datum NGVD29.

All directional drills shall be installed with a minimum 2" HDPE conduit and two minimum 10 gauge tracer wires installed for the full length of the bore. The conduit shall be terminated in a CDR box installed at each end of the bore. The 10-gauge tracer wires shall be terminated in the valve box for the isolation valves on each end. The conduit diameter and wall thickness shall be sized to withstand anticipated pull back forces of the installation. Tracer wire shall be high strength copper clad steel, Copperhead Soloshot EHS or approved equal.

#### **107.03      Submittals**

Submit technical data, cut sheets and shop drawings for equipment and materials including but not limited to drilling fluid (including MSDS Sheet), additives, pipe, fittings, adapters, pipe stiffeners, bore plan, locating and tracking equipment, locating tracking equipment calibration, locating and tracking equipment certification, heat fusion technician certification and proposed sequence of construction for approval by the Engineer.

Horizontal and vertical alignment of the pilot bore based on location information from the locating/tracking/steering equipment outlined in paragraph 107.02 and surveyed points on the DC surface looped coil. The horizontal and vertical alignment shall be referenced to horizontal and vertical datum requirements as specified in the Record Drawing Submittal Guide, Standard Detail

**SD-29. The horizontal and vertical alignment shall be as-built and certified by the steering contractor as complying with the locating/tracking/steering equipment manufacturer's recommended procedures.**

A log of directional drilling machine pressures during pulling operations converted to tensile stress seen in the pipe. Hydraulic pressure produced by the machine alone is not acceptable.

Experience and project resumes.

#### 107.04      Experience

The directional drill contractor and locating/tracking/steering/contractor shall demonstrate experience in similar horizontal directional drills. Experience shall be a minimum of 5 successful installations of same or larger diameter of same or longer length in the previous 5 years. The directional drill contractor shall submit a list of references.

#### 107.05      Placement and Testing

Perform all locates and pothole all potential conflicts prior to submitting the bore plan. The bore plan shall not be approved until all known conflicts have been resolved.

HDPE pipe shall be handled with care to include only the use of nylon slings for lifting and the use of appropriate sized pipeline rollers for supporting and maneuvering the pipe during fusion and pull back operations.

All HDPE pipe shall be pressure tested per Section 140.

All pipe installed below the water table shall be flooded with water prior to pulling operations.

Installations shall not exceed the pipe manufacturer's recommended radius of curvature.

The reamed hole shall not exceed 1.5 times the nominal diameter of the installed pipe.

All directional bores shall include one isolation valve on each end.

Upon completion bore pits shall be cleaned of excess drilling fluid and backfilled with clean fill.

**END OF SECTION 107**



## **SECTION 110**

### **PIPE, FITTINGS AND ACCESSORIES**

#### **110.01      General**

This section provides standards for all pipe and fittings used in the construction of District wastewater facilities. Approved piping systems include SCH40 and SCH 80 PVC, High Density Polyethylene (HDPE), SDR26 PVC, C900 PVC, C905 PVC and Ductile Iron.

#### **110.02      Schedule 40 and 80 PVC Pipe (1/2" – 3")**

Small diameter PVC (3" diameter or less) pipe and fittings shall be pressure rated ASTM D1784/D1785 schedule 40 for buried applications and schedule 80 for non-buried applications. Small diameter PVC pipe shall be marked with schedule, diameter, pressure rating at 140 F and applicable ASTM standards for dimensions and materials and be white or gray in color.

Small diameter PVC joints shall be solvent weld socket type.

#### **110.03      AWWA C901 High Density Polyethylene (1/2" – 3")**

Small diameter HDPE (3" diameter or less) pipe shall manufactured from PE4710 resin and comply with AWWA C901 and ASTM D3035. Small diameter HDPE pipe shall be iron pipe size (IPS) with a standard dimension ratio (SDR) 11. Small diameter HDPE pipe shall be marked with diameter, SDR, AWWA C901, ASTM D3035 and PE4710 and shall be black in color with extruded stripes in applicable color; sewer = green, IQ = purple.

Small diameter HDPE pipe shall come in reels sufficient for continuous lay lengths from service latera to service lateral.

Small diameter HDPE pipe shall use brass pack joint style couplings and stainless steel pipe stiffeners.

#### **110.04      AWWA C906 High Density Polyethylene (4" – 63")**

Large diameter HDPE (4" – 63") pipe shall manufactured from PE4710 resin and comply with AWWA C906, ASTM F714 and be listed with the Plastic Pipe Institute's (PPI) TR4. Large diameter pipe shall be ductile iron pipe size (DIPS) with a standard dimension ratio (SDR) 11. Large diameter HDPE pipe shall be marked with diameter, SDR, AWWA C906, ASTM F714 and PE4710 and be black in color with extruded stripes in applicable color; sewer = green, IQ = purple, potable = blue.

Single joints of pipe shall be a minimum of 40 feet in length. Damaged pipe may have the damaged area cut out and the remaining portion reused as long as the remaining portion is a minimum of 20 feet in length.

Large diameter HDPE pipe shall utilize HDPE butt fused fittings of the same SDR.

110.05      SDR 26 PVC Gravity Mains

Gravity main installations whose invert is greater than 4'-0" and less than 14'-0" shall be integral bell and spigot gasketed pipe and comply with ASTM D3034 for SDR 26 up to 15" in diameter. SDR 26 gravity main pipe shall meet the following ASTM Standards: D3212 (Joint), F477 (Gasket), D1784 (PVC Compound), D2412 (Stiffness) and D2321 (installation). SDR 26 gravity main pipe shall be green in color and marked with diameter, SDR and applicable ASTM standards.

Joints of SDR 26 gravity main pipe shall be either 14'-0" or 20'-0" in length

110.06      AWWA C900 Force Mains

Force main installations 4" – 48" shall be integral bell and spigot gasketed pipe and comply with AWWA C900 DR18, Pressure Class 235. C900 Force main pipe shall comply with ASTM Standards D1784 (PVC Compound), D3139 (Joint), and F477 (Gasket). C900 force main pipe shall be marked with diameter, DR and AWWA C900. C900 force main pipe shall be green for sewer and purple for IQ.

Joints of C900 force main pipe shall be either 14'-0" or 20'-0" in length.

C900 force main pipe shall use ductile iron fittings with restrained mechanical joints

110.07      Ductile Iron Pipe

All ductile iron pipe shall be manufactured in accordance with ANSI/AWWA C151/A21.51. Ductile iron pipe shall be pressure class 350 up to 20" and pressure class 250 for larger diameters. Ductile iron pipe shall be epoxy coated on the interior with Protecto 401, Permite 9043 Type II, Permax CTF or Linerguard. Coatings shall conform to ANSI/AWWA C104/A21.4

Joints shall conform to ANSI/AWWA C111/A21.11. Restrained push on joints shall use Field Lok 350 Gaskets by US Pipe and Foundry Co., or approved equal.

Ductile Iron Pipe shall be minimum Pressure Class 350 up to 20-inches in diameter and Pressure Class 250 for larger diameters.

Where ductile iron pipe is used, fittings shall be ductile iron and conform to the requirements of ANSI/AWWA C153/A21.53 and shall be of a pressure classification at least equal to that of the pipe with which they are used. Fittings may be flanged or mechanical as applicable.

#### 110.08        SDR 26 PVC Fittings

PVC Gravity main fittings shall conform to the requirements of ASTM D2241 SDR26. Gaskets shall conform to ASTM F477. Fittings in sizes not available in injection molded form shall be fabricated from SDR26 pipe in accordance with ASTM D2241.

#### 110.09        Schedule 40 and 80 PVC Fittings

Fittings used in small diameter PVC piping systems shall match the schedule of the piping system, either Schedule 40 or 80. Fittings shall be socket weld and conform to ASTM D1785 for physical dimensions and ASTM D1784 for materials.

#### 110.010       HDPE Butt Fused Fittings

Molded butt fusion fittings and adapters shall conform to ASTM D 3261, utilize HDPE conforming to the pipe to which it will be fused and have the same dimension ratio as the pipe to which it will be fused. All fittings shall be pressure rated to provide a working pressure rating no less than that of the pipe.

#### 110.011       Large Diameter HDPE to PVC/DI Adapters

Transition from HDPE to other piping systems shall require MJ or flanged HDPE adapters. Instances where these adapters are not practical will require pipe stiffeners in conjunction with ductile iron fittings. The pipe stiffeners shall be stainless steel as manufactured by JCM Industries or pre-approved equal. Pipe stiffeners in conjunction with ductile iron fittings shall only be used with the written approval of the District Engineer for HDPE pipe 12" diameter and smaller. When approved, MEGALUG Series 2000PV mechanical joint restraints or approved equal shall be used.

#### 110.012       Small Diameter HDPE Fittings and Adapters

Small diameter HDPE pipe (1/2" – 3") HDPE to HDPE and HDPE to PVC connections shall use pack joint style fittings as manufactured by Ford Meter Box Co. Stainless steel pipe stiffeners shall also be required.

#### 110.013       Ductile Iron Fittings

Ductile iron fittings shall conform to ANSI/AWWA C153/A21.53 (compact fittings) with a minimum pressure rating of 350 psi for mechanical joint fittings and 250 psi for flanged fittings. Fittings shall be mechanical joint or flanged as required.

Flanged fittings shall comply with ANSI B16.425, Class 150.

All mechanical joints shall be restrained. Restrained mechanical joints shall use 1100 Series Megalug by EBAA Iron Sales, Inc. or approved equal.

Ductile iron fittings shall be epoxy coated on the interior with Protecto 401, Permite 9043 Type II or Linerguard. Coatings shall conform to ANSI/AWWA C104/A21.4

110.014      Ductile Iron Pipe and Fittings Linings and Coatings

Ductile iron pipe fittings shall be epoxy coated on the interior with Protecto 401, Permite 9043 Type II or Linerguard. Coatings shall conform to ANSI/AWWA C104/A21.4

Buried ductile iron pipe and fittings shall receive an external bituminous coating in accordance with ANSI 21.10. and be striped with green for sewer and purple for IQ water.

Above grade ductile iron pipe and fittings shall receive a three coat system; Prime Coat: TNEMEC-Aluminum Mastic #135 (3 to 5 mils DFT), Intermediate Coat Series 66 Epoxoline Hi-Build Epoxy (4 to 6 mils DFT) and Finish Coat Series 73 Endura-Shield III Urethane (2 to 3 mils DFT). Coatings shall be green for sewer and purple for reclaimed water.

110.015      Marking Tape

All buried piping shall include marking tape. Marking tape shall be minimum 2” wide, magnetic and detectable. Marking tape shall be green and marked “SEWER”.

110.016      Buried Markers

Buried markers shall be installed at all fittings, valves, service connections, change of direction and every 300’ of pipe lay length. Buried markers are not required on gravity main piping but are required on service lateral piping and cleanouts. Buried markers shall be EMS Mini-Markers for Wastewater Model 1258 as by 3M.

110.017      Tracer Wire

When specifically required pressure rated piping shall be installed with tracer wire. Tracer wire shall be attached to the pipe using a half-hitch every 10’ for direct bury applications and shall be pulled with the pipe (without attaching) in directional drill installations. Tracer wire in directional drill applications shall be minimum 10 gauge, Copperhead Soloshot EHS or approved equal. Tracer wire in direct bury applications shall be minimum 14 gauge, PVC coated, solid copper wire.

110.018      Handling and Cutting Pipe

The pipe manufacturer's recommendation for handling, storing, unloading and cutting pipe shall be followed. Individual pipes shall not be allowed to drop from the truck when unloading. Pipe units shall not be handled with chains or single cables. Pipe shall not be stored more than two units high. Every care shall be taken in handling and laying pipe and fittings to avoid damaging the pipe or scratching or marring machined or finished surfaces.

Any fitting showing a crack shall be marked as rejected and removed at once from the work.

In any pipe showing a distinct crack and in which it is believed there is not incipient fracture beyond the limits of the visible crack, the cracked portions, if so approved by the Design Engineer, may be cut off before the pipe is laid so that the pipe used is perfectly sound. The cut shall be made in the sound barrel at a point at least 12-inches from the visible limits of the crack.

Except as otherwise approved, all cutting shall be done with knives or saws adapted to the purpose. All cut ends shall be examined for possible cracks caused by cutting.

Cut ends to be used with push on joints shall be carefully chamfered and the reference mark located in accordance with the manufacturer's recommendation to prevent cutting the gasket when the pipe is laid or installed.

#### 110.019      Installing Pipe and Fittings

No defective pipe or fittings shall be laid or placed in the piping, and any piece discovered to be defective after having been laid or placed shall be removed and replaced by a sound and satisfactory piece.

Each pipe and fitting shall be cleared of all debris, dirt, etc., before being laid and shall be kept clean until accepted in the complete work. Pipe and fittings shall be laid accurately to the lines and grades indicated on the drawings or required. Care shall be taken to ensure a good alignment both horizontally and vertically.

Each length of pipe shall have a firm bearing along its entire length. Embedment requirements are shown on the Standard Details and in this specification.

The bell of the pipe shall be cleaned of dirt or other obstruction and wiped out before the cleaned and prepared spigot of the next pipe is inserted into it. Only lubricants made by the pipe manufacturer may be used on the spigot. The new pipe shall be shoved firmly into place until properly seated and held securely until the joint has been completed.

#### 110.020      Temporary Plugs

At all times when pipe laying is not actually in progress, the open ends of pipe shall be closed by temporary watertight plugs. If water is in the trench when work is resumed, the plug shall not be removed until all danger of water entering the pipe has passed.

#### 110.021      Preparation of Trench Bottom

The trench bottom shall be constructed to provide a firm, stable and uniform support for the full length of the pipe. Unsuitable foundation material shall be removed as required by the Engineer and refilled with Class 1, 2, or 3 material. Class 2 or 3 material shall be compacted to a minimum of 90% standard proctor density.

110.022      Manhole Connections

Where PVC gravity or force main pipe enters the manhole, approved sealing adapters as manufactured by Harco, Fernco or equal, shall be used. Any coupling used shall be coated with an epoxy coated sand finish approved by the District.

110.023      Bell Holes for Elastomeric Seal Joints

When the pipe being installed is provided with elastomeric seal joints, bell holes shall be excavated in the bedding material to allow for unobstructed assembly of the joint. Care should be taken that the bell hole is not larger than necessary to accomplish proper joint assembly. When the joint has been made, the bell hole should be carefully filled with bedding or haunching material to provide for adequate support of the pipe throughout the entire length.

**END OF SECTION 110**

## SECTION 120

### CAST IN PLACE CONCRETE

#### 120.01 Materials

##### 120.01.1 Concrete

Ready-mixed concrete shall be used. It shall comply with the Standard Specifications for Ready-Mixed Concrete, ASTM Designation C94 for the strengths specified herein. Alternate No.2, under Paragraph 4 - Quality of Concrete ASTM C94 shall govern for the design of the concrete mixture.

##### 120.01.2 Cement

Type I cement shall be used in concrete for general purposes. Type II or Type 1L cement shall be used for sewer manholes, wet wells, and all other applications where the concrete may be exposed to a wastewater atmosphere.

#### 120.02 Concrete

##### 120.02.1 Mix

Concrete shall be composed of Portland cement, coarse aggregate, fine aggregate and water. The concrete mix shall be designed to produce the quality specified, proportioned and mixed in accordance with the requirements set forth herein and shall in all cases meet the following requirements:

<u>Class</u>	<u>Location</u>	28 Day Compressive <u>Strength</u>
A.	Specifically Required on Plans	4,000 psi
B.	General Structural Concrete	3,000 psi
C.	Non-structural Applications	2,500 psi

##### 120.02.2 Slump

The concrete, when placed, shall show slumps within the following limits when tested in accordance with the Method of Test for Slump of Portland Cement Concrete, ASTM Standard Specification C-143.

<u>Type of Concrete</u>	<u>Min. Slump</u>	<u>Max. Slump</u>
Mass Concrete	1 Inch	3 Inches
Reinforced Concrete:		
Thin vertical sections and thin columns, 7 inches or less in thickness	3 Inches	6 Inches
Heavy vertical sections more than 7 inches in thickness	3 Inches	5 Inches
Structural Slabs	1 Inch	4 Inches

#### 120.02.3      Air Entraining

Air entrained concrete shall conform with the following requirements:

	<u>Maximum Aggregate Size(Inches):</u>				
	<u>3/8:</u>	<u>1-2:</u>	<u>3/4:</u>	<u>1:</u>	<u>1-1/2:</u>
Average total air content, percent (Plus or minus 1%):	5	5	4	4	3

#### 120.03      Placing Concrete

Concrete shall be placed within 1 hour of the load ticket time stamp and before the initial set has occurred.

The concrete shall be compacted and worked in an approved manner into all corners and angles of the forms and around reinforcement and embedded fixtures in such a manner to prevent segregation of the coarse aggregate.

All concrete shall be placed with an aid of mechanical vibrating equipment supplemented by hand forking or spading. Vibration shall be transmitted directly to the concrete and not through the forms. The duration of vibration at any location in the forms shall be held to a minimum necessary to produce thorough compaction. The concrete shall be placed by suitable equipment as nearly as possible to its final location and without any segregation of the aggregate. Any free vertical drop shall not exceed 4-1/2 feet.

Expansion joints shall be placed as indicated on the plans. Joint material shall be installed as indicated and as approved by the Design Engineer. Construction joints shall be made only at locations indicated on the plans or approved by the Design Engineer, and in such manner as not to impair the strength, water-tightness or appearance of the structure.



#### 120.04 Finishing

All top surfaces which are not covered by forms and which are not to be covered by additional concrete or backfill, shall be carried slightly above grade and struck off by board finish. All edges shall be provided with a 3/4 inch chamfer. All exposed surfaces which show board marks, joint marks or other irregularities after the forms are removed shall, at the discretion of the Design Engineer, be rubbed with carborundum brick, filled or otherwise dressed to produce a smooth true surface.

No special concrete or cement mortar topping course shall be used for slab finish unless shown on the drawings. The slab shall be brought to a true and even finish by power or hand floating. Unless otherwise specified, the surface shall be steel troweled to a smooth finish. Troweling shall be the minimum to obtain a smooth, dense surface and shall not be done until the mortar has hardened sufficiently to prevent excess fine material from being worked to the surface.

#### 120.05 Curing

All concrete shall be kept wet by covering with water and approved water saturated covering, or other approved method which will keep all surfaces continuously wet for a period of seven (7) days, unless otherwise specified by the Design Engineer. All concrete shall be adequately protected from injurious action by the sun. Fresh concrete shall be protected from heavy rains, flowing water and mechanical injury. All concrete shall be kept damp for at least seven (7) days by covering with an approved saturated covering, by a system of perforated pipes or mechanical sprinklers, or by any other approved method which will keep all surfaces continuously damp.

Where wood forms are left in place during curing, they shall be kept wet at all times to prevent opening at the joints and drying out of the concrete. Water for curing shall be clean and entirely free from any elements which might cause staining or discoloration of the concrete.

#### 120.06 Forms

Forms shall be of wood, metal, or other approved material shall be built true to line and grade, mortar tight, adequately braced and supported, and sufficiently rigid to prevent displacement or sagging.

Forms, except those lined with absorptive form lining, shall be coated with a non-staining mineral oil applied shortly before placing the concrete. In lieu of oiling, forms for unexposed surfaces may be thoroughly wetted immediately before placing the concrete.

Forms ties shall be of a design such that when forms are removed no metal shall be within 1 inch of the finished surface. Holes remaining from withdrawn tie rods or bolts shall be filled solid with cement mortar.

Under normal conditions, the minimum waiting period after placing concrete for stripping forms shall be as follows:

<u>Where Used</u>	<u>Time</u>
1. Bottom forms of girders and beams, floor slabs, and other concrete.	5 Days
2. Walls, piers, columns, sides of beams, and other vertical surfaces.	24-48 hours

The use of this schedule shall not operate to relieve the Contractor or the Design Engineer of responsibility for the safety of the structure.

#### 120.07 Embedded Items

In addition to steel reinforcement, pipes, and other metal objects, as shown on the plans or ordered to be built into, or set in, or attached to the concrete, all necessary precautions shall be taken to prevent these objects being displaced, broken, or deformed. Before concrete is placed, care shall be taken to determine that any embedded or wood parts are firmly and securely fastened in place as indicated. They shall be thoroughly cleaned and free of paint or other coating, rust, scale, oil, or any foreign matter. The concrete shall be packed tightly around the pipes and other metal work to prevent leakage and to secure perfect adhesion. Drains shall be adequately protected from intrusion of concrete.

Concrete placing operations shall not begin until the reinforcing steel, utilities, anchor bolts, etc., to be embedded in concrete have been inspected and approved by the Design Engineer.

#### 120.08 Reinforcing Steel

Reinforcing bars and mesh shall be sizes and shapes as indicated on the drawings. Bars shall be deformed bars of intermediate grade, new billet steel conforming with ASTM Designation A-615, Grade 60. Wire mesh shall conform with ASTM Designation A-I85.

#### 120.09 Water Stops

Water stops shall be molded PVC, hollow center bulb, multiple ribbed as manufactured by W.R. Meadows, Inc., Electrovert, Inc. or Serviced Products Corporation, or approved equal.

#### 120.10 Testing Services

Testing shall be performed by an independent commercial testing laboratory approved by the District. The Design Engineer shall furnish the District with copies of compression and slump test reports for every thirty (30) cubic yards or portion thereof of concrete placed. It shall be the responsibility of the Design Engineer to produce concrete of the strength, durability, workability and finish specified, furnish representative material for specimens in quantities required by the

testing laboratory, and cooperate and assist in taking samples of materials for testing. The District reserves the right to take and test additional concrete samples.

**END OF SECTION 120**

## **SECTION 121**

### **PRECAST MANHOLES AND STRUCTURES**

#### **121.01      General**

Manholes and structures shall conform in shape, size, dimensions, materials and other respects to the Standard Details or as directed by the District's Engineer.

All manholes and structures shall be precast concrete with monolithic base sections. Invert channels may be formed in the concrete of the base or may be formed of brick and mortar upon the base.

All manholes which will receive direct force main discharges, or are at least 14-feet deep (rim to lowest invert) and the last collection manhole just upstream of any lift station shall receive a minimum 0.5-inch thick calcium aluminate corrosion barrier such as Sewper Coat, Strong Seal, Refratta HAC 100 or approved equal, and installed per the manufacturers recommendations.

The inverts shall conform accurately to the size of the adjoining pipes. Sides inverts shall be curved and main inverts (where direction changes) shall be laid out in smooth curves of the longest possible radius which is tangent to the centerlines of adjoining sewers.

Connections to existing structures shall be made only by mechanically coring a hole through the structure. Jackhammer and other methods of cutting a hole through an existing structure are not acceptable.

Rubber "boots" subject to District approval, will be allowed for making pipe connections to structures provided that a layer of non-shrink grout be applied to seal the annular space on the inside of the manhole for the full wall thickness. The boots shall be cast in the precast structure and shall utilize stainless steel bands and screws.

#### **121.02      Precast Concrete Sections**

Precast concrete sections shall conform to the ASTM Specifications for Precast Reinforced Concrete Manhole Risers and Tops, Designation C-478 or ASTM C858 Standard Specification for Underground Precast Concrete Utility Structures with the following exceptions and additional requirements:

Type II cement shall be used in structures directly exposed to wastewater (i.e. manholes and wetwells).

Sections shall be steam cured and shall not be shipped until at least five (5) days after having been cast.

Acceptance of the sections will be on the basis of material tests, finished quality, and inspection of the completed product.

Cones shall be 30" - concentric type

Joint material in riser sections shall be of the bitumastic type as manufactured by RAM-NEK or equal.

No more than two (2) lift holes may be cast or drilled in each section.

#### 121.03      Shallow Manhole

When the depth from the deepest invert to the top of the cone section is 4'-0" or less, an approved shallow cone section with a 30" opening shall be used. In no case shall a flat slab top section be used.

#### 121.04      Setting Precast Sections

Precast reinforced concrete sections shall be set so as to be vertical with sections in true alignment.

All holes in sections, used for their handling, shall be thoroughly plugged with mortar. The mortar shall be one part cement and 1-1/2 parts sand; mixed slightly damp to the touch (just short of "balling"); hammered into the holes until it is dense and an excess of paste appears on the surface; and then finished smooth and flush with the adjoining surfaces.

Anti-hydro grout shall be used to fill all voids around sanitary sewer pipe and manhole sections.

#### 121.05      Mortar for Brick and Concrete Block Work

The mortar shall be composed of Portland cement, hydrated lime, and sand, in which the volume of sand shall not exceed three (3) times the sum of the volumes of cement and lime. The proportions of cement and lime shall be as directed and may vary from 1:1/4 for dense, hard burned brick to 1:3/4 for softer brick. In general, mortar for Grade SA brick shall be mixed in the proportions of 1:1/2:4-1/2.

Cement shall be Type II Portland cement as specified for under Concrete Masonry.

Hydrated lime shall be Type "S" conforming to the ASTM Standard Specification for Hydrated Lime for Masonry Purposes, Designation C207 - Latest Revision.

The sand shall be well graded clean, durable particles all of which shall pass a No. 8 sieve.

#### 121.06        Laying Brick

Only clean, red, fire cured brick shall be used. The brick or block shall be moistened by suitable means, as directed, until they are neither so dry as to absorb water from the mortar, nor so wet as to be slippery when laid.

Each brick or block shall be laid in a full bed and joint of mortar without repairing subsequent grouting, flushing, or filling, and shall be thoroughly bonded as directed.

Brick shall only be used in chimney construction for final adjustment of frame and covers to required grade. Brick chimneys shall not exceed 18 inches in height for manholes 4-6 feet deep and 24 inches for manholes greater than 6 feet deep.

#### 121.07        Plastering and Curing Brick

Outside faces of brick shall be plastered with mortar from 1/4 inch to 3/8 inch thick. If required, the brick shall be properly moistened prior to application of the mortar. The plaster shall be carefully spread and troweled so that all cracks are thoroughly worked out. After hardening, the plaster shall be carefully checked by being tapped for bond and soundness. Unbonded or unsound plaster shall be removed and replaced.

Brick and plaster shall be protected from too rapid drying by the use of burlaps kept moist, or by other approved means and shall be protected from the weather, all as required.

#### 121.08        Frames and Covers

The castings for the frames and covers shall be of good quality, strong, tough, even grained cast iron, smooth, free from scale, lumps, blisters, sandholes and defects of every nature which render them unfit for the service for which they are intended.

All castings shall be thoroughly cleaned and subject to a careful hammer inspection.

Casting shall be at least Class 30 conforming to the ASTM Standard Specification for Gray Iron Castings, Designation A48- Latest Revision, and conform to the standard details.

The contact surface of the frame and cover seat shall be a machine fit and the cover surface shall be "knobbed".

Frame and covers shall be US Foundry Model 230 AB-M

#### 121.09        Setting Frames and Covers

Frames shall be set with the tops conforming accurately to the grade of the pavement or finished roadway surface, in unsurfaced areas the frames and covers shall be set 3 inches higher than the surrounding ground. Frames shall be set concentric with the top of the masonry and in a full bed of mortar so that the space between the top of the manhole masonry and the bottom flange of the

frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed around the bottom flange. The mortar shall be smoothly finished to be flush with the top of the flange and have a slight slope to shed water away from the frame.

Cover shall be left in place in the frames on completion of other work at the manholes.

#### 121.10        Adjustment of Existing Manhole Frames

When it is necessary to raise existing manhole frames due to repaving of roads or other reasons, the frames shall be shimmed with masonry, brick and Type II cement mortar to the new finished grade, or in the case of sodded areas, 2" above finished grade. In cases where raising the existing frame and cover result in chimneys greater than 12" in height the District may require the conical section be raised installation of additional barrel section below the conical section.

When new paving operations cause the manhole frame to be adjusted upwards, manholes will be raised using conventional shimming methods under the frame. The use of adapter rings in the existing frame will not be permitted unless specifically authorized by the District.

### **END OF SECTION 121**

## SECTION 122

### GREASE INTERCEPTORS AND TRAPS

#### 122.01 Grease, Oil and Sand Interceptors

##### 122.01.1 Grease Interceptors

Grease, oil and sand can be a serious problem for any sewer system if not taken care of properly and adequately. When grease is discharged into a gravity collection system, it can cause operation and maintenance problems not only inside those gravity lines, but also with the downstream lift stations and force mains. Additionally, grease inhibits the biological processes at the wastewater treatment plant.

Frequent and adequate cleaning of interceptors is important and often over looked. Interceptors shall be provided when the resultant discharge from a business contains excessive amounts of grease, oil, lint, sand or other solids and substances that are harmful or hazardous when discharged into wastewater, or in the opinion of the District Engineer the resultant discharge from such occupancy will be detrimental to the District facilities.

Grease interceptors will be required on all food service establishments where any kind of food is prepared on site, or in the opinion of the District Engineer the resultant discharge from such occupancy will be detrimental to the District facilities. Examples of businesses that will be required to have a grease interceptor are restaurants, delis, bakeries, sandwich shops, schools, hospitals, assisted and independent living facilities, etc.

Grease interceptors will be sized according to one of the two (2) formulas listed in Section 64E-6.013(7)(d) of Rule 64E-6, Florida Administrative Code, whichever best applies for the proposed establishment. As per compliance with the 2020 Florida Building Code – Plumbing, Chapter 10 Traps, Interceptors and Separators, Section 1003.3.5, “Grease interceptors that are sized, constructed and approved in accordance with Rule 64E-6, Florida Administrative Code and that are located outside the building shall not be required to meet the requirements of this section.” The minimum sized grease interceptor shall be 750 gallons, which will also apply to businesses where the above formulas might not directly apply.

When multiple tanks are required, they must be installed in series. This also applies to pre-existing restaurants (or other facilities) that require additional capacity to augment their existing interceptors.

Interceptors shall not be shared. Each business location is required to have its own interceptor(s) and its own separate plumbing to the interceptor(s). When the same establishment has multiple discharge points that require installation of interceptors at different locations, such as an institutional facility with a kitchen and a laundry, each use shall be provided with separate plumbing and the required interceptor(s).



All equipment and plumbing fixtures in a food service facility that may introduce fats, oil or grease into the District wastewater facilities must be connected through the grease interceptor, including but not limited to:

- a. Scullery sinks (two or three compartment)
- b. Pots and pan sinks
- c. Floor drains in kitchen, walk-in coolers and washing areas (not including public restrooms)
- d. Pre-wash sinks
- e. Dishwashers and other washing machines
- f. Automatic hood wash units
- g. Indoor garbage can washes

Under the counter (flow-based) grease traps are not allowed. Private pump stations used for grease waste conveyance are strictly prohibited.

#### 122.01.2 Oil/Sand Interceptors

Oil/Sand interceptors are required for all car washes and establishments with facilities for servicing vehicles/mechanical equipment. All plumbing (other than the restroom) from the area where repairs and maintenance is being performed shall connect to an oil/sand interceptor; this includes but is not limited to floor drains and hand wash sinks. Engine oil, transmission oil, coolant, solvents, additives, brake fluid or any other fluid collected in the process of servicing vehicles/mechanical equipment shall not be discharged into the interceptor or other plumbing; the handling and disposal of these fluids shall be in compliance with the DEP and District rules and regulations.

Oil/Sand interceptors are also required for hydraulic and all outdoor elevators, such as in parking garages, where sump pumps and/or drains are proposed to discharge to District's sewer system. Oil/sand interceptors are not required for indoor elevators with an approved alarm system that meets the 2020 Florida Building Code.

Oil/Sand separators shall be sized based upon the 2020 Florida Building Code – Plumbing, Chapter 10 – Traps, Interceptors and Separators, Section 1003.4.2.2. The minimum sized oil/sand separator shall be 750 gallons.

#### 122.02 Lint Interceptors

Lint interceptors are required for all laundromats and all establishments with a central laundry room with at least 5 washing machines or more. Interceptors shall be equipped with a wire basket

or similar device that's removable for cleaning and prevents passage of solids ½" or larger in size, strings, rags, buttons or other materials detrimental to the wastewater facilities. Lint interceptors shall be sized based on the following formula: Number of washers X 2 cycles per hour X 20 gallons per cycle flow rate X 2.0 hours retention time X 1.5 storage factor. The minimum sized lint interceptor shall be 750 gallons.

#### 122.03      General Requirements

All interceptor construction shall be concrete and shall meet all applicable standards in Chapter 64E-6, Florida Administrative Code.

All interceptors shall be provided with two (2) access manholes: one (1) over the inlet and one (1) over the outlet. LRD approved, traffic rated lids shall be installed with manhole covers to finished grade. Manhole frame & covers and inside openings in the top slab, for tanks sized 1,250 gallons or less, shall be manufactured by US foundry with a 24-inch minimum clear opening. Manhole frame & covers and inside openings in the top slab, for tanks larger than 1250 gallons, shall be US foundry, model 230-AB-M, double ring & cover, with a 30-inch minimum clear opening.

All manhole covers shall be marked with the lettering: "GREASE", "OIL" or "LINT", as applicable.

Wastewater from toilets, urinals, showers, and other similar plumbing fixtures for human waste shall not discharge into an interceptor.

In accordance with the District's Rule Chapter 31-13 and Industrial Pretreatment Program, all interceptors shall be inspected at a minimum on a semi-annual basis. Additionally, all interceptors will have a structural inspection performed by District staff on a 5-year basis pending no change in ownership or operation. The structural inspection will require the interceptor to be pumped out, pressure washed and cleaned of all contents at the Owner's expense, in advance of the scheduled inspection date.

If a restaurant submits for change of ownership or operation, then a structural inspection will be required (if not already completed within the past 6 months) as part of the District's review and approval process. The structural inspection will require the interceptor to be pumped out, pressure washed and cleaned of all contents at the Owner's expense, in advance of the scheduled inspection date.

#### 122.04      Grease Interceptor Exemptions

There are instances where a food service establishment may not require a grease interceptor. In these instances an exemption from a grease interceptor may be allowed. In order to qualify for an exemption, the following minimum criteria must be met.

- No food preparation on-site.
- The following equipment is prohibited from being on-site: oven, dishwasher, stove top cooking surfaces/griddle, fryers, ranges, or any equipment used to cook food, including

pre-cooked frozen food.

- Only pre-made food may be allowed to be heated on-site using the following equipment: toasters, microwaves or sandwich presses.
- Traditional and/or convection ovens which have a microwave feature or which utilize microwaves to accelerate preparation times are not permitted.
- No reusable buffet serving basins used on-site.
- If serving food on-site, all food is served on paper/plastic plates using disposable utensils or in the pre-packaging it was brought on-site in.
- All condiments are pre-packaged in individual servings.

If the above criteria cannot be initially met or if it is found that after an exemption is given the above criteria are no longer being met, then a District-approved grease interceptor must be installed. Failure to do so will result in a violation of the District's Sewer Use Rule outlined in Chapter 31-13, Florida Administrative Code, which may result in fines against the property.

Any exemptions provided are permanent, so long as these requirements are met.

**END OF SECTION 122**

## **SECTION 130**

### **VALVES AND APPURTENANCES**

#### **130.01      General**

All buried valves and appurtenances including exposed nuts, bolts, and retainer glands shall be given an exterior approved bitumastic or epoxy coating. All valves shall open counterclockwise. All valves shall have extension stems pinned to the operating nut with a stainless steel pin extension. Stems will not be required where the valve operation nut is less than 30" from finished grade.

Contractors must supply LRD with shop drawings clearly indicating that the criterion for each type of valve or appurtenance listed in this section is satisfied.

#### **130.02      Plug Valves**

All mechanical joint and flanged plug valves shall be of the nonlubricated eccentric type. Valves shall be rated for not less than 125 psi pressure differential acting in either direction (bi-directional). At this differential, the valve shall provide drip tight shutoff. All components shall be of corrosion resistant construction. Valve flanges shall be ANSI B16.1, class 125 pound with a full round or other acceptable type port to assure minimum turbulence and minimum pressure drop. Valve bodies shall be of ductile iron and seats shall be of nickel-alloy. Valves are to have a balance plug, coated with a resilient material solidly bonded to a cast iron or semi-steel core, as required, to assure low torque and bubble-tight shutoff. The valve plug shall touch on the seat when in the closed position.

Plug valve port areas shall be at least 100% through 24 inches in diameter. For plug valves 30" and larger, a port area of at least 75% is required.

Buried plug valves shall be installed vertically with non-rising stems and shall open by turning a two inch square operating nut counterclockwise. An arrow shall be cast into the nut skirt to indicate the open direction.

Plug valves shall be as manufactured by DeZurik Corporation, Milliken, Keystone Valve Manufacturing Company (Ballcentric Type), or approved equal.

#### **130.03      Resilient Seat Gate Valves**

Gate valves shall be resilient seated, manufactured to meet or exceed the requirements of AWWA C509 or C515, Latest Revision, and in accordance with the following specifications. Valves shall have an unobstructed waterway canal equal to or greater than the full nominal diameter of the valve.

The valves are to be non-rising stem with the stem made of cast, forged, or rolled bronze as shown in AWWA C509. Two stem seals shall be provided and shall be of the O-ring type, one above and

one below the thrust collar. A 2-inch square operating nut shall be provided for operating the valve. The stem nut, also made of bronze, may be independent of the gate or cast integrally with the gate. If the stem nut is cast integrally, the threads shall be straight and true with the axis of the stem to avoid binding during the opening or closing cycle.

The valve body, bonnet, and bonnet cover shall be ductile iron. All ferrous surfaces inside the valve body shall have a fusion bonded epoxy coating applied at the valve manufacturer's facilities. The coating shall meet or exceed all requirements of AWWA C550. All bolts, nuts and washers shall be stainless steel to limit exterior corrosion and maintain fastener strength.

The sealing mechanism shall consist of a cast iron or ductile iron gate having a vulcanized Buna-N or SBR synthetic rubber coating or a Buna-N rubber seat mechanically retained on the gate. The resilient sealing mechanism shall provide zero leakage at 250-psi working pressure. All valves shall have pressure tests performed to the requirements of AWWA C509 or C515 specifications, as applicable, prior to shipment from the manufacturer. Valve shall seat and be drip-tight at the working pressure when installed with the line flow in either direction.

All valves are to be tested in strict accordance with AWWA C509. Resilient seat gate valves shall be as manufactured by Mueller, Metro-Series, American Darling or approved equal.

Valves shall be covered by a Manufacturer's 10 year limited warranty from date of purchase by end user and delivered within 30 days from receipt of purchase order. The supplier will also provide laminated maintenance manuals.

#### 130.04      Swing Check Valves

Swing check valves for sewage, sludge, and general service shall be in accordance with AWWA C 508, unless otherwise specified below, full-opening; designed for a working pressure of 150 psi unless otherwise shown, and shall have a flanged cover piece to provide access to the disc. Corrosive ferrous surface of valves, 4-inch and larger, which will be in contact with water, shall receive a fusion-bonded epoxy coating conforming to AWWA C550. The valve body and cover shall be of cast iron to ASTM A126, with flanged ends to ANSI B16.1, or mechanical joint ends, as shown.

The valve disc shall be of cast iron, ductile iron, or bronze to ASTM B 62. The valve seat and rings shall be of bronze to ASTM B 92 or B 148, or stainless steel. The hinge pin shall be of bronze or stainless steel.

Suppliers or Equal:

American-Darling Valve Co.

APCO (Valve and Primer Corp.)

Crane Company

Mueller Co.

The valves shall have a lever and counterweight and shall be suitable for horizontal or vertical mounting.

130.05      Air Release, Air Vacuum Valves, and Combination Type Valves

The air release and air vacuum valves shall be of the type especially designed for forced sewer systems. The valve shall be of the short body type and capable of releasing air, gas, or vapor under pressure during system operation or allow air to enter the system when the system is draining, as applicable. The valve shall be as shown on the Standard Details with a two inch inlet. The venting orifice shall be sized by the Design Engineer based on a working pressure of 75 psi.

It shall be the responsibility of the design engineer to determine which valve is necessary for the pipeline conditions encountered.

Air release and air vacuum valves shall be ARI D-025 (See Standard Details).

130.06      Ball Valves

Ball valves shall be limited to ¾” through 2-1/2” in size and shall have cast brass, bronze or stainless steel body, bronze tee head, stem with check, full round way opening and provision for locking in a closed position.

Ball valves can be used for force main and low pressure sewer applications up to 2-1/2” in diameter. The primary use in force main applications is for ARV isolation valve use (See Standard Details).

Valves shall be designed to be fully opened with a 90-degree turn of the operating handle and shall be full port design with bi-directional sealing rated for a minimum 150 psi working pressure.

Brass ball valves in the low pressure system shall be as manufactured by Ford, with NPT or pack joint ends as needed.

Where these valves are direct buried, a 2” square gate valve operating nut shall be included with a valve box.

130.07      Brass Check Valves

Brass check valves shall be Proflo PFX31 size 1-1/2” to 2”.

130.08      Valve Boxes and Vaults

All buried valves shall be equipped with a valve box. Valve boxes shall be heavy duty construction for traffic loading type, cast iron, three piece, slide type, or screw type with drop covers. The valve boxes shall be adjustable to six inches up or down from the nominal required cover of the pipe.

For plug valves and gate valves, Aa number six base section shall be provided. Minimum shaft diameter shall be 5-1/4 inches and minimum metal thickness shall be 3/16 inch. For ball valves, refer to District Standard Detail LP-31. Boxes shall be coated with an approved bitumastic or epoxy coating. Valve box covers shall have the word "SEWER" or "REUSE" cast thereon depending on the application. Swing check valves shall be installed in an approved suitable vault for easy access by the District maintenance staff.

Valve boxes shall be installed on firmly compacted material at a level approximately equal to the elevation of the valve packing plate. No contact between the valve and the box shall be permitted. On plug valves, the positioner on the operating mechanism shall be kept free of rocks, debris, etc.

Where valves are installed with over six feet of cover, or where the ground water table is within three feet of the ground level, an extension stem shall be provided to bring an operating nut within two feet of the finished grade. This extension, stem shall be satisfactorily pinned to the valve operation nut to prevent dislodging during operation of the valve.

#### **END OF SECTION 130**

## **SECTION 140**

### **PIPELINE INTEGRITY TESTS**

#### **140.01      General**

The District shall inspect all sewer facilities prior to acceptance and again just prior to the expiration of the 1-year guarantee.

When a section of pipe of a length deemed adequate by the Design Engineer is ready for testing, the pipe shall be flushed and then tested in accordance with the applicable testing method as described herein. Suitable temporary testing plugs or caps shall be installed. All necessary pressure pumps, pipe connections, meters, gauges, water, weirs, bulkheads, and other necessary equipment and all labor required for carrying out these tests shall be furnished. The Design Engineer shall notify the District at least 48 hours prior to any testing so that it may, at its option, have a representative present during the testing.

Gravity sewers shall be tested in accordance with the Hydraulic Infiltration/Exfiltration Test as described herein. Additionally, PVC Gravity sewers shall be tested for deflection as described herein. Force mains shall be tested in accordance with the Pressure and Leakage Test for Force Mains as described herein.

If the District Engineer so desires, the first section of any line between two manholes shall be tested as soon as possible after backfilling has been completed. If such tests appear to be satisfactory and acceptable, progressive testing of completed sections of the lines may be deferred at the option of the District's Engineer, and at the request of the Contractor, until all pipe has been laid and before final acceptance. However, if permitted, this will not constitute a waiver of any of the tests or the leakage requirements.

Sections of pipe tested for infiltration and exfiltration prior to completion of the project shall be subject to a final inspection at completion of the project, and also subject to additional leakage tests, if warranted in the opinion of the District Engineer.

If the section fails to pass the applicable tests, the Contractor shall locate, uncover and repair or replace the defective pipe, fitting or joint, at his own expense. Additional testing will be required after the deficiency is corrected.

#### **140.02      Hydraulic Infiltration/Exfiltration Tests**

Upon completion of a section of the sewer, the pipe shall be dewatered and tested to measure the infiltration for at least three (3) consecutive days. Test section shall be from manhole to manhole. Longer test sections may be used with the approval of the District Engineer.

For making the infiltration tests, underdrains, if used, shall be plugged, well points and other groundwater drainage shall be stopped to permit the groundwater to return to its normal level.



Infiltration shall be measured by the use of weirs designed specifically for this purpose or other acceptable means approved by the District Engineer.

As required, suitable bulkheads shall be installed to permit the test of the sewer.

Where the crown of the pipe is below the natural groundwater table at the time and place of testing, the pipe shall be tested for infiltration. Suitable watertight plugs shall be installed and section of pipe to be tested shall be pumped dry before start of test. Where the crown of the pipe is above the natural water table, the pipe shall be tested for exfiltration by installing necessary plugs and filling pipes and manholes with water and maintaining a static head of water of a minimum of two feet above the crown of the pipe during the test. Exfiltration tests shall be conducted on main lines and lateral lines, unless waived by the District Engineer. The water level of internal pressure to be used for exfiltration test shall be determined by the Design Engineer.

The sewers shall pass the applicable test before any connections are made to buildings or to active sewers.

The maximum allowed infiltration/exfiltration shall not exceed 25 gallons per inch of diameter per mile per 24 hours for pipe lines and 4 gallons per 24 hours for manholes. Once systems are stabilized a 2 hour test shall be performed and the appropriate fraction of maximum allowed infiltration/exfiltration applied.

#### 140.03      Pressure and Leakage Test for Force Mains (HDPE)

After fusing, prior to placement, the HDPE piping shall be filled with potable water and pressure tested at 100 psi or 1.5 times design operating pressure for 2 hours, whichever is greater. Each joint shall be visibly inspected for leakage at the end of 2 hours. Any sections showing visible leakage shall be cut out and the remaining pipe fused together and retested. After placement the HDPE pipe shall be pressurized to a minimum 1.65 times pipeline design pressure for 4 hours, with make up water added as necessary to maintain 1.65 times pipeline design pressure. At the end of 4 hours, pressure is reduced to 1.5 times design pressure and pressure monitored for 1 hour. Deviation in pressure > 5% during the 1 hour test indicate a failed test. All testing shall be in compliance with ASTM F2164.

#### 140.04      Pressure and Leakage Test for Force Mains (PVC and DI)

Except as otherwise directed by the District, all pipelines shall be given combined pressure and leakage tests in sections of length approved by the District's Engineer. The Contractor shall furnish and install suitable temporary plugs or caps; all necessary pressure pumps, pipe connections, meters, gauges, and other necessary equipment; and all labor required. The Design Engineer shall witness all tests.

Subject to approval of the Design Engineer and provided that the tests are made within a reasonable time considering the progress of the project as a whole, and the need to put the section into service, the Contractor may make the tests when he desires.

The section of pipe to be tested shall be filled with water of approved quality and all air shall be expelled from the pipe.

The section under test shall be maintained full of water for a period of 24 hours prior to the combined pressure and leakage test being applied.

Two pressure and leakage tests shall be conducted for each pipeline segment. The first test shall be conducted at the average working pressure of the pipeline segment. The second test shall be conducted at a test pressure of 100 pounds per square inch or 1.5 times the pipeline design operating pressure, whichever is greater.

The pressure and leakage test shall consist of first raising the water pressure (based on the elevation of the lowest point of the section under test and corrected to the gauge location) to the specified pressure. If the Contractor cannot achieve the specified pressure and maintain it for a period of one hour with no loss of pressure and no additional pumping, the section shall be considered as having failed to pass the pressure test. The District may require that the pressure and leakage test be run in accordance with AWWA C-600 Standards, latest revision (Four Hour Test).

Allowable leakage shall not exceed the following where L = allowable leakage (gallons), N = number of joints, D = nominal diameter of pipe (inches), P = average test pressure (psi).

$$L = \frac{ND\sqrt{P}}{7400}$$

#### 140.05      Pressure and Leakage Test for Low Pressure Force Mains

Low pressure force mains shall be filled with potable water, bled of air and pressurized to 70 psi. Pressure shall be maintained constant for 1 hour without adding water. Any loss of pressure indicates a failed test.

#### 140.06      Deflection Testing

Pipe deflection shall not exceed 5% measured by a go/no-go gauge or mandrel. The District may confirm the pipe deflection at the end of the job prior to acceptance. Additionally, the District may confirm the pipe deflection just prior to end of the one year guarantee period. Pipe sections exceeding 5% long term deflection will be relaid by the Contractor or the Developer at his own cost and expense and retested until the District's go/no-go gauge passes through the pipe section.

The District's mandrel will be considered the "official" gauge used for deflection testing. The standard District gauge is manufactured by "HURCO" Technologies, Inc., Harrisburg, S.D. The outside diameter of the District's mandrel is as follows:

Pipe Diameter (Inches)	Mandrel Diameter (Inches)
8	7.28
10	9.08
12	10.79

**END OF SECTION 140**

## SECTION 150

### SUBMERSIBLE LIFT STATIONS

#### 150.01 Scope

It is the intent of this standard is to provide component requirements and general design guidelines for submersible wastewater lift stations. This standard shall be used in conjunction with Standard Details SD-31 through ~~35-39~~ and referenced standards for complete submersible wastewater lift station requirements.

This specification typically defines requirements for 20HP and smaller lift stations. Lift stations greater than 20 HP, serving critical infrastructure or performing as a repump station may require alternate design criteria including variable speed, tri-plex configuration, permanent standby emergency power and PLC control. These additional design criteria will be defined by Engineering Services during the design.

#### 150.02 Site

The lift station site and access shall be set at proper elevations and configurations such that access and maintenance to the station will not be impaired by flooding, excessive road grades, swales, walls or landscaping. A lift station site plan indicating all topographical features, rights-of-way, easements and adjoining contiguous areas shall be submitted to the District for approval.

All above or at grade facilities shall be above the 1% Annual Chance Flood (100-year flood) zone, as shown on Flood Insurance Rate Maps (FIRMs). Site and lift station plans shall include the 100-year flood elevation.

#### 150.03 Power

The Contractor shall coordinate with and pay all fees, deposits, and service costs to Florida Power and Light Corp. to provide a three phase, 480V or 240V underground power service to the new lift station site. The transformer for the station shall be located not further than 25 feet from the nearest station easement line.

The power meter for the lift station shall be located on the lift station site, installed on the District's standard control panel rack.

#### 150.04 Lift Station Standard Equipment

A list of standard lift station equipment is given below. This list is not all inclusive and the Contractor shall supply all other equipment necessary for complete working installations. The lift station shall include:

Two (2) explosion proof submersible type sewage pumps with 316 stainless steel guide rails, base plates and all accessories.

Two (2) discharge lines with swing check valves and plug valves and emergency tap connection

Instrumentation/control system, (requirements vary on station size).

One (1) electrical control panel, NEMA 4X, to house electrical equipment, pump controls, alarms and protection.

One (1) wet well.

One (1) valve vault.

Concrete covers with aluminum access hatches and safety grates

Influent drop assemblies

Permanent standby generator and ATS, (requirements vary on station size).

Radio or Cellular Telemetry System

Coatings

Concrete pads

Landscaping/site screening

The wet well structure shall receive a minimum 1.0-inch thick calcium aluminate corrosion barrier such as Sewper Coat, Strong Seal, Refratta HAC 100 or approved equal, and installed per the manufacturers recommendations.

One (1) influent (collection) manhole structure with piping connecting to the wet well structure. The distance between the collection manhole and the wet well shall be no more than 50 feet.

12' wide access driveway

#### 150.05 Pumps and Motors

The pumps shall be capable of handling grit and raw unscreened sewage. The design shall be such that the pump unit will be automatically and firmly connected to the discharge piping when lowered into place on its mating discharge connection, permanently installed in the wet well. The pump shall be easily removable for inspection or service requiring no bolts, nuts, or other fastenings to be disconnected.

All major parts, such as the stator casing, oil casing, sliding bracket, volute, and impeller shall be of gray iron. All surfaces coming into contact with sewage shall be protected by a coating resistant to sewage. All exposed bolts and nuts shall be of stainless steel.

Pump faces shall be machined to accept a sacrificial plate between the pump face and seat. The sacrificial plate shall be manufactured from 1/4" brass plate, bolted to the pump face and removable/replaceable.

A wear ring system shall be installed to provide efficient sealing between the volute and impeller.

The impeller shall be hard alloy gray cast iron of non-clogging design capable of handling solids, fibrous material, heavy sludge, and other matter found in normal sewage applications. The impeller shall be constructed with a long throughout without acute turns. The impeller shall be dynamically balanced. The impeller shall be a slip fit to the shaft and key driven. Non-corroding fasteners shall be used.

Each pump shall be provided with a mechanical rotating shaft seal system running in an oil reservoir having separate, constantly hydro-dynamically lubricated and lapped seal faces.

The lower seal unit between the pump and oil chamber shall contain one stationary and one positively driven rotating tungsten-carbide ring.

The upper seal unit between the oil pump and motor housing shall contain one stationary tungsten-carbide ring and one positively driven rotating carbon ring. Each interface shall be held in contact by its own spring system supplemented by external liquid pressures. The seals shall be easily inspected and replaceable.

The shaft sealing system shall be capable of operating submerged to depths of, or pressure equivalent to, 65 feet. No seal damage shall result from operating the pumping unit out of its liquid environment. The seal system shall not rely upon the pumped media for lubrication.

A sliding guide bracket shall be an integral part of the pump unit. The volute casing shall have a machined discharge flange to automatically and firmly connect with the cast iron discharge connection, which when bolted to the floor of the sump and discharge line, will receive the pump discharge connection flange without the need of adjustment, fasteners, clamps or similar devices.

Installation of the pump unit to the discharge connection shall be the result of a simple linear downward motion of the pump unit guided by no less than two guide bars. No other motion of the pump unit, such as tilting or rotating, shall be acceptable. Sealing of the discharge interface by means of a diaphragm, O-ring, or other device will not be considered acceptable or equal to a metal to metal contact of the pump discharge flange and mating discharge connection specified and required. No portion of the pump unit shall bear directly on the floor of the wet well. There shall be no more than a 90-degree bend allowed between the volute discharge flanges and station piping.

The pump motor shall be housed in an air or oil filled watertight casing and shall have moisture resistant Class "F" 155-degree C insulation. Oil filled casing shall be filled with transformer oil,

quality BP Energol JSO, or Shell Diala D or DX. The motor shall be a minimum of 5 BHP, rated for operation at 1700 or 1750 rpm, on a 230V, 3-phase, 60 hertz power supply. The cable entry water seal design shall be such that precludes specific torque requirements to insure a watertight and submersible seal. Epoxies, silicones or other secondary sealing systems shall not be required or used. The cable entry junction box and motor shall be separated by a stator lead sealing gland or terminal board which shall isolate the motor interior from foreign materials gaining access through the pump top.

Pump motor cable installed shall be suitable for submersible pump applications and this shall be indicated by a code or legend permanently marked on the cable. Cable sizing shall conform to NEC specifications for pump motors and shall be of adequate size for the motor rating. Pump motor cable shall be ample length to reach the rack mounted panel. Cable length to be determined by the site plans.

The pump cable shall have 90 degree C rated insulated material based on 40 degree ambient and shall have anti-roping and anti-wicking design. All mating surfaces of major parts shall be machined and fitted with nitrile O-rings where watertight sealing is required. Machining and fittings shall be such that sealing is accomplished by automatic compression in two planes and O-ring contact made on four surfaces, without the requirement of specific torque to affect this. Rectangular cross sectioned gaskets requiring specific torque limits to achieve compression shall not be considered adequate.

Tolerances of all parts shall be such that allows replacement of any parts without additional machining required to insure sealing as described above. No secondary sealing compounds, greases, or other devices shall be used.

Each unit shall be provided with an adequately designed cooling system. Thermal radiators integral to the stator housing, cast in on unit, are acceptable. Where water jackets along or in conjunction with radiators are used, separate circulation shall be provided. Cooling media channels and ports shall be no-clogging by virtue of their dimensions. Provisions for external cooling and flushing shall be provided.

Pump and motor assemblies shall meet NEC and NFPA requirements for explosion proof installations in Class 1, Division 1, Group D environments.

The pumps and motors shall be manufactured by FLYGT Corporation.

#### 150.06      Control Panel

This section is specific to single speed, duplex lift stations with float control, for variable speed, PLC controlled stations see Section 161.

The Contractor shall furnish and install a heavy duty type District Standard control panel as shown on the plans and specified here, as manufactured by Sta-Con Incorporated, QCI, or approved equal, and in accordance with the detail sheets SD-31 through 34.

The control panel shall contain all the remote electrical equipment necessary to provide for the operation of the pumps. The panel shall start and stop the pumps in the wet well.

The control panel shall start the “lead” pump when the liquid level rises to a preselected elevation “D”. If the influent rate exceeds the capacity of the “lead” pump, the lag pump shall be started when the liquid level rises to a preselected elevation “C” (higher than “D”). If the liquid level rises to a preselected elevation “B” (higher than “C”), the high level alarm shall be activated. When the liquid level falls to a persecuted elevation “E” (lower than “D”), both pumps shall be stopped.

The control panel shall be contained in a single enclosure, fabricated of not less than 14-gauge 316 stainless steel, NEMA 4X construction. The door shall be formed with minimum lip of 3/4” and full height hinged. Closure mechanisms shall be No. 3 S.S. fasteners with No. 3 keepers as manufactured by Simmons Fasteners, or approved equal.

The interior door shall be constructed of .080-inch thick 6061-T6 aluminum. The interior and exterior doors shall be provided with a stop mechanism to hold the doors open which working in the panel. A rain shield shall be provided.

The control panel shall include the following items plus any other items shown on the plans or required for a complete, operational installation.

Circuit breakers with combination full voltage motor Starters for each pump.

“Hand-Off-Auto” selector switch for each pump, heavy duty oil tight type (toggle switches will not be acceptable).

Automatic pump alternator with test switch.

Duplex receptacle with 15-amp circuit breaker 115V GFI.

Control power circuit breaker.

Main circuit breaker.

Emergency power minimum 100-amp circuit breaker and 100-amp, 4 wire, 3 pole, reverse service generator receptacle. Emergency power to match main breaker size.

Lightning arrestor, 3-phase.

Surge capacitor.

Phase monitor, to prevent energization of pump motors in the event of phase failure or reversal or low voltage.



Indicating light for each level regulator (float switch).

“Running” indicating light for each pump.

Elapsed time meter for each pump, 2-1/2”, 6-digit non-reset.

Emergency/High level alarm light and horn, 12 VDC with battery back-up.

The panel shall include back-up circuitry to permit one pump to operate with a normal drawdown in the event of failure (open circuit) of the “stop” level regulator.

Spare parts to be furnished with the panel include:

- 2 - 120V Relays
- 1 - Alternator
- 1 - Phase Monitor
- 12 - Lamps
- 12 - Fuse Links
- 1 – Intrinsically Safe Barrier
- 1 – Alarm Controller

A copy of the panel wiring diagram shall be attached to the inside of the outer panel door. An extra copy shall be given to the District.

The basic components and layout of the control panel are shown on Standard Details 31, 32, 33 and 34.

Substitutions of these components will be permitted for approved equal, interchangeable products upon obtaining specific written approval from the District.

#### 150.07      Telemetry

Lift stations shall be provided with a District standard cellular telemetry system or radio telemetry system by Data Flow Systems. Radio telemetry systems by Data Flow Systems shall provide monitoring and control for the following signals (see Standard Detail SD-32):

1. Digital
  - a. Power Fail
  - b. High Level
  - c. Pump # 1 Fail
  - d. Pump # 2 Fail
  - e. Pump Run # 1
  - f. Pump Run # 2
  - g. Spare
  - h. Spare

- i. Generator General Alarm (Permanent Standby Generator Stations Only)
- j. Generator Low Coolant (Permanent Standby Generator Stations Only)
- k. Generator Low Fuel (Permanent Standby Generator Stations Only)
- l. Generator Fail to Start (Permanent Standby Generator Stations Only)

2. Analog

- a. Wet Well Level
- b. Spare
- c. Spare

See Standard Details SD-34 through SD-39 for cellular telemetry system requirements.

150.08      Access Hatches & Fall Through Safety Prevention Systems

The wetwell and valve vault access hatch shall be single leaf design with a minimum clear opening at 36" x 48", but must also meet the minimum clear opening as required by the pump manufacturer. The frame shall be a minimum: 3" x 3" x 1/4" aluminum angles and the cover shall be 1/4" aluminum angles and the cover shall be 1/4" aluminum diamond pattern. The hatch shall be completed with anchor straps, automatic hold open arm and cover release, forged brass or stainless steel hinges with stainless steel pins, hasp and staple lock, flush type handles, upper guide holders and sensor cable holder. The cover shall be reinforced to withstand a live load of 300 lbs./sq. ft. unless in areas that may experience traffic. Hatches in traffic areas shall meet H-20 design loading criteria, at a minimum. Hinges shall be of the interior type.

All stations 6' in diameter or larger, shall be provided with fall through safety prevention systems. All systems will be of the grate type as manufactured by U.S.F. Fabrication, Inc., or approved equal able to withstand a pedestrian load of 300 lbs/sq. ft.. The safety grate shall be constructed of aluminum. All hardware must be of 316 stainless steel.

The configuration of the hatch and safety grate shall be such that opposing sides of the wetwell opening are protected when the safety grate is in the upright position. Safety chains shall be provided from the safety grate to the hatch to protect adjacent sides.

10' diameter and larger wetwells and tri-plex stations will require custom hatch and safety grate designs to be determined in coordination with the District's Engineering Services.

150.09      Floats

Float switches with internal single pole mercury switch shall be installed in the wet well to control the operation of the pumps with variations of liquid level in the wet well. The float switches shall be sealed in a polypropylene casing with a firmly bonded electrical cable protruding. Floats shall be Roto-Float type S as manufactured by Anchor Scientific Inc..

150.10      Wetwell Level Transducer / Transmitter

See Section 180

150.11        Valves

See Section 130

150.12        Pipe and Fittings

See Section 110 for pipe and fittings.

150.13        Wetwell and Valve Vault

See Section 121 and standard details SD-31

150.14        Wet Well via Caisson Construction

Wet wells installed via the caisson method are allowed only with prior approval by the Loxahatchee River District. Final acceptance of the wet well by caisson method will only occur when it is determined that:

- Wet well has no structural damage, deep gouges and and/or cracks.
- Wet well has been installed at the design depths indicated.
- Wet well is plumb. The maximum deviation shall be 1/8" per foot of each precast section.
- Wet well tremie seal is leak free and there are no continually damp areas prior to the installation of the secondary pour.
- Wet well sections show no evidence of separation and that the structure has not settled.
- Wet well walls, specifically at the joints, are flush and without overhang.
- Wet well was installed in proper sequence.

If any of the above items are not met to the satisfaction of the District, the wet well will be rejected and it will be the contractor's responsibility to remedy the problem at his own expense. The contractor shall also provide a warrantee that the wet well will meet the above requirements for a 1-year period from the date of District acceptance.

150.15        Submittals

The following submittals are required for approval prior to construction of the project.

1. Lift Station Calculations to include
  - a. Average Daily Flow
  - b. Peak Hour Flow
  - c. System Head Curves
  - d. Wetwell Cycle Time
  - e. Anti-Flotation
2. Lift Station Site Plan

3. Pump and Motor
4. Pipe and Fittings
5. Valves
6. Concrete Structures
7. Control Panel – complete detailed design including electrical schematic, panel layout, bill of materials
8. Panel Rack
9. Base Plates
10. Rails, Brackets and Adapters
11. Conduit and Cable
12. Aluminum Hatches and Safety Grates

Detailed wiring diagrams of the entire installation including main power supply, pump motors, control circuits, alarm circuits, and metering circuits shall be submitted. The diagrams shall include schematic and connection wiring diagrams.

Four (4) copies of detailed installation drawings including wiring diagrams, pump curves and maintenance and operating manuals shall be submitted to the District at the time of initial start-up.

150.16        Services to be Furnished by Manufacturer of Equipment

The services of a factory-trained representative shall be furnished for the lift station start-up. The representative shall check all electrical components, wiring, and pump operations.

150.17        Operation and Maintenance

Upon completion and successful startup of the lift station the District will be provided with two copies of the lift station operation and maintenance manual. The manual shall include operation and maintenance detail including service intervals for all equipment provided with the lift station. Operation and maintenance manuals shall also include AS-BUILT drawings for the lift station, control panel, wiring schematics and appurtenances.

150.18        Warranty

The pump manufacturer shall warrant the pumps for a period of five (5) years from the date of pump manufacturer's start-up. The warranty shall include a minimum 100% coverage of the manufacturer's shop labor and parts for the first eighteen months, then 50% coverage through the third year, and then 25% coverage through the fifth year.

**END OF SECTION 150**

## SECTION 151

### LOW PRESSURE SEWER SYSTEMS

#### 151.01 General Intent

It is the intent of the District to provide sanitary sewer service to the citizens, businesses, and industry of the area in a manner which maximizes use of existing facilities, minimizes environmental damage, and provides solutions to existing problems.

Gravity collection systems with central lift stations are the preferred methods of collecting and transporting sewage to the regional facilities. All property owners should anticipate connection via these conventional facilities unless otherwise directed by the District.

The District recognizes that the construction of gravity sanitary sewer lines is not conducive to all areas, and that utilization of an alternative system may be necessary to provide access to regional facilities.

The District may at its sole discretion allow or direct the utilization of LPSS where it is determined to be in the best interest of the District. The District may direct the use of LPSS to minimize the impacts of gravity sewer construction upon existing neighborhoods or upon environmentally sensitive areas.

The use and implementation of LPSS shall be at the sole discretion of the District and no installation shall be considered as a precedent for justifying the acceptance of LPSS in a similar or like situation.

District regional transmission force mains are not available for low-pressure connections under any circumstances.

#### 151.02 Administration

The administrative procedures for construction are set forth in the latest revision of the District Construction Standards and Technical Specifications and shall be adhered to unless specifically modified in writing by the District.

#### 151.03 Utilization

##### 151.03.1 LPSS for Existing Developments

For the purpose of this section, the term "existing developments" shall be considered as those areas which have previously developed on septic tanks to the extent that a substantial portion of the subdivision is now built out; or, under less prevalent circumstances, an area which has received site plan approval and is plated/subdivided based upon use of septic tanks.

The criteria for the District's determination of whether the use of LPSS is warranted includes, but

is not limited to: existing developments of less than 40 homes, or in areas of high water tables, or in areas where work space for construction activities is unreasonably restricted or in areas where available gravity collection lines have not been provided by prior construction.

Existing gravity sewer systems will be utilized to the maximum extent possible; however, LPSS may be considered in existing neighborhoods where gravity construction would be unreasonably restricted in the opinion of the District Engineer.

#### 151.03.2 Community Grinder Systems

The use of a community grinder system is a merge of a LPSS system and a traditional gravity collection system, in that there are instances where the District would allow “grinder systems” in conjunction with small gravity system to serve a community. In accordance with Section 151.01 above, the utilization of smaller “grinder systems” with limited gravity collection systems will be encouraged in new developments where environmental concerns would be adversely impacted by the construction of a traditional non-clog lift station and/or deep gravity lines, at the sole determination of the District.

Grinder systems could be considered for:

- New Development – areas of less than 15 homes, with a suitable site for a grinder station.
- Existing Development – areas of less than 20 homes, both sides of street participating, and cost is not greater than 200% of LPSS, unless specifically requested by property owners.

#### 151.04 Responsibility

##### 151.04.1 District

A low pressure sewer system may consist of one or more pump stations. A pump station shall be considered as the individual pumping unit which serves a single residence, or a commercial or industrial customer. In the latter cases, the unit may contain two pumps (duplex).

All plans for the construction of any portion of an LPSS shall be submitted to the District Engineer for review and approval.

All LPSS facilities which are located within public rights-of-way shall be conveyed to the District for operation and maintenance.

Any facility, associated with an LPSS, which is located outside of the private property being served, must be within a dedicated easement or right of way. The easement shall be conveyed to the District.

The District shall be responsible for the operation and maintenance of all facilities (force mains, valves, etc.) within rights-of-way, or dedicated platted utility easements which serve more than one unit.

Property owners must execute a License Agreement for District maintenance of residential and

low flow non-residential pump stations.

#### 151.04.2 Residential or Non-Residential User Responsibilities

Each individual residential or low flow non-residential user of the LPSS system shall provide his own pump station, electrical service, force main and connection to the District owned collection/transmission lines. The District shall be responsible for the operation and maintenance of all residential and 3-phase non-residential low flow equipment serving his individual property, whether located on his property or in easements off of his property. The residential or nonresidential user shall be responsible for the installation of the pump station, control panel, force main valves, and all appurtenances which are a part of the system solely serving the individual user. Maintenance will be provided in accordance with the License Agreement provisions.

Low Pressure Systems for commercial and single phase low flow non-residential use shall: 1) require a duplex grinder pump system, and 2) be operated and maintained by the property owner in accordance with P.B.C. Health Dept./Florida DEP requirements

The user shall provide electrical power from his meter to the control panel, and all operating costs shall be users responsibility.

#### 151.05 Submissions and Approvals

All installations of individual units shall be reviewed and approved by the District Engineer prior to construction. The District Engineering Department shall be notified at time of installation of the pumping unit and prior to connection to the District line. Connection excavations shall remain open and protected until such time as an inspection has been performed and a satisfactory connection is made.

All installations shall be made in accordance with District Technical Specifications, and local plumbing and electrical codes, and the regulations of the Florida Department of Environmental Protections.

Submittals for area lines which will be taken over by the District for operation and maintenance shall be made by a Professional Engineer, registered in the State of Florida. The District may require a hydraulic analysis from the Professional Engineer to determine if the existing District infrastructure has the capacity to accept new connections. Once hydraulic capacity has been determined available, six (6) sets of signed and sealed construction plans shall be submitted for approval. The construction shall also be inspected and certified by a Florida registered professional engineer upon completion.

Submittals for individual installations shall include a shop drawing of the pump station and control panel, and an as-built drawing showing tie-in dimensions of the force main, valves, and any electrical conduits.

The use of pumping units is restricted to specific makes and models for which the District will

maintain a limited spare parts inventory for emergency situations only.

#### 151.06        Definition

A low pressure sewer system is defined as a means of conveying sewage by individual pumping units through a small pressurized force main to a discharge point which can be part of an existing force main or gravity system.

#### 151.07        General System Design Considerations

The following particulars should be considered in the design of any proposed low pressure system:

1. Geographical location.
2. Type of development - number of residences.
3. Topography of service area (where applicable).
4. Layout of existing or proposed service area.
5. Projected sewage flows.
6. Location of nearest existing sewer facility.
7. Soil and water table information.
8. Availability of electric power.

#### 151.07.1      System Layout and Alignment

The pressure sewer system should be designed so that all contributory lines are branched into a main collector. "Looping" and "dead-endings" of macerated sewage in remote areas of the system shall be avoided.

Pressure lines should be laid out to provide runs as short as possible with a minimum of major change in direction.

In order to facilitate maintenance and repair, force mains should be laid outside the limits of pavement or heavy traffic areas.

All system lines shall be kept full, under a positive pressure head at all times. This can be maintained by locating the system terminus at the highest elevation, or by employment of a positive pressure control device at the terminus.

To minimize the number of potential air pockets, pressure lines should be installed on a continuously rising grade as much as possible to predetermined points where air release devices and cleanout ports can be installed in accordance with the Standard Details.

#### 151.07.2      Design Flow

As in any collection system, a pressure sewer system must be designed to effectively handle all sewage flow generated in the service area especially during times of peak flows.



Peak flow shall be determined by accepted sanitary sewer engineering principals and standards established by regulatory agencies. Proper design should assure that each contributing pump unit in the service area, no matter what its location or what other units are operating at the same time, will be able to deliver into the system during these peak flow system conditions at a rate sufficient to insure that there will be no sewage removal problem at any individual building or unit. A pumping rate in the range of 8-10 gal./min. is normally considered sufficient.

#### 151.07.3      Line Sizing and Velocities

Line sizing must be designed to insure that scouring velocities will occur in the system pressure lines at some regular interval. At the same time they must avoid excessive system pressures which can jeopardize the delivery capacity of any unit on the system.

To insure that scouring will occur during design flows, it is recommended that the velocities in the pressure lines be maintained in the 2-5 ft./sec. range at regular intervals.

Minimum service line and tap diameters for commercial connections shall be 2-inches. In the case of tying into an existing 2 or 2.5-inch main, a tee with a 2-inch outlet shall be cut in.

#### 151.07.4      Operation of Contributing Pumping Units

A most important design consideration is that the proper operation of any and each pumping unit on the system be assured during any flow conditions which could exist. This includes the most demanding maximum peak design flow which may be seldom, if ever, encountered (such as immediately following an extended power outage).

#### 151.07.5      System Flushing

Design shall provide for the ability to mechanically purge sewage from the system at regular intervals. Flushing connections to the force main system are shown in the Standard Details.

#### 151.07.6      Air Release

Design shall provide for relief of air at high points along the system. Valves and piping configuration is shown in the Standard Details.

#### 151.08          Pumping Units

The pumping units shall combine a centrifugal submersible pumping unit(s) with a patented grinding assembly which is capable of reducing sewage and its normal constituents (together with sticks, rubber, bones, rags, plastics, etc.) to a particulate slurry which can easily be transported through small diameter pipes.

The units shall be furnished complete with unit tank, electrical control panel, level controls, alarms, check and ball valves, and other necessary appurtenances as shown on the Standard Details.

Pumps shall be manufactured by Barnes and have a 1-1/4" vertical discharge outlet. Reference the District's low pressure sewer standard details (LP details) for information regarding pump models and configurations.

#### 151.09        Piping and Appurtenances

##### 151.09.1        Pipe

Schedule 40 PVC: Pipe shall be Type I, PVC 1120 with a hydrostatic design stress of 2000 psi for liquid at 73.4 F. Pipe shall conform to ASTM D 1785, ASTM F 480 and ASSTM D 2665.

HDPE: Pipe shall be PE 4710 with a minimum hydrostatic design stress of 800 psi for liquid at 73.4 F utilizing a 0.5 design factor. Pipe shall conform to ASTM 3035 and ANSI/AWWA C901.

##### 151.09.2        Valves and Cleanouts

Isolation valves shall be strategically placed along the pressure main at services, junction points, changes of direction, and recommended intervals along extensive straight runs (see LP Details). Isolation valves shall be ball type made of brass and be capable of operation with a 2" operating nut and be placed within a District approved valve box. Refer to the District's LP details for specifics on which isolation valves are not required to have a valve box.

Each pumping unit shall be isolated from the low pressure force main system by a PVC ball valve (service valve) and check valve, positioned at the street right-of-way line, inside of a service box (see LP details).

This service line will typically be 1.5 inches in diameter, set in a District approved meter box, at no more than 18" depths at the right of way line (see LP Details).

##### 151.09.3        System Wiring and Control

Each individual contributing pumping unit shall be connected by underground conduit to the individual home electrical power supply. This conduit may be laid in the same trench as the gravity service pipe to the unit tank. Wiring and conduits shall be installed in accordance with all applicable local codes and regulations.

Liquid level controls shall be a sealed mercury switch in an approved float ball. The switch shall be sealed for life with a heavy neoprene jacketed control cord permanently attached.

A high water activated alarm shall be supplied. An alarm light shall be mounted on the building or control panel in such a manner so that it will be visible to building occupants and from the contiguous street areas.

The electrical control panel shall consist of the following:

Corrosion Proof Enclosure  
NEMA 3R rating  
Hinged Access Panel  
Lockable Latch  
120V AC Control Voltage - single phase  
GFI Receptacle on dead front  
Audible Alarm  
Rated Disconnect Switch  
The electrical control panel enclosure and its components shall be UL listed.

Typical wiring diagram is shown on the District's LP Details.

#### 151.09.4      Tanks and Covers

Tanks shall be constructed of polymer or reinforced fiberglass polyester resin and the minimum size shall be 30" x 60" for a simplex configuration. Interior surface to be 10-20 mil. thick gel coated to provide a smooth sealed surface. Lockable gasketed water tight covers shall be flat aluminum and capable of supporting a 300 lb. wheel load. The fiberglass tank shall have an integral anti-flotation flange which will anchor into a concrete collar designed to counteract uplift forces.

The wall thickness of the fiberglass tank shall be sufficient to withstand a water saturated sand load of 120 pcf with a safety factor of two (2) for all depths.

Inlet hubs shall be as shown on the District's LP details. All hardware shall be stainless steel and be leak proof sealed.

The cover (lid) shall be 2/3<sup>rd</sup>s hinged single leaf, rated at 300 lbs/sq. ft and be lockable. The lid shall be set at a minimum, ~~six-two~~ (62) inches above final grade.

Conduit opening shall be sealed with an approved duct seal.

Float and wire hanger bracket shall be stainless steel (Type 304).

All interior piping shall be Schedule 80 PVC. A PVC union on the horizontal discharge pipe shall allow for the quick removal of the grinder pump assembly. The discharge line inside the tank shall also have a 1.25 inch PVC ball type check valve located inside the tank.

**END OF SECTION 151**

## SECTION 160

### VARIABLE SPEED/PLC CONTROL PANELS

#### 160.01 General

This section provides for design, construction, installation and start-up of a custom power and control panel by a qualified panel manufacturer. The panel and components shall comply with the requirements of this specification and other sections and standard details of the District's Manual of Minimum Construction Standards and Technical Specifications.

This section is generally used for variable speed submersible wastewater lift stations greater than 20HP

#### 160.02 Submittals

Submittals for the power and control panel shall include but not be limited to the following:

1. Panel materials of construction, layout and dimensions.
2. Anchoring details to concrete slab
3. Wind load calculations (if required by permitting authority)
4. Scaled dead front layout
5. Scaled back plan layout
6. Scaled component layout
7. Power, Instrumentation, Radio Telemetry and Control wiring schematics

#### 160.03 Panel

The control panel shall be NEMA 4X ground mount enclosure with double doors and leg kit for floor standing. The panel shall be minimum thickness 12-gauge 316 stainless steel, enclosure and doors. The doors shall be formed with minimum lip of 3/4", full height concealed hinges, stainless steel door clamps on non-hinged sides and pad-lock hasps. The center post shall be removable for full access to the panel interior. A rain/drip ledge shall be provided over the doors. Sun shields shall be provided on top, east, west and south facing sides.

The interior doors/dead fronts shall be construction of minimum 0.080 inch 6061-T6 aluminum.

Both exterior and interior doors shall have a mechanism to hold the doors open.

The panel shall be manufactured by Hoffman or approved equal.

The control panel shall be designed and tested in conformance with UL 508.

#### 160.04 Operating Protocol

The power and control panel shall provide for manual and automatic operation of the lift station pumps utilizing a level transducer / transmitter, programmable logic controller and variable speed drives. The station operating protocol shall be as follows.

1. Operating Protocol 1: Level Control

- a. ELEV A all pumps off
- b. ELEV  $\geq$  B lead pump on. speed adjust to maintain level
- c. ELEV  $\geq$  C lag 1 pump on. lead and lag 1 match speed and adjust to maintain level
- d. ELEV  $\geq$  D lag 2 pump on. lead, lag 1 and lag 2 match speed and adjust to maintain level
- e. ELEV E all pumps on 100% speed
- f. LEVEL DECREASING/MATCHED PUMP SPEED BELOW 50% for X seconds lag 2 off. Lead and lag 1 match speed adjust to maintain ELEV C.
- g. LEVEL DECREASING/MATCHED PUMP SPEED BELOW 50% for Y seconds lag 1 off. Lead adjusts speed to maintain ELEV D.

2. Operating protocol 2: Constant Speed

- a. ELEV INCREASING
  - i. ELEV  $\geq$  B lead pump on. N% speed.
  - ii. ELEV  $\geq$  C for X seconds. Lag 1 on. N% speed.
  - iii. ELEV  $\geq$  D for X seconds. Lag 2 on. N% speed.
- b. ELEV DECREASING
  - i. ELEV  $\leq$  C for X seconds. Lag 2 off.
  - ii. ELEV  $\leq$  B for X seconds. Lag 1 off.
  - iii. ELEV  $\leq$  A for X seconds. All pumps off.

3. Operating protocol 3: Manual/Hand

- a. With the HOA selector switch in Hand the selected pump shall turn on and speed be manually adjusted through the AFD. In Hand, all alarms shall function, but pump operation will not be prevented except for specific pump manufacturer alarms in place to prevent harm to the pump and/or motor.

4. Alarm Functions

- a. With the station in Hand, Off or Auto the alarm functions shall be fully operable.
- b. Alarms shall be available for the following
  - i. Pump Out of Service, each pump.
  - ii. Pump Fail to Run, each pump
  - iii. AFD Fault, each drive.
  - iv. ATS Fault
  - v. Generator Fault
  - vi. UPS Fault

- vii. Communication Fault
- viii. Wetwell High Level
- c. The station shall have two high level alarm systems.
  - i. Alarm 1: PLC based alarm system using a preset high level as read from the pressure transmitter. This alarm will activate onsite and offsite audible and visual alarms including the following.
    - 1. Audible Alarm Horn
    - 2. Visual Alarm Light
    - 3. High Level indicator located on the dead front inside the panel.
    - 4. Alarm indication on the Panel PC
    - 5. Alarm indication in the PLC
    - 6. Alarm indication to the DFS Radio Telemetry System
    - 7. Alarm indication in the Plant VT SCADA system.
  - ii. Alarm 2: Back up to Alarm 1 using a high level float switch inside the wetwell. This alarm will activate onsite and offsite audible and visual alarms including the following.
    - 1. Audible Alarm Horn
    - 2. Visual Alarm Light
    - 3. High Level indicator located on the dead front inside the panel.
    - 4. Alarm indication on the Panel PC
    - 5. Alarm indication in the PLC
    - 6. Alarm indication to the DFS Radio Telemetry System
    - 7. Alarm indication in the Plant VT SCADA system.
- 5. Emergency Standby Generator Limited Operation – On emergency standby generator power station operation shall be limited to 2 pumps.
- 6. Pump Off – Back Up Float System
  - a. With the station in Auto a low level float in the wetwell will automatically shut off all pump operation until the high level float switch is activated.

Programming shall allow for operators to change all variables noted above through a simple interface via a laptop computer or the HMI.

#### 160.05 Adjustable Frequency Drive:

Adjustable frequency drives shall be Eaton PowerXL DG1 Series. Drives shall be rated for 480V, 3 PH, 60 HZ. Drives shall be variable torque, pulse width modulated. Drive horsepower rating shall equal or exceed maximum pump motor horsepower requirements at any point on the pump curve.

The drive shall include a keypad interface that provides the following functions and displays at a minimum; Output frequency, frequency reference, motor speed, motor current, motor torque, motor power and motor voltage.

The drive shall include the following protective features, at a minimum; over current, over voltage, inverter fault, under voltage, input phase loss, output phase loss and under/over temperature.

The drive shall include the following field programmable I/O, at a minimum; DIGITAL: eight 24VDC digital inputs and eight 24VDC digital outputs including local/remote, drive ready, fault, running, overload, set speed, current. ANALOG: two 4-20 mA analog outputs, two 4-20 mA analog inputs.

The drive manufacturer shall provide services of a field service technician to assist in installation, setup and training.

Drives shall come with a minimum 12 month warranty.

160.06        Programmable Logic Controller: See Section 169

160.07        Uninterruptible Power Source (UPS)

Power and control panels shall be provided with an UPS for the control and telemetry system. The UPS shall be Eaton 5P Tower UPS with an Eaton ~~RelayNetwork~~ Card-MS. The UPS shall be sized by the Contractor based on control and radio telemetry loads and to provide a minimum 10 minutes of backup power to these systems in the event of power failure.

The UPS shall provide power through an ~~APC-SQD~~ 120V 10 outlet rack mounted automatic transfer switch model number ~~AP7750A~~ AP4450. In the event of UPS failure the ATS shall switch to commercial power, if available.

160.08        Operator Interface/Panel PC

Power and control panels shall be provided with an operator interface/panel PC. The panel PC shall be Phoenix Contact USA Panel PC – VL~~32~~ PPC ~~2000—2400334-13746798~~:

Order Key ~~2400334/D29/A20/I32/R26/M52/M00/OS64/T00/S00/EF00/PS01~~  
1376798/D37/A20/I55/R43/RD00/M95/M93/OS74/S00/EF15/EF00/EF21/AP02

The panel PC shall come with the following specific options:

1. Passive cooling system and fanless design for industrial applications
2. Panel PC (PPC): IP65 rating in front panel and IP20 rating in back. The control panel design shall ensure only IP65 areas are exposed when the dead front is closed.
3. Display shall be 47.0 cm / 18.5" TFT (Thin Film Transistor)
4. Screen resolution ~~1366 x 768 Pixel(s) (WXGA)~~ 1920x1080 Resolution
5. LED Backlighting
6. Intel® ~~Celeron® N2930 1.83 GHz/2.16 GHz processor~~ i3
7. Operating system shall be Windows® 10 IoT Enterprise LTSC 2015 (32-bit), Multi-language
8. RAM ~~4~~16 GB DDR3 SODIMM

9. Mass storage - ~~2,5" SSD (MLC), 160 GB~~ 240GB HD Primary, 60GB HD Secondary (for configuration backup)
10. Network 2x Ethernet (10/100/1000 Mbps), RJ45
11. Interfaces 1x COM (RS-232/~~422/485~~)
12. 4x USB 2.0
13. Monitor output 1x DisplayPort
14. Service life of battery 5 years
15. Environmental Conditions
  - a. Degree of protection IP65 (front), IP30 (back)
  - b. Ambient temperature (operation) 0 °C ... 45 °C (with HDD)
  - c. Ambient temperature (storage/transport) -40 °C ... 70 °C
  - d. Permissible humidity (operation) 5 % ... 95 % (non-condensing)
  - e. Permissible humidity (storage/transport) 5 % ... 95 % (non-condensing)
  - f. Power supply unit 24 V DC  $\pm$ 20 %

#### 160.09 Ethernet Switch

Power and control panels shall be provided with an Ethernet switch to connect all networked devices including but not limited to the Panel PC, Uninterruptible Power Source and PLC. Ethernet switches shall be Allen Bradley Stratix 5700.

#### 160.10 Ventilation

The panel shall include forced ventilation sufficient to maintain panel interior temperatures and conditions within the ranges set by the manufacturers of equipment located within the panel. Ventilation shall include filtration to prevent the entrance of dust, debris and water from entering the panel.

#### 160.11 Level Transducer/Transmitter:

See Section ~~180~~181

#### 160.12 Circuit Breakers:

Circuit breakers shall be Square D H-Frame sized per panel and pump power requirements.

#### 160.13 Miscellaneous Materials and Requirements:

1. In general, except as specified otherwise in this section or the drawings, panel components shall comply with the Bill of Materials, on Sheet SD-34 of the District's Manual of Minimum Construction Standard and Technical Specifications.
2. One Duplex 15 amp 120 V GFCI receptacle with dedicated circuit breaker.
3. Two overhead fluorescent or LED lights with integral on/off switch mounted inside the panel behind each door in front of the dead front. The lights shall be 120V.



4. One “Hand-Off-Auto” selector switch for each pump, heavy duty oil tight type (toggle switches will not be acceptable).
5. One control power circuit breaker.
6. One main circuit breaker.
7. Secondary Backup Generator circuit breaker with Main Breaker Lockout.
8. Secondary Backup Generator receptacle.
9. Lightning arrestor, surge protector and phase monitor. The phase monitor shall lock out pump operation in the event of phase loss, reversal or low voltage.
10. One “RUN” indicator light for each pump.
11. One “FAIL” indicator light for each pump.
12. One Elapsed time meter for each pump, 2-1/2”, 6 digit non-resettable.
13. Independent 12VDC High Level Alarm System -
  - a. Alarm light, 12 VDC, with Flasher, outdoor type mounted on top of the control panel.
  - b. Alarm Horn, 12 VDC, outdoor type mounted on side of control panel.
  - c. High Level Alarm Circuitry to include high level float in the wetwell. Alarm circuit to match the District Standard, including the intrinsic safe circuit in the wetwell.
  - d. This alarm shall act independently from the PLC
14. A copy of the panel wiring diagram asbuilts and bill of materials shall be attached to the inside of the outer panel door. An extra copy shall be given to the District.

Spare parts to be furnished with the panel include:

- 2 - 120V Relays
- 1 - Alternator
- 1 - Phase Monitor
- 12 - Lamps
- 12 - Fuse Links
- 1 – Intrinsically Safe Barrier
- 1 – Alarm Controller

#### 160.14 System Integration

System integration shall include integration of the adjustable frequency drives, level transmitter, level transducer, programmable logic controller, uninterruptable power source, generator controller, panel PC, automatic transfer switch, Data Flow Systems RTU and the District’s VT Scada System for a fully functional system capable of implementing the required operating protocol and monitor/control functions as detailed in the specifications and the System Block Diagram.

System integration shall include screen development. At a minimum the following screens shall be provided at the Panel PC.

1. Overview – shows diagrammatic representation of the lift station pumps, drives, wetwell, generator and ATS and include equipment status and alarm and HOA functions. This

screen shall also display, at a minimum, pump speed, pump hours, wetwell level, power source, voltage and current.

2. Setup Screen – allows setup of station parameters to include lead, lag, standby selection, time delays, tandem pump operation criteria, pump speed limits, operating levels and alarm levels,
3. Alarm/Fault Screen – displays a complete list of programmed alarms, indicates current/active alarm, allows alarm acknowledgment, allows setup of alarm parameters.
4. Trend Screen – Provide trending for lift station parameters including pump speed, wetwell level, estimated flow (based on correlation between pump speed, pump head and pump curve).

The following minimum screens shall be provided in the Plant VT SCADA system. Screens shall conform in style and function to the District's existing VT SCADA screens.

1. Station Status
2. Historical Trending

#### 160.15      Radio Telemetry

The power and control panel shall include dry contacts for the radio telemetry unit. Dry contacts shall be provided for all I/O listed below.

1. Pump Status
2. Pump Fail
3. Pump Call to Run/Off
4. Commercial Power
5. Auxiliary Power
6. High Alarm – back up float
7. Generator General Alarm
8. Generator Low Coolant
9. Generator Fuel Alarm
10. Generator Fail
11. Pump Speed
12. Pump Disable
13. Wetwell Level
14. 2 Spare Digital
15. 2 Spare Analog

**END OF SECTION 160**

## SECTION 170

### EMERGENCY STANDBY DIESEL GENERATOR SET

#### 170.01 General

The generator shall provide emergency power to the lift station adequate to operate the station and all appurtenances. A detailed sizing report shall be submitted for approval. The generator set shall be 130 C (266 F) temperature rise at 0.8 PF, 480/277V, 3 phase, four wire at 500' above sea level and ambient temperature 25C (77 F). The generator set shall be EPA certified for this specific application (permanent standby emergency power) but not have less than an EPA Tier III emission certification.

The generator set shall include an automatic transfer switch, battery charger, batteries, sound attenuating/hurricane rated/weather resistant enclosure and exhaust silencer and come as a complete package from the manufacturer.

Work shall also include a generator sizing report based on design loads detailed in the contract including pumps, controls, instrumentation, lightening and miscellaneous loads verifying manufacturers concurrence with the above sizing.

#### 170.02 Applicable Codes, Standards and Specifications

The installation shall comply with all applicable rules, regulations, and ordinances of the following:

- National Electric Code (NEC)
- Occupational and Safety Health Standards (OSHA)
- Florida Building Code (FBC)
- National Fire Prevention Association (NFPA)
- Underwriters Laboratory (UL)
- International Standardization Organization (ISO)
- National Electrical Manufacturers Association (NEMA)
- American National Standards Institute (ANSI)
- Institute of Electrical and Electronics Engineers (IEEE)
- Environmental Protection Agency (EPA)
- Town of Jupiter
- Palm Beach County

#### 170.03 Submittals

The generator set submittal shall include drawings and schematics that fully depict the product being provided. Submittals shall include the following:

- A. Generator sizing report
- B. Generator set plans and elevations.
- C. Enclosure including plans and elevations.
- D. Fuel tank including plans and elevations.
- E. Engine, combustion air, exhaust, fuel, lubrication and cooling performance specifications.

- F. Alternator specifications.
- G. Fuel consumption rates.
- H. Generator set rating (Prime at 105 C temperature rise)
- I. Exhaust silencer.
- J. Generator breaker
- K. Battery charger.
- L. Controller.
- M. Enclosure including sound attenuation, wind rating and weather rating (wind driven rain proof).
- N. Tier Rating.
- O. Start-up report
- P. Factory production testing.

#### 170.04 Acceptable Manufacturers

The generator set, fuel tank and enclosure shall be supplied by a single manufacturer. The generator set shall be manufactured by Caterpillar, Kohler, Cummins/Onan, Detroit Diesel or Generac.

#### 170.05 Warranty

The generator set and ATS shall have a 1-year warranty from the date of acceptance by the District.

#### 170.06 Diesel Engine Generator Set

The engine shall be water-cooled four-stroke compression ignition diesel and rated to drive the generator set after derating for elevation (altitude) and temperature.

Voltage regulation shall be within 5% of rated voltage at constant load. Frequency regulation shall be within 3%. Total harmonic distortion shall not exceed 5%.

When loaded voltage dip shall not exceed 20% and frequency dip shall not exceed 10%. Recovery time shall not exceed 3 seconds.

The generator shall be synchronous, four pole, revolving field, permanent magnet, drip proof, air cooled and direct connected to the engine. Insulation shall be Class H and suitable for use in wind driven rain and salt spray environments. Temperature rise shall not exceed 130 C at standby rating and 105 C at prime rating.

- A. Governor: The generator set shall be equipped with an electronic governor that maintains frequency regulation within 3%.
- B. Fuel System: The fuel system shall be equipped with a 5-micron fuel filter/water separator. The filter shall be sized to handle 125% of the fuel flow at full load. The fuel pump shall be engine driven, positive displacement and mechanical.

The fuel tank shall be sized for min. 72 hour run time at full load based on published fuel consumption rates provided by the generator set manufacturer. The fuel tank shall be belly style installed beneath the enclosure but not form a structural member of the enclosure. Fuel fill shall be readily accessible without opening the enclosure. The tank shall be fitted with a local, mechanical fuel gauge. The tank shall be double walled with inspection port for the interstitial space.

- C. Space Heater: The generator shall have a 120V space heater sized to maintain the generator windings above temperatures typical in the installation location.
- D. Jacket Water Heater: The generator shall have a 120V jacket water heater sized to maintain the engine block at 90 F.
- E. Battery Charger: The generator shall have a 120V powered 12V or 24V battery charger with trickle charge/maintain function and standard charging capability. The battery charger shall be sized based on charging requirements and sizes of batteries provided as part of the standard generator set.
- F. Batteries: Batteries (12V or 24 V) based on the charging and starting systems shall be provided. Batteries shall be easily accessible for maintenance and replacement and be installed in a corrosion resistant (fiberglass or plastic) battery tray.
- G. Cooling System: The cooling system shall incorporate an engine driven fan, enclosure mounted radiator and ethylene glycol based coolant. Access to the radiator cap shall allow for filling of coolant without the need for additional funnels, piping, etc.
- H. Enclosure: The enclosure shall be sound attenuating (78 dB(A) at 7 meters), weather proof, aluminum and wind rated for min. 165 MPH (or current PBC requirement). The enclosure shall be coated with manufacturers standard coating system and color.

Sound attenuating material shall be moisture and weather resistant, securely fastened to the enclosure interior and protected from damage during routine maintenance and operation.

The enclosure shall house the generator muffler and all generator appurtenances (controller, radiator, breaker, etc.) except the fuel tank.

All hinges, latches and locks shall be corrosion resistant stainless steel.

- I. Controller: The generator controller shall provide/display the following functions.
  - a. Programmable generator exercise schedule.
  - b. Cool down period prior to shutoff.
  - c. All phase AC voltage
  - d. Current output
  - e. Each phase AC voltage
  - f. Utility status
  - g. KW power output
  - h. Power factor
  - i. Total runtime
  - j. Last runtime
  - k. Engine Speed
  - l. Overcrank
  - m. Oil Pressure
  - n. Fuel Pressure
  - o. Water Temperature
  - p. Coolant Level
  - q. Battery Voltage
  - r. Frequency
  - s. Off/On/Auto(Remote)
  - t. Alarms

- i. Oil Pressure
- ii. Coolant Temperature
- iii. Coolant Level
- iv. Low Fuel Pressure
- v. Engine Speed
- vi. Overcrank
- vii. Battery Voltage

- J. Generator Main Circuit Breaker: The generator set shall be provided with a generator main breaker mounted and wired on the generator set. The main breaker shall be UL listed, 480/277 VAC, 200 ampere and configured such that load side cables enter through the bottom of the enclosure.
- K. Air Filter: The generator set shall be provided with a dry type replaceable air filter.
- L. Mounts: Mounts for the generator set to the frame shall be spring type vibration isolation mounts.
- M. Exhaust Silencer: The exhaust silencer shall limit exhaust noise to 78 dB(A) at 7 meters. All enclosure interior exhaust piping shall be insulated to maintain a surface temperature not to exceed 150 degrees F. The insulation shall be installed so that it does not interfere with other components. The insulation shall not be asbestos base.

#### 170.07 Automatic Transfer Switch

The automatic transfer switch shall be UL listed, electrically operated, 480/277 VAC, 3 phase, 60 Hz, 200 ampere and incorporate a mechanical lockout for only normal or emergency power. The use of molded case circuit breakers, contactors or components that are not intended for continuous duty, repetitive switching and transfer service will not be allowed.

The switch shall be mounted in a NEMA-4XSS enclosure.

The switch shall provide the following functions:

- A. Phase voltage sensing and transfer of power based on voltage of primary or emergency source. Transfer limits shall be adjustable for pick-up (85%-100% of nominal voltage) or drop-out (75%- 98% of pickup).
- B. Three phase voltage sensing and transfer of power based on voltage of primary or emergency source. Transfer limits shall be adjustable for pick-up (85%-100% of nominal voltage) or drop-out (fixed at 84%086% of pickup).
- C. Three phase frequency sensing and transfer of power based on frequency of primary or emergency source. Transfer limits shall be adjustable for pick-up (90%-100%) and drop out (fixed at 87%-89% of pickup).
- D. Time delay start in accordance with NFPA 110, Level 1, Type 10 (10 seconds).
- E. Time delay transfer to emergency power after start. Transfer time shall be adjustable from 0-120 seconds.
- F. Time delay transfer to primary power. Transfer time shall be adjustable from 0-30 minutes.

G. Time delay shutdown of emergency generator after transfer to primary power. Transfer time shall be adjustable from 0-15 minutes.

H. Status display:

- a. Primary Power Status
- b. Emergency Power Status
- c. Current Power Source
- d. Time to transfer (in consideration of time delays) to/from emergency
- e. Transfer complete to/from emergency
- f. Time to emergency generator stop

#### 170.08      Testing

The generator set shall have factory production testing completed at the rated load. The production testing shall incorporate all parameters and limits identified in this specification. A factory certified record of testing shall be provided in the submittal.

After installation the manufacturer shall provide start up and testing services. Services shall conform to NFPA 110 and include start and shut down cycles, automatic start and load bank test at full load for 2 hours, power transfer and operation of the station on emergency power for not less than 2 additional hours.

#### 170.09      Start-up and Instructions

On completion of the installation, start-up shall be performed by the generator set service representative. Operating and maintenance instruction manuals shall be supplied and operator training provided to operating personnel (minimum 2 hours training). Upon completion a start-up report shall be provided.

**END OF SECTION 170**

## **SECTION 180**

### **INSTRUMENTATION**

#### **180.01      General**

Instrumentation as described in this specification and shown in the drawings shall be provided.

Instrumentation shall be incorporated into the design requirements of the Contractor utilizing the equipment and materials included in this specification.

All electrical components of the system shall operate on 120 volt, single-phase, 60 hertz or 24 VDC power, except as otherwise noted in the specifications.

All electrical components located within the wetwell and the wetwell side of any sealed conduit fitting shall be Intrinsically Safe.

All necessary fuses or switches required by the instrumentation manufacturer for his equipment shall be provided with the equipment.

#### **180.02      Submittals**

Detailed design drawings including product specification sheets, mounting hardware, location, conduit, cable and tag numbers shall be provided.

#### **180.03      Cable**

All electronic (4-20MADC) signal wire shall be two conductors, copper, twisted pair with tape foil shield and drain wire. The shield is to be grounded at the PLC I/O panel only for single point grounding, in accordance with manufacturer's instructions. Single triad shielded cables for potentiometer signal cables shall be three conductors, copper, twisted triad with tape foil shield and drain wire. The cables must be UL listed for wet locations as defined by the NEC.

#### **180.04      Instrument Mounts**

All instruments shall be mounted in readily accessible positions that do not require entry into the wetwell for removal or maintenance. Brackets shall be fabricated to hold instruments. All brackets shall be 304 or 316 stainless steel. All mounting hardware, screws, machine bolts with washers and nuts shall be 316 stainless steel.

#### **180.05      Conduits**

All low voltage signals shall be isolated from high level control or power signals in separate conduits. All instrumentation signal conduits below grade shall be SCH80 PVC or 304 stainless steel. All underground conduits shall have grounding bushings and a No. 8 AWG copper minimum cable run to a ground lug at the termination points.

#### **180.06      Lightning/Surge Protection**



All transmitters with 4-20 MADC outputs shall have a transmitter mounted surge protection unit. The surge protection unit shall be a EDCO SS65 or approved equal.

#### 180.07      Intrinsically Safe Pressure Transducer/Wetwell Level Sensor

Pressure transducers/wetwell level sensors shall be intrinsically safe and encased in a 316 stainless steel housing.

1.      Range: 0 – 15 PSI
2.      Cable: Minimum 50'
3.      Output: 4 – 20 mA
4.      Accuracy: +/-5%

Probes shall be Wika Instruments, LP Model LS10 with LevelGuard Anti-clog attachment or equal.

Level sensing submersible probes shall be installed in a stilling well. The stilling well shall be minimum 6" SCH 40 PVC secured to the wetwell every 7 feet with stainless steel brackets and hardware. The stilling well and probe shall be accessible from the wetwell hatch, not requiring an entry into the wetwell for maintenance or replacement of the probe.

#### 180.08      Intrinsically Safe Pressure Transmitter

Pressure transmitters shall be intrinsically safe, backlit and mounted in the power and control panel dead-front.

1.      Display: 5 Digit
2.      Input: 24 VDC
3.      Output: 4 – 20 mA
4.      Accuracy: +/- 0.03%

Pressure transmitters shall be Precision Digital model 688 or approved equal.

#### 180.09      Flow Meters

All flow meters shall be electro-magnetic (i.e., mag meter) type consisting of a flow-through spool piece with replaceable, stainless steel (AISI 316L) sensing electrodes and a remote mounted flow converter/transmitter. Flow meters shall operate on electromagnetic induction principle (i.e., Faraday's Law) and transmit an output signal which is directly proportional to the velocity of the liquid media being measured. The instrument shall be manufactured in an ISO 9001 approved facility.

The flow-through sensor shall consist of a stainless-steel measuring tube with a hard rubber liner which is suitable for use in wastewater and reuse water applications. The tube shall have a minimum working pressure rating of 250 psig. All flow tubes shall be supplied with stainless steel (AISI 316L), ANSI / ASME B16.5 end flanges up to 24-inch diameter. Meters with larger diameters shall be supplied with AWWA Class D end flanges. The sensor shall be supplied with

an integrated, stainless steel electrical connection box and grounding rings. All sensors installed above grade shall have a minimum IP67 rating. All sensors installed below grade or within meter vaults shall have a minimum IP68 rating.

The magnetic inductive flow converter/transmitter shall be remote mounted and provide bi-polar primary field excitation pulses. The unit shall convert the signal from the flow-through sensor into a standard linear analog or pulse/frequency output directly proportional to the flow rate. The accuracy of the converter shall be +/-0.2% of the measured value for all flow velocities above 3 ft/s in measuring tube sizes 3/8<sup>th</sup>-inch to 48-inch diameter. The converter shall be capable of displaying values locally, via 4-20 mA output and by frequency or pulse output. The converter shall be capable of transmitting output signals utilizing multiple communication protocols including HART, RS485 Modbus, FOUNDATION Fieldbus, PROFIBUS and PROFINET IO. Converters shall have a minimum IP67 rating.

All flow meters shall be manufactured by Krohne, Inc. and shall include one (1) ENVIROMAG 2000 flow-through sensor and one (1) IFC300, wall mounted converter.

#### ~~180.09~~180.10 Power Supplies

All instruments shall be looped powered with an appropriately rated power supply. Each instrument shall have a dedicated power supply.

#### ~~180.10~~180.11 Field Calibration and Testing

All instruments shall be set up, calibrated and tested in the field. The Contractor shall provide calibration sheets and testing equipment for each instrument. When installation is complete all components shall be tested to confirm operation and compliance with the contract.

#### ~~180.11~~180.12 Installation

All equipment shall be installed per the manufacturers requirements.

**END OF SECTION 180**

## SECTION 181

### PROGRAMMABLE LOGIC CONTROLLERS

#### 181.01 General

This section describes the hardware and software requirements for a new Programmable Logic Controller (PLC) for a duplex or tri-plex lift submersible wastewater lift station with adjustable frequency drives, level control, emergency standby power, DFS radio telemetry unit (or) Cellular telemetry unit and appurtenances.

This section provides all labor and material required for the PLC system including the panels, equipment, software, screen development, programming, conduit, cable, tie-ins, checkout and start-up of the complete integrated system. This section shall be used in conjunction with the approved drawings and Section 161, Variable Speed/PLC Control Panels.

The latest version available at the time of installation of all PLC development software and communication driver software shall be provided.

All software and programming shall be required to perform the following functions in addition to the interlocking, monitoring and control functions indicated on the loop diagram drawings and developed in the PLC logic and OWS screen development meetings.

All enclosures shall be UL listed and NEMA rated to house the PLC, remote I/O, power supplies, and terminal blocks as shown in the drawings.

All panels shall be UL listed and labeled as a completed assembly. The panel fabricator shall furnish and install all items not specifically detailed in the drawings required to have the panels UL listed and labeled. All inspections, approvals and modifications required to have the completed panel labeled and listed by UL shall be furnished by, and the responsibility of the panel fabricator.

#### 181.02 Applicable Standards

NEC  
NEMA  
UL  
IEC

Temperature	IEC60068:
Relative Humidity	IEC60068:
Vibration	IEC 60068
Shock	IEC 60068
Emissions	IEC61000
ESD Immunity	IEC 61000
Radiated RF Immunity	IEC61000
EFT/B Immunity	IEC61000

Surge Immunity	IEC61000
Conducted RF Immunity	IEC61000

#### 181.03      Operation and Maintenance Manuals

All products shall be provided with operation and maintenance manuals complete with installation, troubleshooting and technical information on the equipment provided under this contract. Manuals shall be published by the equipment manufacturer.

#### 181.04      Training

Training and instruction shall be given by the manufacturer or representative. Training shall be 4-hours for personnel selected by the Owner in the operation and general maintenance of the PLC. This training is independent of operator training for lift station observation and operation associated with automated controls.

#### 181.05      Submittals

Submittals shall include installation drawings and manufacturer cutsheets clearly defining the products to be provided, their accessories/options and interconnectivity with all systems. Drawings shall also include single line system diagrams and detailed line diagrams for power, input/output and tag numbers.

#### 181.06      Spare Parts

- A. One CPU
- B. One of each Network Module
- C. One of each type of input/output and data link module
- D. One of each type of power supply

#### 181.07      Programmable Logic Controller

##### 1.      Approved Manufacturer

The PLC system shall be a Rockwell Automation 1756 ControlLogix L7\*\*\* .

##### 2.      General

The PLC system (memory, communications, input/output modules, processor, power supplies, software) shall be a modular chassis mounted system and come complete from one manufacturer to provide a complete functioning control system as depicted in the Control Block Diagram and described in the operating protocol and of sufficient capacity for future expansion as allowed for in this specification.

Products shall be provided with conformal coatings, factory applied, to extend product life in harsh, corrosive environments.

The PLC shall be programmable and configurable from a Windows ~~7-10~~ and Windows ~~10~~11.

3. Communication

The PLC system shall be Ethernet compatible or have an Ethernet module accessible by a laptop computer. Programming functions associated with the PLC system shall be accessible through the Ethernet connection.

The PLC shall have a compatible communication modules or ports for communicating with the emergency standby generator controller exclusive of input/output modules and dry contacts. This communication port shall allow for sharing of all monitoring and alarm data associated with the emergency generator controller.

4. Input/Output Modules

The PLC shall have analog and discrete input/output modules sufficient for all proposed and future nodes identified in the control block diagram associated with the DFS Radio Telemetry System or Cellular Telemetry System.

The PLC shall have analog an discrete input/output modules sufficient for all proposed generator status and generator fail signals.

The PLC shall have analog and discrete input/output modules sufficient for all proposed ATS, commercial, generator power signals.

The PLC shall have analog and discrete input/output modules sufficient for variable speed pump control based on level. PLC control and monitoring of variable speed drives shall be through analog and discrete input/output modules. The use of proprietary communication protocols for variable speed drive control shall be allowed.

The PLC shall have the ability to accommodate 50% additional I/O modules.

5. Central Processing Unit

The PLC configuration shall be maintained through a power loss. The PLC shall continue with operations when power is reinstated without additional programming, uploads or resets.

The PLC system shall utilize a Secure Digital (SD) card for non-volatile memory to store a user program and tag data on the PLC. The PLC system shall be configurable to trigger the controller to save to or load from the SD card and to load to the controller from the SD card on power up.

The minimum size CPU shall be an A-B Rockwell Automation ControlLogix Series 1756-L71 with 128 MBs of optional nonvolatile memory storage.

6. Power Supplies

Power supplies shall be surge and transient protected, and shall accept input voltages of 90 to 130 VAC. The power supplies shall be fused.

All PLC systems power supplies shall be modular, allowing the power supply to be removed for replacement without affecting input/output modules or wiring.

The PLC systems shall come with redundant power supply.

7. Wire and Cabling

All PLC specific cables shall be furnished by the PLC system manufacturer and be designed for the intended use.

All other wire shall be stranded copper type TFF or MTW, 18 GA for I/O and minimum 14 GA for power.

8. Programming

The CPU shall be capable of being programmed by an external IBM compatible host device via either a serial communication port or Ethernet port on the CPU, or a parallel communication port on an input/output chassis. Serial programming shall be possible without the use of a workstation interface board.

Software shall be Rockwell Automation RSLogix 5000 Professional Edition.

All software shall be registered to the Owner.

9. Terminal Blocks

Input/output modules shall utilize removable terminal blocks to connect all field side wiring.

10. Signal Isolators, Converters and Conditioners

Instrument signals shall be 4 – 20 mA DC. Signal isolators and converters shall be provided as necessary to comply with this requirement. The devices shall be mounted in the panel and such that field wiring may be changed/maintained without affecting the devices.

All communication circuitry shall include protection against lightning, spikes and

other transient surges.

11. Grounding

The grounding system of the PLC system shall be tied into the main ground system. The tie-in shall be made from the panel frames to the main ground system.

181.08 Execution

Start-up and testing services for the PLC system shall be provided. The PLC system shall be fully tested against the requirements outlined in this section and Section 161 and the operating protocol and equipment manufacturer requirements. Test procedures and checklists for approval shall be submitted prior to testing. Completed test checklists shall be submitted as part of the project record documentation.

**END OF SECTION 181**

## **SECTION 190**

### **REMOTE TERMINAL UNIT (RTU) – LIFT STATION DATA FLOW SYSTEMS**

#### **190.01      General**

The District has an existing Radio Telemetry System as manufactured by Data Flow Systems, Melbourne, Florida (321) 259-5009. For compatibility purposes, new remote terminal units will be required as specified herein from Data Flow Systems (DFS) 321-259-5009. The remote terminal unit shall include all materials, labor, tools, equipment, and appurtenances necessary for the proper completion of the work. The work covered by these specifications consists of providing all design, labor, tools, materials, and testing necessary for the supply of the RTU as described herein.

Physical location information shall be provided to DFS for radio communication study purposes. Information shall be provided in the form of GPS readings or street map with actual site location(s) clearly marked.

The RTU shall be housed in its own enclosure. The RTU enclosure shall be mounted on the antenna tower. The RTU shall be powered by 120 VAC commercial power, monitor local statuses and transmit those statuses to the existing central site when polled by the master radio. An Uninterruptible Power Source (UPS) shall be included with the RTU.

#### **190.02      Equipment Specification**

##### **190.02.1      Remote Terminal Unit (RTU204)**

The remote terminal unit shall be DFS Model RTU204. The RTU shall communicate with the central site via a two-way radio link and designed to accommodate the required plug-in function modules. Function module card connectors shall be gold-over-nickel plated to inhibit corrosion. The RTU shall be housed in a white color NEMA 4X 316 SS enclosure. All mounting hardware utilized shall be stainless steel. The enclosure shall be capable of being locked. The latches utilized to secure the door of each enclosure shall not require the use of a screwdriver to open or close.

##### **190.02.2      Power Supply Module (PSM003)**

The RTU shall include a Power Supply Module (PSM003). All function modules in the RTU shall run off DC voltage from +7.5 volts to +13 volts. The PSM shall supply +12 volts. A battery backup shall be provided in event of power failure. The power supply shall be surge protected. The power supply shall be short circuit protected by current limiting. Normal operation shall automatically resume when the short circuit overload is removed. The power supply shall be sized to operate the system with the battery removed. The power supply module shall provide a battery backed, isolated bias voltage source. The circuit breaker for the power supply module shall be part of the power supply module. Neither the use of tools nor the disconnection of any wires shall be required to replace the power supply module.



### 190.02.3 Backup Battery/Uninterruptable Power Supply (UPS)

The RTU shall have the uninterruptible power supply (UPS) function built in. The RTU's internal Power Supply Module shall keep the battery at a float charge. The battery shall not be damaged by deep discharges.

### 190.02.4 Telemetry Interface Module (TIM007)

- a) The Telemetry Interface Module (TIM) shall incorporate a synthesized programmable radio.
- b) A data buffer on the TIM shall enable it to query and store the I/O function module(s) status between radio polling loops until data is requested by the central site.
- c) The TIM shall feature a wake up/report/sleep mode to aid in battery conservation for solar-powered applications.
- d) The TIM shall support four levels of digipeating (store and forward), enabling radio messages from a different RTU to be routed to the central site.
- e) The TIM shall monitor AC power on the Power Supply Module and DC Bias to the RTU I/O function modules.
- f) The TIM shall incorporate a 2x8 character LCD display and 3-button user interface for field diagnostics and support data without the use of a portable computer.
- g) The TIM shall incorporate a test mode switch that places the radio into a service mode.
- h) The TIM shall incorporate LEDs for TX, RX, Power, CPU Fault.

### 190.02.5 Digital Monitor Module (DMM002)

The RTU shall include a Digital Monitor Module (DMM002). The DMM002 shall accept 12 on/off inputs of 12 to 30 volts AC or DC. Voltages from 100 to 300 volts AC or DC shall be accommodated with the use of an inline voltage converter device. Status reporting of these inputs shall have an accuracy of  $\pm 2$  seconds, the accuracy being defined as time of an occurrence to actual time recorded by the central site computer. The DMM002 shall not require interfacing relays to monitor 24 VDC, 115 VAC, 220 VAC or 480 VAC. The DMM002 shall have LEDs to indicate: the status of each input point; receive communications; transmit communications; CPU fault; and power status. The configuration of the monitor points as alarm points or monitor points (pump run time monitors) shall be operator changeable. The configuration shall not require any software or firmware changes in the system.

### 190.02.6 Antenna Subsystem

DFS shall determine the antenna type and height required for reliable communications. A high gain directional or omni antenna shall be used to transmit and receive data. The antenna mast/pole shall be hot dipped galvanized for corrosion protection. All mounting hardware shall be made of stainless steel. The coax cable shall be the type that utilizes an inert semi-liquid compound to flood the copper braid. The coax cable shall be of the RG-8 construction type and have the RF-loss characteristic of foam flex. The coax cable shall be RTC 400 as supplied by DFS. Type N

connectors shall be utilized at both ends of the coax and sealed with 3-inch sections of Alpha FIT321-1-0 sealant shrink tubing. The coax cable shall be secured to the mast/pole with AE112 Bandit coated 316 stainless steel cable ties. The RTU shall be protected from electrical surge or transients entering through the coaxial cable by use of a IS-B50LN-C2 Polyphaser coaxial cable surge protector.

#### 190.03 RTU Monitor Points

The RTU shall accommodate the following I/O points.

##### **RTU HARDWIRED I/O LIST:**

DIGITAL INPUT (DI)	DIGITAL OUTPUT (DO)	ANALOG INPUT (AI)	ANALOG OUTPUT (AO)
COMMERCIAL POWER	PUMP 1 OVERRIDE	WET WELL LEVEL	NONE
AUXILIARY POWER	PUMP 2 OVERRIDE	(3) AI SPARE	
HIGH WET WELL LEVEL	*PUMP 3 OVERRIDE		
PUMP 1 RUN STATUS	PUMP 1 DISABLE		
PUMP 2 RUN STATUS	PUMP 2 DISABLE		
*PUMP 3 RUN STATUS	*PUMP 3 DISABLE		
PUMP 1 FAULT	(2) DO SPARE		
PUMP 2 FAULT			
* PUMP 3 FAULT			
GENERATOR GENERAL ALARM			
GENERATOR LOW COLLANT			
GENERATOR LOW FUEL			
GENERATOR FAIL TO START			
(7) DI SPARE			
* If applicable			

#### 190.04 Installation

In order to insure total system integration with the existing system, secure and provide the services of Data Flow Systems, Inc. for RTU hardware.

#### 190.05 Programming

Antenna alignment fine-tuning procedure, configuration of RTU into the system, RTU point-by-point verification at the central computer, and RTU screen generation services shall be covered by the District.

#### 190.06 Warranty

DFS shall warrant all hardware provided under this contract against all defects in material and workmanship for a period of one year. The RTU plug-in modules shall carry an additional 2-year return-to-manufacturer warranty and shall be covered against damage due to lightning and surge the entire 3-year period.

#### 190.07 Spare Parts

Provide the following spare parts with the RTU:

- a. (1) Telemetry Interface Module (TIM007)
- b. (1) Power Supply Module (PSM003)
- c. (1) Digital Control Module (DCM003)
- d. (1) Digital Control Module (DCM004)
- e. (1) Analog Monitor Module (AMM ---)
- f. (1) Backup Battery
- g. (1) RTU Antenna

**END OF SECTION 190**

## SECTION 200

### ADOPTION OF STANDARDS

The Loxahatchee River Environmental Control District Manual of Minimum Construction Standards and Technical Specifications were initially adopted and promulgated by the Governing Board in April, 1983.

The current edition was ratified by the Loxahatchee River Environmental Control District's Governing Board, on ~~August 17, 2023~~February 20, 2025, with a vote as follows:

“THAT THE DISTRICT GOVERNING BOARD ratify the Loxahatchee River Environmental Control District's “Manual of Minimum Construction Standards and Technical Specifications”, as of ~~September 21, 2023~~February 20, 2025, and authorize the Director of Engineering and Executive Director to update the Construction Standards and Technical Specifications from time to time, and periodically present it to the Governing Board for ratification.”

<u>Board Member</u>	<u>Vote</u>
<del>Dr. Rostock</del> <u>Mr. Boggie</u> , Chairman	“Aye”
Mr. <del>Rockoff</del> <u>Baker</u> †, Vice-Chairman	“Aye”
<del>Mr. Boggie, Treasurer</del>	“Aye”
Mr. <del>Yerkes</del> <u>Dr. Rostock</u> , <del>Secretary</del> <u>Treasurer</u>	“Aye”
<del>Mr. Baker</del> <u>Mr. Rockoff</u> , <del>Assistant Secretary</del> / <del>Treasurer</del>	“Aye”

D. Albrey Arrington, Ph.D.  
Executive Director  
Loxahatchee River Environmental Control District

END OF SECTION 200

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LP-25	IN LINE FLUSHING PORT
LP-25A	IN LINE FLUSHING PORT AT FORCE MAIN
LP-26	AIR / VACUUM VALVE DETAIL
LP-27	LOW PRESSURE MAIN INTO SHALLOW MANHOLE
LP-28	LOW PRESSURE MAIN INTO DEEP MANHOLE
LP-29	TYPICAL ISOLATION VALVE DETAIL
LP-30	LOW PRESSURE TIE - IN DETAIL
LP-31	LOW PRESSURE VALVE DETAIL
LP-32	TYPICAL ROAD CROSSING REPAIR DETAIL
LP-33	TRENCH DETAIL
LP-34	TESTING PROCEDURE
LP-35	GENERAL NOTES

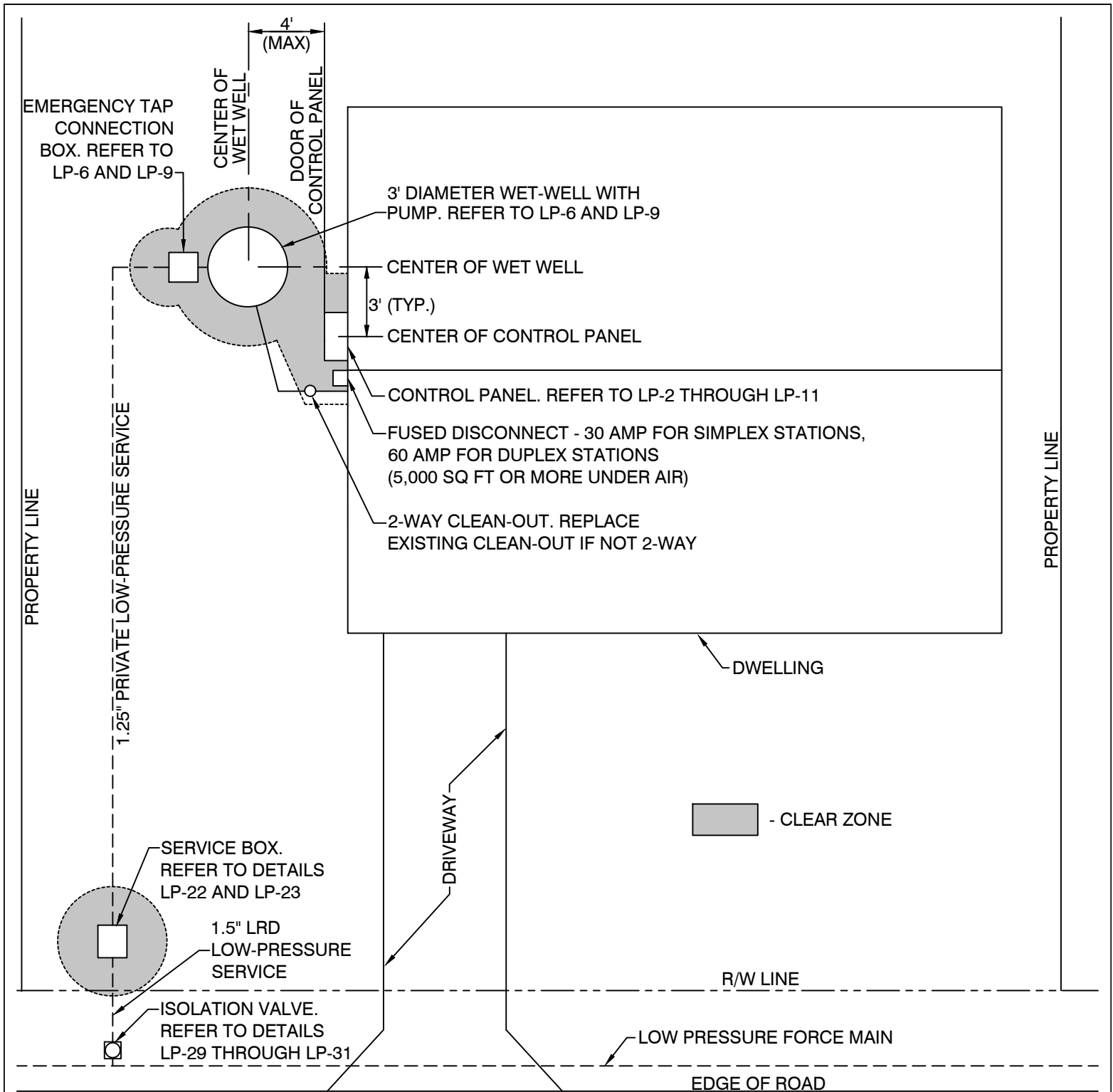
LOXAHATCHEE RIVER DISTRICT

REVISION:

REVISION:  
AUG, 2022

LOW PRESSURE FORCE MAIN DETAILS INDEX

LP



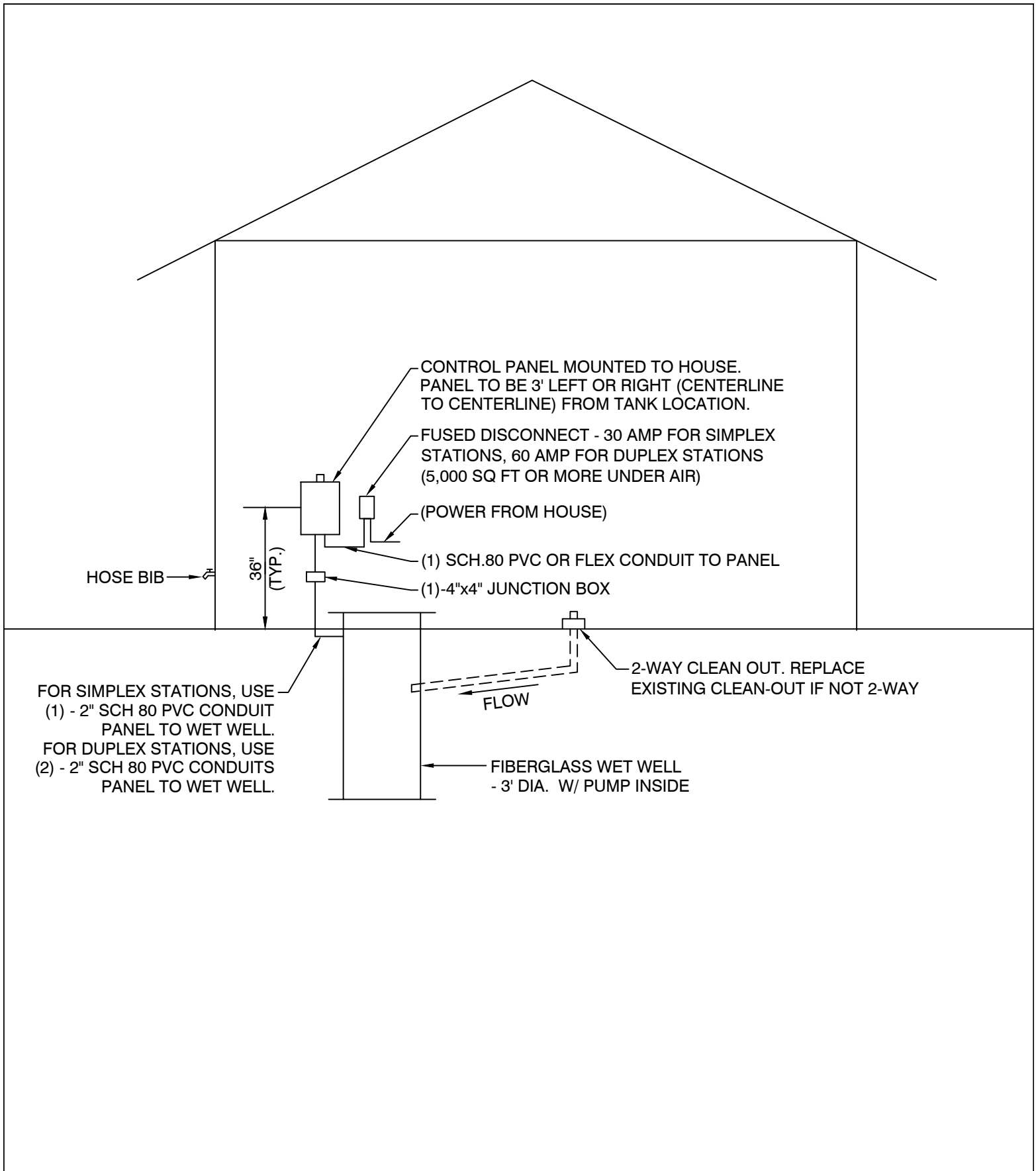
PROVIDE A 36" CLEAR ZONE FREE FROM FENCING, LANDSCAPING AND OTHER OBSTRUCTIONS THAT MAY LIMIT ACCESS.

PER SECTION 110.02, SMALL DIAMETER PVC (3" DIAMETER OR LESS) PIPE AND FITTINGS SHALL BE PRESSURE RATED ASTM D1784/D1785 SCHEDULE 40 FOR BURIED APPLICATIONS AND SCHEDULE 80 FOR NON-BURIED APPLICATIONS.

## LOXAHATCHEE RIVER DISTRICT

# TYPICAL RESIDENTIAL GRINDER SYSTEM LAYOUT (PLAN VIEW)

LP-1



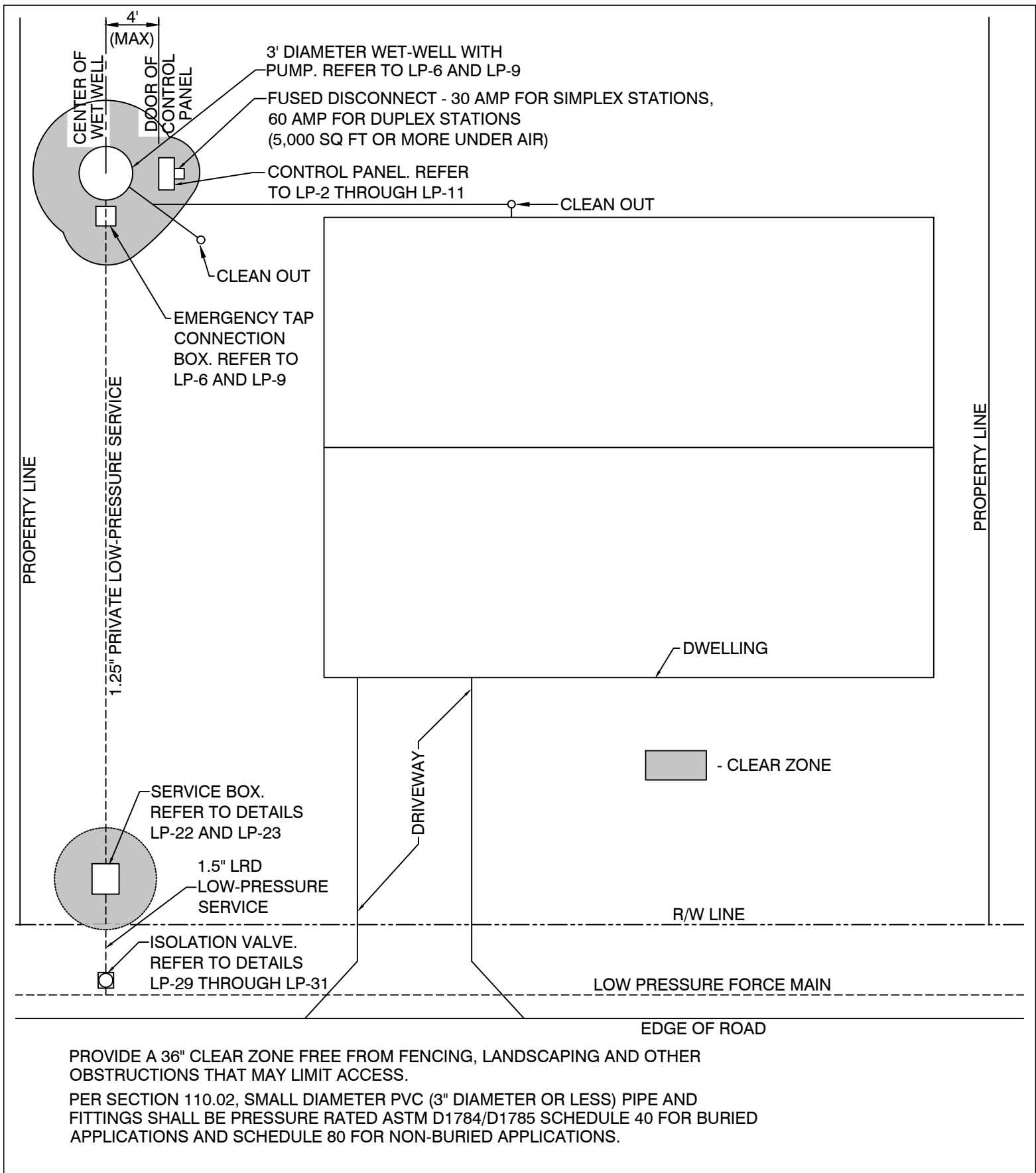
LOXAHATCHEE RIVER DISTRICT

N.T.S.

REVISION:  
FEB, 2025

# TYPICAL RESIDENTIAL GRINDER SYSTEM LAYOUT (SECTION VIEW)

LP-2

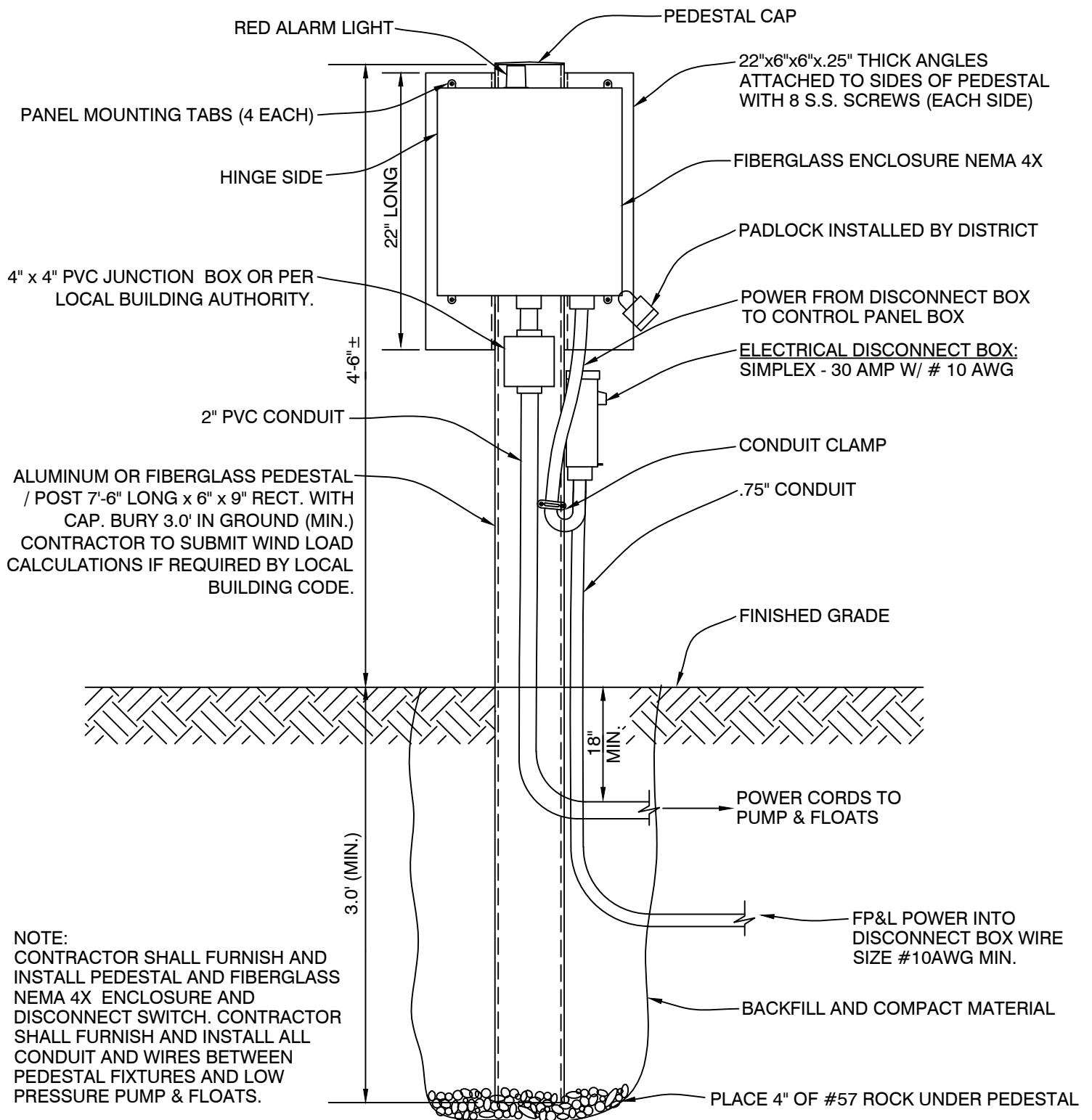


## LOXAHATCHEE RIVER DISTRICT

# ALTERNATE RESIDENTIAL GRINDER SYSTEM LAYOUT (PLAN VIEW)

LP-3





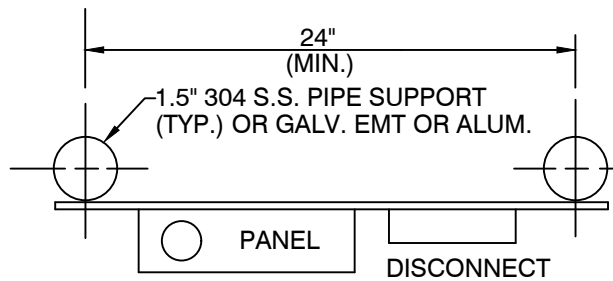
LOXAHATCHEE RIVER DISTRICT

N.T.S.

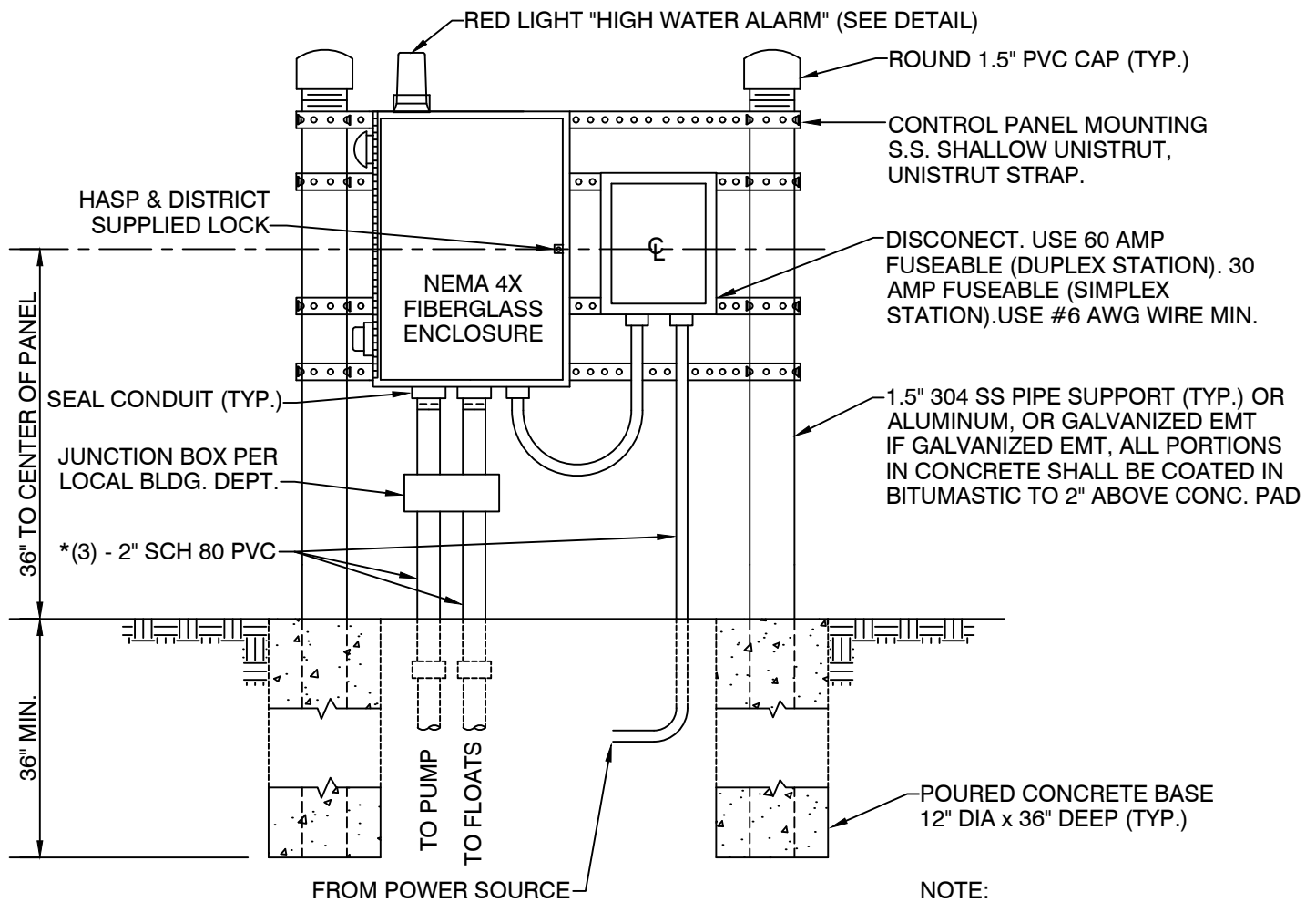
REVISION:  
MARCH, 2016

ALTERNATE RESIDENTIAL GRINDER  
SYSTEM LAYOUT FREE STANDING (1 OF 2)

LP-4



**PLAN VIEW**



**FRONT ELEVATION**

\* FOR RESIDENTIAL DUPLEX STATIONS ONLY

**LOXAHATCHEE RIVER DISTRICT**

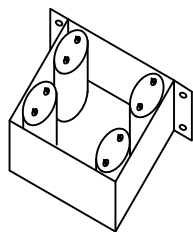
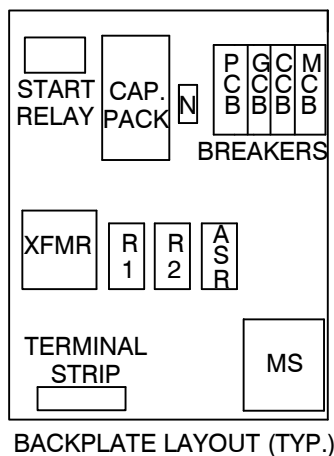
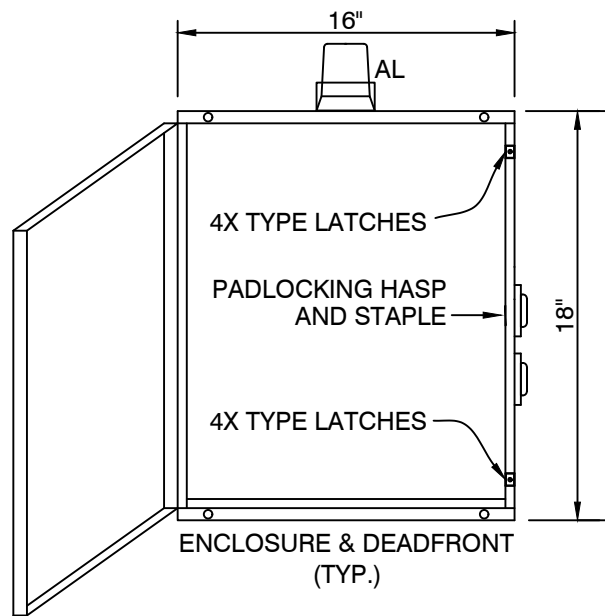
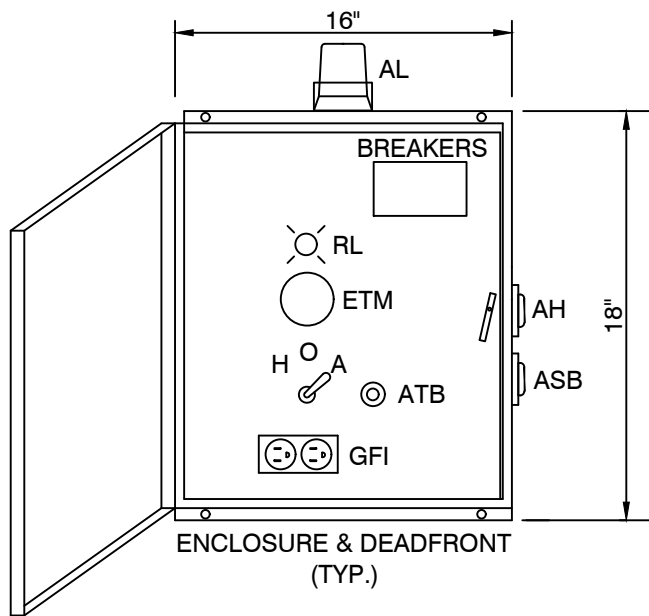
**ALTERNATE RESIDENTIAL  
GRINDER SYSTEM LAYOUT FREE STANDING (2 OF 2)**

**LP-5**

N.T.S.

REVISION:  
OCT, 2024





CAPACITOR  
PACK SUPPORT  
DETAIL

#### BILL OF MATERIALS

ENC	FIBERGLASS ENCLOSURE	ROBROY NEMA 4X, RJ1816HPL
PCB/MCB	PUMP & MAIN BREAKERS	SQ-D, QOU230
CCB/GCB	GFI & CONTROL BREAKERS	SQ-D, QOU115
MS	STARTER	SQ-D, 8502SBO2VO2S
OL	OVLD HTR ELEMENT	SQ-D, B25
XFMR	TRANSFORMER 50VA	SQ-D, 9070T50D13
ETM	ELAPSED TIME METER	CONTR. DYN. 120VAC, HMA303
HOA	HAND OFF AUTO SWITCH	MCGILL 20A, 910003
RL	RUN LIGHT	BACO 22M, L20SA50
AL	ALARM LIGHT	STONCO, VP11GCR
AH	ALARM HORN	FLOYD BELL, MC09201Q
*ASR	ALARM SILENCE RELAY	IDEC, SR3B05
ASB	ALARM SILENCE BUTTON	SQ-D, ZB4BA0
ATB	ALARM TEST BUTTON	SQ-D, ZB4BA2
GFI	15 AMP GFI RCPT	PASS SEYMOUR, 1595W
FU1	FUSE 1A	BUSS, MDL-1
FU2	FUSE 2A	BUSS, MDL-2
FU1-2	FUSE BLOCK	BUSS, BKS82021
OL	OVERLOAD RELAY	SQ-D, 9065SEO5
CR1-2	CONTROL RELAY	IDEC, RR2PULAC24V
CR1-2	8-PIN SOCKET	IDEC, SR2P06
TS	TERMINAL STRIP	ALTECH, TSF6012WP
CAP.PACK: MARS RUN CAP OVAL 45MF/440V, 12448 MARS STRT CAP 250V 124-156MF, 11148 GE START RELAY, 16104		TO MATCH GRINDER PUMP'S

\* OR APPROVED EQUAL

\* PANEL & COMPONENTS SHALL CONFORM TO  
INDUSTRIAL UL LISTING PRE SEC. 508 N.E.C.

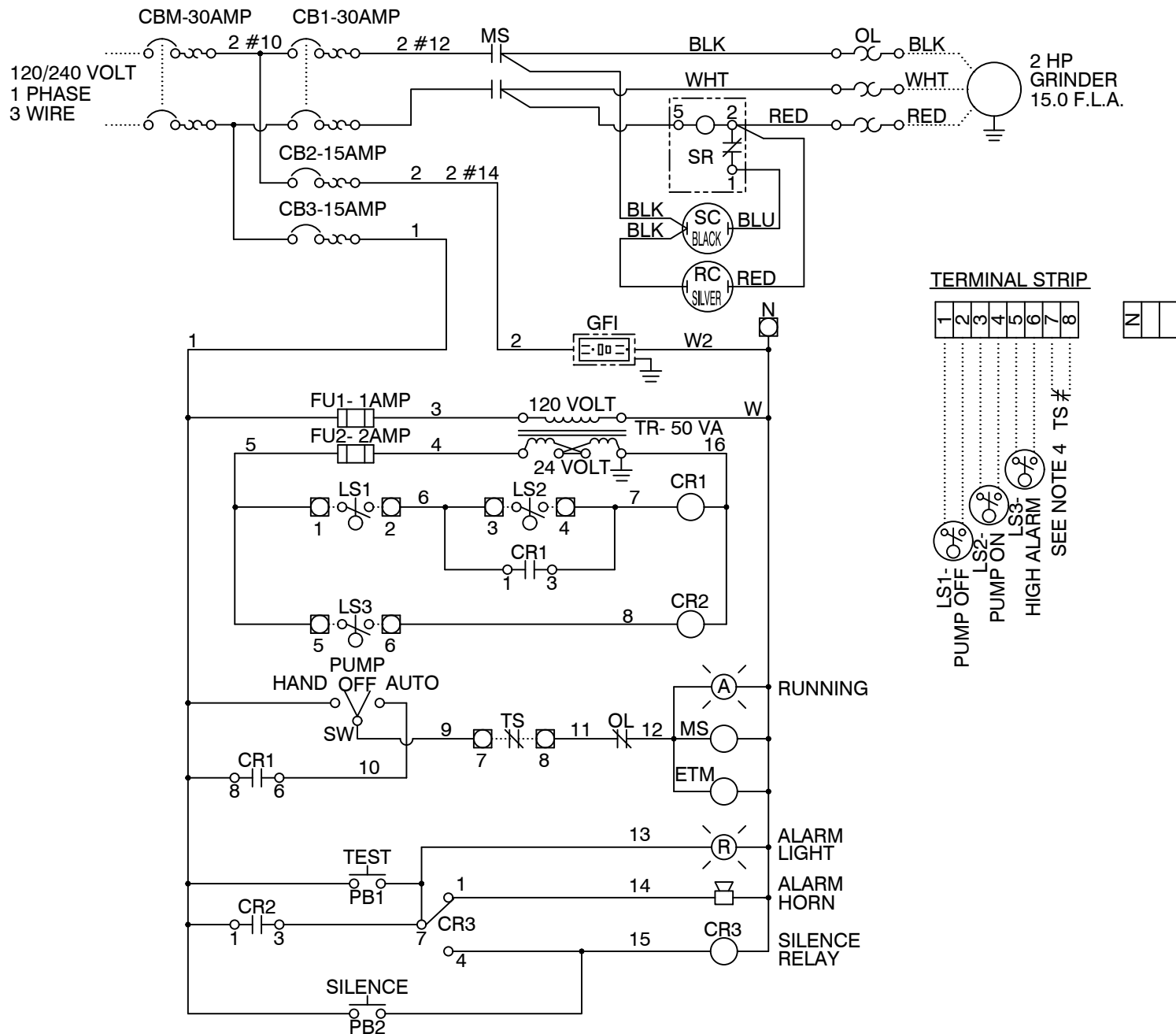
LOXAHATCHEE RIVER DISTRICT

RESIDENTIAL SIMPLEX  
CONTROL PANEL LAYOUT

LP-7

N.T.S.

REVISION:  
APRIL, 2012



#### NOTES:

- 1.) PANEL GROUND TERMINAL MUST BE CONNECTED TO EARTH GROUND.
- 2.) FACTORY WIRING IS SHOWN \_\_\_\_\_  
FIELD WIRING IS SHOWN .....
- 3.) RECOMMENDED TIGHTENING TORQUES FOR TERMINALS 240 VOLT POWER  
30 POUND INCHES. 120 VOLT POWER, CONTROL & LOW VOLTAGE -  
20 POUND INCHES.
- 4.) THERMAL SAFETY SWITCH (TS) CONTACTS ARE NOT IN ALL MOTORS. IF  
MOTOR DOES NOT HAVE SWITCH, THESE TERMINALS MUST BE JUMPED.
- 5.) LAYOUT TO MEET CUSTOMER'S REQUIREMENTS.

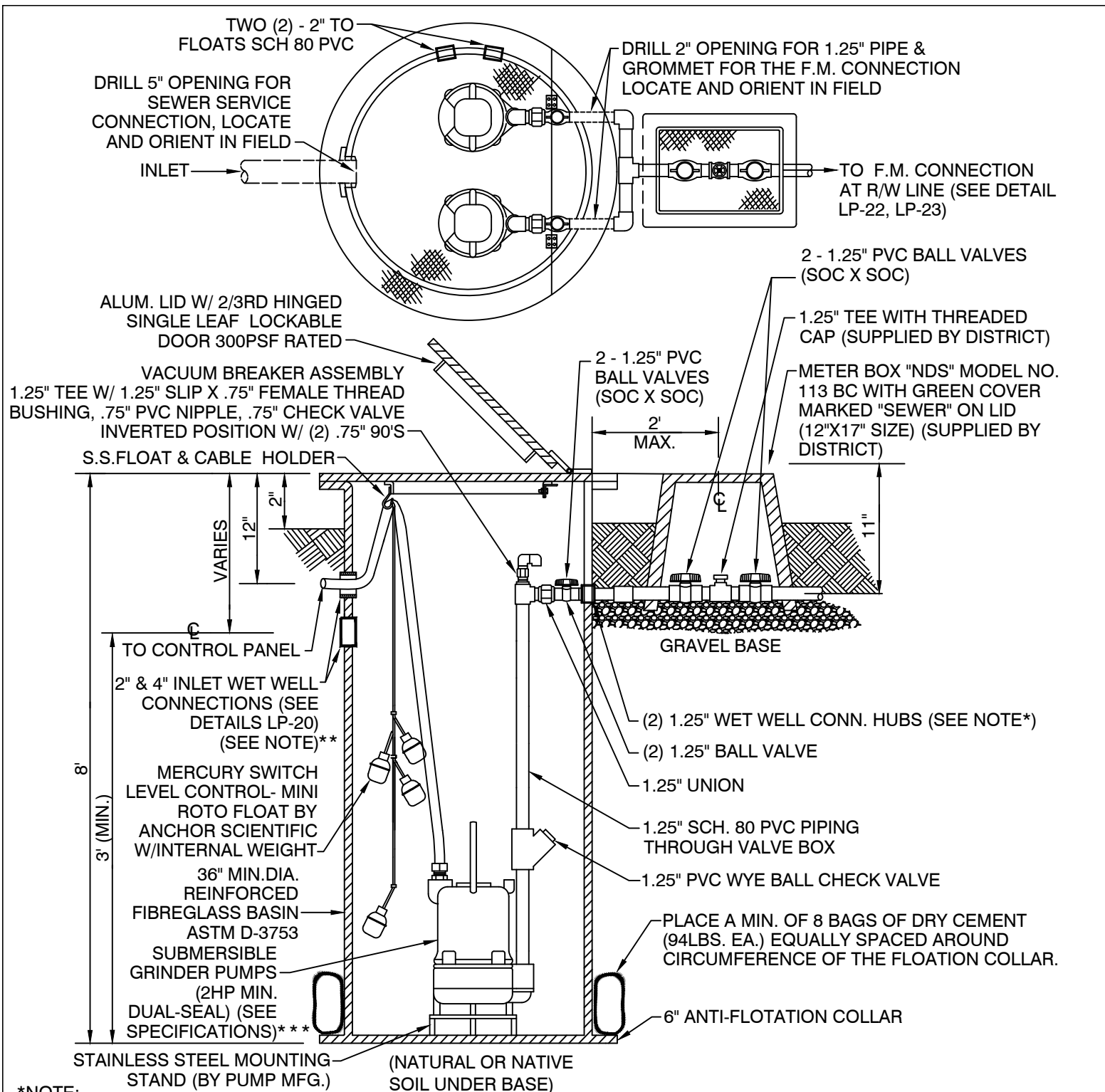
LOXAHATCHEE RIVER DISTRICT

RESIDENTIAL SIMPLEX  
ELECTRICAL SCHEMATIC

LP-8

N.T.S.

REVISION:  
APRIL, 2012



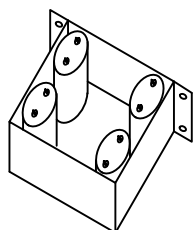
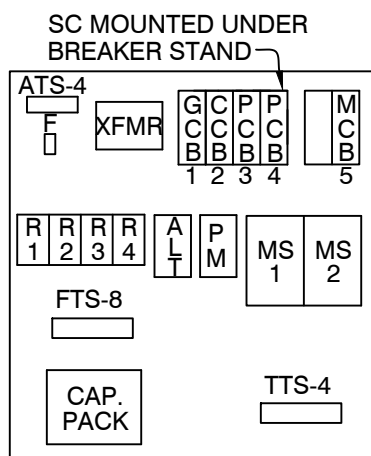
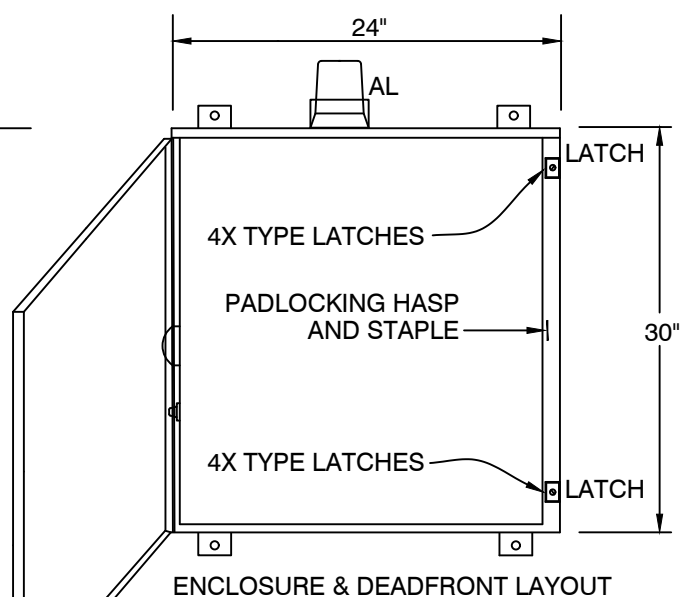
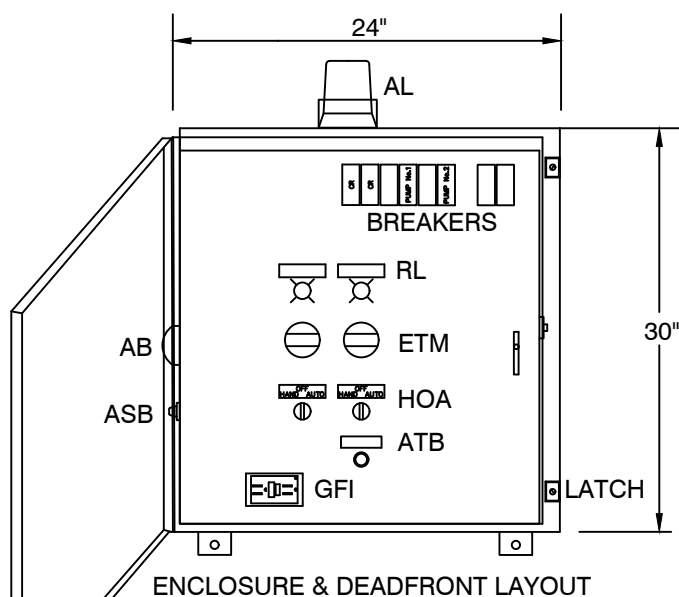
\*NOTE:  
CONNECTOR HUBS FOR WET-WELL FORCE MAIN CONNECTION ARE FACTORY INSTALLED. USE THREADED PVC SCH. 80 NIPPLES.

\*\*NOTE:  
CONNECTION TO WET-WELL FOR ELECTRICAL AND SEWER OPENINGS SHALL BE INSTALLED BY CONTRACTOR WITH 2" & 4" RUBBER GROMMETS SUPPLIED BY THE DISTRICT, LOCATION DETERMINED BY CONTROL PANEL LOCATION.

\*\*\*PUMP SPECIFICATIONS:  
BARNES-GRINDER PUMPS #SGVF2022L, 2HP, 230V, 1PH, 60HZ, 5.13" IMPELLER

LOXAHATCHEE RIVER DISTRICT

N.T.S.	RESIDENTIAL DUPLEX TYPICAL WET WELL	LP-9
REVISION: OCT, 2024		



#### BILL OF MATERIALS

ENC	FIBERGLASS ENCLOSURE	HOFFMAN, UU605025
PCB/MCB	PUMP & MAIN BREAKERS	SQ-D, QOU260/QOU230
CCB/GCB	GFI & CONTROL BREAKERS	SQ-D, QOU115/QOU110
MS1-2	STARTER	SQ-D, 8502SBO1V02S
OL	OVLD HTR ELEMENT	SQ-D, B25
XFMR	TRANSFORMER	SQ-D, 9070T50D13
ETM	ELAPSED TIME METER	REDINGTON, 7220004
HOA	HAND OFF AUTO SWITCH	SQ-D, ZB4BD3
RL	RUN LIGHT	BACO 22M, S20SA40
AL	ALARM LIGHT	STONCO, VP11GCR
AH	ALARM HORN	FLOYD BELL, MC09201Q
ASR	ALARM SILENCE RELAY	IDEC, RR3BULAC120V
ASB	ALARM SILENCE BUTTON	SQ-D, ZB4BA0
ATB	ALARM TEST BUTTON	SQ-D, ZB4BA2
GFI	15 AMP GFI RCPT	PASS SEYMOUR, 1595W
FU1	FUSE 1A	BUSS, MDL-1
FU2	FUSE 2A	BUSS, MDL-2
FU1-2	FUSE BLOCK	BUSS, BKS82021
OL1-2	OVERLOAD RELAY	SQ-D, 9065SEO5
CR1-3	CONTROL RELAY	IDEC, RR2PULAC24V
ALT	ALTERNATOR	DIVERSIFIED, ARB120ABA
LA	LIGHTNING ARRESTOR	INTERMATIC, AG2401C
CAP.PACK: MARS RUN CAP OVAL 45MF/440V, 12448 } TO MATCH MARS STRT CAP 250V 124-156MF, 11148 } GRINDER PUMP'S GE START RELAY, 16104 }		

LOXAHATCHEE RIVER DISTRICT

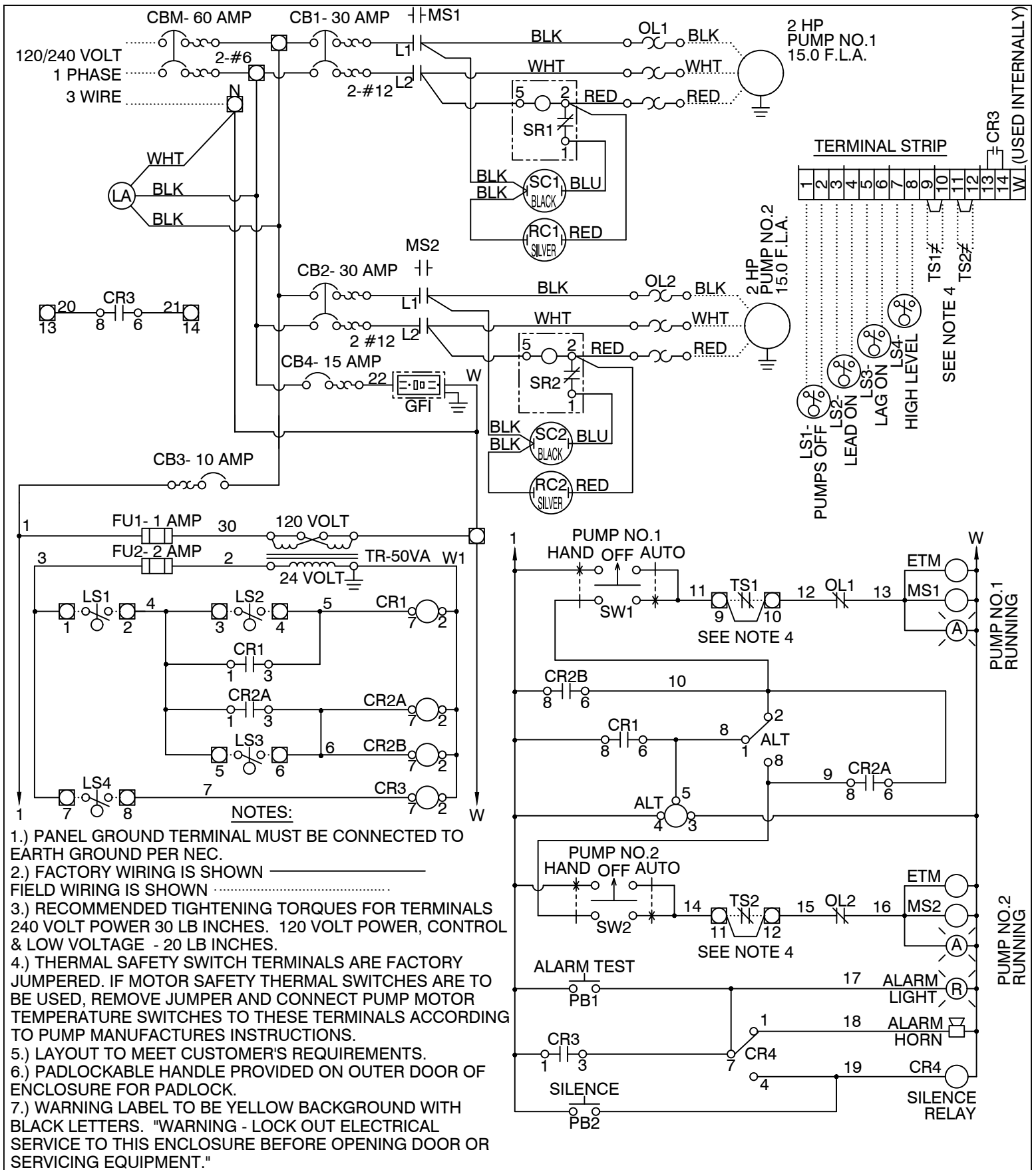
## RESIDENTIAL DUPLEX CONTROL PANEL LAYOUT

LP-10

N.T.S.

REVISION:  
APRIL, 2012





LOXAHATCHEE RIVER DISTRICT

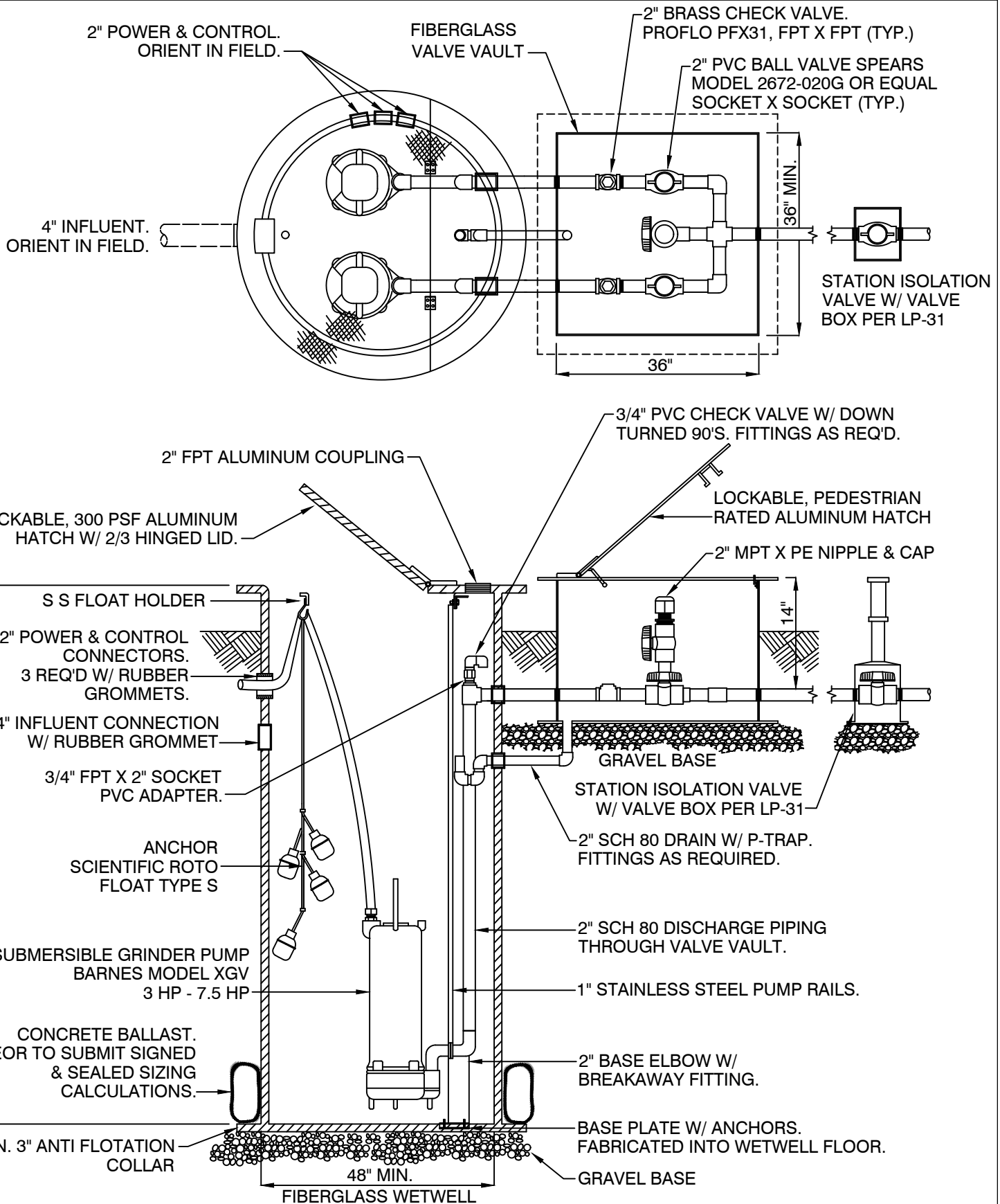
# RESIDENTIAL DUPLEX ELECTRICAL SCHEMATIC

LP-11

N.T.S.

REVISION:  
APRIL, 2012





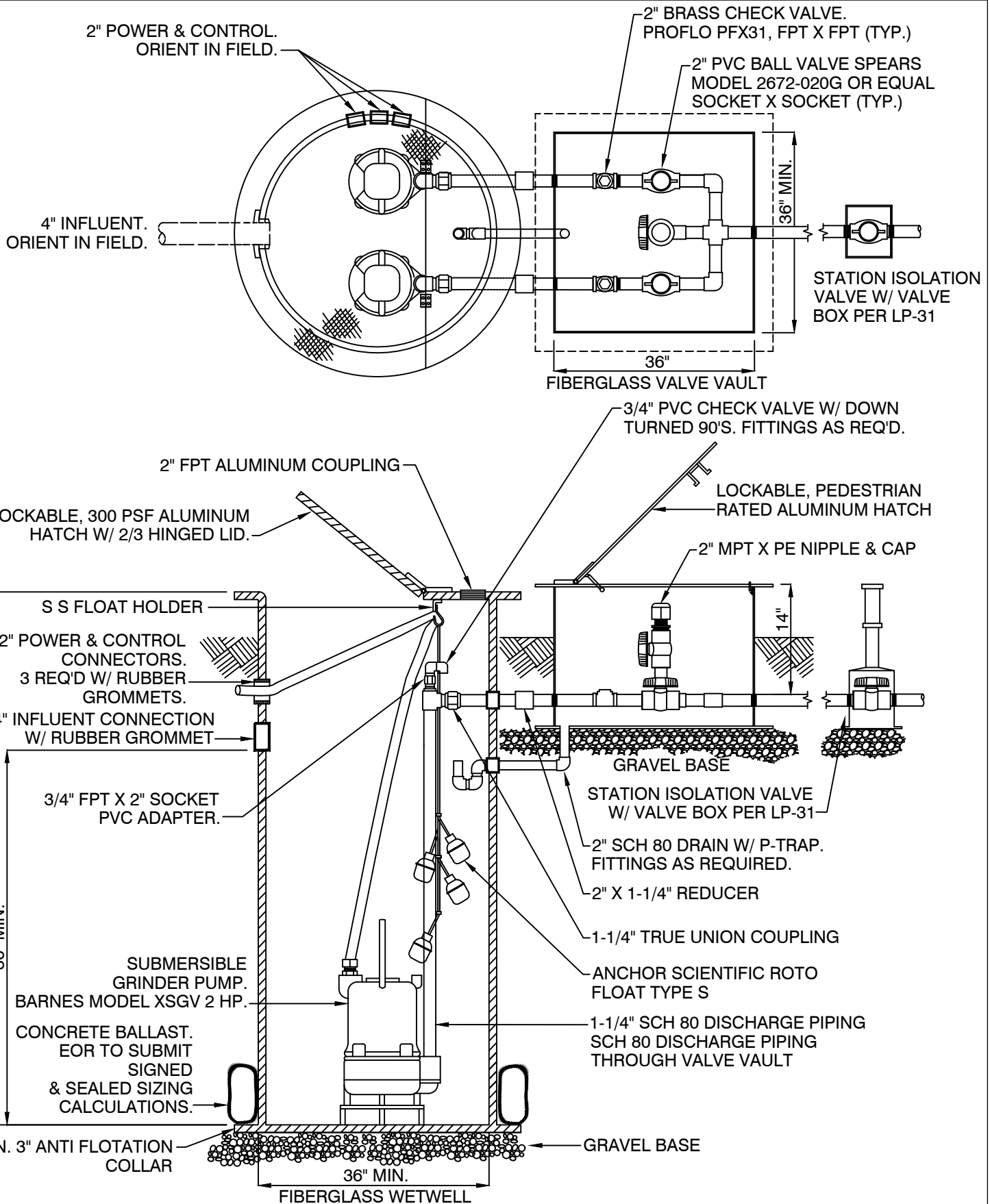
LOXAHATCHEE RIVER DISTRICT

**COMMERCIAL DUPLEX  
TYPICAL WET WELL**

**LP-12**

N.T.S.

REVISION:  
OCT, 2024



LOXAHATCHEE RIVER DISTRICT

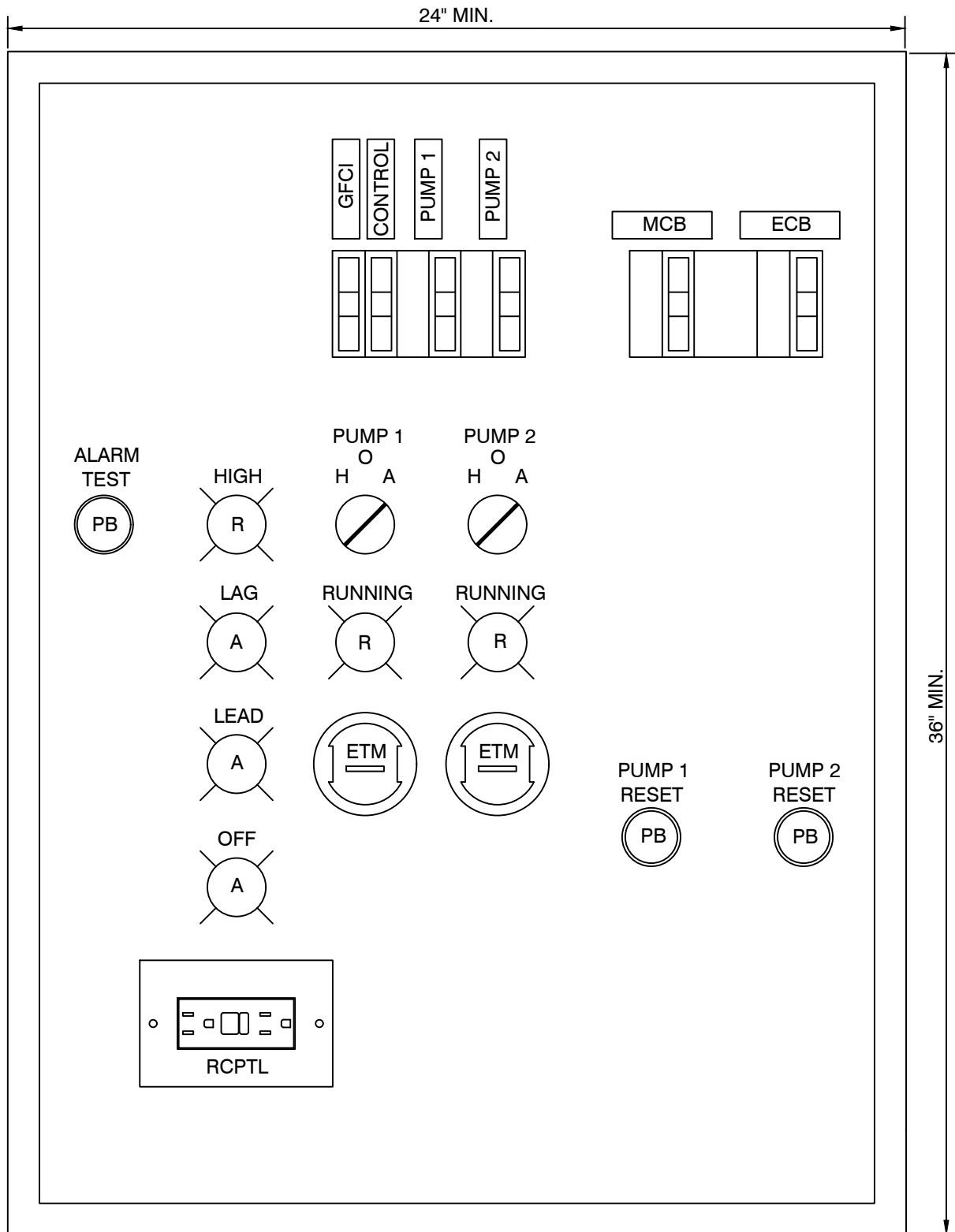
# COMMERCIAL DUPLEX TYPICAL LOW FLOW WET WELL

LP-12 ALT

N.T.S.

REVISION:  
OCT, 2024





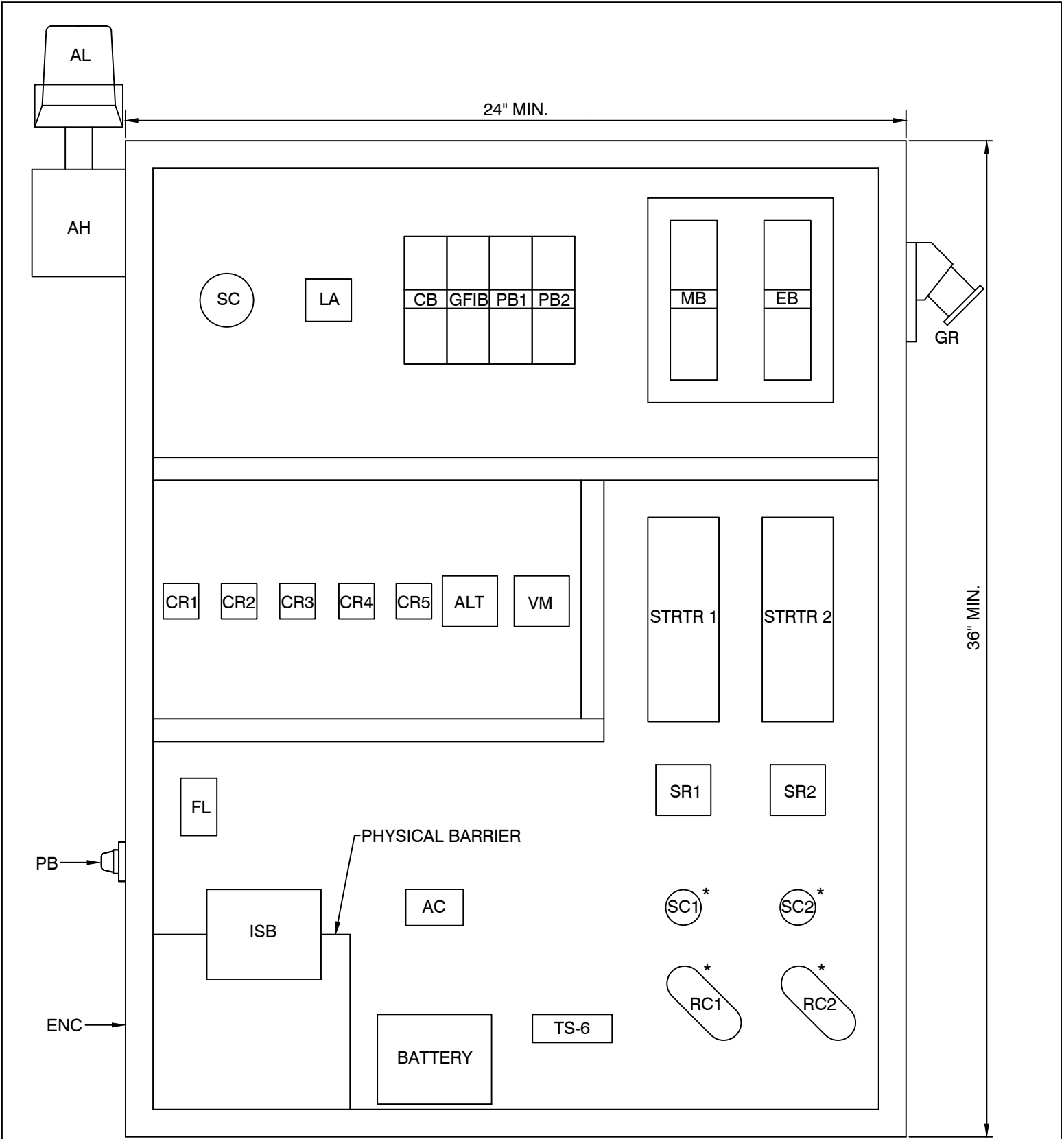
LOXAHATCHEE RIVER DISTRICT

# COMMERCIAL DUPLEX CONTROL PANEL DEADFRONT LAYOUT

LP-14

N.T.S.

REVISION:  
JUNE, 2015



\* SINGLE PHASE PANEL ONLY

LOXAHATCHEE RIVER DISTRICT		
N.T.S.	COMMERCIAL DUPLEX CONTROL PANEL BACKPLATE LAYOUT	LP-15
REVISION: JUNE, 2015		

ITEM	DESCRIPTION	PART NO. SINGLE PHASE	PART NO. THREE PHASE	QTY
AC	ALARM CONTROLLER	MPE MODEL BOAC-001	MPE MODEL BOAC-001	1
AH	ALARM HORN	WHEELock AMT-12/24-R	WHEELock AMT-12/24-R	1
AL	ALARM LIGHT	CONDOR/GRAINGER 2ERP1	CONDOR/GRAINGER 2ERP1	1
ALT	ALTERNATOR	ATC DIVERSIFIED ELECTRONICS: ARB120AEA	ATC DIVERSIFIED ELECTRONICS: ARB120AEA	1
BAT	BATTERY	WERKER MODEL MWA12-7F	WERKER MODEL MWA12-7F	1
CR	CONTROL RELAY	IDEC: RR 2 BA - U L AC120V	IDEC: RR 2 BA - U L AC120V	5
ETM	ELAPSED TIME METER	CONTROL DYNAMICS: HMA303	CONTROL DYNAMICS: HMA303	2
ENC	ENCLOSURE NEMA 4X SS	HOFFMAN: CSD362410SS W/ DRIP SHIELD AND LOCKING HASP	HOFFMAN: CSD362410SS W/ DRIP SHIELD AND LOCKING HASP	1
FL	FLASHER	LIGHTS TO GO: AFDC 1	LIGHTS TO GO: AFDC 1	1
GR	GENERATOR RECEPTACLE W/ SCREW CAP	APPLETON: ADR1034RS	APPLETON: ADR1034RS	1
GFI, CB	GFI & CONTROL BREAKER	SQUARE-D: QOU115	SQUARE-D: QOU115	2
	HAND OFF AUTO SWITCH	SUARE-D: 9001KS46B	SUARE-D: 9001KS46B	2
ISB	INTRINSICALLY SAFE BARRIER	IDEC: EB3C-R05A	IDEC: EB3C-R05A	1
LA	LIGHTNING ARRESTOR	SQUARE-D: SDSA1175	SQUARE-D: SDSA3650	1
MB, EB	MAIN & EMERGENCY BREAKERS	SQUARE-D: QOU2***	SQUARE-D: QOU3***	2
TU	THERMAL UNIT	SQUARE-D: B36.0	SQUARE-D: B36.0	2
	PILOT LIGHTS	BACO CONTROLS: NLD22* (COLOR AS INDICATED)	BACO CONTROLS: NLD22* (COLOR AS INDICATED)	6
PB***	PUMP BREAKERS	SQUARE-D: QOU2***	SQUARE-D: QOU3***	2
STRTR***	STARTER	SQUARE-D: 8536SCO2V02S	SQUARE-D: 8536SCO3V02S	2
SC	SURGE CAPACITOR	DELTA: CA302R	DELTA: CA603R	1
PB	TEST/RESET/SILENCE PUSH BUTTONS	SQUARE-D: 9001SKR1U	SQUARE-D: 9001SKR1U	1
VM	VOLTAGE MONITOR	ATC DIVERSIFIED ELECTRONICS: UOA240ALA	ATC DIVERSIFIED ELECTRONICS: SLA-***-***	1
RCPTL	15 AMP GFI RECEPTACLE	PASS AND SEYMOUR: 1595W	PASS AND SEYMOUR: 1595W	1
SC***	START CAPACITOR	***	NOT REQUIRED	2
RC***	RUN CAPACITOR	***	NOT REQUIRED	2

\*\*\* SIZED PER PUMP MANUFACTURER'S RECOMMENDATION

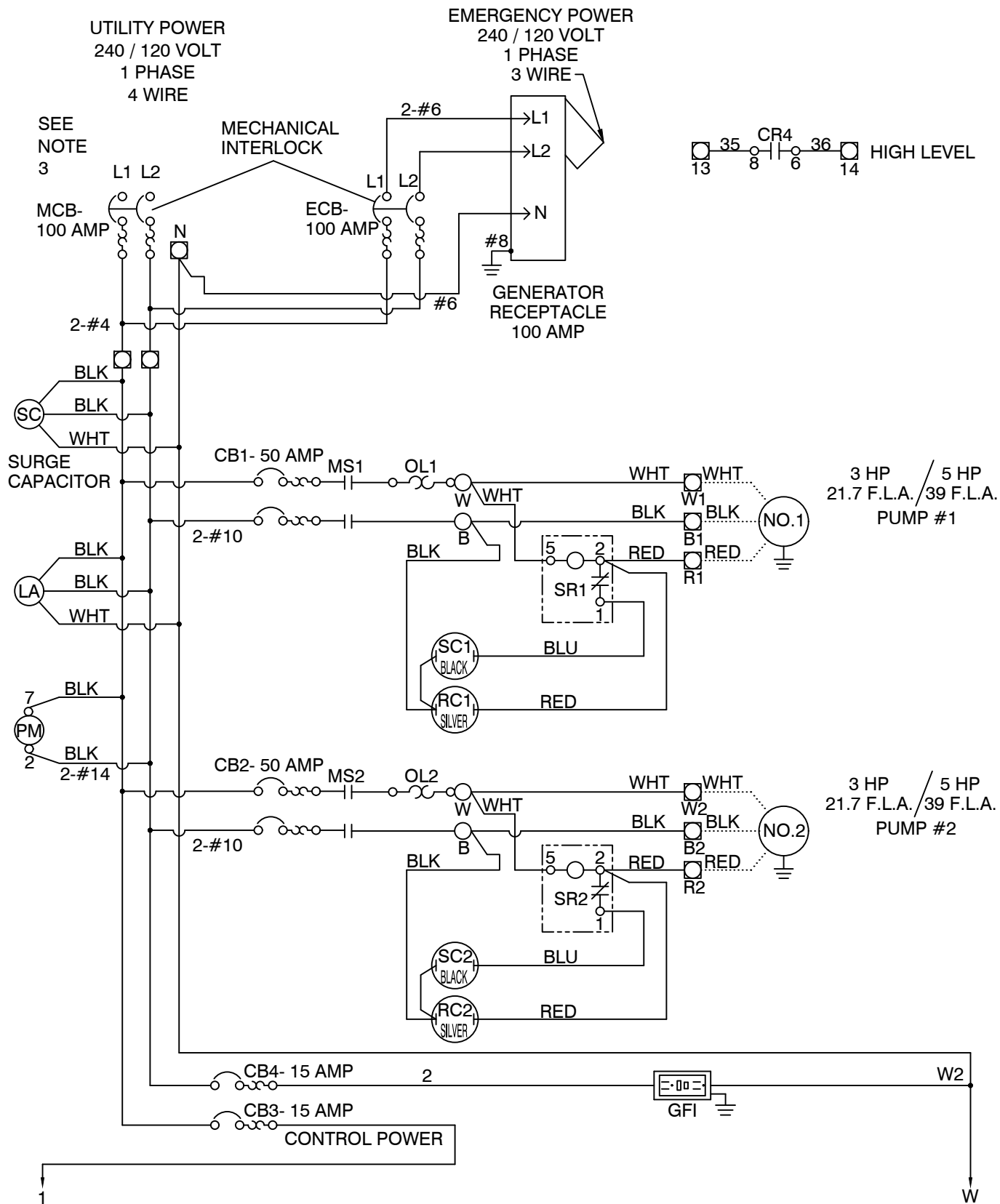
## LOXAHATCHEE RIVER DISTRICT

# COMMERCIAL DUPLEX CONTROL PANEL BILL OF MATERIALS

LP-16

N.T.S.

REVISION:  
OCT, 2024

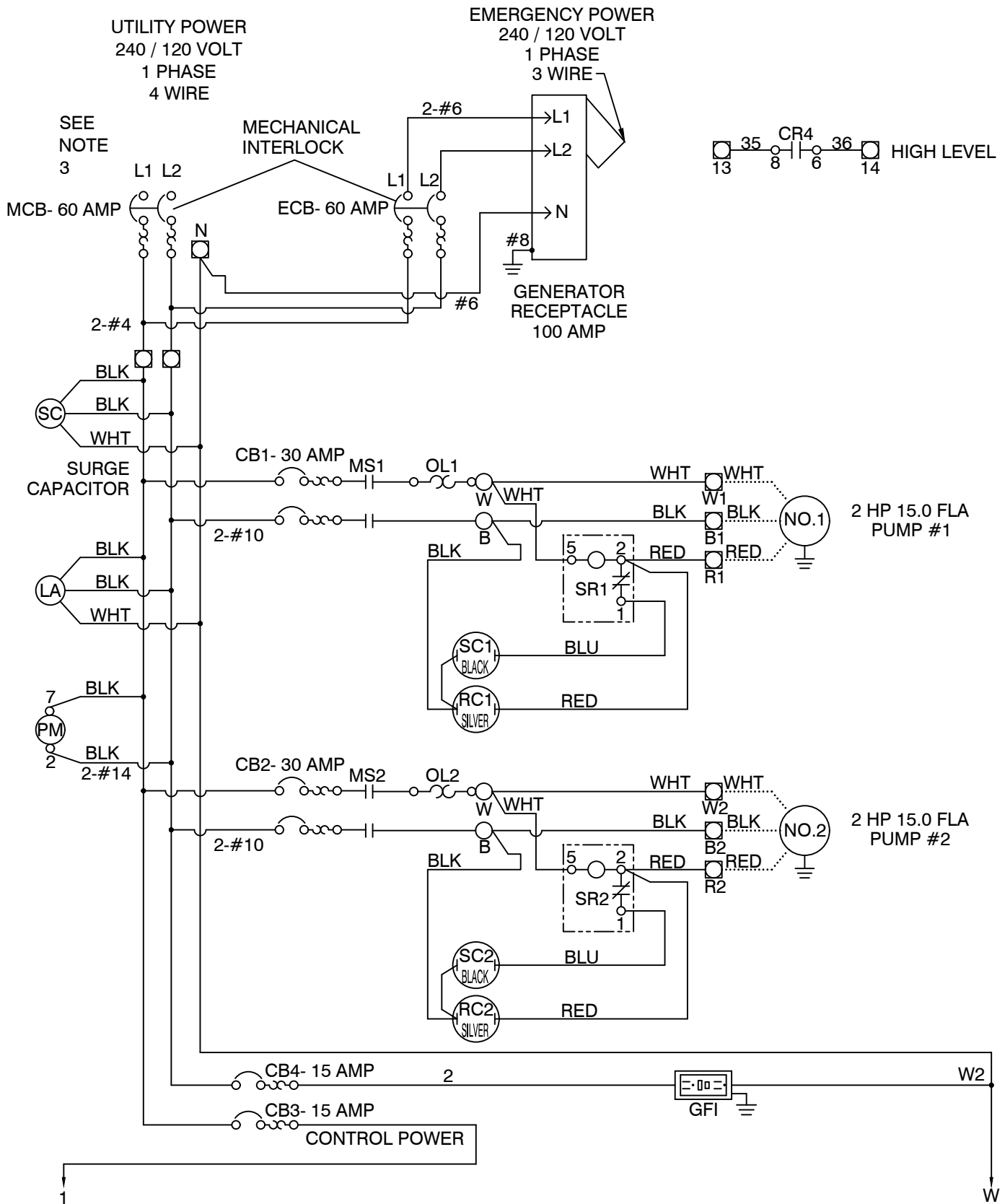


CONTINUED ON COMMERCIAL DUPLEX ELECTRICAL SCHEMATIC CONTROL CIRCUIT

LOXAHATCHEE RIVER DISTRICT

COMMERCIAL DUPLEX  
ELECTRICAL SCHEMATIC 1PHASE

LP-17



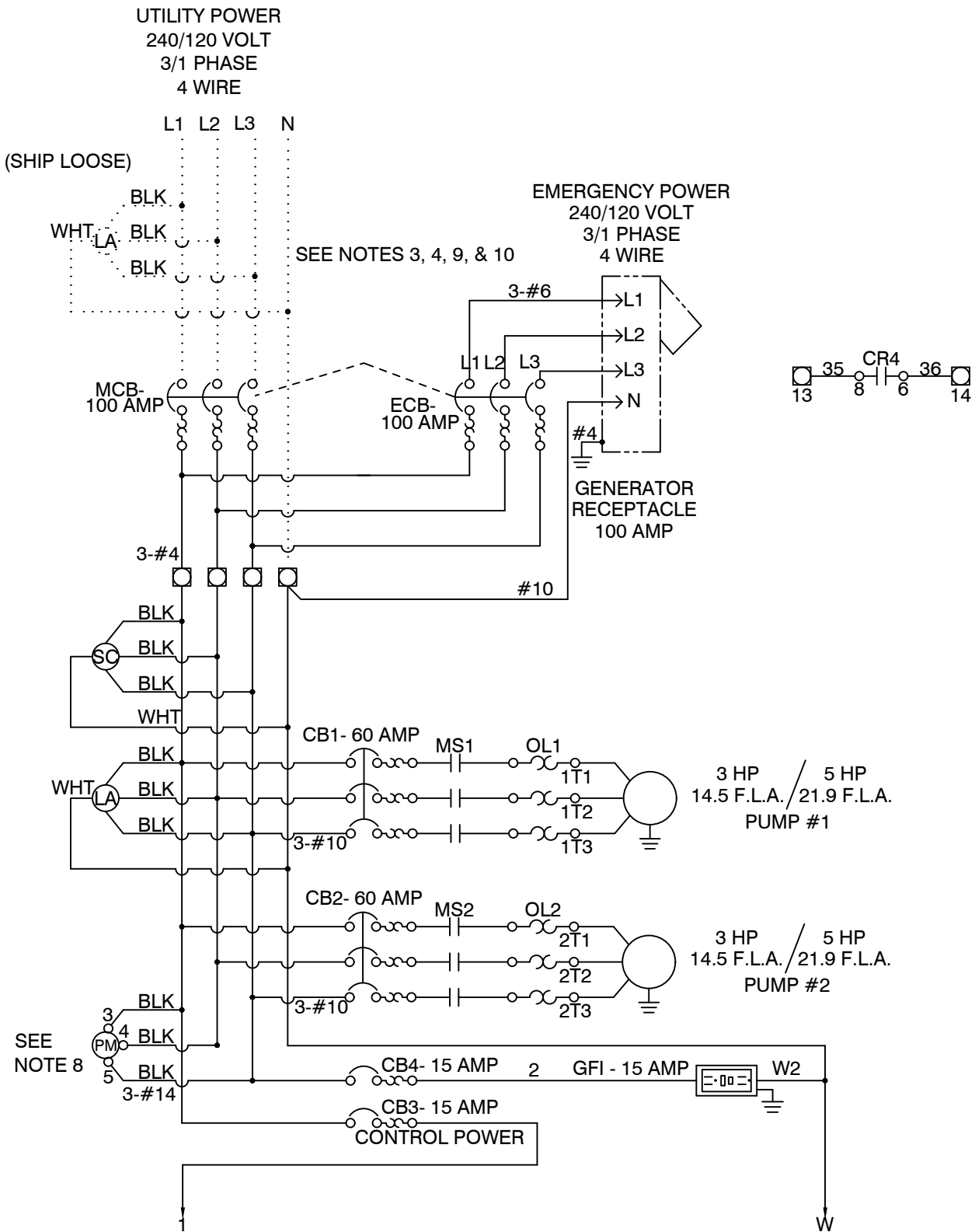
CONTINUED ON COMMERCIAL DUPLEX ELECTRICAL SCHEMATIC CONTROL CIRCUIT

# LOXAHATCHEE RIVER DISTRICT

## COMMERCIAL DUPLEX - LOW FLOW ELECTRICAL SCHEMATIC 1PHASE

LP-17A





CONTINUED ON COMMERCIAL DUPLEX ELECTRICAL SCHEMATIC CONTROL CIRCUIT

LOXAHATCHEE RIVER DISTRICT

COMMERCIAL DUPLEX  
ELECTRICAL SCHEMATIC 3PHASE

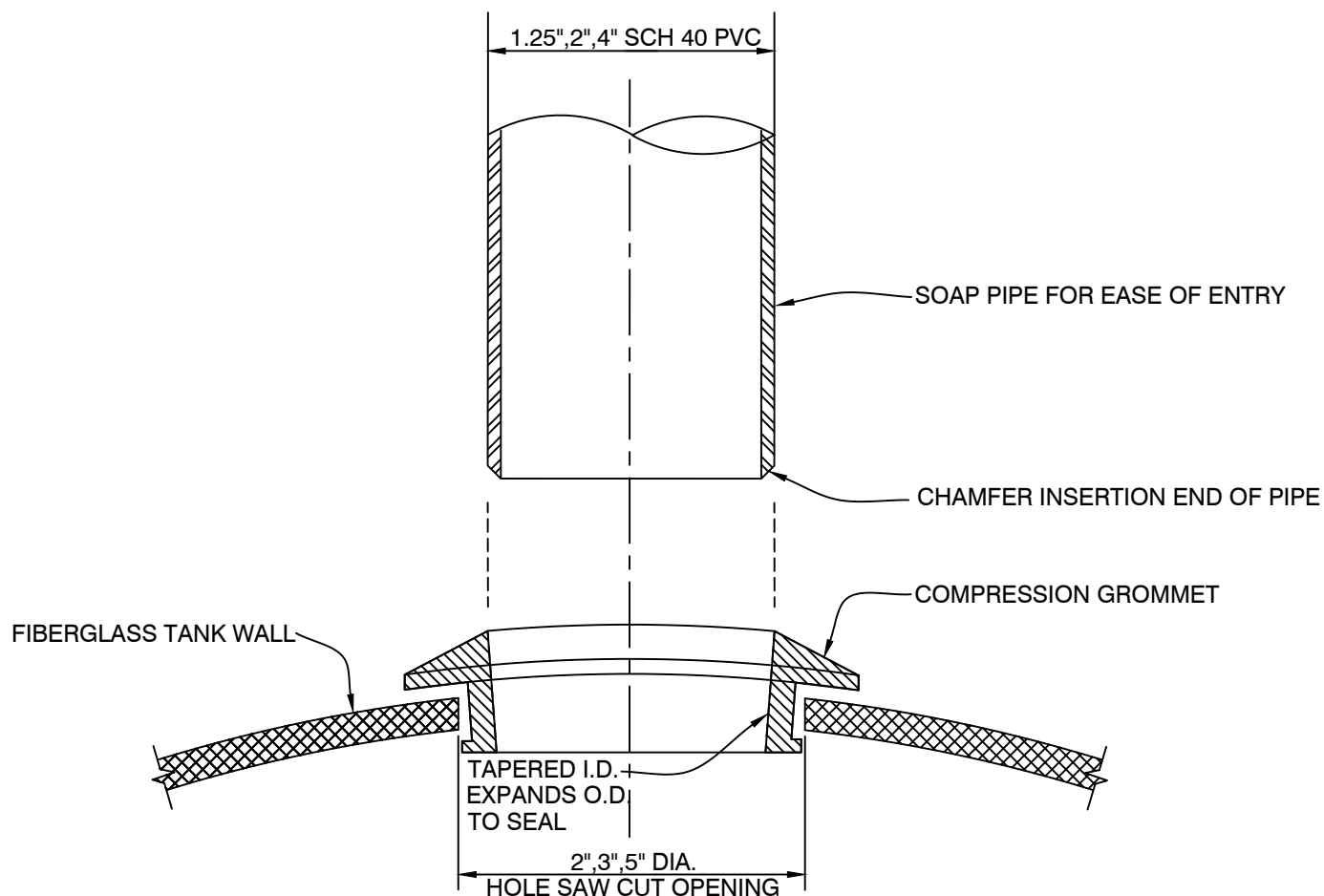
LP-18



**NOTES:**

- 1.) PANEL GROUND TERMINAL MUST BE CONNECTED TO EARTH GROUND.
- 2.) FACTORY WIRING IS SHOWN \_\_\_\_\_  
FIELD WIRING IS SHOWN . . . . .
- 3.) INSTALLER MUST PROVIDE SHORT CIRCUIT PROTECTION FOR THE CONDUCTORS FEEDING TO THIS ELECTRICAL ASSEMBLY.
- 4.) RECOMMENDED TIGHTENING TORQUES FOR TERMINALS; 240 VOLT POWER - SEE CIRCUIT BREAKER 120 VOLT POWER, CONTROL & LOW VOLTAGE - 20 POUND INCHES
- 5.) THERMAL SAFETY SWITCH (TS) CONTACTS ARE NOT IN ALL MOTORS. IF MOTOR DOES NOT HAVE SWITCH, THESE TERMINALS MUST BE JUMPED.
- 6.) HASP AND STAPLE PROVIDED ON OUTER DOOR OF ENCLOSURE FOR PADLOCK.
- 7.) WARNING LABEL TO BE YELLOW BACKGROUND WITH BLACK LETTERS. "WARNING - LOCK OUT ELECTRICAL SERVICE TO THIS ENCLOSURE BEFORE OPENING DOOR OR SERVICING EQUIPMENT".
- 8.) ON START UP, THE POWER MONITOR INDICATOR LIGHT SHOULD TURN "ON" WITHIN ONE (1) SECOND. IF IT DOESN'T, TURN POWER "OFF" TO THE PANEL & SWAP ANY TWO (2) OF THE THREE (3) INPUT WIRES TO THE MONITOR.
- 9.) MAIN CIRCUIT BREAKER AND EMERGENCY CIRCUIT BREAKER INTERLOCKED TO PREVENT SIMULTANEOUS CLOSURE.
- 10.) INSTALLER MUST VERIFY THAT PHASE TO NEUTRAL IS 120 VOLTS BEFORE CONNECTING CONTROL & RECEPTACLE CIRCUITS.
- 11.) WARNING LABEL TO BE RED WITH WHITE LETTERS: DO NOT OVERRIDE INTERLOCK NEVER ENERGIZE BOTH BREAKERS SIMULTANEOUSLY.

LOXAHATCHEE RIVER DISTRICT		
N.T.S.	COMMERCIAL DUPLEX ELECTRICAL SCHEMATIC NOTES	LP-20
REVISION: JUNE, 2015		



**NOTES:**

FOR A 4" PVC PIPE, USE A 5" DIA. HOLE SAW TO CUT OUT COUPON FROM WET WELL WALL. THE MANUFACTURER WILL SUPPLY THE PROPER COMPRESSION GASKET FOR A 4" DIA. PVC PIPE

FOR A 2" PVC PIPE, USE A 3" DIA. HOLE SAW TO CUT OUT COUPON FROM WET WELL WALL. THE MANUFACTURER WILL SUPPLY THE PROPER COMPRESSION GASKET FOR A 2" DIA. PVC PIPE

FOR A 1.25" PVC PIPE, USE A 2" DIA. HOLE SAW TO CUT OUT COUPON FROM WET WELL WALL. THE MANUFACTURER WILL SUPPLY THE PROPER COMPRESSION GASKET FOR A 1.25" DIA. PVC PIPE

TERMINATE INFLUENT SEWER LINE 3" INSIDE TANK.

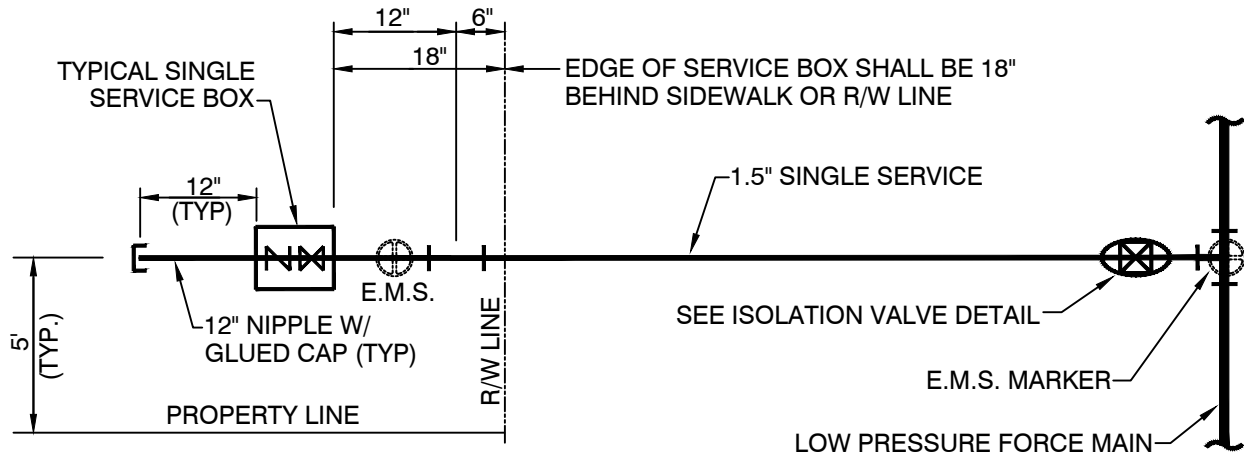
LOXAHATCHEE RIVER DISTRICT

N.T.S.

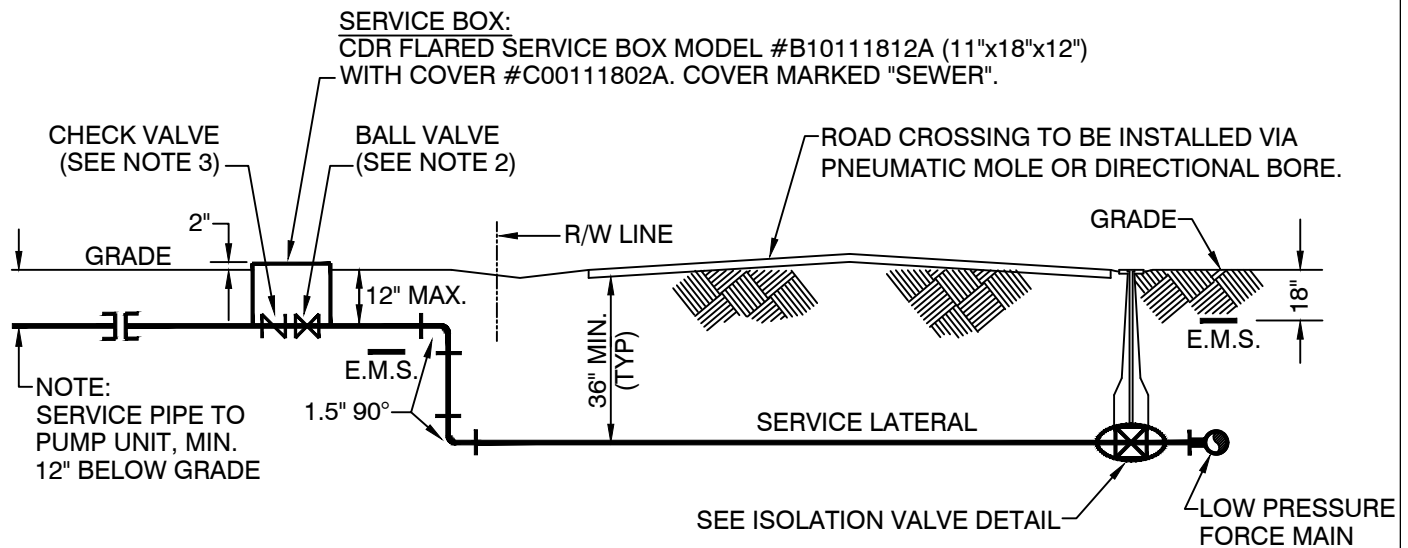
REVISION:  
APRIL, 2012

PIPE CONNECTION DETAIL

LP-21



**PLAN VIEW**



**TYPICAL ROAD CROSSING SECTION VIEW**

**NOTES:**

1. SERVICE LOCATIONS ON PLANS ARE APPROXIMATE. INSTALLED LOCATIONS TO BE COORDINATED WITH EXISTING ONSITE PLUMBING OR PROPOSED ONSITE CONSTRUCTION.
2. BALL VALVES SHALL BE FORD MODEL #B11-666M WITH 2" BRASS OPERATING NUT.
3. ALL CHECK VALVES SHALL BE PROFLO MODEL PFX31.
4. ALL PIPING IN AND 6-INCHES BEYOND THE SERVICE BOX SHALL BE SCH 80 PVC.
5. INSTALL MINIMUM 4" OF NO 57 WASHED STONE BENEATH ALL SERVICE BOXES AND VALVE BOXES AND AROUND ALL PIPE PENETRATIONS THROUGH SERVICE BOXES.
6. FOR HDPE TO PVC TRANSITIONS USE FORD PACK JOINT COUPLING PVC X PE W/ 304SS STIFFENER.

**LOXAHATCHEE RIVER DISTRICT**

**TYPICAL SINGLE SERVICE SCHEMATIC**

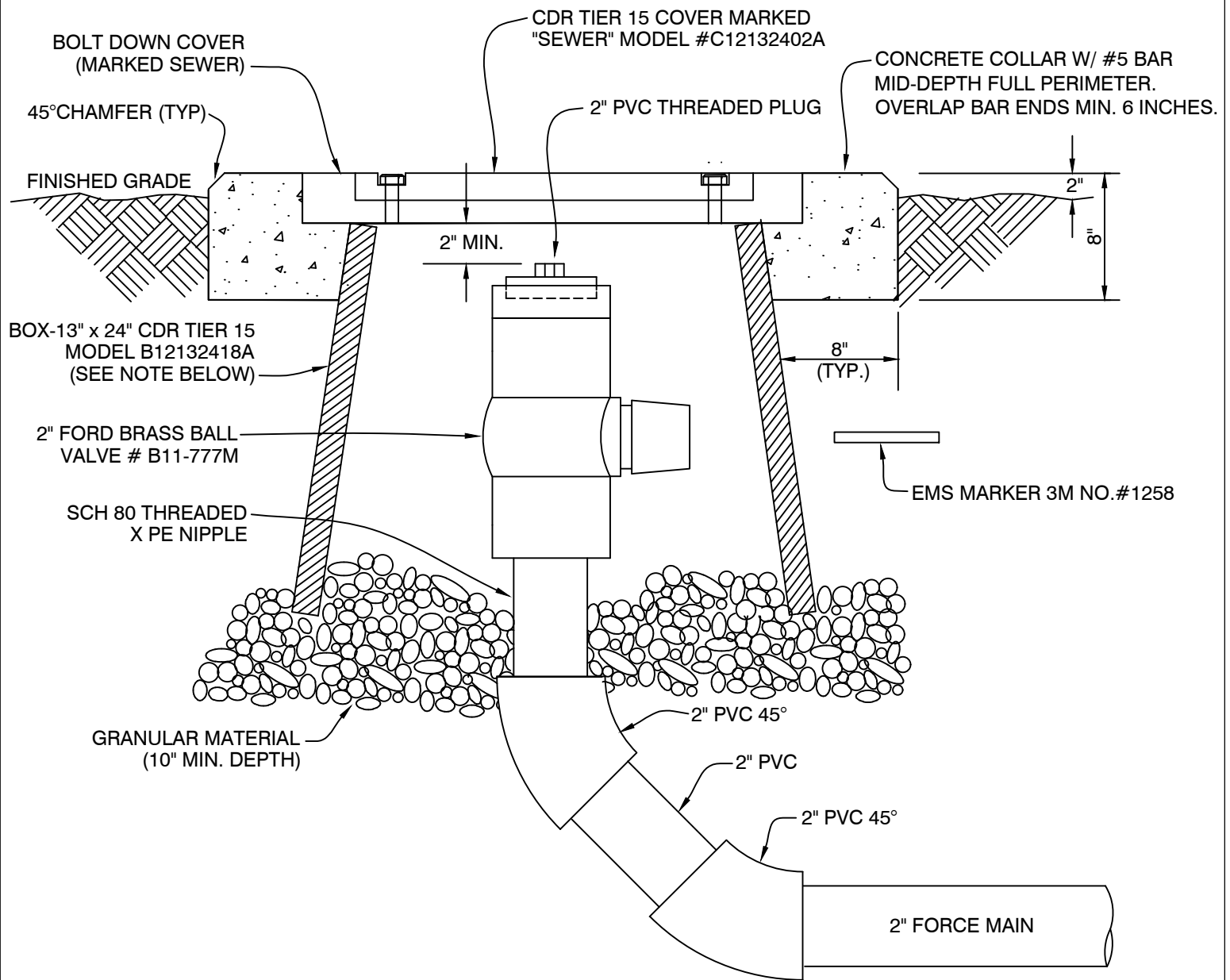
**LP-22**

N.T.S.  
REVISION:  
AUG, 2022



1. SERVICE LOCATIONS ON PLANS ARE APPROXIMATE. INSTALLED LOCATIONS TO BE COORDINATED WITH EXISTING ONSITE PLUMBING OR PROPOSED ONSITE CONSTRUCTION.
2. BALL VALVES SHALL BE FORD MODEL #B11-666M WITH 2" BRASS OPERATING NUT.
3. ALL CHECK VALVES SHALL BE PROFLO MODEL PFX31.
4. ALL PIPING IN AND 6-INCHES BEYOND THE SERVICE BOX SHALL BE SCH 80 PVC.
5. INSTALL MINIMUM 4" OF NO 57 WASHED STONE BENEATH ALL SERVICE BOXES AND VALVE BOXES AND AROUND ALL PIPE PENETRATIONS THROUGH SERVICE BOXES.
6. FOR HDPE TO PVC TRANSITIONS USE FORD PACK JOINT COUPLING PVC X PE W/ 304SS STIFFENER.

LP-23



**NOTES:**

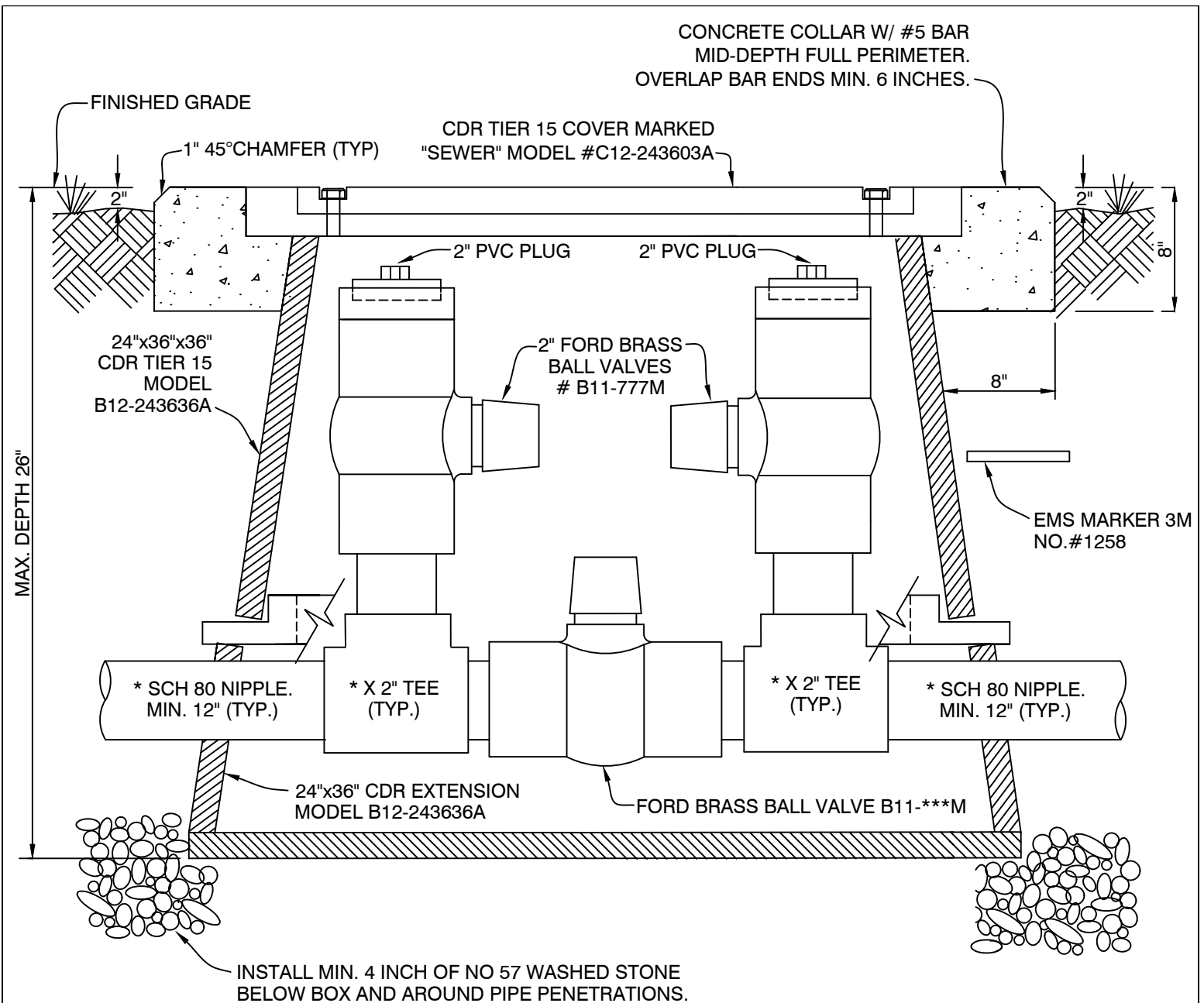
1. IN PAVED AREAS, USE NO. PB16"x24"x24" DEEP x 4" WALLS AND 4" FLOOR, AND NO. PB1624 TRAFFIC COVER DESIGNED FOR HS-20-44 TRAFFIC RATED BY BROOKS PRODUCTS INC.
2. INSTALL MIN. 4" OF NO 57 WASHED STONE BENEATH ALL TERMINAL END FLUSHING PORT BOXES.
3. ALL PIPING IN AND 6 INCHES BEYOND BOX SHALL BE SCH 80 PVC.
4. FOR HDPE TO PVC TRANSITIONS USE FORD PACK JOINT COUPLING PVC x PE W/ 304SS STIFFENER.

**LOXAHATCHEE RIVER DISTRICT**

**TERMINAL FLUSHING PORT DETAIL**

**LP-24**

N.T.S.  
REVISION:  
MARCH, 2017



\* SIZED BY ENGINEER

USE VALVE BOX AND FLUSHING PORTS ALONG STRAIGHT RUNS IN FORCE MAIN.

#### NOTES:

1. IN PAVED AREAS, USE NO. PB16"x24"x24" DEEP x 4" WALLS AND 4" FLOOR, AND NO. PB1624 TRAFFIC COVER DESIGNED FOR HS-20-44 TRAFFIC RATED BY BROOKS PRODUCTS INC.
2. PUMP TAP VALVES TO BE 2" FORD BRASS BALL VALVES # B11-777M W/ SCH 80 THREADED x PE NIPPLES AS REQUIRED. INLINE VALVE TO MATCH FORCE MAIN DIAMETER.

LOXAHATCHEE RIVER DISTRICT

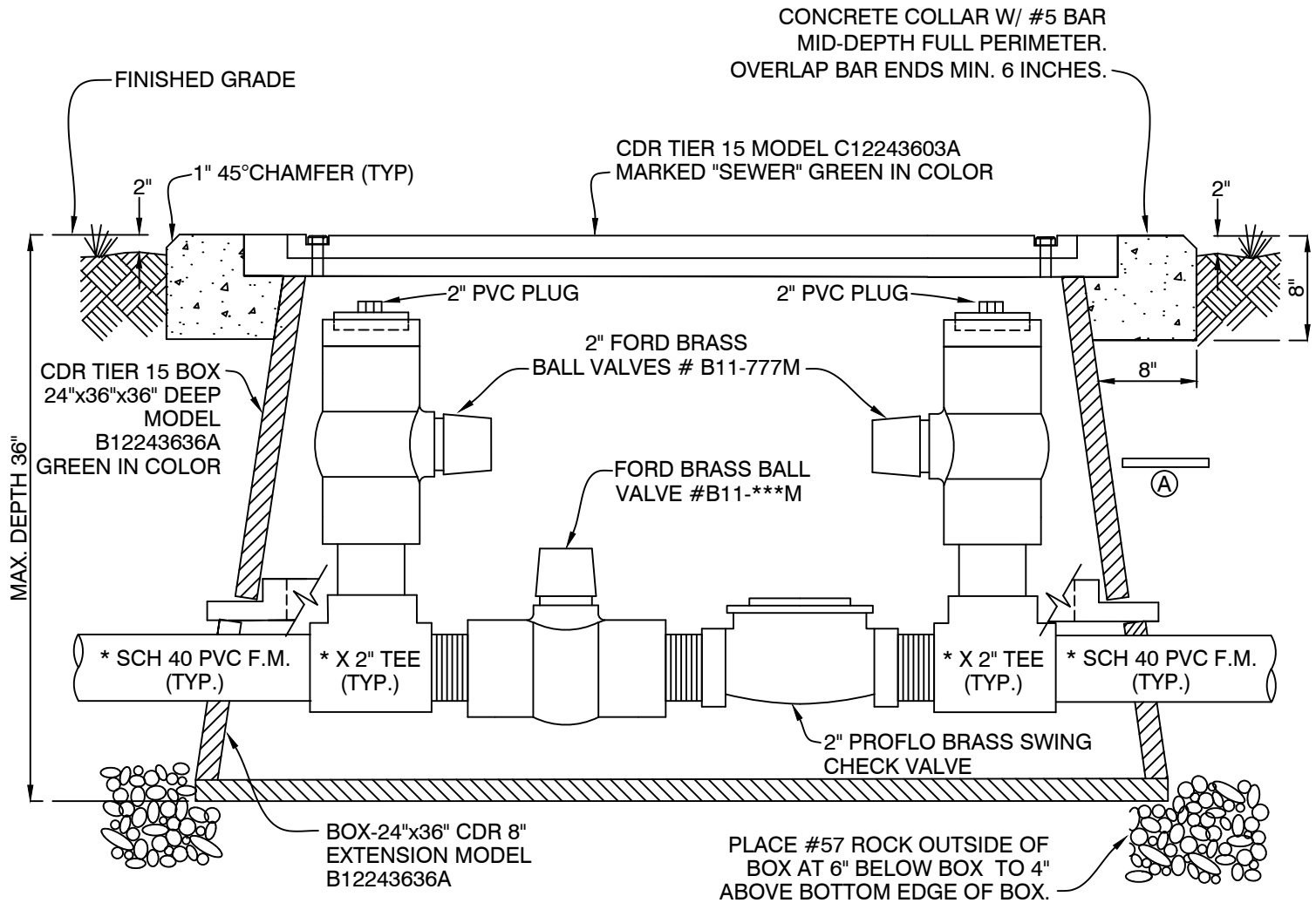
IN LINE FLUSHING PORT

LP-25

N.T.S.

REVISION:  
JULY, 2019





(A) - EMS MARKER NO.#1258 ELECTRONIC MARKER SYSTEM AS  
MFG. BY 3M TEST AND MEASUREMENT SYSTEM AUSTIN, TEXAS

\* SIZED BY ENGINEER  
USE VALVE BOX AND FLUSHING PORTS ALONG STRAIGHT RUNS IN FORCE MAIN.

1. NOTES:  
PUMP TAP VALVES TO BE 2" FORD BRASS BALL VALVES # B11-666 W/ SCH 80 THREADED x PE NIPPLES AS REQUIRED. INLINE VALVE TO MATCH FORCE MAIN DIAMETER.
2. PROFLO BRASS SWING CHECK VALVE MODEL PROFLO PEX31 TO BE INSTALLED TO PREVENT FLOW INTO LOW PRESSURE MAIN.

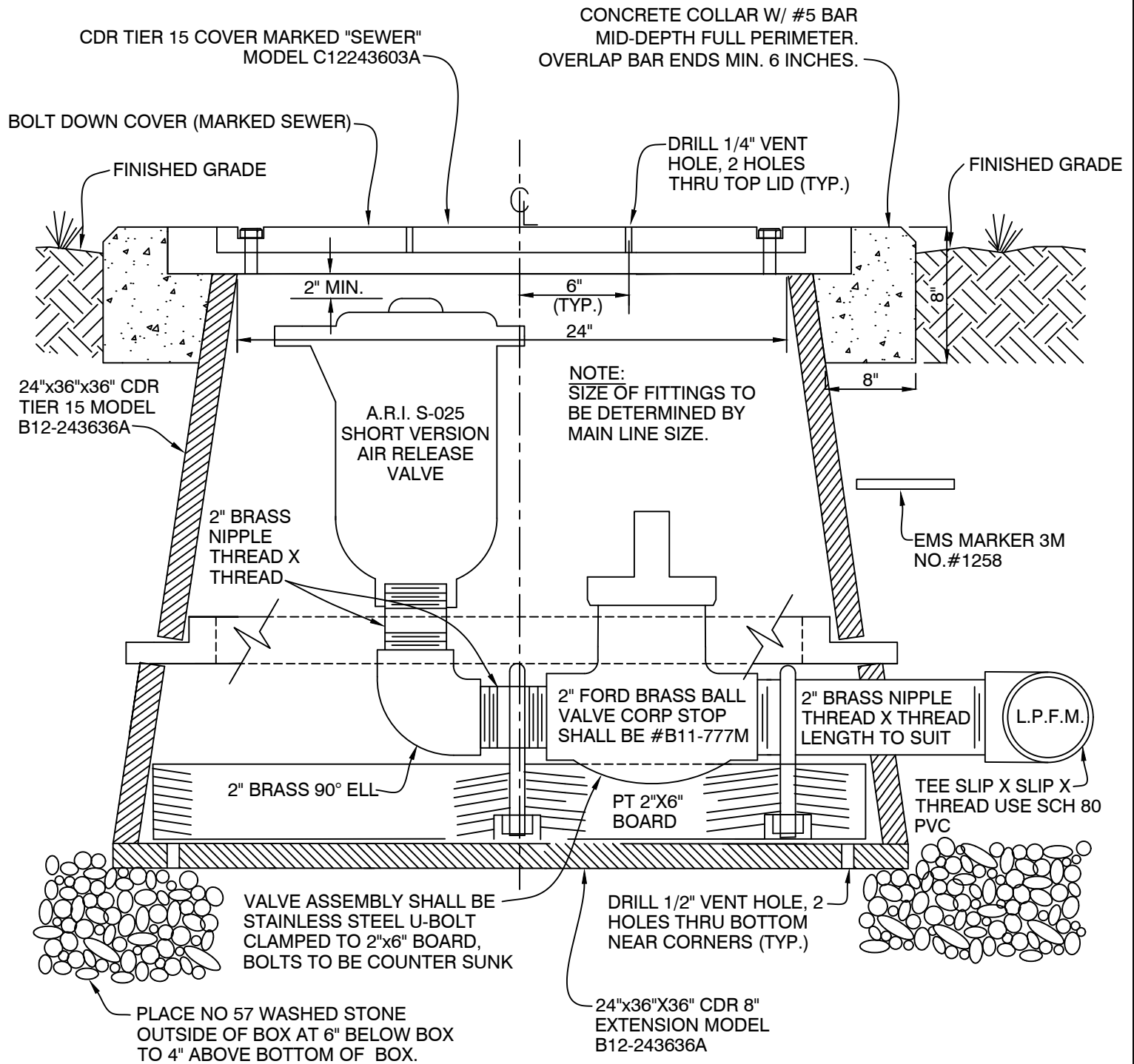
## LOXAHATCHEE RIVER DISTRICT

N.T.S.

REVISION:  
JULY, 2019

# IN LINE FLUSHING PORT AT FORCE MAIN

LP-25A



**NOTE:**

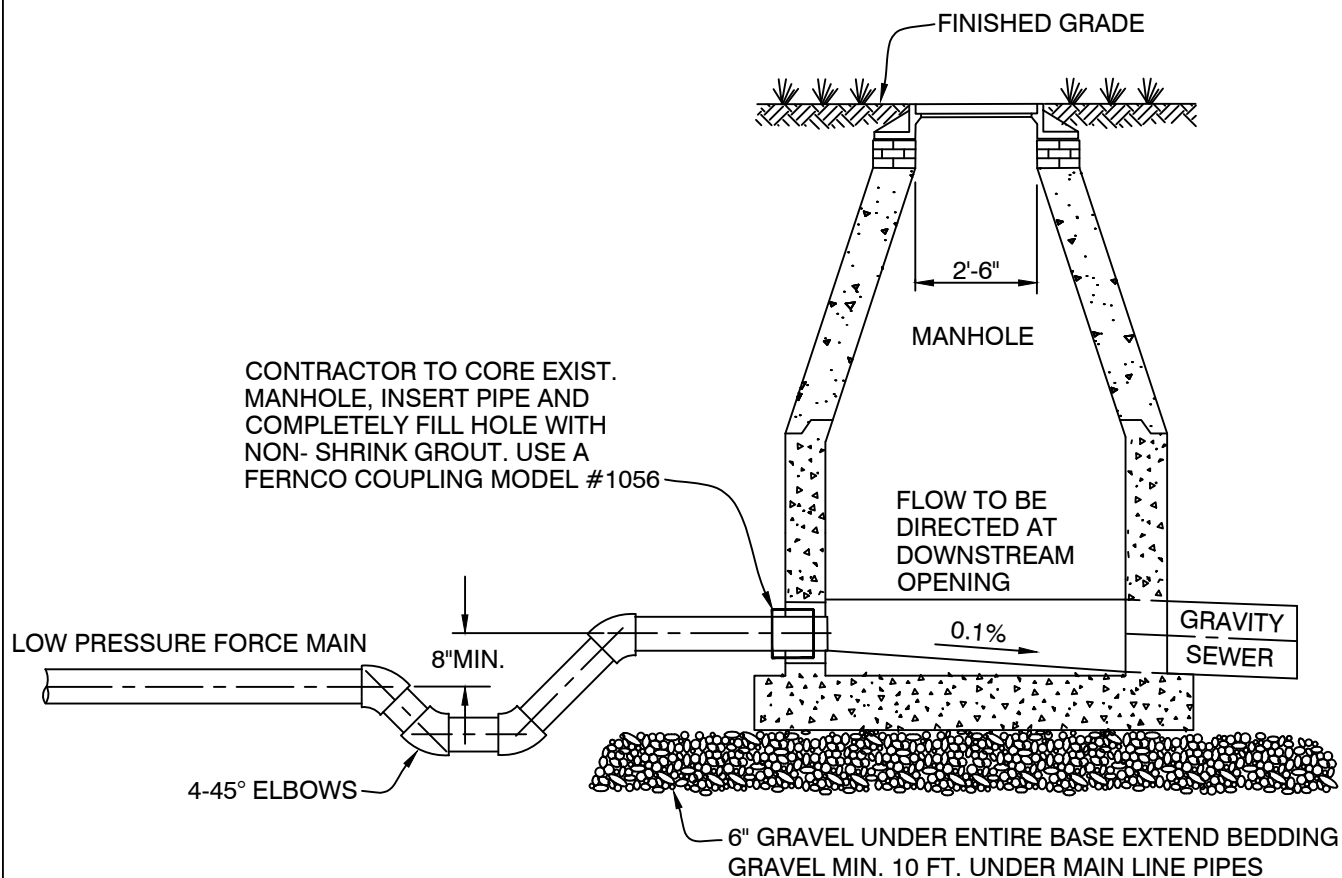
IN PAVED AREAS, USE NO. PB24"x36"x36" DEEP x 4" WALLS AND 4" FLOOR, AND NO. PB2436 TRAFFIC COVER DESIGNED FOR HS-20-44 TRAFFIC RATED BY BROOKS PRODUCTS INC.

**LOXAHATCHEE RIVER DISTRICT**

**AIR / VACUUM VALVE DETAIL**

**LP-26**

N.T.S.  
REVISION:  
JULY, 2019

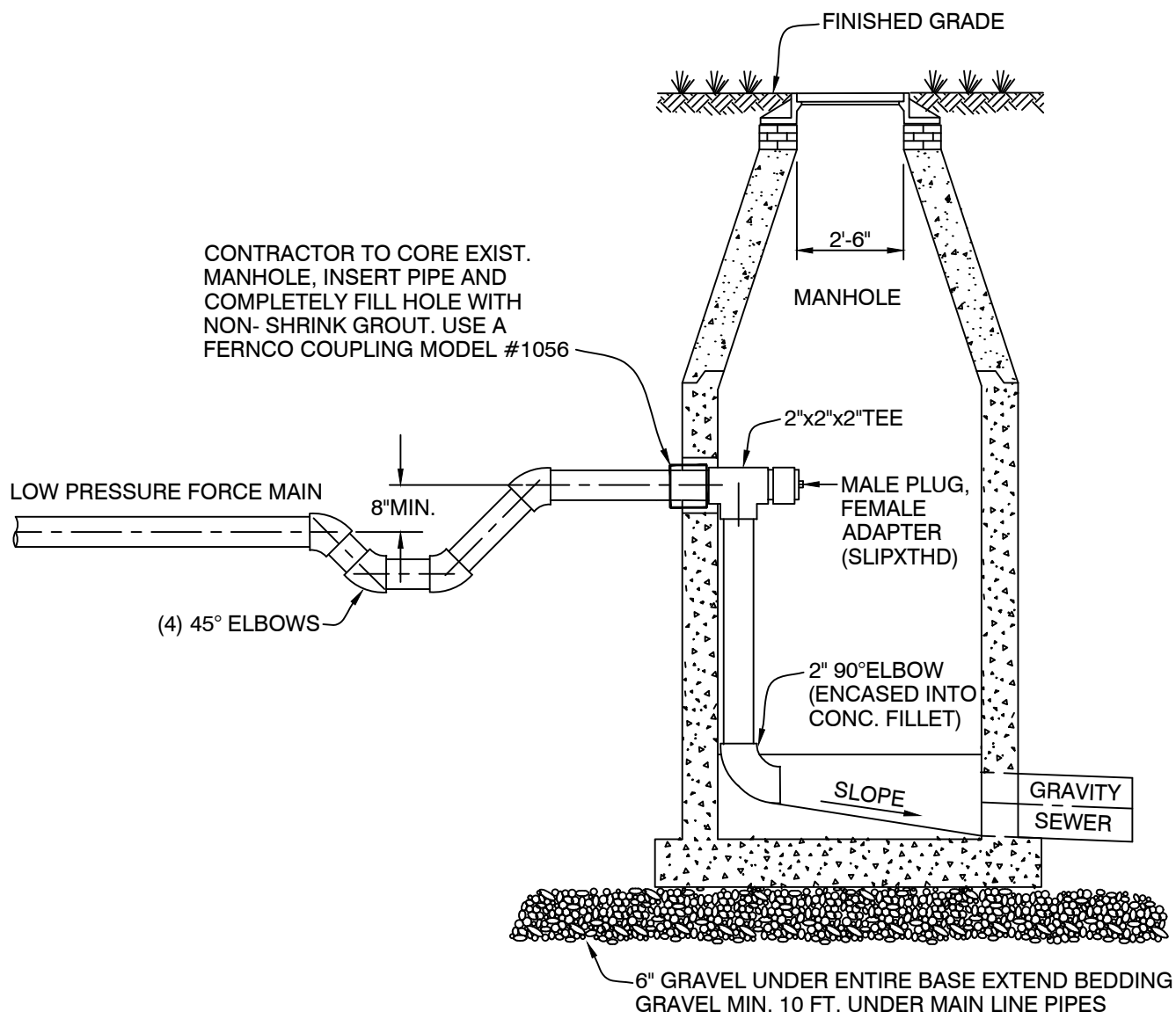


**NOTES:**

1. WHEN ELEVATION OF LOW PRESSURE MAIN (LPM) AT MANHOLE IS HIGHEST POINT OF LPM, TRAP CAN BE ELIMINATED.
2. WHEN LOW PRESSURE FORCE MAIN IS HDPE TRANSITION TO PVC FOR TRAP WITH FORD PACK JOINT COUPLING PVC x PE WITH 304SS STIFFENER.

**LOXAHATCHEE RIVER DISTRICT**

N.T.S.	<b>LOW PRESSURE MAIN INTO SHALLOW MANHOLE</b>	<b>LP-27</b>
REVISION:		
MARCH, 2017		



**NOTES:**

1. ALL DROP PIPING INCLUDING TEE SHALL BE SCH 40 PVC.
2. WHEN ELEVATION OF LOW PRESSURE MAIN (LPM) AT MANHOLE IS HIGHEST POINT OF LPM, TRAP CAN BE ELIMINATED.
3. WHEN LOW PRESSURE FORCE MAIN IS HDPE TRANSITION TO PVC FOR TRAP WITH FORD PACK JOINT COUPLING PVC x PE WITH 304SS STIFFENER.

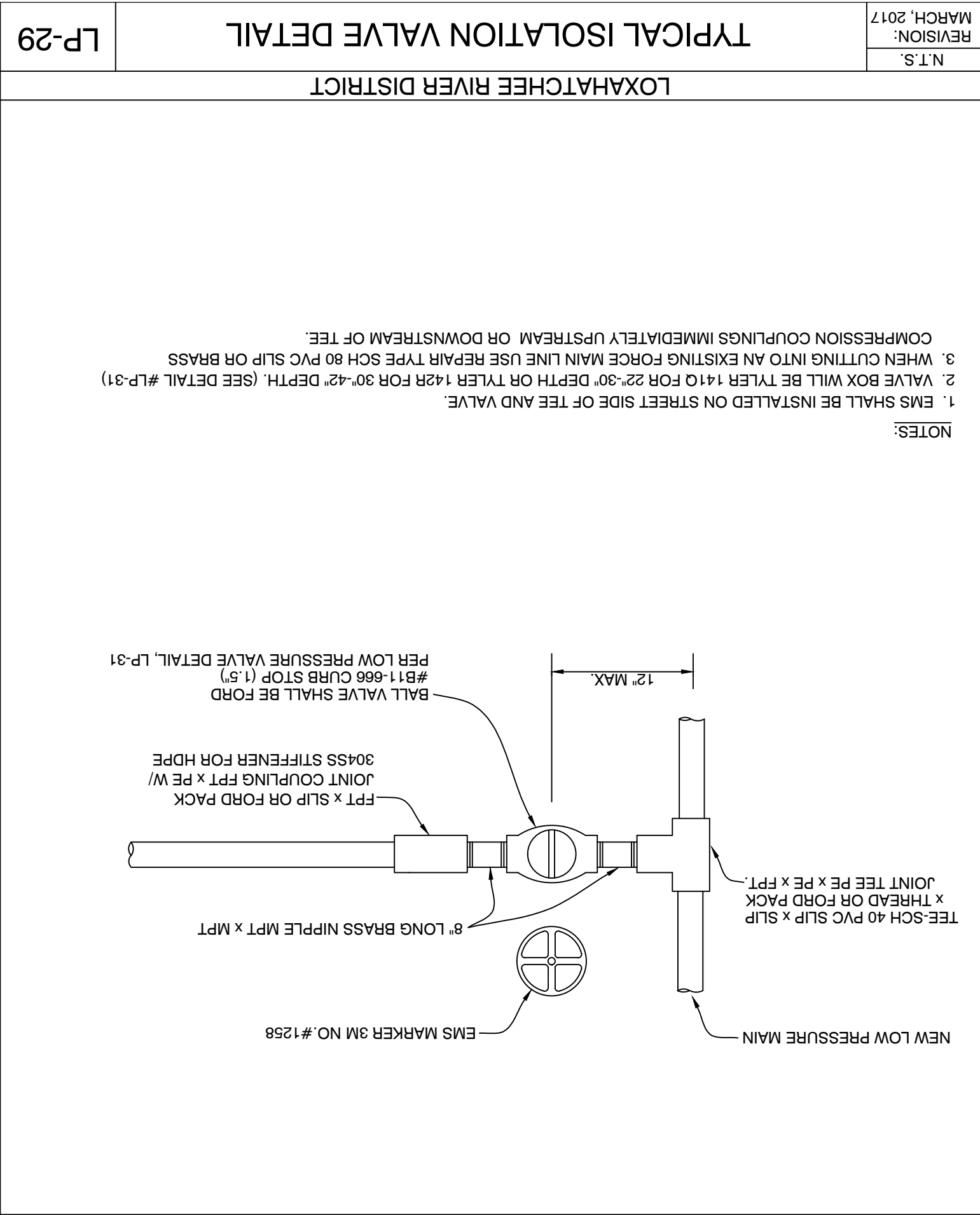
**LOXAHATCHEE RIVER DISTRICT**

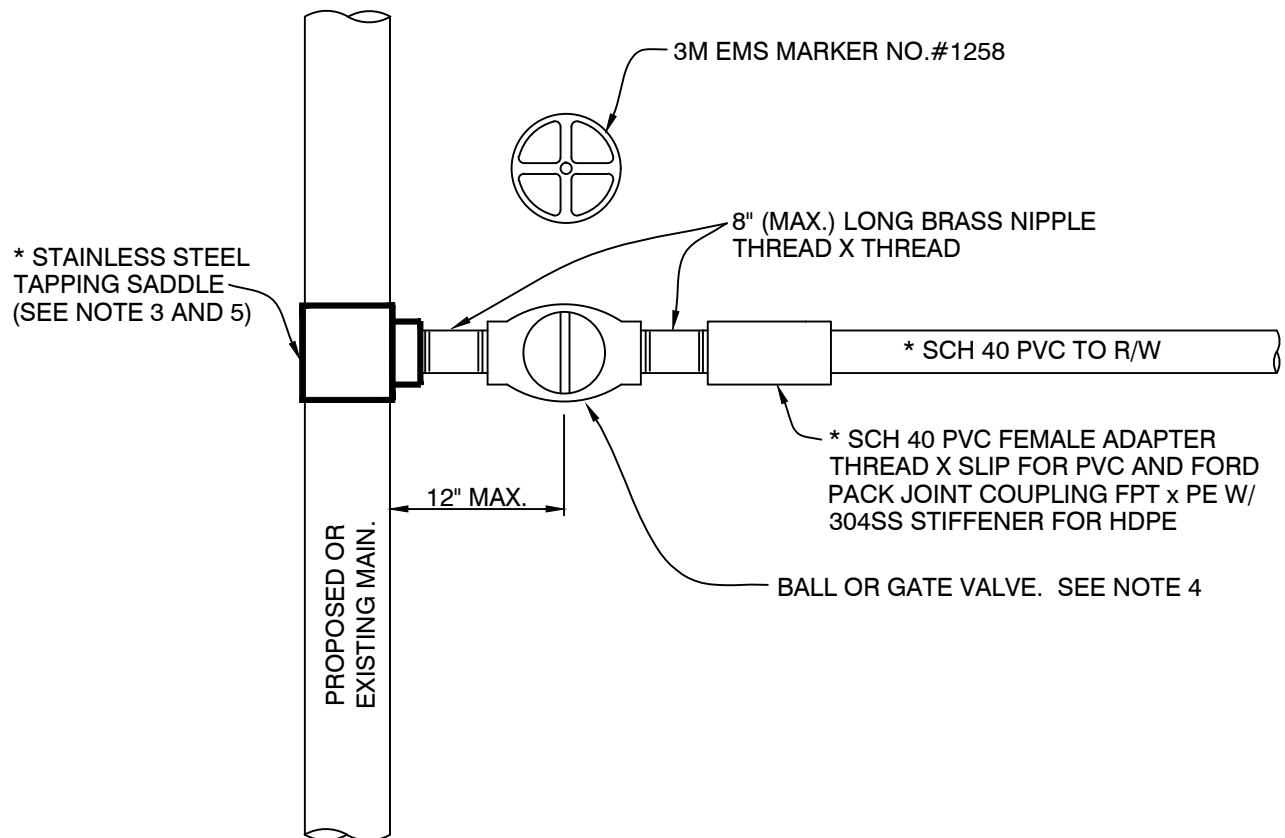
N.T.S.

REVISION:  
MARCH, 2017

**LOW PRESSURE MAIN INTO DEEP MANHOLE**

**LP-28**





**NOTES:**

1. EMS SHALL BE INSTALLED ON STREET SIDE OF TEE AND VALVE.
2. PROVIDE VALVE BOX PER LP-31.
3. TAPPING SADDLES FOR TAPS 1-1/2" - 2-1/2" SHALL BE ROMAC MODEL 306 OR 306H. TAPPING SADDLES FOR TAPS LARGER THAN 2-1/2" SHALL COMPLY WITH SD-28
4. VALVES UP TO 2-1/2" SHALL BE FORD #B11-XXXM CURB STOP W/ 2" OPERATING NUT MODEL # QT67. 3" VALVES SHALL COMPLY W/ SECTION 130, PARAGRAPH 130.03.
5. FOR 2-1/2" AND SMALLER PVC MAINS USE SOCKET TEE AND BRASS COMPRESSION COUPLING. FOR 2-1/2" AND SMALLER HDPE MAINS USE FORD PACK JOINT TEE WITH FORD PACK JOINT COUPLING AND PVC SPOOL PIECE.

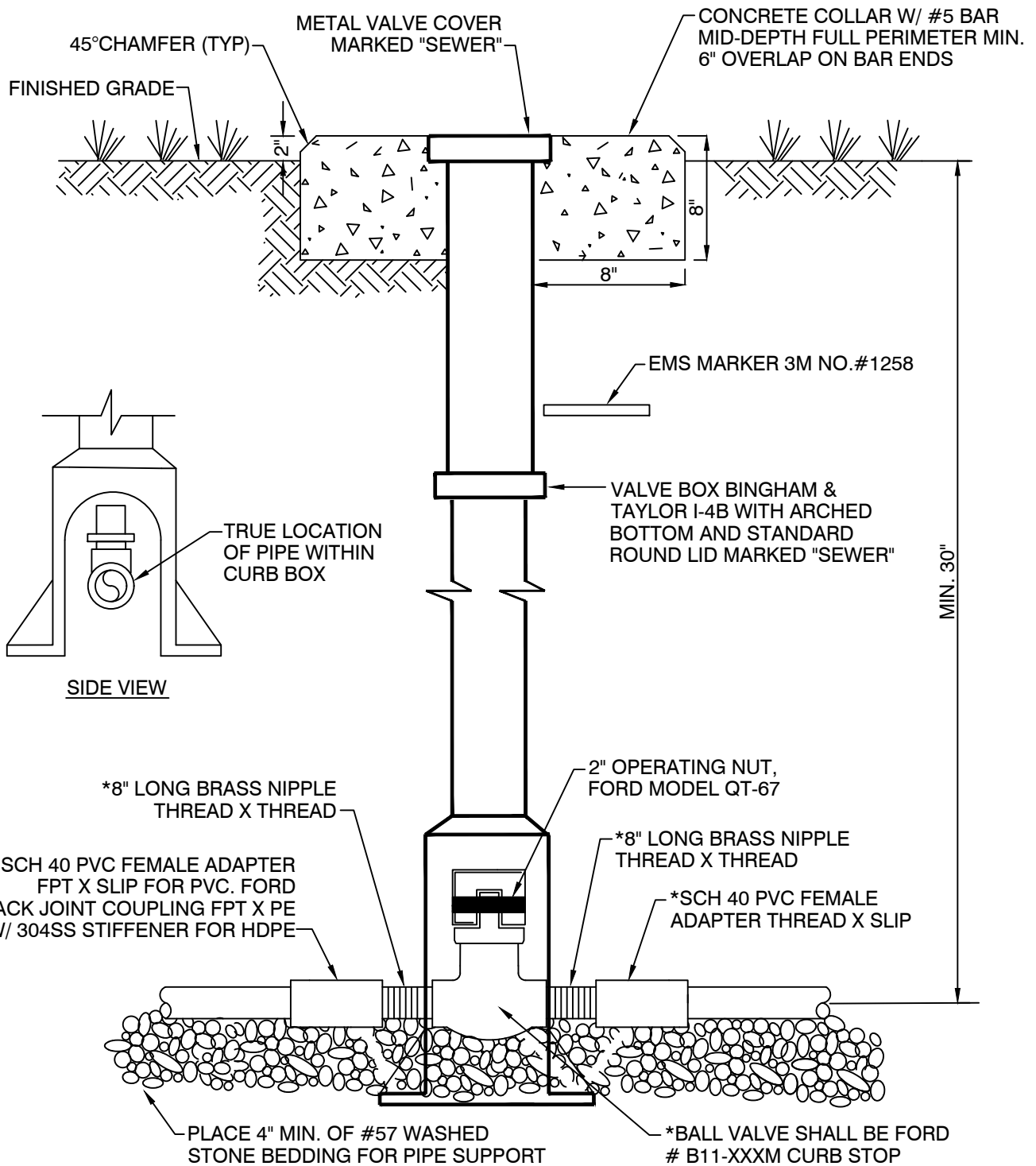
LOXAHATCHEE RIVER DISTRICT

LOW PRESSURE TIE - IN DETAIL

LP-30

N.T.S.

REVISION:  
MARCH, 2017



\*SIZE BY ENGINEER

## LOXAHATCHEE RIVER DISTRICT

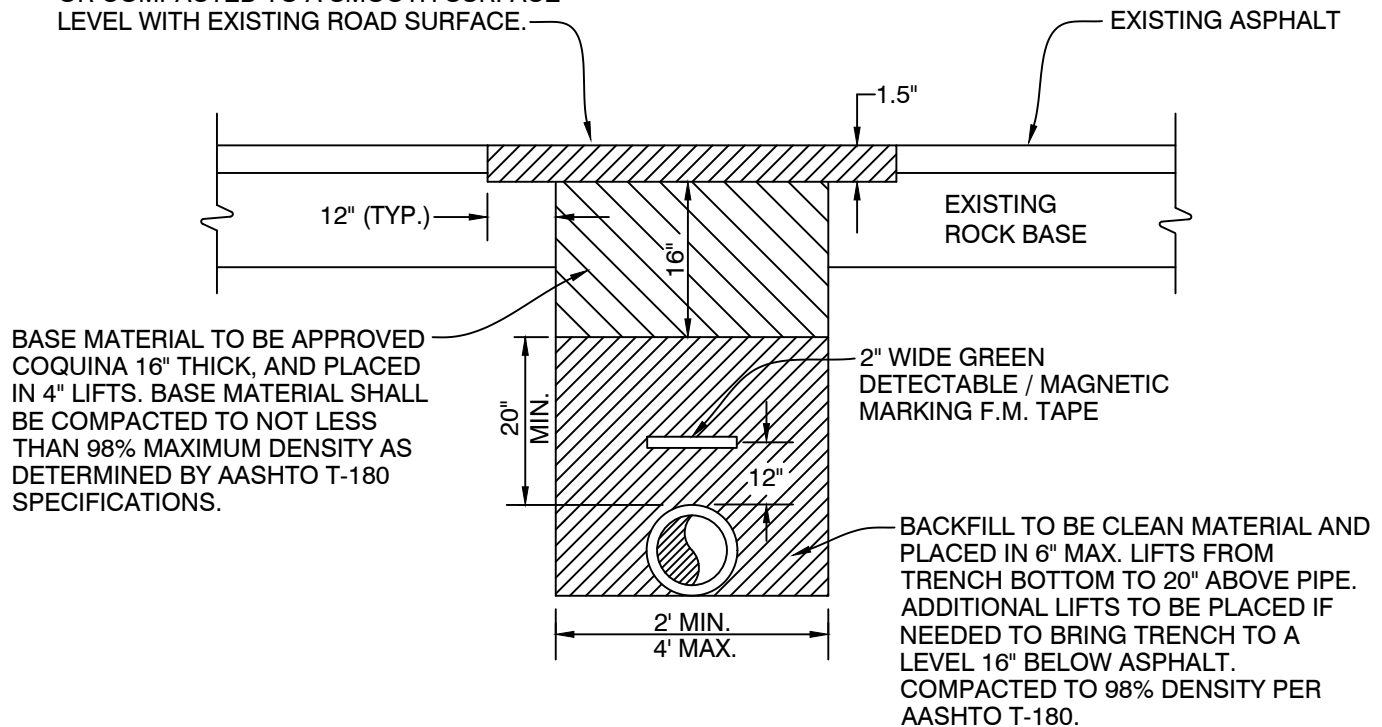
# LOW PRESSURE VALVE DETAIL

LP-31

N.T.S.

REVISION:  
JAN, 2022

REPLACEMENT PAVEMENT MUST BE TYPE S-1 ASPHALTIC CONCRETE 1-1/2" THICK HOT MIX, WITH TACK COAT. IT MUST BE ROLLED OR COMPACTED TO A SMOOTH SURFACE LEVEL WITH EXISTING ROAD SURFACE.



**NOTES:**

1. SAW CUT ASPHALT BEFORE EXCAVATING.
2. COMPACTION MUST BE DONE BY A MECHANICAL VIBRATORY COMPACTOR. EACH LIFT MUST RECEIVE 5 PASSES OF THE COMPACTOR OVER ENTIRE SURFACE. BEFORE COMPACTING EACH LIFT, WATER MUST BE APPLIED AT THE RATE OF 1 GAL. PER LINEAL FOOT OF THE TRENCH FOR BACKFILL AND 1/2 GAL. PER LINEAL FOOT OF TRENCH FOR COQUINA BASE. WATER TO BE SPRINKLED EVENLY OVER TRENCH WIDTH.
3. IF EXCAVATION LEAVES LESS THAN 1' OF UNDISTURBED BASE BETWEEN TRENCH AND SAW CUT ASPHALT, ADDITIONAL WIDTH OF ASPHALT MUST BE CUT.

**LOXAHATCHEE RIVER DISTRICT**

N.T.S.

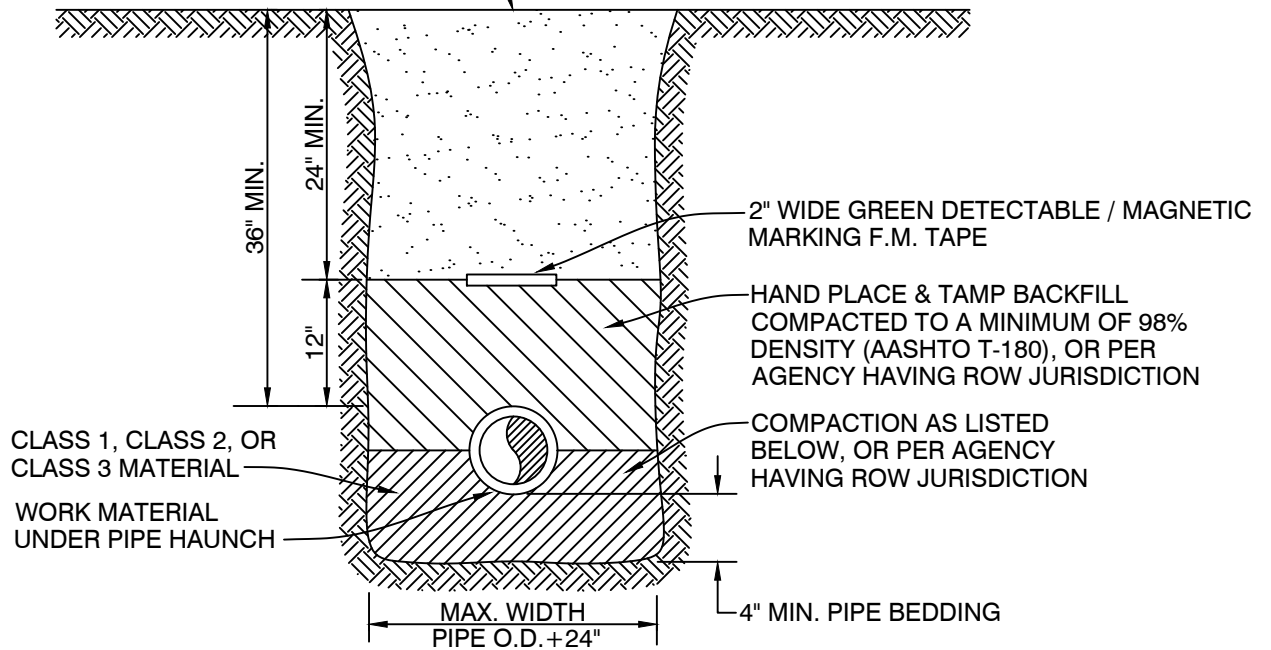
REVISION:  
APRIL, 2012

**TYPICAL ROAD CROSSING REPAIR DETAIL**

**LP-32**



REMAINDER OF BACKFILL MAY BE PLACED BY MACHINE AND COMPACTED TO A MINIMUM OF 95% DENSITY PER AASHTO T-180, OR PER AGENCY HAVING ROW JURISDICTION



**NOTES:**

CLASS 1 MATERIAL - ANGULAR .25" TO .75" GRADED STONE SUCH AS CORAL, CRUSHED STONE, OR CRUSHED SHELLS OR BEDDING ROCK (100% PASSING 1" SIEVE).

CLASS 2 MATERIAL - COURSE SAND AND GRAVEL'S WITH MAXIMUM PARTICLE SIZE OF .25 INCH WITH SMALL PERCENTAGE OF FINES COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY.

CLASS 3 MATERIAL - FINE SAND AND CLAYEY GRAVEL'S, INCLUDING FINE SANDS, SAND-CLAY MIXTURES AND GRAVEL-CLAY MIXTURES, COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY. INCLUDED IN CLASS 3 ARE EXISTING SOIL TYPES CLASSIFIED AS SELECT BACKFILL.

IF CLASS 1 MATERIAL IS USED FOR BEDDING, IT MUST BE USED FOR THE ENTIRE EMBEDMENT. A DRY TRENCH SHALL BE MAINTAINED WHEN USING CLASS 2 AND CLASS 3 MATERIAL.

DENSITY TESTING IS REQUIRED IN 1 FOOT LIFTS ABOVE PIPELINE AT INTERVALS OF 400' MAXIMUM.

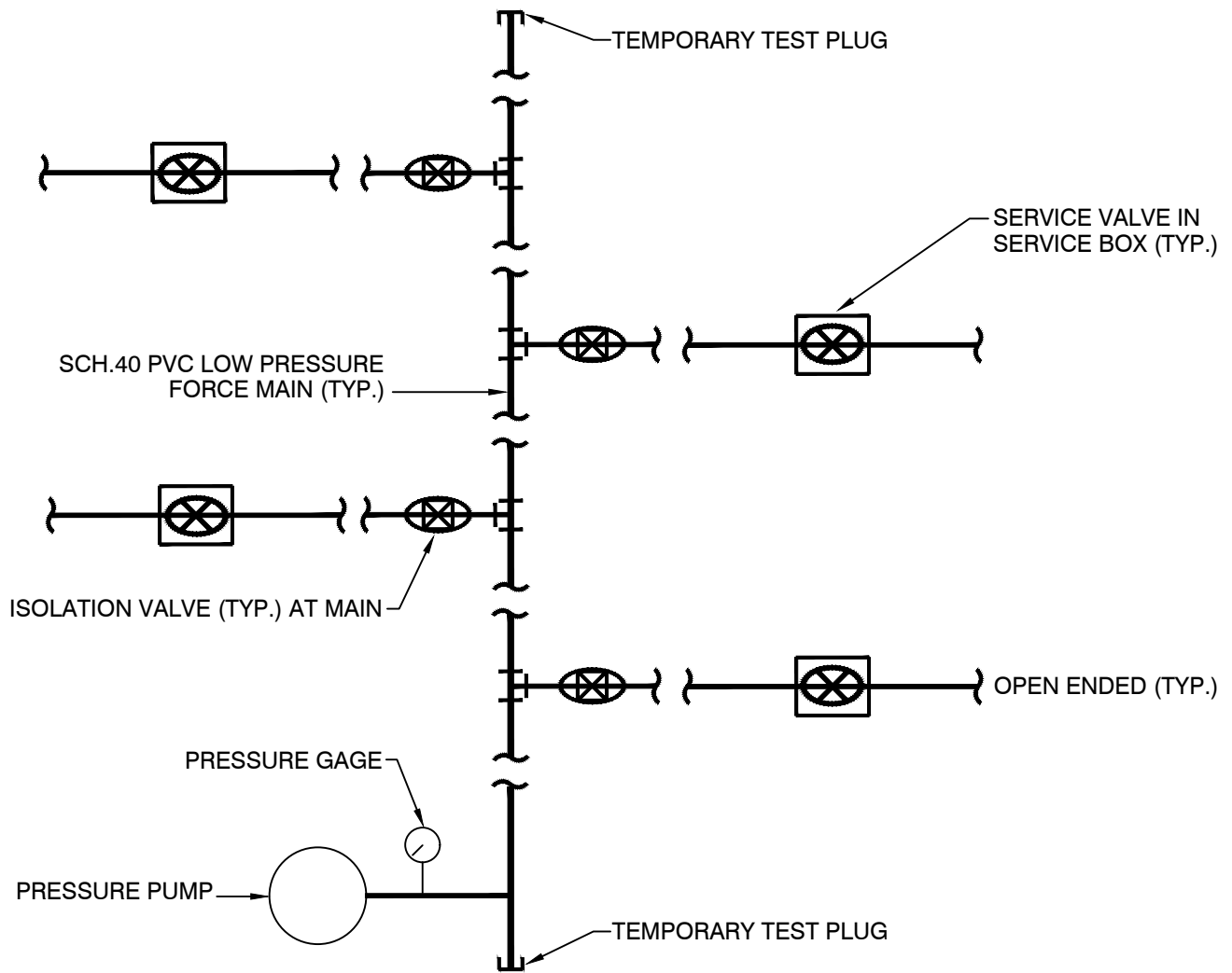
**LOXAHATCHEE RIVER DISTRICT**

N.T.S.

REVISION:  
APRIL, 2012

**TRENCH DETAIL**

**LP-33**



## PLAN VIEW

### NOTES:

1. CLOSE ALL SERVICE VALVES INSIDE SERVICE BOXES.
2. OPEN ALL ISOLATION VALVES AT MAIN.
3. PRESSURIZE SYSTEM & TEST TO 70 PSI FOR ONE (1) HOUR.
4. ONE AT A TIME, CLOSE ISOLATION VALVE @ MAIN AND BLEED OFF PRESSURE AT END CAP.
5. CHECK PRESSURE. PRESSURE SHOULD MAINTAIN 70 PSI
6. REPEAT STEP 4 AND 5 FOR EACH SERVICE CONNECTION.
7. SEE LOW PRESSURE DETAILS, LP-9 & LP-10 FOR TYPICAL LAYOUTS.

## LOXAHATCHEE RIVER DISTRICT

N.T.S.

REVISION:  
JUNE, 2022

## TESTING PROCEDURE

LP-34

1. LOW PRESSURE PUMPING UNITS SHALL BE LOCATED SO THAT SURFACE WATER RUN OFF SHALL NOT INTERFERE WITH ELECTRICAL COMPONENTS.
2. MANUFACTURER SHALL SUPPLY AND ATTACH ELECTRICAL CONTROL PANEL SCHEMATIC TO INSIDE FACE OF CONTROL PANEL DOOR (LAMINATED).
3. THE DISTRICT WILL BE CERTIFYING ALL LOW PRESSURE LIFT STATIONS WHEN COMPLETE. MANUFACTURER SHALL SCHEDULE A START UP TEST AND SUBMIT ALL AS-BUILT DATA TO THE DISTRICT FOR CERTIFICATION.
4. LIFT STATION AND CONTROL PANEL SHALL BE LOCATED SO THAT BOTH ARE ACCESSIBLE FOR MAINTENANCE. PROVIDE A 36" CLEAR ZONE FREE FROM FENCING, LANDSCAPING AND OTHER OBSTRUCTIONS THAT MAY LIMIT ACCESS.
5. WHERE FEASIBLE, HOMEOWNER SHALL PROVIDE WATER HOSE BIB. HOSE FOR MAINTENANCE OPERATIONS.
6. AIR RELEASE VALVE AND/OR VACUUM RELIEF VALVES SHALL BE PROVIDED ON ALL LOW PRESSURE FORCE MAIN INSTALLATION IMMEDIATELY UPSTREAM OF DISCHARGE POINT TO REGIONAL GRAVITY OR FORCE MAIN SYSTEMS.
7. FORCE MAIN DETECTABLE TAPE & MAGNETIC LOCATING DEVICES WILL BE INSTALLED OVER FORCE MAIN, VALVES, AND SERVICES.

## LOXAHATCHEE RIVER DISTRICT

N.T.S.	<h1>GENERAL NOTES</h1>	<h2>LP-35</h2>
REVISION: JUNE, 2018		

SD	STANDARD DETAILS INDEX
SD-1	TYPICAL TRENCH DETAIL FOR NON - PAVED AREAS
SD-2	TYPICAL TRENCH & PAVEMENT RESTORATION DETAIL
SD-3	TYPICAL TRENCH & PAVEMENT RESTORATION W/ FLOWABLE FILL DETAIL
SD-4	TYPICAL GRAVITY SEWER EMBEDMENT DETAIL
SD-5	INTERCEPTOR DETAIL
SD-6	4" OR 6" SINGLE SERVICE CONNECTION DETAIL
SD-7	4" OR 6" SINGLE SERVICE CONNECTION ALTERNATE CONFIGURATION DETAIL
SD-8	6" DOUBLE SERVICE CONNECTION DETAIL
SD-9	6" DOUBLE SERVICE CONNECTION ALTERNATE CONFIGURATION DETAIL
SD-10	SANITARY SEWER LATERAL CLEAN OUT PROTECTIVE BOX (PAVED AREAS ONLY) DETAIL
SD-11	PRECAST MANHOLE DETAIL
SD-12	GRAVITY SEWER INSIDE DROP MANHOLE DETAIL
SD-13	MANHOLE FRAME AND COVER DETAIL
SD-14	MANHOLE EXTENSION RING DETAIL
SD-15	DOGHOUSE MANHOLE INSTALLATION INTO AN EXISTING GRAVITY SEWER LINE DETAIL
SD-16	SEWER MANHOLE INSTALLATION INTO AN EXISTING GRAVITY SEWER LINE DETAIL
SD-17	SEWER MAIN / STORM DRAIN CONFLICT STRUCTURE DETAIL
SD-18	FORCE MAIN THRUST RESTRAINT CHART
SD-19	FORCE MAIN THRUST RESTRAINT DETAIL
SD-20	FORCE MAIN TERMINAL END DETAIL
SD-21	FORCE MAIN INTO SHALLOW MANHOLE DETAIL
SD-22	FORCE MAIN INTO DEEP MANHOLE DETAIL
SD-23	AUTOMATIC AIR RELEASE VALVE OFFSET FORCE MAIN CONDITION DETAIL
SD-24	AUTOMATIC AIR RELEASE VALVE DETAIL
SD-25	TYPICAL FORCE MAIN AIR RELEASE VALVE DETAIL ALTERNATE OFFSET CONFIGURATION
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SD-29	RECORD DRAWING SUBMITTAL GUIDE
SD-30	STANDARD WATER AND SEWER SEPARATION STATEMENT
SD-31	LIFT STATION STRUCTURAL & MECHANICAL STANDARD DETAILS
SD-32	LIFT STATION ELECTRICAL CONTROL PANEL STANDARD DETAILS
SD-33	LIFT STATION ELECTRICAL CONTROL PANEL STANDARD DETAILS
SD-34	LIFT STATION ELECTRICAL CONTROL PANEL STANDARD DETAILS
SD-35	CELLULAR REMOTE TELEMETRY UNIT (RTU) - BILL OF MATERIALS STANDARD DETAILS
SD-36	CELLULAR REMOTE TELEMETRY UNIT (RTU) - COMMUNICATION DIAGRAM STANDARD DETAILS
SD-37	CELLULAR REMOTE TELEMETRY UNIT (RTU) - ELECTRICAL WIRING DIAGRAM STANDARD DETAILS
SD-38	CELLULAR REMOTE TELEMETRY UNIT (RTU) - ELECTRICAL WIRING DIAGRAM STANDARD DETAILS
SD-39	CELLULAR REMOTE TELEMETRY UNIT (RTU) - ELECTRICAL WIRING DIAGRAM STANDARD DETAILS

## LOXAHATCHEE RIVER DISTRICT

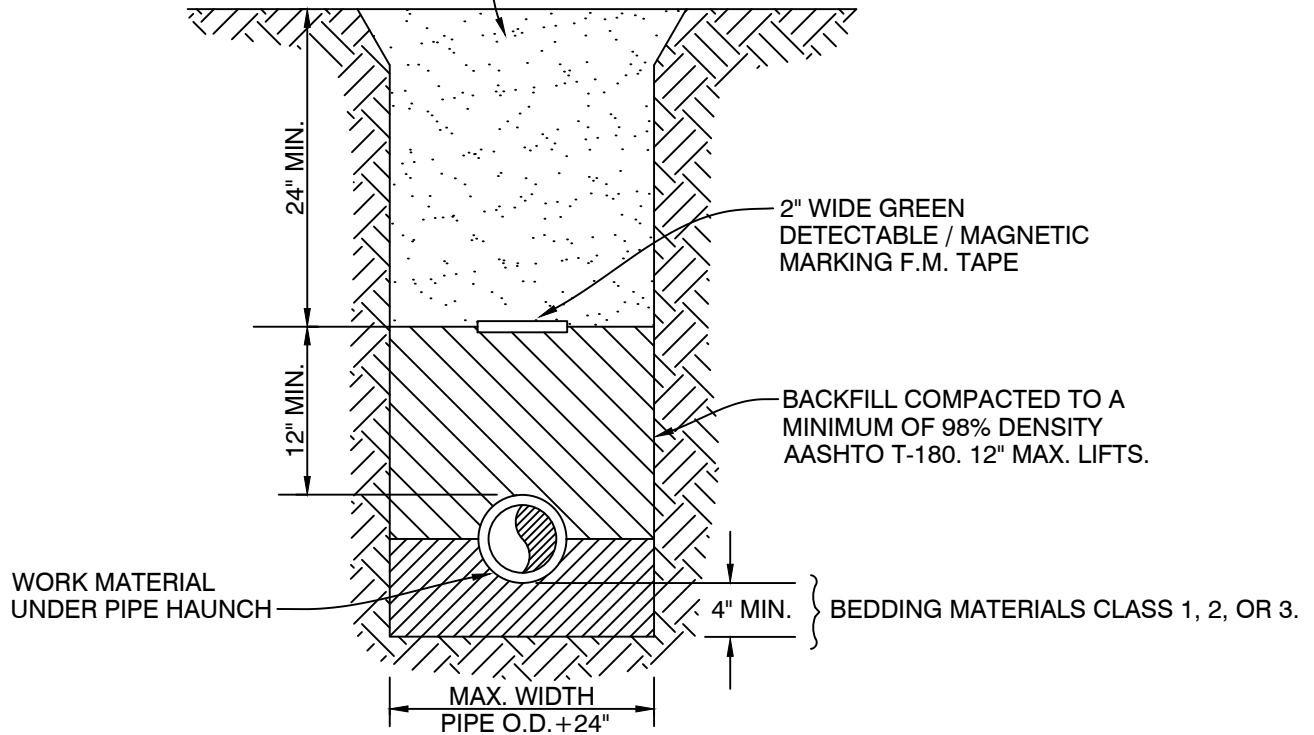
# STANDARD DETAILS INDEX

**SD**

N.T.S.

REVISION:  
JUNE, 2023

REMAINDER OF BACKFILL MAY BE PLACED BY MACHINE AND COMPACTED TO A MINIMUM OF 95% DENSITY PER AASHTO T-180 (12" MAX. LIFTS), OR PER AGENCY HAVING JURISDICTION.



**NOTES:**

CLASS 1 MATERIAL - ANGULAR .25" TO .75" GRADED STONE SUCH AS CORAL, CRUSHED STONE, OR CRUSHED SHELLS OR BEDDING ROCK (100% PASSING 1" SIEVE).

CLASS 2 MATERIAL - COURSE SAND AND GRAVEL'S WITH MAXIMUM PARTICLE SIZE OF .25 INCH WITH SMALL PERCENTAGE OF FINES. COMPACT TO A MIN. 98% DENSITY PER AASHTO T-180.

CLASS 3 MATERIAL - FINE SAND AND CLAYEY GRAVEL'S, INCLUDING FINE SANDS, SAND-CLAY MIXTURES AND GRAVEL-CLAY MIXTURES. INCLUDED IN CLASS 3 ARE EXISTING SOIL TYPES CLASSIFIED AS SELECT BACKFILL. COMPACT TO A MIN. 98% DENSITY PER AASHTO T-180.

1. IF CLASS 1 MATERIAL IS USED FOR BEDDING, IT MUST BE USED FOR THE ENTIRE EMBEDMENT. A DRY TRENCH SHALL BE MAINTAINED WHEN USING CLASS 2 AND CLASS 3 MATERIAL.
2. DENSITY TESTING IS REQUIRED IN 1 FOOT LIFTS ABOVE PIPELINE AT INTERVALS OF 400' MAXIMUM.
3. UNSUITABLE IN-SITU MATERIAL SUCH AS MUCK, DEBRIS AND LARGER ROCKS SHALL BE REMOVED.
4. THE AFFECTED AREA SHALL BE RESTORED TO EQUAL OR BETTER CONDITION OR AS SPECIFIED IN PERMIT / CONTRACT DOCUMENTS.
5. EMS MARKER REQUIRED MINIMUM EVERY 300 FEET OF PRESSURE PIPELINE.

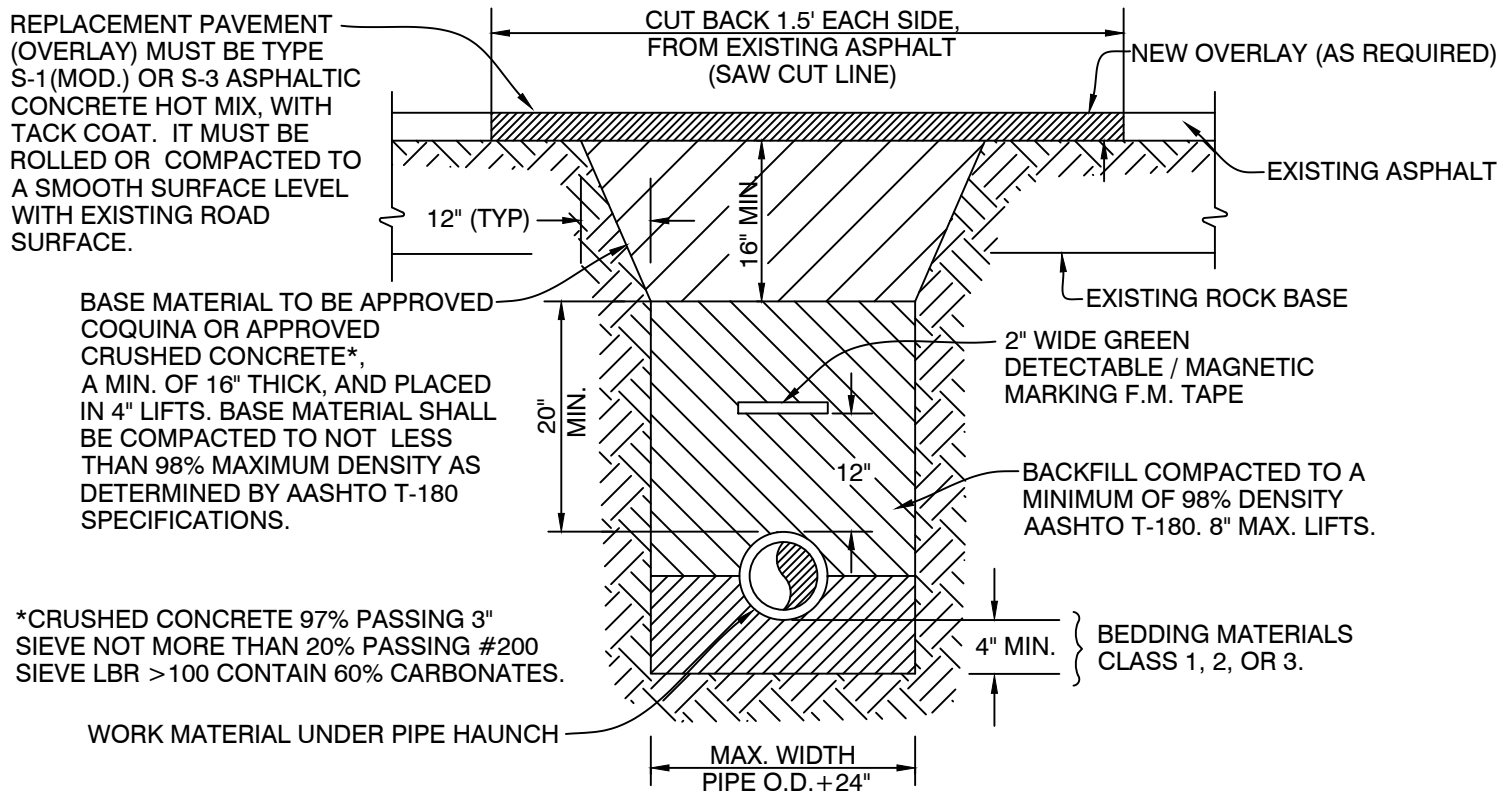
**LOXAHATCHEE RIVER DISTRICT**

**TYPICAL TRENCH DETAIL  
FOR NON - PAVED AREAS**

**SD-1**

N.T.S.

REVISION:  
JULY, 2019



**NOTES:**

CLASS 1 MATERIAL - ANGULAR .25" TO .75" GRADED STONE SUCH AS CORAL, CRUSHED STONE, OR CRUSHED SHELLS OR BEDDING ROCK (100% PASSING 1" SIEVE).

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1. ALL CUTS WILL REQUIRE COMPACTION TO DENSITY SPECIFICATIONS.
2. SAW CUT ASPHALT BEFORE EXCAVATING.
3. COMPACTION MUST BE DONE BY A MECHANICAL VIBRATORY COMPACTOR. EACH LIFT MUST RECEIVE 5 PASSES OF THE COMPACTOR OVER ENTIRE SURFACE. BEFORE COMPACTING EACH LIFT, WATER MUST BE APPLIED AT THE RATE OF 1 GAL. PER LINEAL FOOT OF THE TRENCH FOR BACKFILL AND 0.5 GAL. PER LINEAL FOOT OF TRENCH FOR COQUINA BASE. WATER TO BE SPRINKLED EVENLY OVER TRENCH WIDTH.
4. UNSUITABLE IN-SITU MATERIAL SUCH AS MUCK, DEBRIS AND LARGER ROCKS SHALL BE REMOVED.
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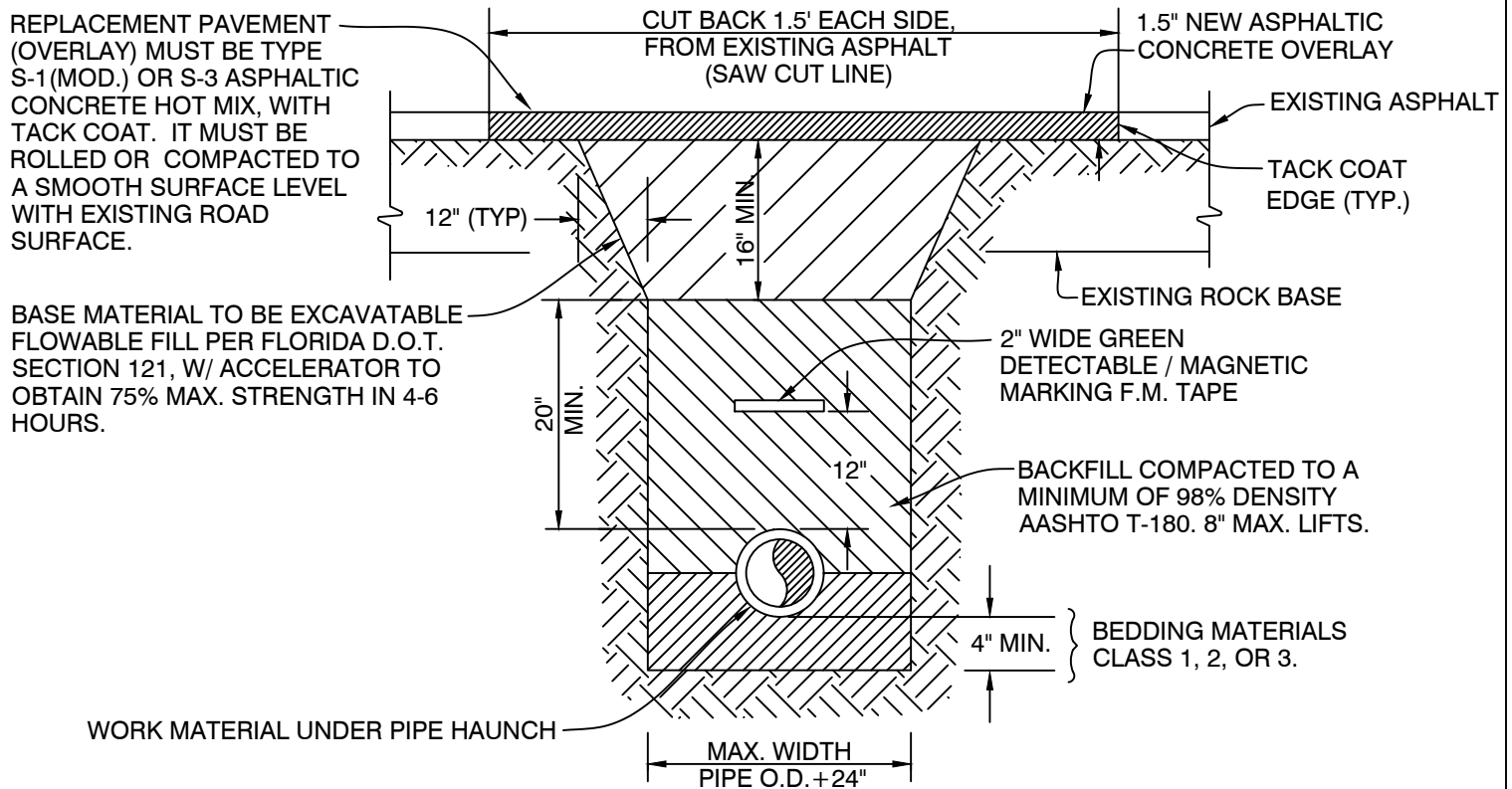
**LOXAHATCHEE RIVER DISTRICT**

**TYPICAL TRENCH & PAVEMENT  
RESTORATION DETAIL**

**SD-2**

N.T.S.

REVISION:  
JULY, 2019



**NOTES:**

CLASS 1 MATERIAL - ANGULAR .25" TO .75" GRADED STONE SUCH AS CORAL, CRUSHED STONE, OR CRUSHED SHELLS OR BEDDING ROCK (100% PASSING 1" SIEVE).

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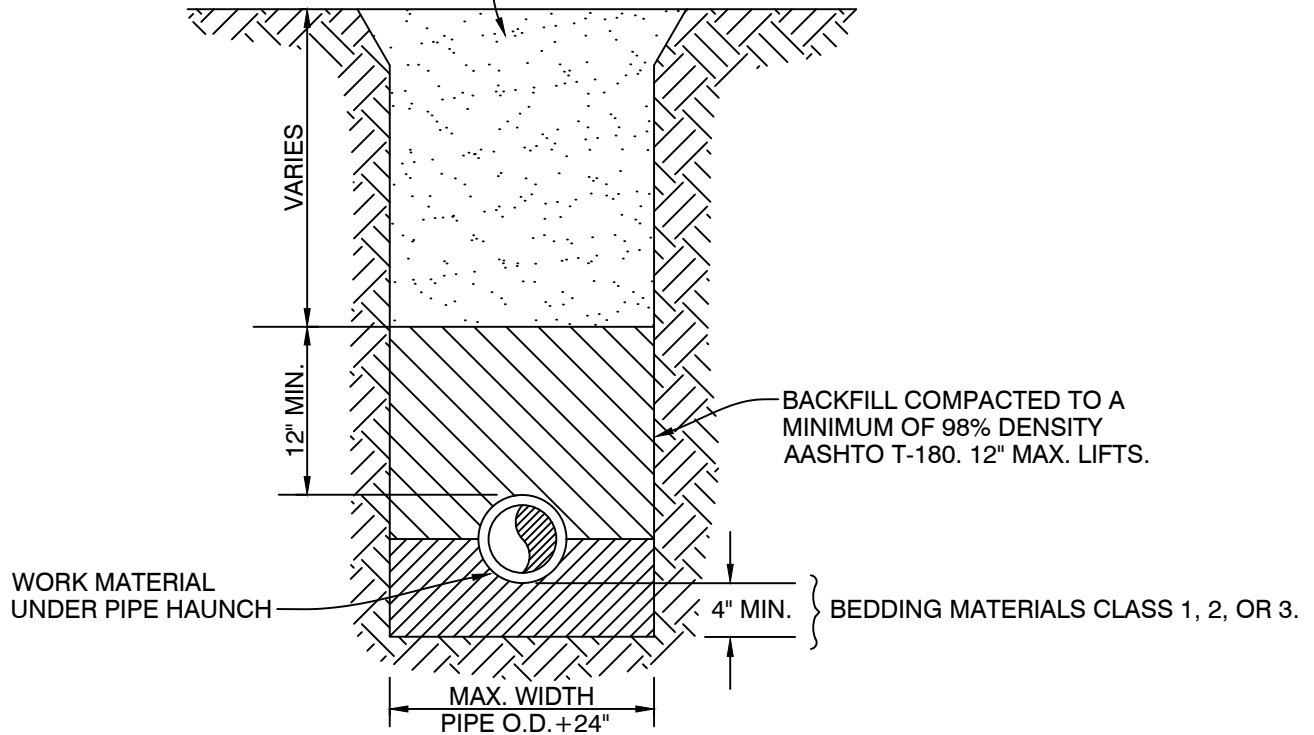
**LOXAHATCHEE RIVER DISTRICT**

**TYPICAL TRENCH & PAVEMENT RESTORATION  
W/ FLOWABLE FILL DETAIL**

**SD-3**

N.T.S.  
REVISION:  
JULY, 2019

REMAINDER OF BACKFILL MAY BE  
PLACED BY MACHINE AND COMPACTED  
TO A MINIMUM OF 95% DENSITY PER  
AASHTO T-180 (12" MAX. LIFTS), OR PER  
AGENCY HAVING JURISDICTION.



**NOTES:**

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2. DENSITY TESTING IS REQUIRED IN 1 FOOT LIFTS ABOVE PIPELINE.
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**LOXAHATCHEE RIVER DISTRICT**

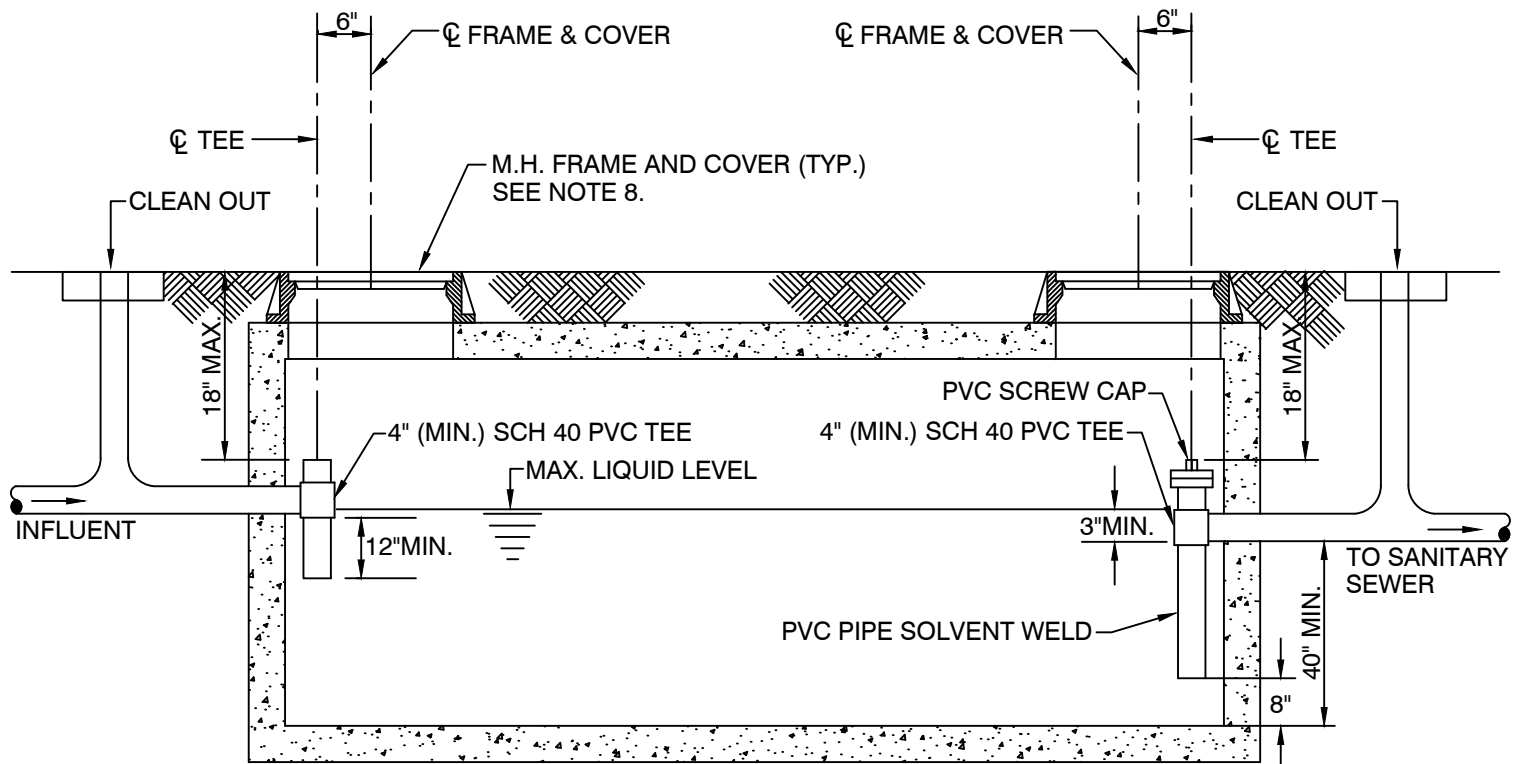
N.T.S.

REVISION:  
APRIL, 2012

**TYPICAL GRAVITY SEWER EMBEDMENT DETAIL**

**SD-4**





**NOTES:**

1. EFFECTIVE SIZE OF INTERCEPTOR 750 GALS MIN. AND SHALL BE MADE OF CONCRETE.
2. TANK TO BE DESIGNED TO RESIST FLOTATION WHEN EMPTY.
3. TWO-WAY CLEAN OUTS WILL BE INSTALLED IMMEDIATELY UPSTREAM AND DOWNSTREAM OF ALL GREASE INTERCEPTORS. IF INSTALLED IN PAVED AREAS, A PROTECTIVE STANDARD CLEAN OUT COVER WILL BE INSTALLED PER SD-10.
4. TANK(S) SIZING SHALL FOLLOW SECTION 64E-6.013 (7) (D) OF CHAPTER 64E-6 OF THE FLORIDA ADMINISTRATIVE CODE, WHICH IS IN COMPLIANCE WITH THE 2020 FLORIDA BUILDING CODE. TANK CONSTRUCTION SHALL BE IN ACCORDANCE WITH CHAPTER 64E-6 OF THE FLORIDA ADMINISTRATIVE CODE.
5. ALL MATERIALS SHALL BE NEW AND CODE APPROVED.
6. ALL MANHOLE COVERS USED SHALL BE MARKED WITH: "GREASE TRAP" LETTERING.
7. TANKS TO BE IN SERIES WHERE MULTIPLE UNITS ARE REQUIRED.
8. FOR TANKS UP TO 1,250 GALLONS, USE 24" STANDARD M.H. FRAME AND COVER, U.S. FOUNDRY. FOR LARGER TANKS, USE DOUBLE RING AND COVER TYPE, #230-AB-M, U.S. FOUNDRY. IF BRICK COURSES EXCEED 12" IN HEIGHT, THEN MINIMUM 30" OPENING AND DOUBLE RING AND COVER TYPE, #230-AB-M, U.S. FOUNDRY REQUIRED REGARDLESS OF TANK SIZE.

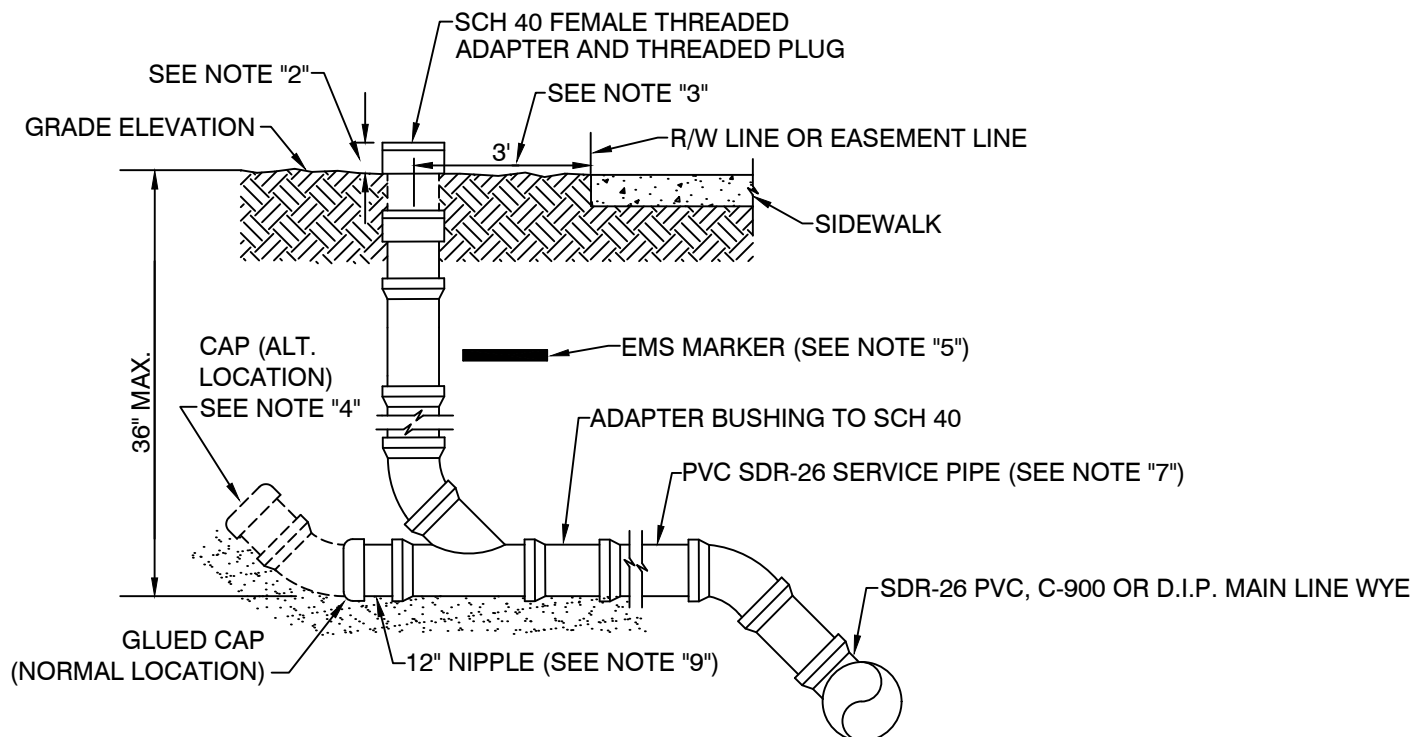
LOXAHATCHEE RIVER DISTRICT

N.T.S.

REVISION:  
OCT, 2024

INTERCEPTOR DETAIL

SD-5



#### NOTES:

1. WHERE SEWER LATERALS MAY BE FORCED TO BE INSTALLED AT A DEPTH GREATER THAN 36" DUE TO CONFLICT WITH OTHER UTILITIES, THE WYE FITTING MAY BE PLACED IN A VERTICAL POSITION ON THE CLEAN-OUT RISER PIPE (ALTERNATE CONFIGURATION)
2. LEAVE RISER 18" (MIN.) ABOVE GRADE. WHEN HOUSE RISER CONNECTION IS MADE BY BUILDING PLUMBER, RISER PIPE WILL BE CUT OFF, AND SET 2" ABOVE SOD GRADE (ADAPTER SHALL BE LEFT UNGLUED).
3. IN AREAS WHERE NO SIDEWALK EXISTS OR WHERE NONE ARE PLANNED, THE CLEAN OUT RISER WILL BE SET AT R/W OR EASEMENT LINE.
4. IN AREAS WHERE GROUND WATER TABLE IS LESS THAN 36" FROM FINISHED GRADE, NIPPLES OUT OF WYE WILL BE EXTENDED UP TO A POINT 6" MIN. ABOVE GROUND WATER TABLE.
5. EMS MARKER MODEL NO.1258, SERVICE LINE ELECTRONIC MARKER AS MFG. BY 3M CO., TO REMAIN IN PLACE AFTER CONNECTION OF BUILDING SEWER. BURY IN FRONT OF CLEAN OUT RISER 18" BELOW FINISHED GRADE.
6. 6" SINGLE SERVICES USED ONLY FOR COMMERCIAL OR MULTI-FAMILY RESIDENTIAL UNITS. (SEE SD-3 & SD-4)
7. WHEN MAIN LINE IS C-900 PVC OR EPOXY COATED DIP, SERVICE PIPE SHALL BE SAME MATERIAL AS MAIN LINE.
8. WHEN APPROVED BY THE DISTRICT, CLEAN-OUTS MAY BE PLACED IN PAVED AREAS, HOWEVER, PROTECTIVE BOXES AS SHOWN ON DETAIL SD-1 MUST BE INSTALLED.
9. CUT AND CAP SHALL BE PERFORMED ON 12" NIPPLE NOT MORE THAN 12" FROM WYE.

#### (PLUMBERS ONLY)

WHERE EXISTING SERVICE LATERAL IS VITRIFIED CLAY PIPE, BELL (HUB) WILL BE REMOVED WITH APPROVED SAW AND A "FERNCO" VCP X PVC COUPLING WILL BE USED TO JOIN THE EXISTING AND NEW PIPE. FERNCO COUPLING WILL BE WRAPPED IN STRANDS OF COPPER WIRE AND COUPLING WILL BE BEDDED IN TYPE "57" ROCK. WHERE EXISTING SERVICE LATERAL IS DIP OR C-900, A DISTRICT APPROVED PVC TRANSITION COUPLING WILL BE USED.

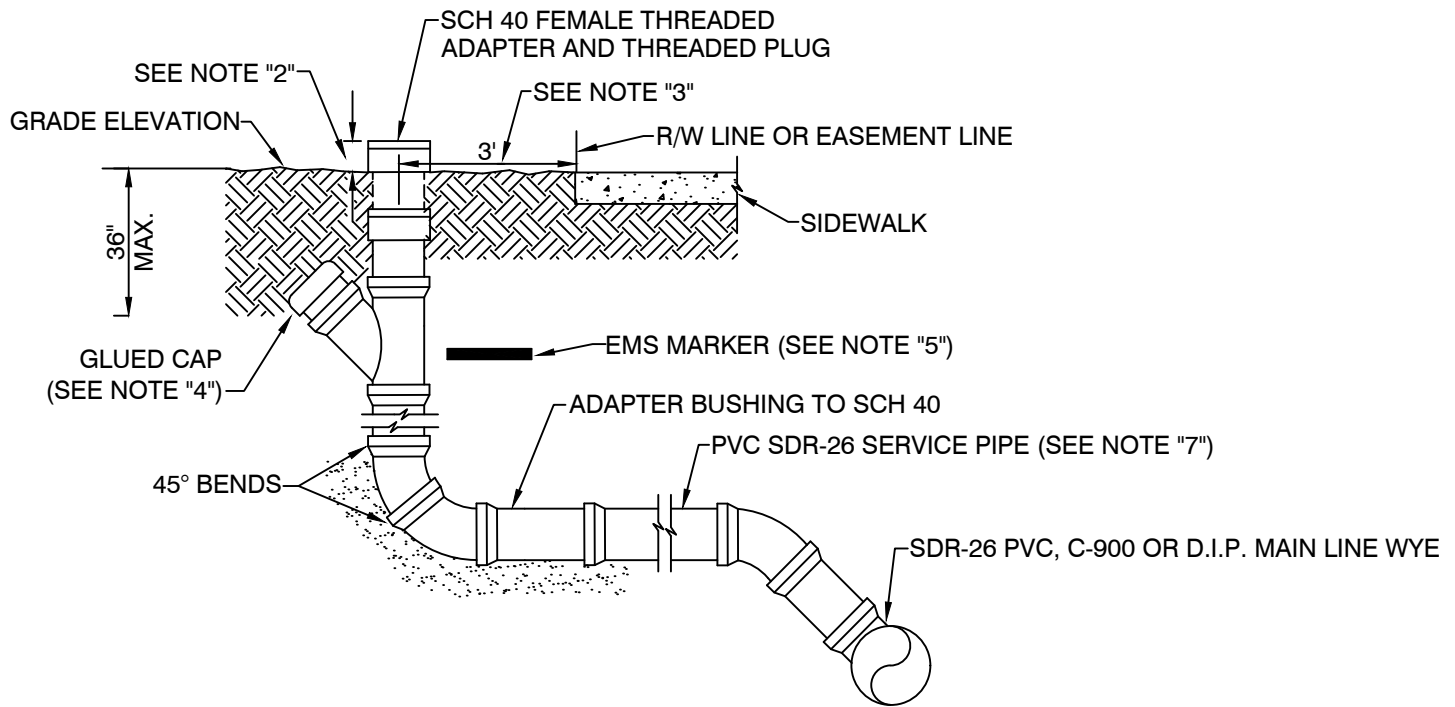
### LOXAHATCHEE RIVER DISTRICT

## 4" OR 6" SINGLE SERVICE CONNECTION DETAIL

SD-6

N.T.S.

REVISION:  
OCT, 2024



**NOTES:**

1. WHERE SEWER LATERALS MAY BE FORCED TO BE INSTALLED AT A DEPTH GREATER THAN 36" DUE TO CONFLICT WITH OTHER UTILITIES, THE WYE FITTING MAY BE PLACED IN A VERTICAL POSITION ON THE CLEAN-OUT RISER PIPE (ALTERNATE CONFIGURATION)
2. LEAVE RISER 18" (MIN.) ABOVE GRADE. WHEN HOUSE RISER CONNECTION IS MADE BY BUILDING PLUMBER, RISER PIPE WILL BE CUT OFF, AND SET 2" ABOVE SOD GRADE (ADAPTER SHALL BE LEFT UNGLUED).
3. IN AREAS WHERE NO SIDEWALK EXISTS OR WHERE NONE ARE PLANNED, THE CLEAN OUT RISER WILL BE SET AT R/W OR EASEMENT LINE.
4. IN AREAS WHERE GROUND WATER TABLE IS LESS THAN 36" FROM FINISHED GRADE, NIPPLES OUT OF WYE WILL BE EXTENDED UP TO A POINT 6" MIN. ABOVE GROUND WATER TABLE.
5. EMS MARKER MODEL NO.1258, SERVICE LINE ELECTRONIC MARKER AS MFG. BY 3M CO., TO REMAIN IN PLACE AFTER CONNECTION OF BUILDING SEWER. BURY IN FRONT OF CLEAN OUT RISER 18" BELOW FINISHED GRADE.
6. 6" SINGLE SERVICES USED ONLY FOR COMMERCIAL OR MULTI-FAMILY RESIDENTIAL UNITS. (SEE SD-3 & SD-4)
7. WHEN MAIN LINE IS C-900 PVC OR EPOXY COATED DIP, SERVICE PIPE SHALL BE SAME MATERIAL AS MAIN LINE.
8. WHEN APPROVED BY THE DISTRICT, CLEAN-OUTS MAY BE PLACED IN PAVED AREAS, HOWEVER, PROTECTIVE BOXES AS SHOWN ON DETAIL SD-1 MUST BE INSTALLED.
9. CUT AND CAP SHALL BE PERFORMED ON 12" NIPPLE NOT MORE THAN 12" FROM WYE.

**(PLUMBERS ONLY)**

WHERE EXISTING SERVICE LATERAL IS VITRIFIED CLAY PIPE, BELL (HUB) WILL BE REMOVED WITH APPROVED SAW AND A "FERNCO" VCP X PVC COUPLING WILL BE USED TO JOIN THE EXISTING AND NEW PIPE. FERNCO COUPLING WILL BE WRAPPED IN STRANDS OF COPPER WIRE AND COUPLING WILL BE BEDDED IN TYPE "57" ROCK. WHERE EXISTING SERVICE LATERAL IS DIP OR C-900, A DISTRICT APPROVED PVC TRANSITION COUPLING WILL BE USED.

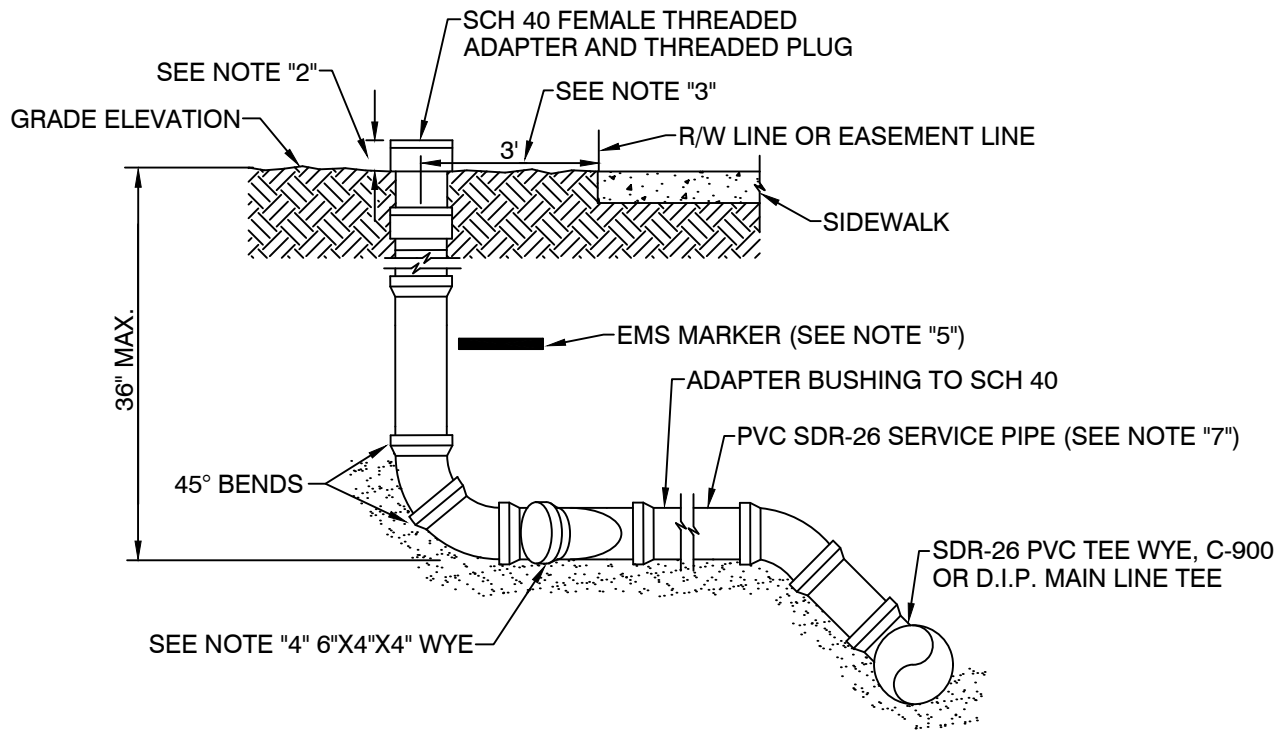
**LOXAHATCHEE RIVER DISTRICT**

**4" OR 6" SINGLE SERVICE CONNECTION  
ALTERNATE CONFIGURATION DETAIL**

**SD-7**

N.T.S.

REVISION:  
OCT, 2024



#### NOTES:

1. WHERE SEWER LATERALS MAY BE FORCED TO BE INSTALLED AT A DEPTH GREATER THAN 36" DUE TO CONFLICT WITH OTHER UTILITIES, THE WYE FITTING MAY BE PLACED IN A VERTICAL POSITION ON THE CLEAN-OUT RISER PIPE (ALTERNATE CONFIGURATION)
2. LEAVE RISER 18" (MIN.) ABOVE GRADE. WHEN HOUSE RISER CONNECTION IS MADE BY BUILDING PLUMBER, RISER PIPE WILL BE CUT OFF, AND SET 2" ABOVE SOD GRADE (ADAPTER SHALL BE LEFT UNGLUED).
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4. IN AREAS WHERE GROUND WATER TABLE IS LESS THAN 36" FROM FINISHED GRADE, NIPPLES OUT OF WYE WILL BE EXTENDED UP TO A POINT 6" MIN. ABOVE GROUND WATER TABLE.
5. EMS MARKER MODEL NO.1258, SERVICE LINE ELECTRONIC MARKER AS MFG. BY 3M CO., TO REMAIN IN PLACE AFTER CONNECTION OF BUILDING SEWER. BURY IN FRONT OF CLEAN OUT RISER 18" BELOW FINISHED GRADE.
6. 6" SINGLE SERVICES USED ONLY FOR COMMERCIAL OR MULTI-FAMILY RESIDENTIAL UNITS. (SEE SD-3 & SD-4)
7. WHEN MAIN LINE IS C-900 PVC OR EPOXY COATED DIP, SERVICE PIPE SHALL BE SAME MATERIAL AS MAIN LINE.
8. WHEN APPROVED BY THE DISTRICT, CLEAN-OUTS MAY BE PLACED IN PAVED AREAS, HOWEVER, PROTECTIVE BOXES AS SHOWN ON DETAIL SD-1 MUST BE INSTALLED.
9. CUT AND CAP SHALL BE PERFORMED ON 12" NIPPLE NOT MORE THAN 12" FROM WYE.

#### (PLUMBERS ONLY)

WHERE EXISTING SERVICE LATERAL IS VITRIFIED CLAY PIPE, BELL (HUB) WILL BE REMOVED WITH APPROVED SAW AND A "FERNCO" VCP X PVC COUPLING WILL BE USED TO JOIN THE EXISTING AND NEW PIPE. FERNCO COUPLING WILL BE WRAPPED IN STRANDS OF COPPER WIRE AND COUPLING WILL BE BEDDED IN TYPE "57" ROCK. WHERE EXISTING SERVICE LATERAL IS DIP OR C-900, A DISTRICT APPROVED PVC TRANSITION COUPLING WILL BE USED.

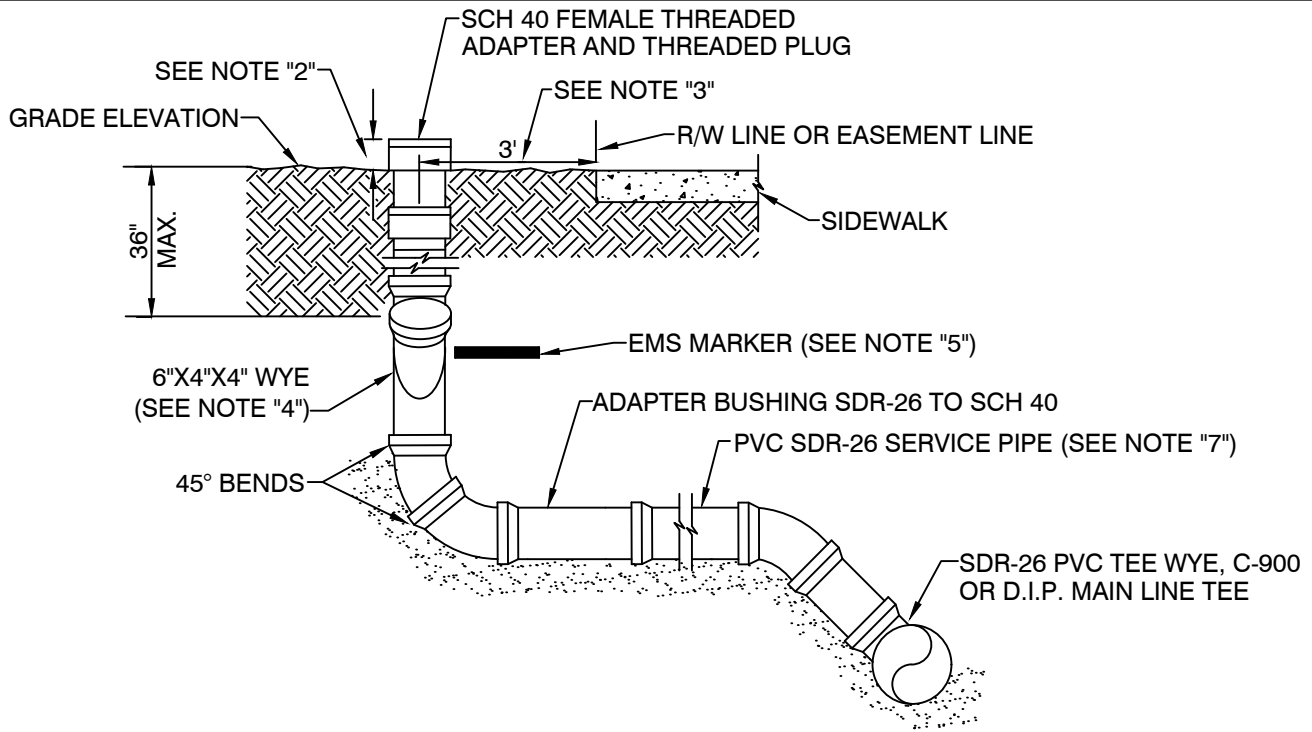
### LOXAHATCHEE RIVER DISTRICT

N.T.S.

REVISION:  
OCT, 2024

## 6" DOUBLE SERVICE CONNECTION DETAIL

SD-8



**NOTES:**

1. WHERE SEWER LATERALS MAY BE FORCED TO BE INSTALLED AT A DEPTH GREATER THAN 36" DUE TO CONFLICT WITH OTHER UTILITIES, THE WYE FITTING MAY BE PLACED IN A VERTICAL POSITION ON THE CLEAN-OUT RISER PIPE (ALTERNATE CONFIGURATION)
2. LEAVE RISER 18" (MIN.) ABOVE GRADE. WHEN HOUSE RISER CONNECTION IS MADE BY BUILDING PLUMBER, RISER PIPE WILL BE CUT OFF, AND SET 2" ABOVE SOD GRADE (ADAPTER SHALL BE LEFT UNGLUED).
3. IN AREAS WHERE NO SIDEWALK EXISTS OR WHERE NONE ARE PLANNED, THE CLEAN OUT RISER WILL BE SET AT R/W OR EASEMENT LINE.
4. IN AREAS WHERE GROUND WATER TABLE IS LESS THAN 36" FROM FINISHED GRADE, NIPPLES OUT OF WYE WILL BE EXTENDED UP TO A POINT 6" MIN. ABOVE GROUND WATER TABLE.
5. EMS MARKER MODEL NO.1258, SERVICE LINE ELECTRONIC MARKER AS MFG. BY 3M CO., TO REMAIN IN PLACE AFTER CONNECTION OF BUILDING SEWER. BURY IN FRONT OF CLEAN OUT RISER 18" BELOW FINISHED GRADE.
6. 6" SINGLE SERVICES USED ONLY FOR COMMERCIAL OR MULTI-FAMILY RESIDENTIAL UNITS. (SEE SD-3 & SD-4)
7. WHEN MAIN LINE IS C-900 PVC OR EPOXY COATED DIP, SERVICE PIPE SHALL BE SAME MATERIAL AS MAIN LINE.
8. WHEN APPROVED BY THE DISTRICT, CLEAN-OUTS MAY BE PLACED IN PAVED AREAS, HOWEVER, PROTECTIVE BOXES AS SHOWN ON DETAIL SD-1 MUST BE INSTALLED.
9. CUT AND CAP SHALL BE PERFORMED ON 12" NIPPLE NOT MORE THAN 12" FROM WYE.

**(PLUMBERS ONLY)**

WHERE EXISTING SERVICE LATERAL IS VITRIFIED CLAY PIPE, BELL (HUB) WILL BE REMOVED WITH APPROVED SAW AND A "FERNCO" VCP X PVC COUPLING WILL BE USED TO JOIN THE EXISTING AND NEW PIPE. FERNCO COUPLING WILL BE WRAPPED IN STRANDS OF COPPER WIRE AND COUPLING WILL BE BEDDED IN TYPE "57" ROCK. WHERE EXISTING SERVICE LATERAL IS DIP OR C-900, A DISTRICT APPROVED PVC TRANSITION COUPLING WILL BE USED.

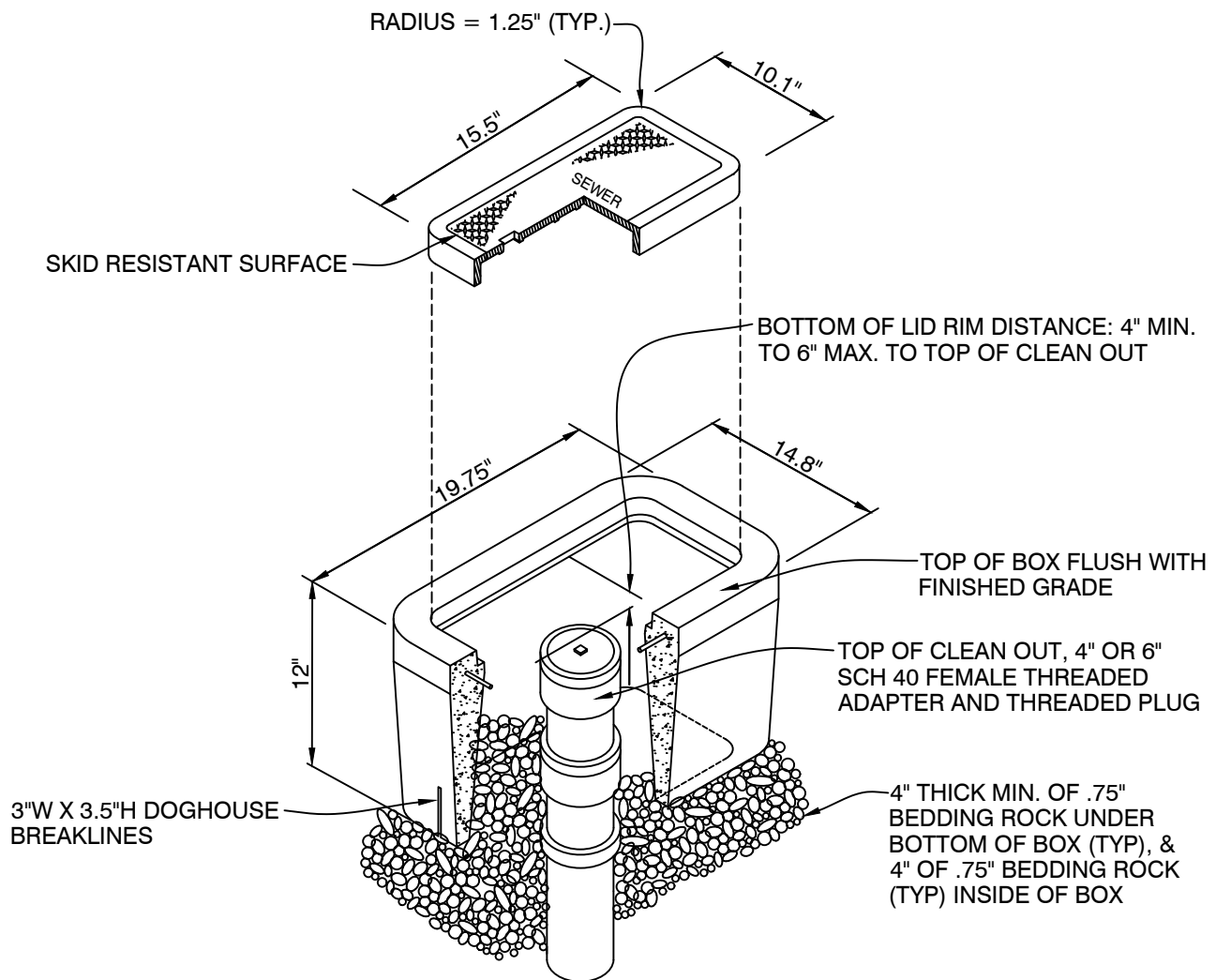
**LOXAHATCHEE RIVER DISTRICT**

**6" DOUBLE SERVICE CONNECTION  
ALTERNATE CONFIGURATION DETAIL**

**SD-9**

N.T.S.

REVISION:  
OCT, 2024



NOTES:

1. STANDARD COVER MARKED WITH "SEWER".
2. CONCRETE: MIN. 28 DAY CONCRETE COMPRESSIVE STRENGTH = 4,500 PSI.
3. REINFORCING TO BE #6 GAGE WELDED WIRE FABRIC.
4. CLEAN OUT BOX, PLACED ON CRUSHED AGGREGATE.
5. ALL DIMENSIONS ARE APPROXIMATE.
6. LID & BOX MFG. BY BROOKS PRODUCTS SERIES 36 TYPE OR APPROVED EQUAL. (LID: NO. 36-T CAST IRON HEAVY DUTY COVER WT:18LBS, BOX: NO 36 BODY WT:92LBS.)

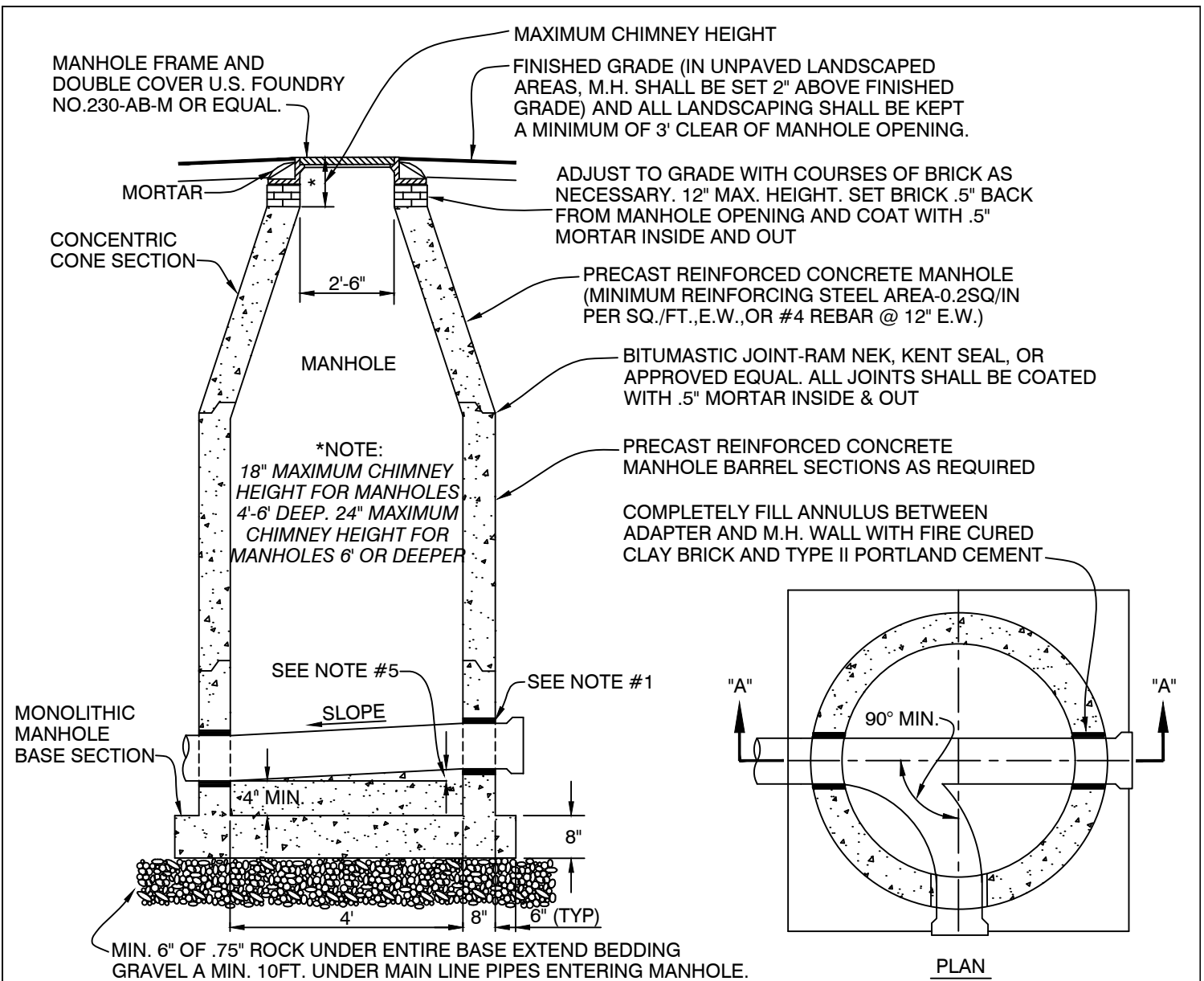
LOXAHATCHEE RIVER DISTRICT

N.T.S.

REVISION:  
APRIL, 2012

**SANITARY SEWER LATERAL CLEAN OUT  
PROTECTIVE BOX (PAVED AREAS ONLY) DETAIL**

**SD-10**



#### NOTES:

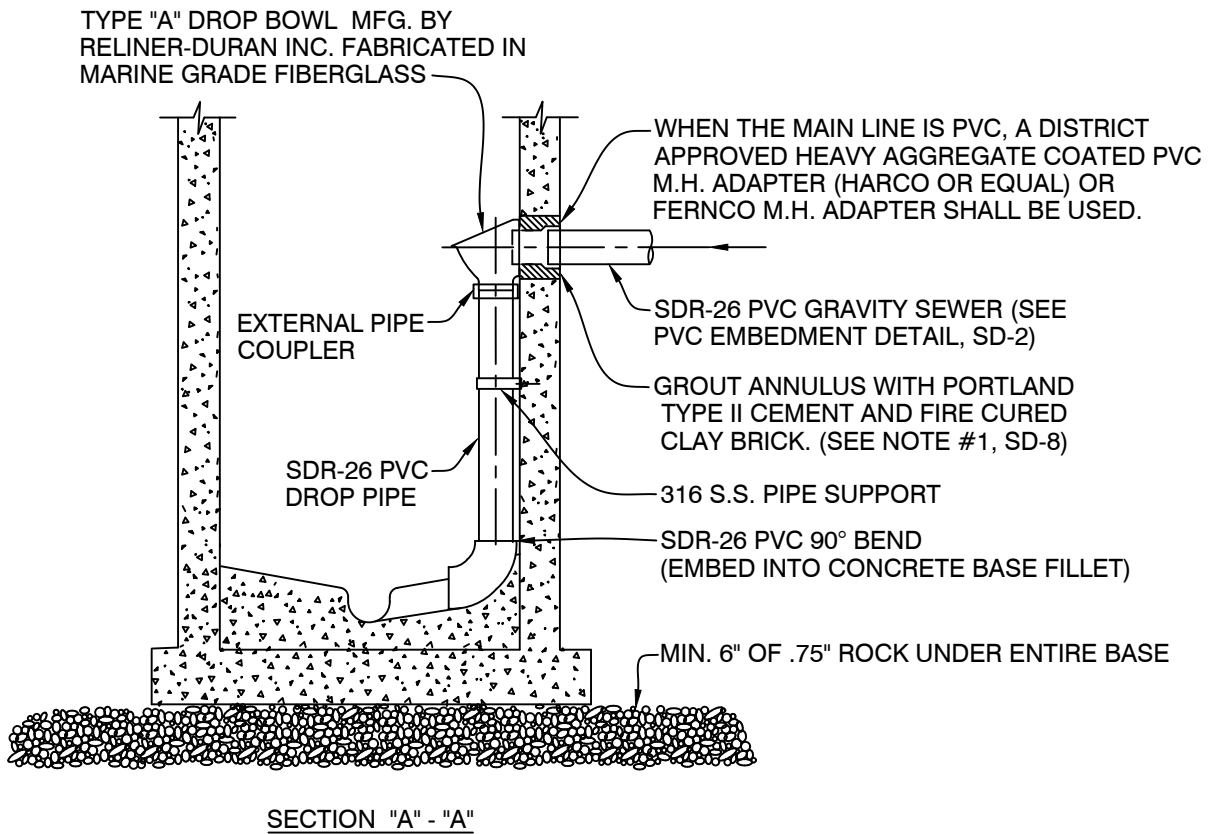
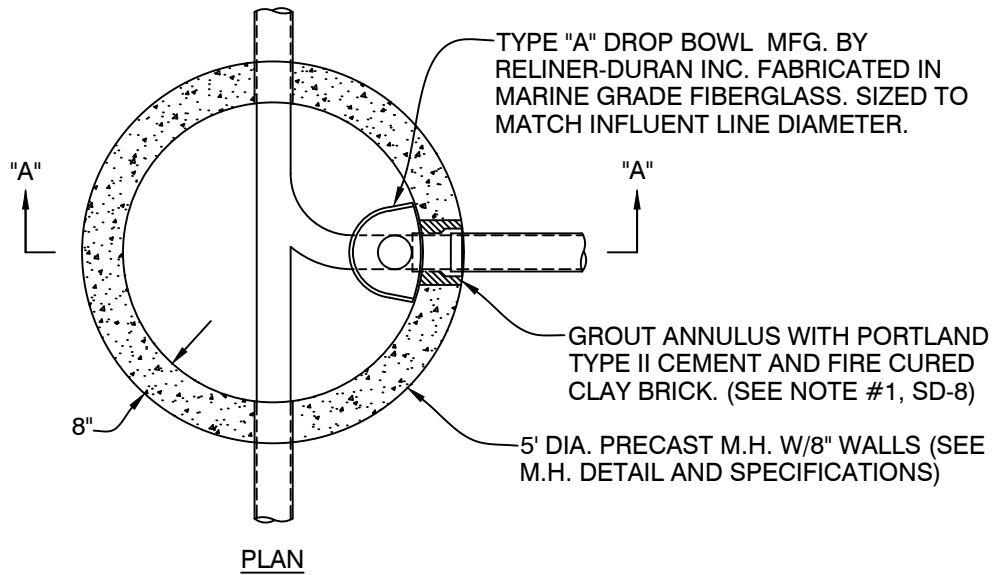
#### SECTION "A-A"

1. WHEN THE MAIN LINE IS PVC, A DISTRICT APPROVED HEAVY AGGREGATE COATED PVC M.H. ADAPTER (HARCO OR EQUAL) OR FERNCO M.H. ADAPTER SHALL BE USED. CAST IN PLACE RUBBER BOOTS WITH STAINLESS STEEL HARDWARE (CAST-A-SEAL 12-08 FOR 8", Z-LOC C-107 FOR ALL OTHER SIZES) MAY BE USED AS AN ALTERNATE.
2. CHANNEL WIDTHS AND INVERT RADII VARY UNIFORMLY FROM END TO END.
3. ALL HOLES FOR PIPES SHALL BE CAST INTO THE MANHOLES. OPENINGS REQUIRED ON ALL EXISTING MANHOLES SHALL BE CORED WITH APPROVED MACHINES.
4. WHEN INVERT DIFFERENTIALS BETWEEN PIPES ENTERING MANHOLES IS 2'. OR LESS, A "SLIDE" TYPE FLOW CHANNEL SHALL BE CONSTRUCTED TO FORM A SMOOTH FLOW TRANSITION. WHEN TWO (2) OR MORE "SLIDES" HAVE AN INVERT DIFFERENTIAL OF GREATER THAN .5' AND LESS THAN 2'. THE MANHOLE SHALL BE 5'-0". ALL INSIDE DROP MANHOLE'S SHALL BE 5' I.D. (SEE DETAIL SD-12).
5. A MINIMUM DIFFERENTIAL OF .1' SHALL BE PROVIDED BETWEEN THE INLET AND OUTLET PIPE INVERTS.
6. ALL MANHOLES 14' OR MORE FROM RIM TO LOWEST INVERT, SHALL RECEIVE A MINIMUM 0.5" THICK COATING OF SEWPERCOAT OR APPROVED EQUAL.
7. ALL MANHOLES IN A WELL FIELD PROTECTION ZONE 1 OR 2, SHALL RECEIVE A MINIMUM 1" THICK COATING OF SEWPERCOAT OR APPROVED EQUAL.

### LOXAHATCHEE RIVER DISTRICT

N.T.S.	PRECAST MANHOLE DETAIL	SD-11
REVISION: MARCH, 2017		





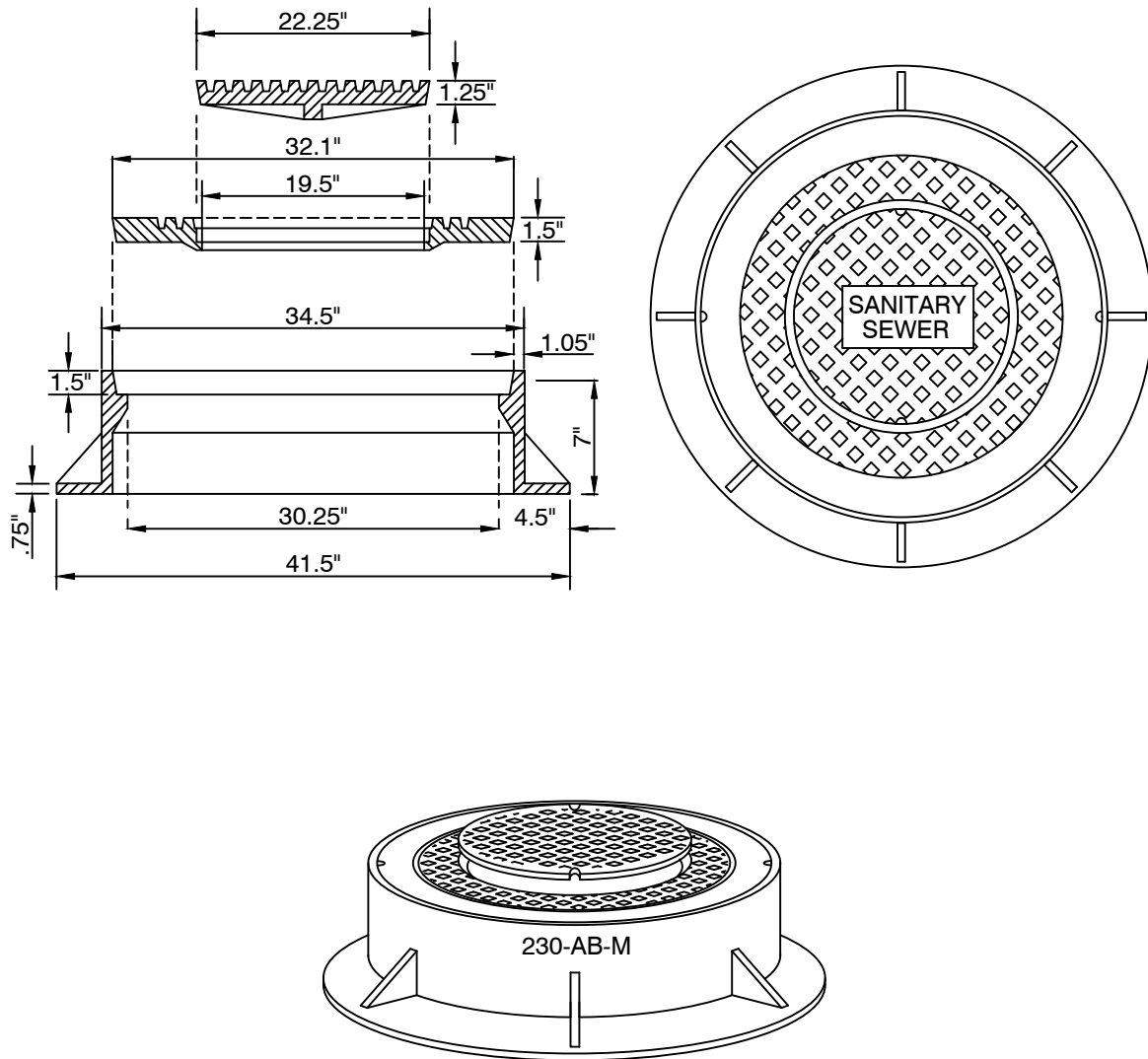
LOXAHATCHEE RIVER DISTRICT

N.T.S.  
REVISION:  
APRIL, 2012

GRAVITY SEWER  
INSIDE DROP MANHOLE DETAIL

SD-12





**NOTES:**

1. U.S.F. #230-AB-M MANHOLE RING & DOUBLE COVER, APPROXIMATE TOTAL WEIGHT 605 POUNDS
2. IN CASES WHERE A SHALLOW FRAME IS REQUIRED USF MODEL #655 MAY BE SUBISTUTED FOR MODEL #230-AB-M

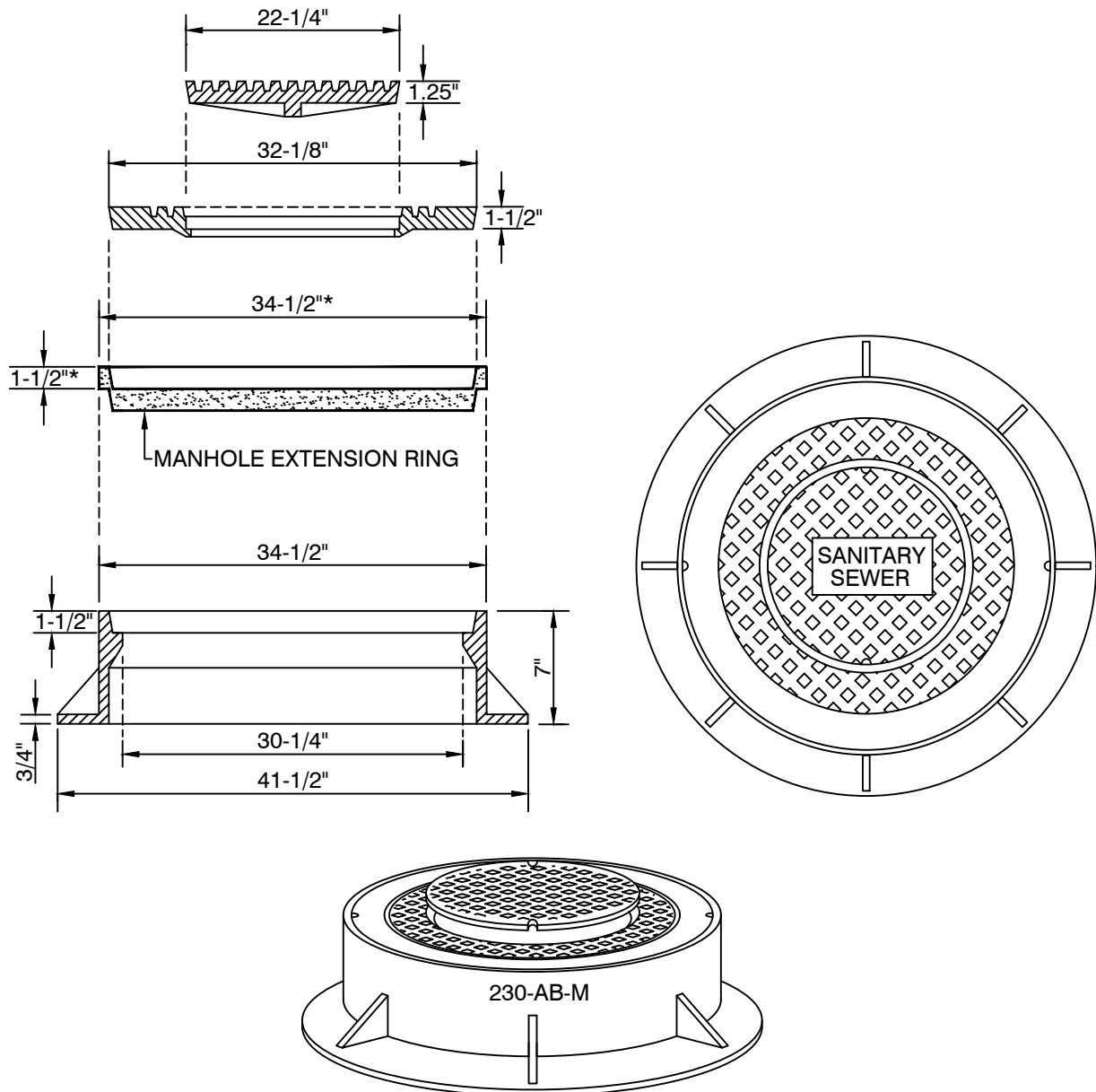
LOXAHATCHEE RIVER DISTRICT

N.T.S.

REVISION:  
APRIL, 2012

MANHOLE FRAME AND COVER DETAIL

SD-13



\*DIMENSIONS TO BE FIELD VERIFIED BY CONTRACTOR  
PRIOR TO SHOP DRAWING REVIEW AND APPROVAL.

**NOTES:**

1. USE OF THIS DETAIL REQUIRES PRIOR APPROVAL FROM THE DIRECTOR OF ENGINEERING.
2. EXTENSION RINGS SHALL BE POLYPROPYLENE & FIBERGLASS. MANHOLE RINGS AS MANUFACTURED BY: "TURNER COMPANY".
3. ALL SURFACES SHALL BE CLEANED OF ALL DIRT, GREASE, OIL, RUST. METAL SURFACES SHALL BE WIRE BRUSHED.
4. APPLY 3M 4693 ADHESIVE (OR APPROVED EQUAL) TO ALL MATING SURFACES.

**LOXAHATCHEE RIVER DISTRICT**

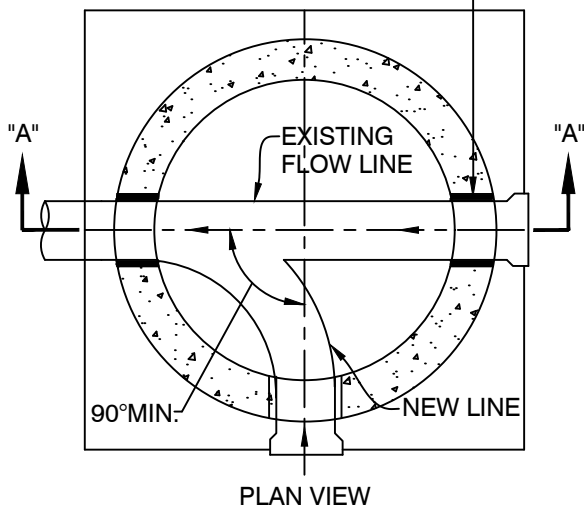
N.T.S.

REVISION:  
AUG, 2022

**MANHOLE EXTENSION RING DETAIL**

**SD-14**

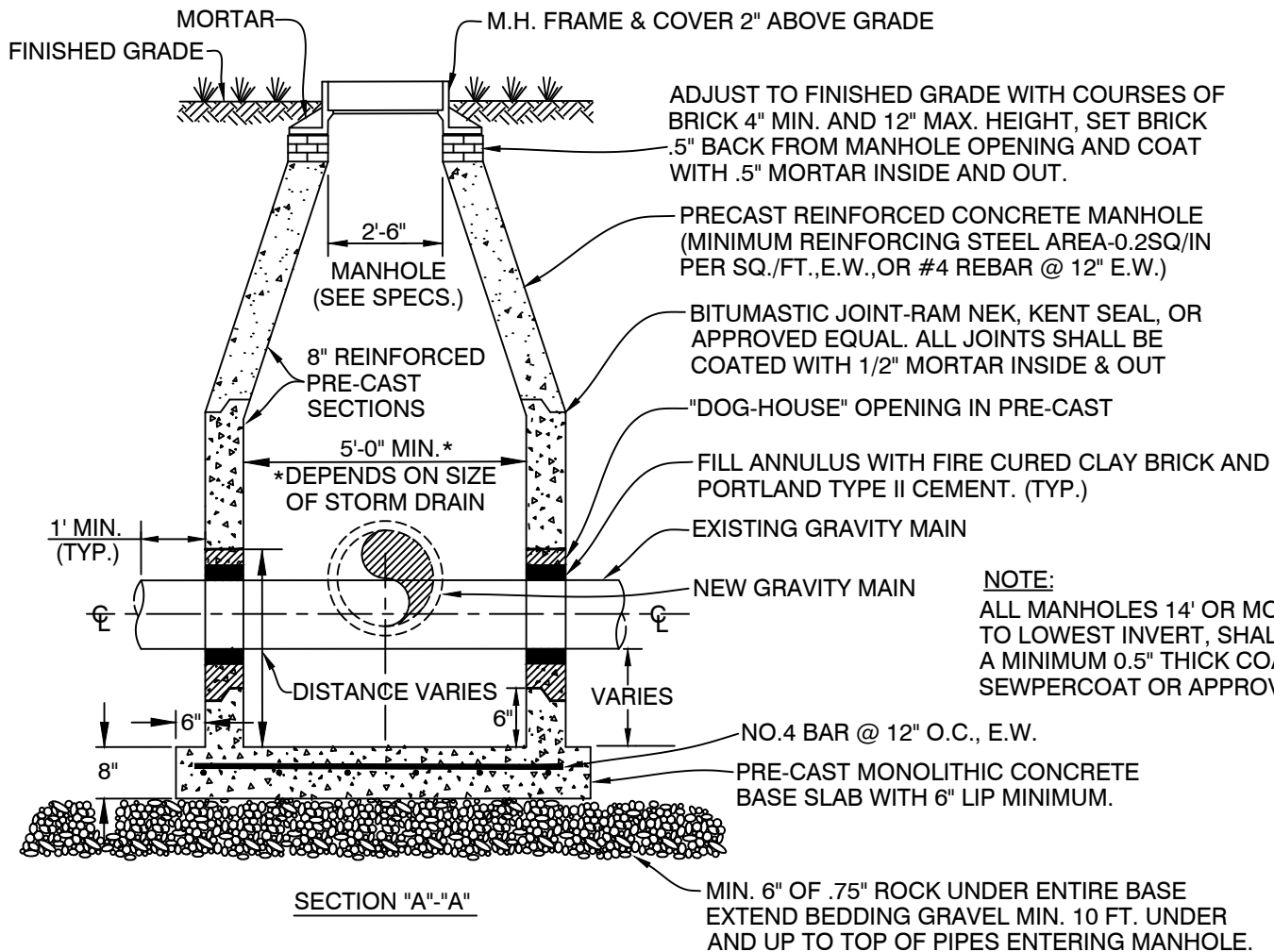
COMPLETELY FILL ANNULUS BETWEEN  
ADAPTER AND M.H. WALL WITH FIRE CURED  
CLAY BRICK AND TYPE II PORTLAND CEMENT



PLAN VIEW

**NOTES:**

1. WHEN THE MAIN LINE IS PVC, A DISTRICT APPROVED HEAVY AGGREGATE COATED PVC M.H. ADAPTER (HARCO OR EQUAL) OR FERNCO M.H. ADAPTER SHALL BE USED. CAST IN PLACE RUBBER BOOTS WITH STAINLESS STEEL HARDWARE (LOCK-JOINT MODEL CP6) MAY BE USED AS AN ALTERNATE.
2. CHANNEL WIDTHS AND INVERT RADII VARY UNIFORMLY FROM END TO END.
3. ALL HOLES FOR PIPES SHALL BE CAST INTO THE MANHOLES. OPENINGS REQUIRED ON ALL EXISTING MANHOLES SHALL BE CORED WITH APPROVED MACHINES.
4. WHEN INVERT DIFFERENTIALS BETWEEN PIPES ENTERING MANHOLES IS 2FT. OR LESS, A "SLIDE" TYPE FLOW CHANNEL SHALL BE CONSTRUCTED TO FORM A SMOOTH FLOW TRANSITION. WHEN TWO (2) OR MORE "SLIDES" HAVE AN INVERT DIFFERENTIAL OF GREATER THAN 0.5FT. AND LESS THAN 2.0FT. THE MANHOLE SHALL BE 5'-0". ALL INSIDE DROP MANHOLE'S SHALL BE 5'-0" I.D. (SEE DETAIL SD-7).
5. A MINIMUM DIFFERENTIAL OF 0.1 FT. SHALL BE PROVIDED BETWEEN THE INLET AND OUTLET PIPE INVERTS



SECTION "A"-A

**NOTE:**

ALL MANHOLES 14' OR MORE FROM RIM TO LOWEST INVERT, SHALL RECEIVE A MINIMUM 0.5" THICK COATING OF SEWERCOAT OR APPROVED EQUAL.

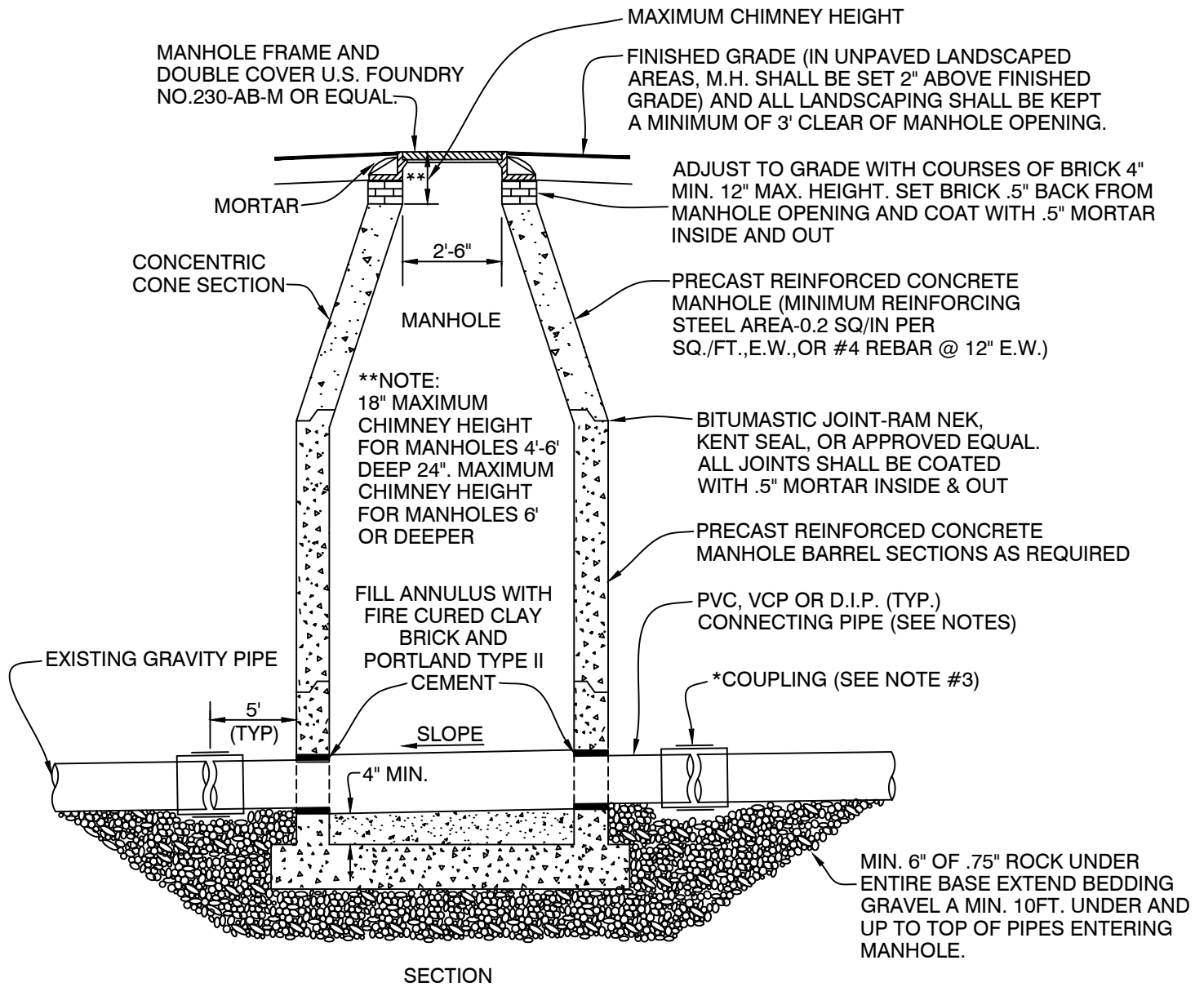
LOXAHATCHEE RIVER DISTRICT

N.T.S.

REVISION:  
APRIL, 2012

**DOGHOUSE MANHOLE INSTALLATION INTO  
AN EXISTING GRAVITY SEWER LINE DETAIL**

**SD-15**

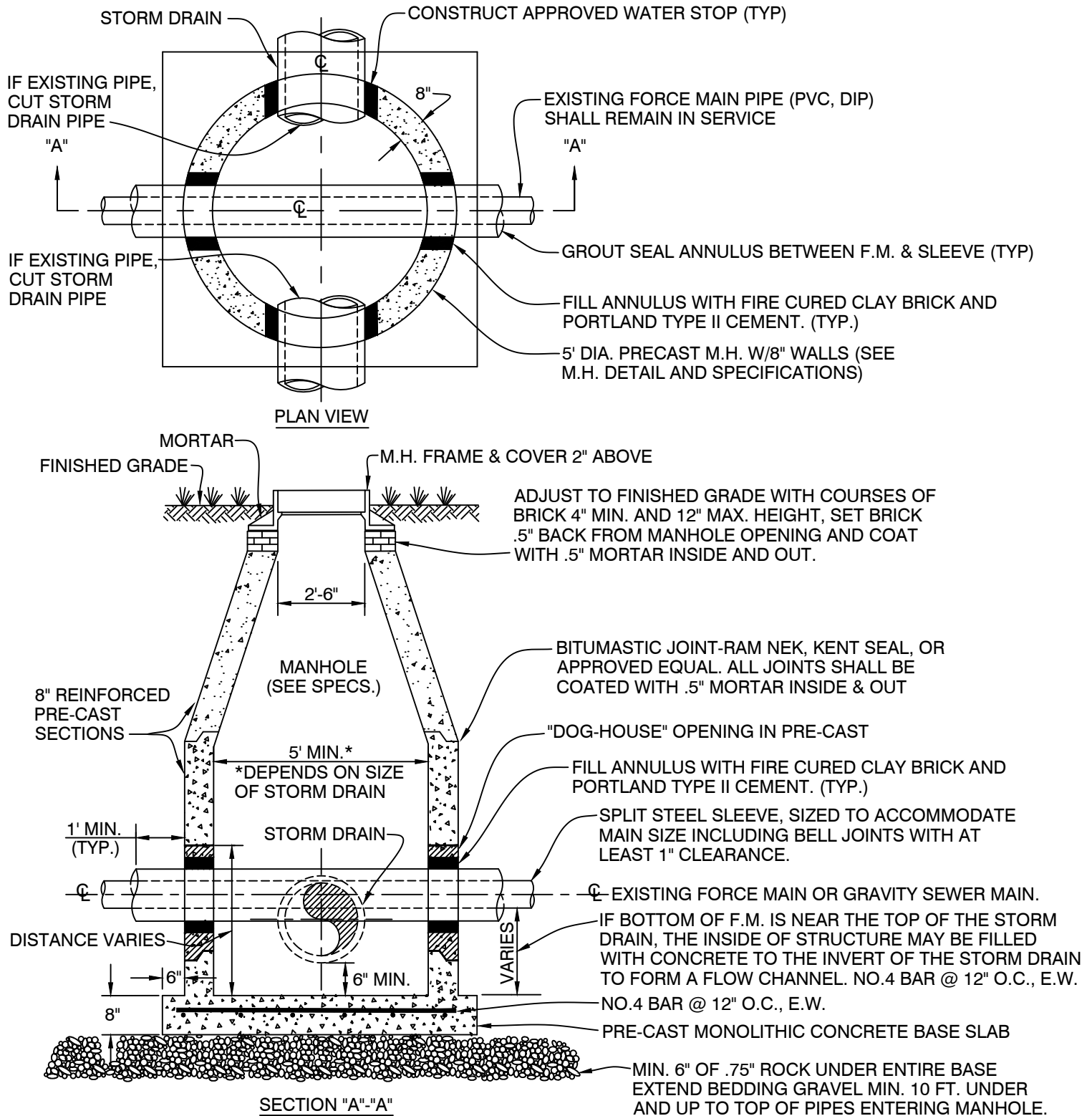


**NOTES:**

1. WHEN EXISTING GRAVITY PIPE IS VCP OR SDR-35 PVC, SDR-26 WILL BE USED TO MAKE CONNECTION. WHEN PIPE IS C-900, DIP OR SDR-26, USE SIMILAR PIPE TO RECONNECT.
2. EXISTING SEWAGE FLOWS SHALL BE BY-PASSED BY PUMPING BETWEEN CLOSEST AVAILABLE MANHOLES.
3. \*WHEN EXISTING PIPE IS D.I.P., USE AN APPROVED C-900 COUPLING, WHEN EXISTING PIPE IS V.C.P., USE A FERNCO COUPLING. W/ COPPER WIRE WRAPPED AROUND PIPE AT BOTH ENDS OF FERNCO COUPLING.
4. WHEN THE MAIN LINE IS PVC, A DISTRICT APPROVED HEAVY AGGREGATE COATED PVC M.H. ADAPTER (HARCO OR EQUAL) OR FERNCO M.H. ADAPTER SHALL BE USED.
5. ALL MANHOLES 14' OR MORE FROM RIM TO LOWEST INVERT, SHALL RECEIVE A MINIMUM 0.5" THICK COATING OF SEWPERCOAT OR APPROVED EQUAL.

**LOXAHATCHEE RIVER DISTRICT**

N.T.S.	<b>SEWER MANHOLE INSTALLATION INTO AN EXISTING GRAVITY SEWER LINE DETAIL</b>	<b>SD-16</b>
REVISION: APRIL, 2012		



WHERE FORCE MAIN SERVICE CANNOT BE SHUT DOWN

# LOXAHATCHEE RIVER DISTRICT

## SEWER MAIN / STORM DRAIN CONFLICT STRUCTURE DETAIL

SD-17

N.T.S.

REVISION:  
APRIL, 2012

MINIMUM LENGTH (FT) TO BE RESTRAINED ON EACH SIDE OF FITTING(S)										
TYPE	PIPE SIZE									
	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"
90° BEND	18	24	31	38	43	55	65	75	88	100
45° BEND	8	10	13	15	18	23	26	31	38	43
22-1/2° BEND	4	5	6	8	9	11	13	15	18	20
11-1/4° BEND	2	3	4	5	6	8	9	10	11	13
PLUG OR BRANCH OF TEE	38	50	65	79	90	117	139	163	194	223
VALVE	19	25	32	40	45	59	70	82	98	112
REDUCER	VARIES BY SIZE; TO BE DETERMINED BY THE DESIGN ENGINEER									

**NOTES:**

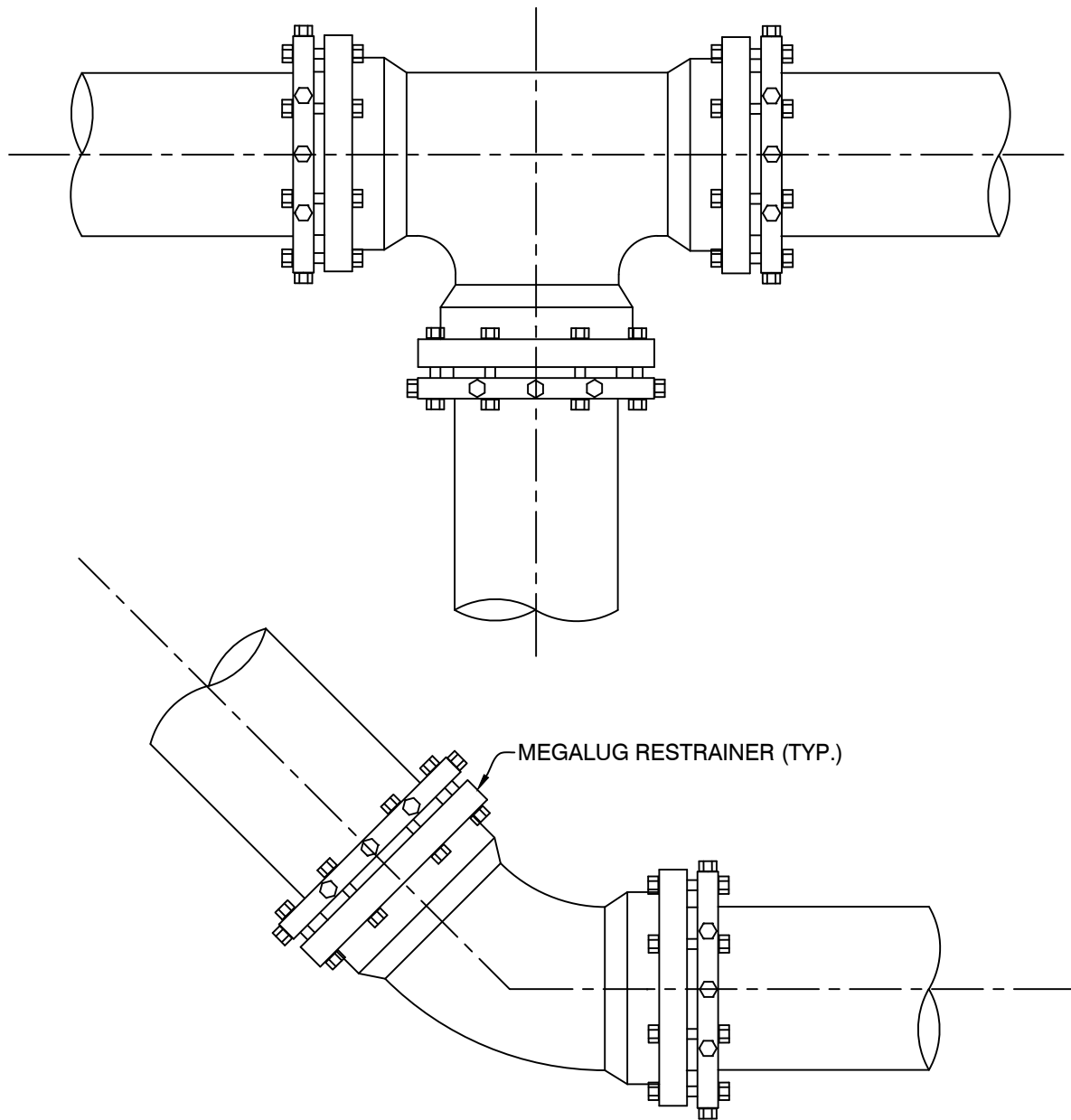
1. FITTINGS SHALL HAVE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
2. INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN LENGTH SHOWN IN THE TABLE.
3. WHERE TWO OR MORE FITTINGS ARE IN SERIES, SELECT FITTING RESTRAINT LENGTH THAT YIELDS THE LONGEST RESTRAINT DISTANCE.
4. ALL INLINE VALVES SHALL BE RESTRAINED.
5. WHERE INTERNAL RESTRAINED JOINTS ARE USED, THE ENTIRE BELL SHALL BE PAINTED RED.
6. LENGTHS SHOWN IN THE TABLE WERE CALCULATED IN ACCORDANCE WITH PROCEDURES OUTLINED IN "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" GUIDELINES PUBLISHED BY DIPRA, USING THE ASSUMPTIONS SHOWN BELOW:

WORKING PRESSURE: 100 PSI  
 SOIL DESIGNATION: SM (SAND SILT)  
 LAYING CONDITIONS: 3  
 DEPTH OF COVER: 3 FT  
 SAFETY FACTOR: 1.5  
 CONVERSION FACTOR FOR PVC PIPE: 1.25

THE DESIGN ENGINEER SHALL INCREASE THE VALUES IN THE TABLE AS WARRANTED BY SITE-SPECIFIC PARAMETERS, SUCH AS SOIL DESIGNATIONS AND LAYING CONDITIONS.

**LOXAHATCHEE RIVER DISTRICT**

N.T.S.	<b>FORCE MAIN THRUST RESTRAINT CHART</b>	<b>SD-18</b>
REVISION: APRIL, 2012		



**NOTES:**

1. RETAINER GLANDS FOR PVC PIPE OR DUCTILE IRON PIPE SHALL BE USED AT BEND'S OR TEE'S; RETAINER GLANDS SHALL BE MANUFACTURED BY UNI-FLANGE CORP., OR "MEGALUG" BY EBAA IRON SALES INC., OR DISTRICT APPROVED EQUAL.
2. THE NUMBER OF JOINTS RESTRAINED EACH SIDE OF ANY FITTING OR VALVE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATION.
3. ALL BEND'S & TEE'S SHALL HAVE AN EMS INSTALLED.

LOXAHATCHEE RIVER DISTRICT

N.T.S.

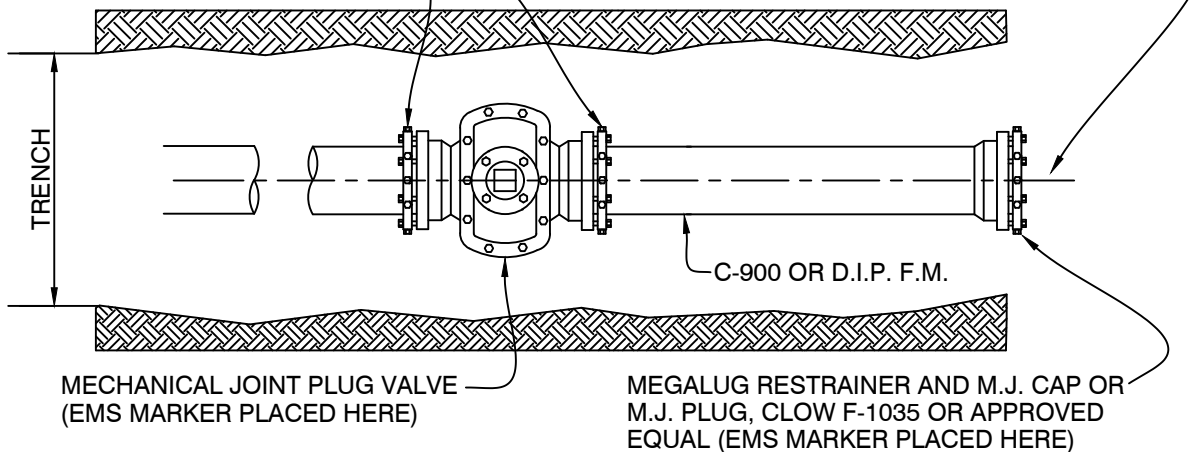
REVISION:  
APRIL, 2012

**FORCE MAIN THRUST RESTRAINT DETAIL**

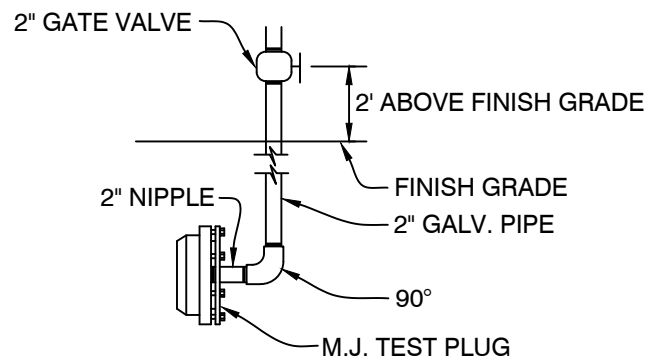
**SD-19**

MEGALUG RESTRAINT BY EBAA IRON  
IN ACCORDANCE WITH  
MANUFACTURER'S SPECIFICATIONS.

\*IF TEST BLOWOFF USED IT WILL BE REMOVED PRIOR  
TO FINAL, M.J. PLUG INSTALLED OR 2" BRASS PLUG  
INSTALLED AND LEFT IN CLOSED POSITION.



PLAN



TEST BLOWOFF

NOTE:  
ALL JOINTS WILL BE RESTRAINED BY "MEG-A-LUG" RESTRAINERS  
AS MANUFACTURED BY EBAA IRON. THE NUMBER OF JOINTS TO BE  
RESTRAINED SHALL BE BASED ON MANUFACTURER'S  
RECOMMENDATIONS FOR APPLICABLE TEST PRESSURE RATINGS.

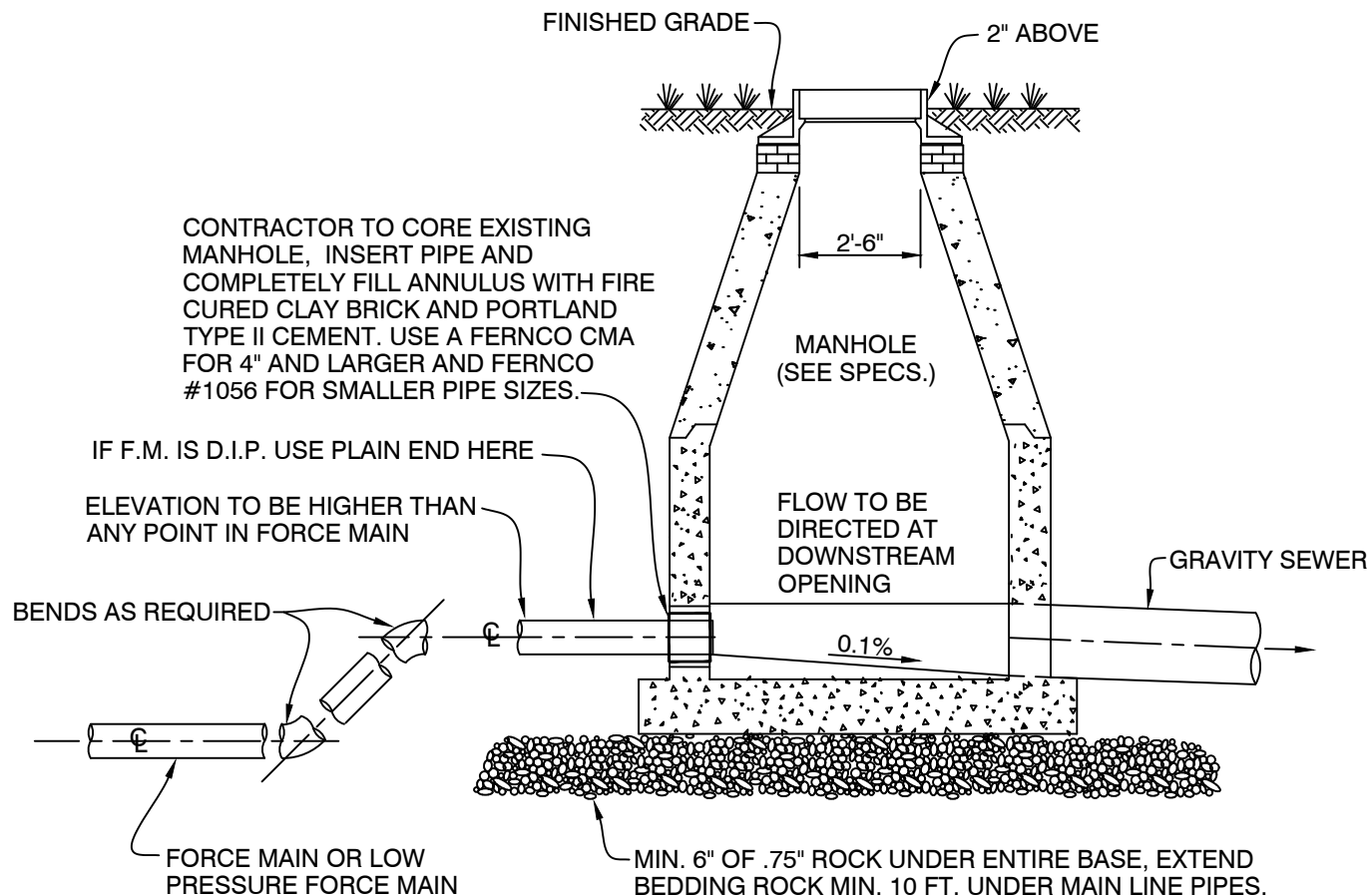
LOXAHATCHEE RIVER DISTRICT

FORCE MAIN TERMINAL END DETAIL

SD-20

N.T.S.  
REVISION:  
APRIL, 2012





**NOTES:**

1. WHEN ELEVATION OF FORCE MAIN AT MANHOLE IS HIGHEST POINT OF FORCE MAIN, BENDS CAN BE ELIMINATED.

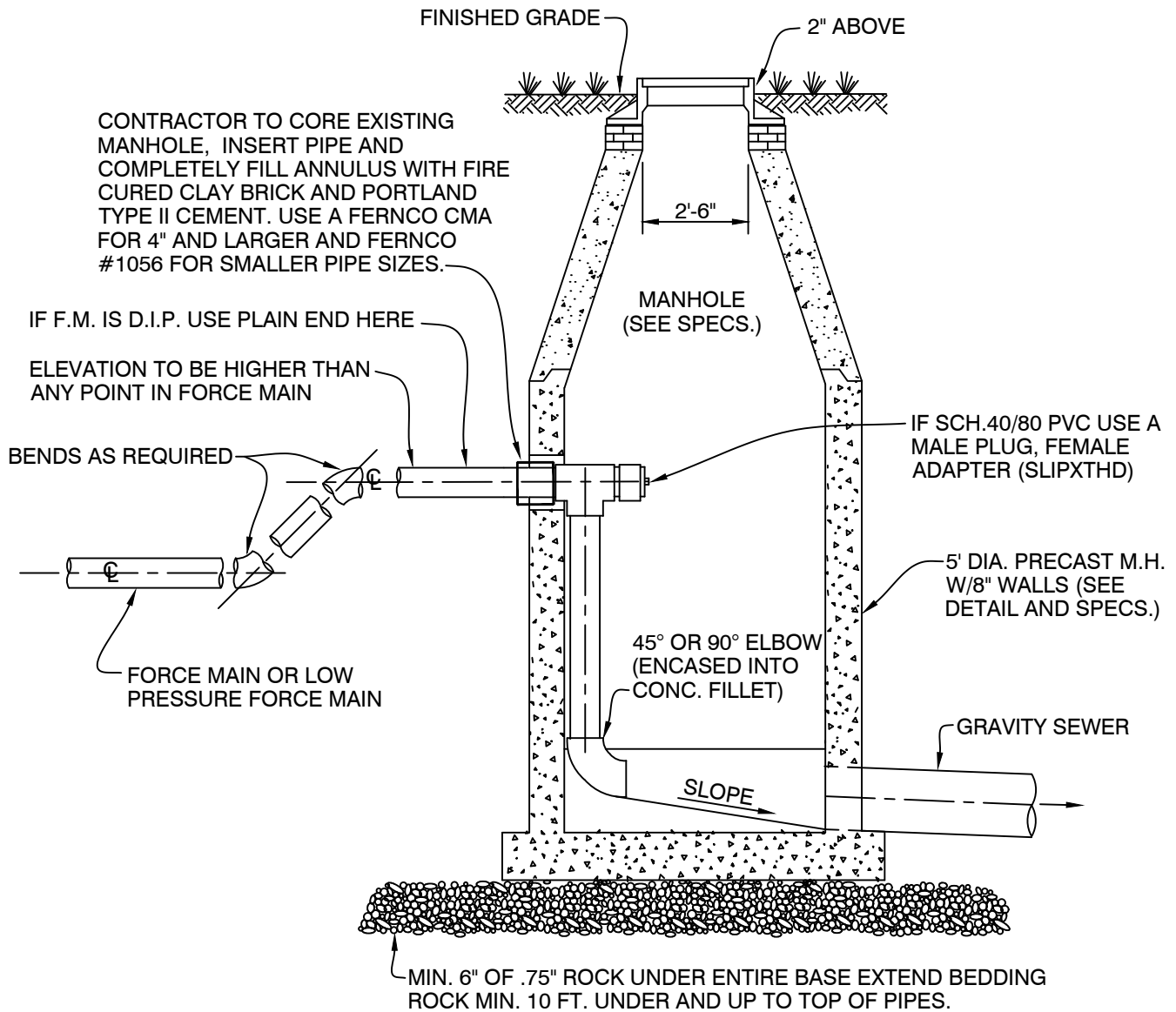
**LOXAHATCHEE RIVER DISTRICT**

N.T.S.

REVISION:  
APRIL, 2012

**FORCE MAIN INTO SHALLOW MANHOLE DETAIL**

**SD-21**



**NOTES:**

1. ALL DROP PIPING INCLUDING TEE SHALL BE D.I.P., PVC (C-900), OR SCH 40/80 PVC.
2. MANHOLE SHALL RECEIVE A MINIMUM 0.5" THICK COATING OF SEWPERCOAT OR APPROVED EQUAL.

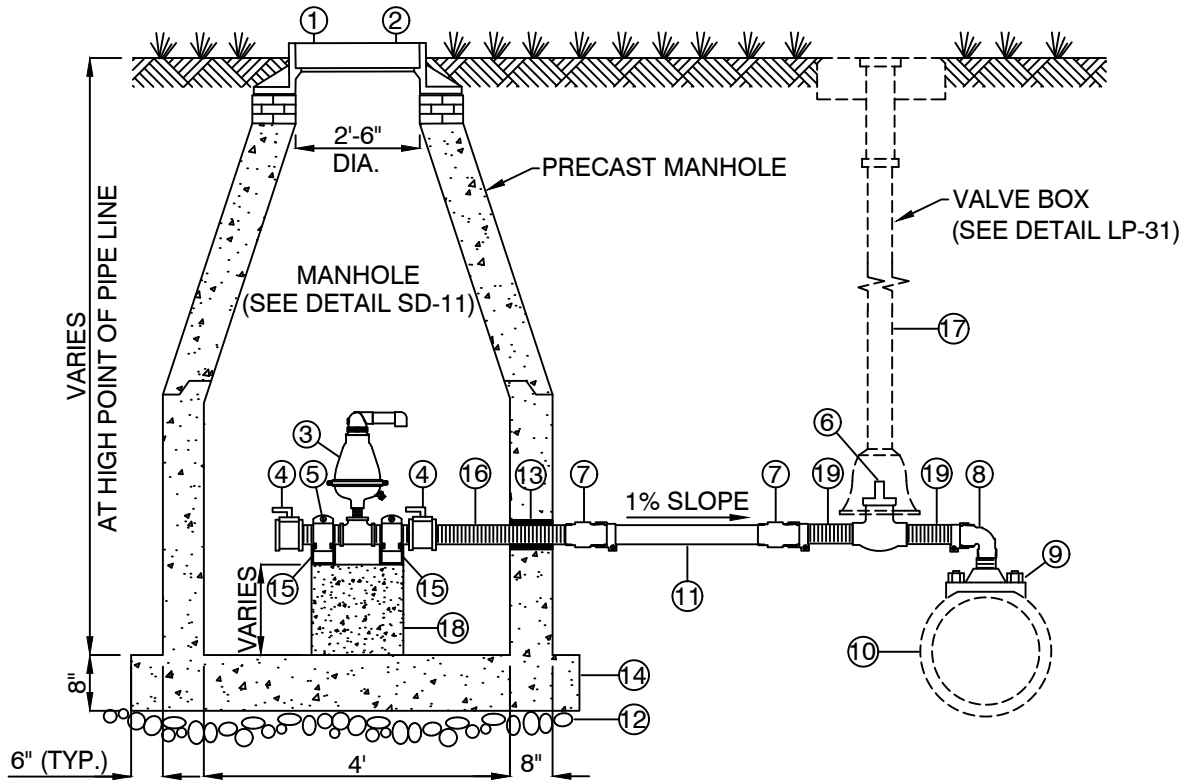
**LOXAHATCHEE RIVER DISTRICT**

N.T.S.

REVISION:  
APRIL, 2012

**FORCE MAIN INTO DEEP MANHOLE DETAIL**

**SD-22**



- ① - MH COVER TO BE PLACED 2" ABOVE FINISHED GRADE IN LANDSCAPE AREAS
- ② - FRAME AND DOUBLE COVER U.S. FOUNDRY #230-AB-M OR APPROVED EQUAL
- ③ - A.R.I. MODEL #D-025, SHORT VERSION COMBINATION AIR VALVE
- ④ - 2" 316 SS BALL VALVE, McMASTER - CARR, MODEL #46495K26 OR APPROVED EQUAL
- ⑤ - VALVE ASSEMBLY PIPE SHALL BE FASTENED W/ SS HARDWARE TO KEEP A.R.V. PLUMB
- ⑥ - 2" BALL VALVE SHALL BE FORD #B11777 CURB STOP OR APPROVED EQUAL
- ⑦ - PACK JOINT COUPLING (C87-XX-NL-STYLE) W/ SS STIFFENERS
- ⑧ - BRASS 90°

- ⑨ - 316 SS DOUBLE BOLT SERVICE SADDLE W/ 2" N.P.T. THREADED OUTLET. THE SERVICE SADDLE & HARDWARE SHALL ALL BE 316 SS
- ⑩ - FORCE MAIN OFFSET CONDITION
- ⑪ - 2" HDPE-SDR11 PIPING (MIN 1% SLOPE)
- ⑫ - MIN. 6" OF .75" GRAVEL UNDER ENTIRE BASE
- ⑬ - FERNCO WATER STOP
- ⑭ - MONOLITHIC BASE SECTION
- ⑮ - UNISTRUT TO BE ATTACHED W/ SS HARDWARE 2" EMBEDMENT
- ⑯ - SS NIPPLE TO BE MADE TO SIZE AND EXTEND THROUGH MANHOLE CONCRETE WALL
- ⑰ - VALVE BOX BINGHAM & TAYLOR I-4B WITH ARCHED BOTTOM AND STANDARD ROUND LID MARKED "SEWER"
- ⑱ - 3000 PSI CAST IN PLACE CONCRETE
- ⑲ - 8" BRASS NIPPLE

#### NOTES:

1. ALL MATERIAL, FITTINGS, VALVES, NIPPLES, AND HARDWARE TO BE MIN. 304 SS INSIDE MANHOLE.
2. VALVES SHALL HAVE ALL LOCKING MECHANISMS REMOVED, BE IN THE UPRIGHT POSITION, ACCESSIBLE AND OPERATIONAL VIA VALVE KEY FROM ABOVE.
3. CENTER ARV UNDER MANHOLE OPENING.
4. TOP OF AIR RELEASE VALVES SHALL BE NO LESS THAN 12" FROM INSIDE MANHOLE RIM ELEVATION AND NO GREATER THAN 24".
5. MANHOLE COVER SHALL BE MARKED "SEWER".

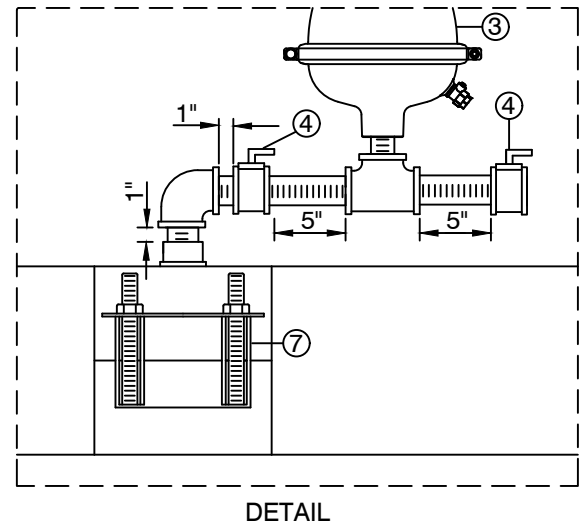
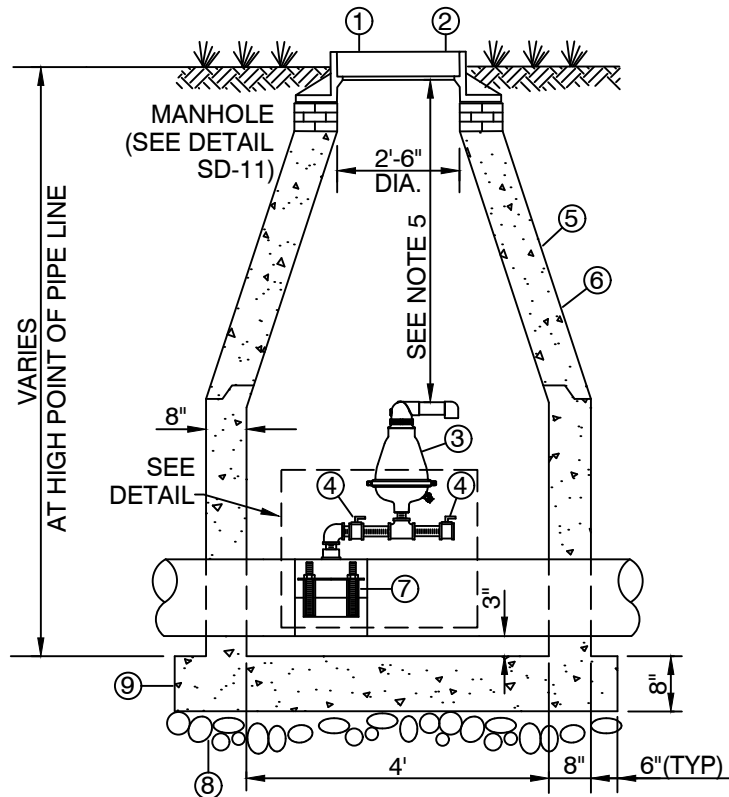
#### LOXAHATCHEE RIVER DISTRICT

N.T.S.

REVISION:  
SEP, 2022

## AUTOMATIC AIR RELEASE VALVE OFFSET FORCE MAIN CONDITION DETAIL

SD-23



- ①- MH COVER TO BE PLACED 2" ABOVE FINISHED GRADE IN LANDSCAPE AREAS
- ②- FRAME AND DOUBLE COVER U.S. FOUNDRY #230-AB-M OR EQUAL
- ③- A.R.I. MODEL #D-025, SHORT VERSION COMBINATION AIR VALVE
- ④- 2" 316 SS BALL VALVE, McMASTER - CARR, MODEL #46495K26 OR APPROVED EQUAL
- ⑤- PRE CAST CONE SECTION
- ⑥- 4' DIA. PRE CAST M.H. SECTION PER A.S.T.M. C-478
- ⑦- 316 SS DOUBLE BOLT SERVICE SADDLE W/ 2" N.P.T. THREADED OUTLET. THE SERVICE SADDLE & HARDWARE SHALL ALL BE 316 SS
- ⑧- MIN. 6" OF .75" GRAVEL UNDER ENTIRE BASE
- ⑨- MONOLITHIC BASE SECTION

#### NOTES:

1. ALL MATERIAL, FITTINGS, VALVES, NIPPLES, AND HARDWARE TO BE MIN. 304 SS INSIDE MANHOLE.
2. VALVES SHALL HAVE ALL LOCKING MECHANISMS REMOVED, BE IN THE UPRIGHT POSITION, ACCESSIBLE AND OPERATIONAL VIA VALVE KEY FROM ABOVE.
3. CENTER ARV UNDER MANHOLE OPENING.
4. IN SITUATIONS WHERE A FORCE MAIN CROSSES A CANAL OR IS ATTACHED TO A BRIDGE, WHERE A STRUCTURE IS NOT NECESSARY, AN A.R.V TYPE A.R.I. MODEL #D-025 SHALL BE USED.
5. TOP OF AIR RELEASE VALVES SHALL BE NO LESS THAN 12" FROM INSIDE MANHOLE RIM ELEVATION AND NO GREATER THAN 24".
6. MANHOLE COVER SHALL BE MARKED "SEWER".

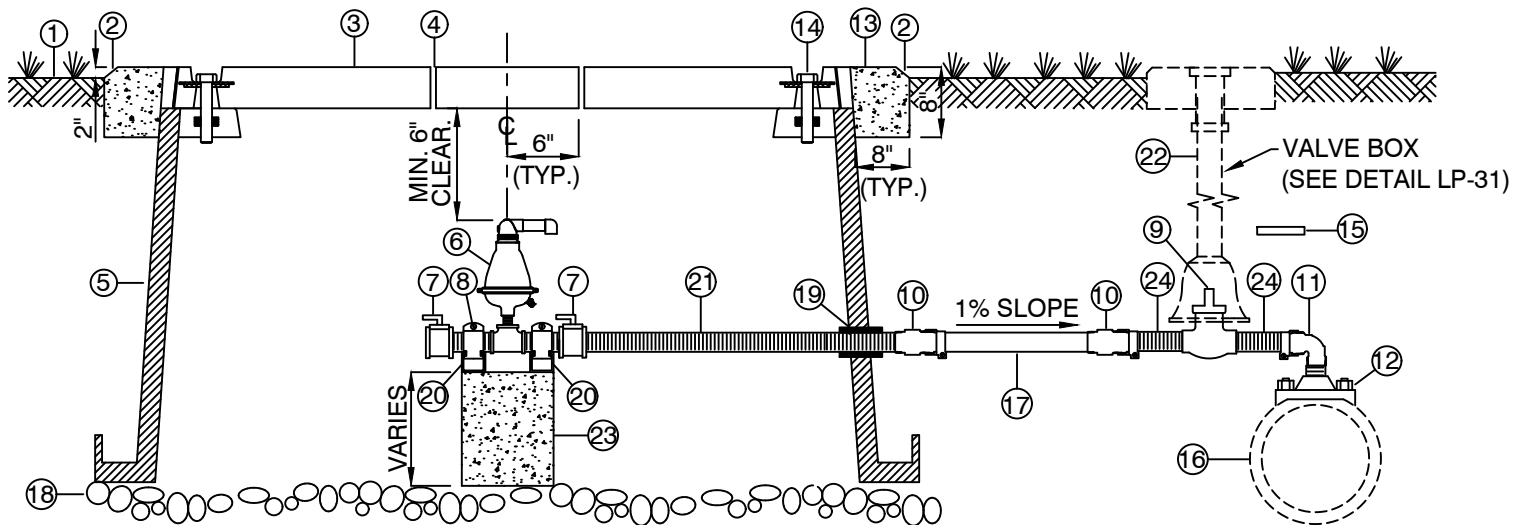
### LOXAHATCHEE RIVER DISTRICT

N.T.S.

REVISION:  
SEP, 2022

## AUTOMATIC AIR RELEASE VALVE DETAIL

SD-24



- ① - FINISHED GRADE
- ② - 45° CHAMFER (TYP.)
- ③ - HUBBELL QUAZITE 30"X48" ARV BOX BOLT DOWN HEAVY DUTY COVER MODEL #C12304803A OR APPROVED EQUAL
- ④ - DRILL .25" VENT HOLE, 2 HOLES THRU TOP LID (TYP.)
- ⑤ - HUBBELL QUAZITE 30"X48"X18" ARV BOX MODEL #B12304818A OR APPROVED EQUAL
- ⑥ - A.R.I. MODEL #D-025, SHORT VERSION COMBINATION AIR VALVE
- ⑦ - 2" 316 SS BALL VALVE, McMASTER - CARR, MODEL #46495K26 OR APPROVED EQUAL
- ⑧ - VALVE ASSEMBLY PIPE SHALL BE FASTENED W/ SS HARDWARE TO KEEP A.R.V. PLUMB
- ⑨ - 2" BALL VALVE SHALL BE FORD #B11777 CURB STOP OR APPROVED EQUAL
- ⑩ - PACK JOINT COUPLING (C87-XX-NL-STYLE) W/ SS STIFFENERS
- ⑪ - BRASS 90°
- ⑫ - 316 SS DOUBLE BOLT SERVICE SADDLE W/ 2" N.P.T. THREADED OUTLET. THE SERVICE SADDLE & HARDWARE SHALL ALL BE 316 SS
- ⑬ - CONCRETE COLLAR W/ #5 BAR MID-DEPTH FULL PERIMETER. OVERLAP BAR ENDS MIN. 6 INCHES.
- ⑭ - BOLT DOWN COVER (MARKED "SEWER")
- ⑮ - EMS MARKER NO.#1258 ELECTRONIC MARKER SYSTEM AS MFG. BY 3M TEST AND MEASUREMENT SYSTEM AUSTIN, TEXAS (PLACED OVER TAP)
- ⑯ - FORCE MAIN OFFSET CONDITION
- ⑰ - 2" HDPE-SDR11 PIPING (MIN 1% SLOPE)
- ⑱ - MIN. 6" OF .75" ROCK UNDER ENTIRE BASE
- ⑲ - FERNCO WATER STOP
- ⑳ - UNISTRUT TO BE ATTACHED W/ SS HARDWARE 2" EMBEDMENT
- ㉑ - SS NIPPLE TO BE MADE TO SIZE AND EXTEND THROUGH MANHOLE CONCRETE WALL
- ㉒ - VALVE BOX BINGHAM & TAYLOR I-4B WITH ARCHED BOTTOM AND STANDARD ROUND LID MARKED "SEWER"
- ㉓ - 3000 PSI CAST IN PLACE CONCRETE
- ㉔ - 8" BRASS NIPPLE

#### NOTES:

1. THIS DETAIL TO BE USED ONLY WITH DISTRICT ENGINEER'S APPROVAL
2. ALL MATERIAL, FITTINGS, VALVES, NIPPLES, AND HARDWARE TO BE MIN. 304 SS INSIDE ARV BOX.
3. VALVES SHALL HAVE ALL LOCKING MECHANISMS REMOVED, BE IN THE UPRIGHT POSITION, ACCESSIBLE AND OPERATIONAL VIA VALVE KEY FROM ABOVE.
4. CENTER ARV UNDER ARV BOX OPENING.
5. TOP OF AIR RELEASE VALVES SHALL BE NO LESS THAN 12" FROM INSIDE ARV TOP ELEVATION AND NO GREATER THAN 24".
6. ARV COVER SHALL BE MARKED "SEWER".

### LOXAHATCHEE RIVER DISTRICT

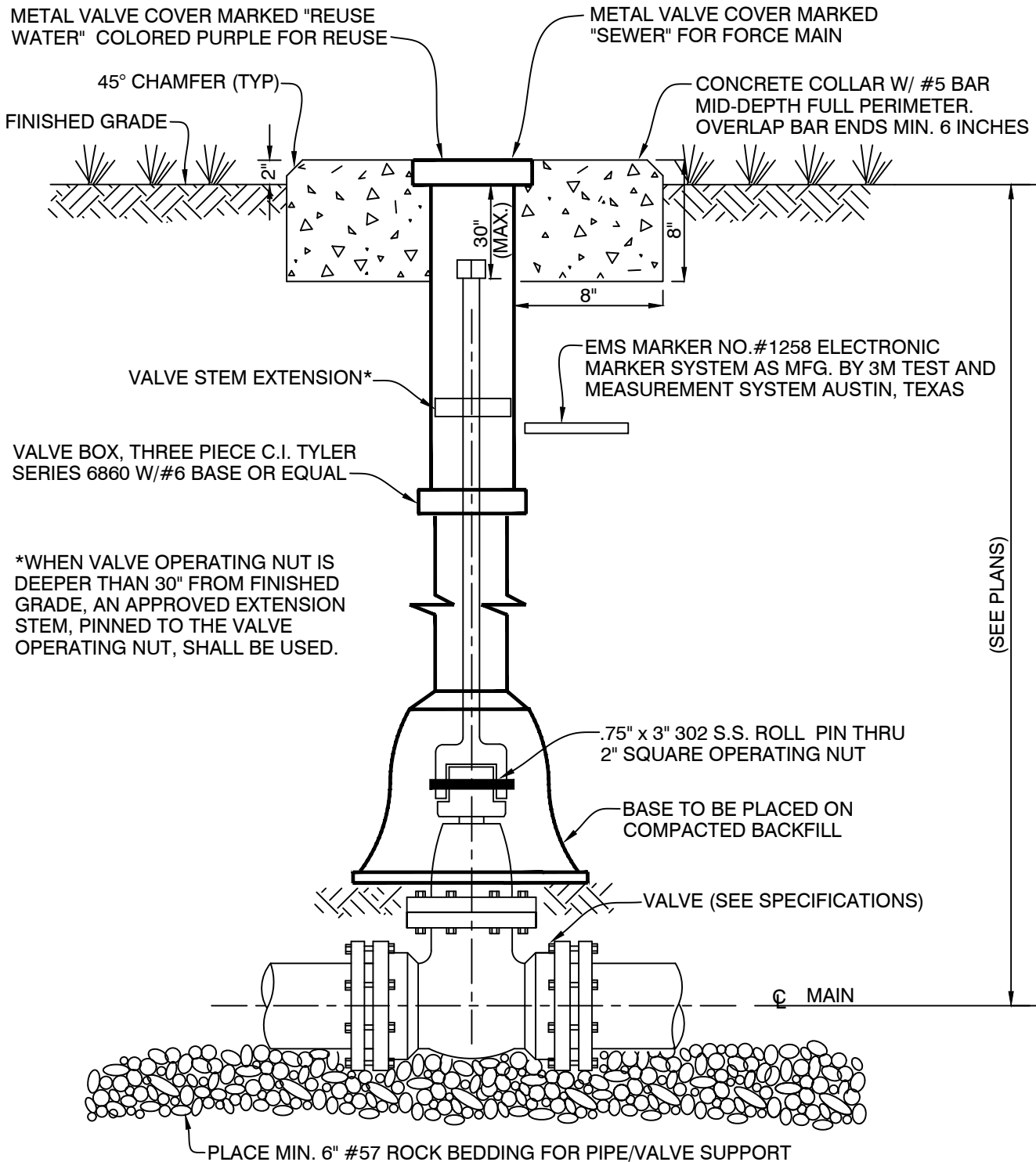
N.T.S.

REVISION:  
SEP, 2022

## TYPICAL FORCE MAIN AIR RELEASE VALVE DETAIL ALTERNATE OFFSET CONFIGURATION

SD-25





## FORCE MAIN OR REUSE WATER SYSTEM

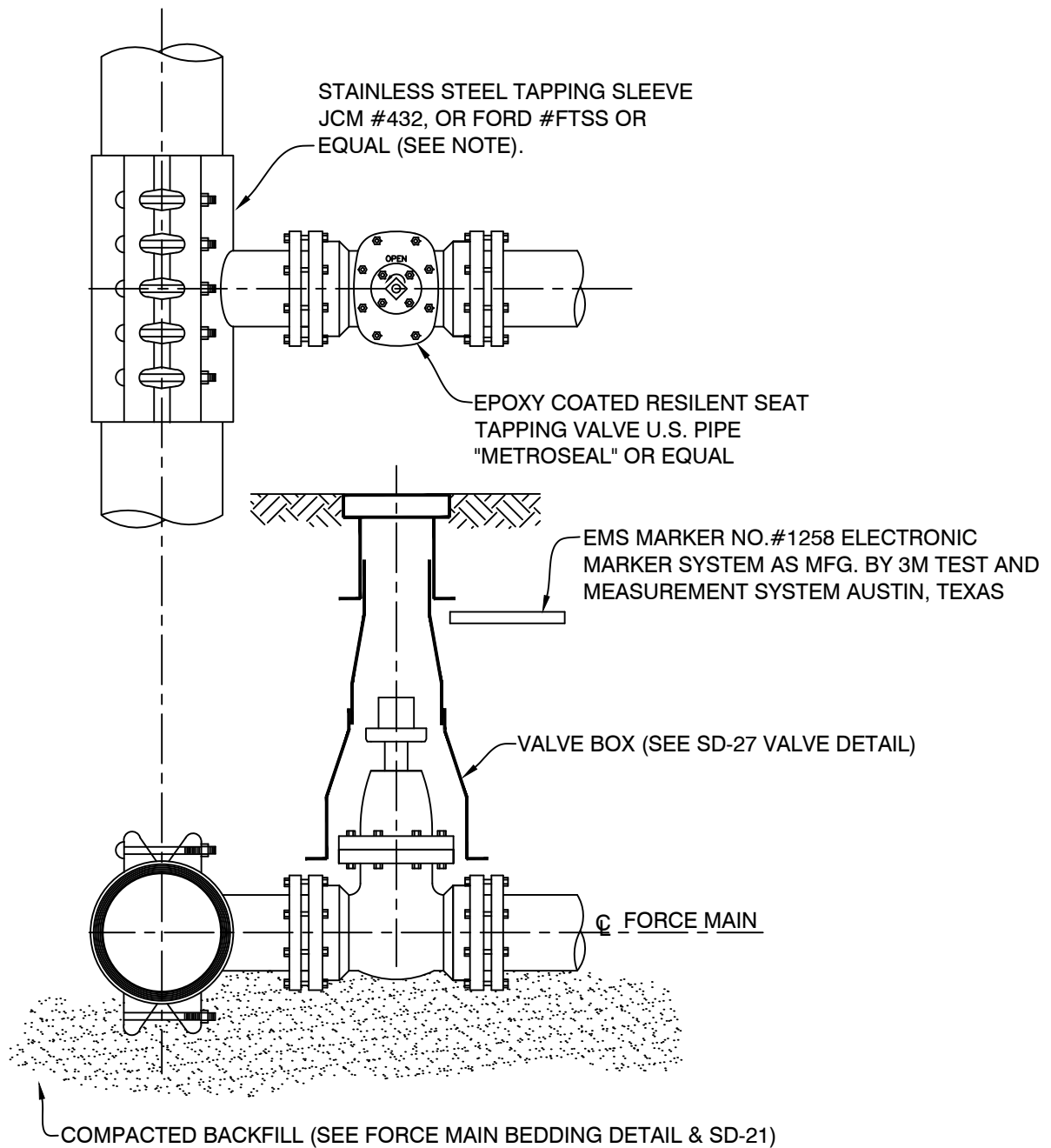
LOXAHATCHEE RIVER DISTRICT

N.T.S.

REVISION:  
JULY, 2019

## BURIED VALVE DETAIL

SD-27



**NOTE:**  
ALL SLEEVES SHALL BE PRESSURE TESTED.

LOXAHATCHEE RIVER DISTRICT

TAPPING FORCE MAIN DETAIL

SD-28

N.T.S.

REVISION:  
JULY, 2019



## RECORD DRAWING SUBMITTAL GUIDE

1. TWO (2) SETS OF FULL SIZE PRINTS SHALL BE SUBMITTED TO THE DISTRICT FOR REVIEW 48 HOURS PRIOR TO REQUESTING INSPECTIONS SUCH AS, FINAL INSPECTION, PRESSURE TESTS, SANITARY SEWER LAMPING OR ANY OTHER ELEMENT OF THE SYSTEM WHICH IS DETERMINED BY THE DISTRICT TO REQUIRE CLARIFICATION.
2. THE DRAWINGS WILL BE REVIEWED BY THE DISTRICT FOR DEFICIENCIES. DEFICIENCIES WILL BE INDICATED ON ONE (1) SET OF PRINTS WHICH WILL BE RETURNED TO THE E.O.R. OR CONTRACTOR FOR NECESSARY CORRECTIVE ACTION.
3. UPON CORRECTION, TWO (2) SETS OF FULL SIZE PRINTS (SIGNED/SEALED BY A FLORIDA LICENSED SURVEYOR) SHALL BE SUBMITTED AND A GEOREFERENCED DESIGN AUTOCAD FILE (VERSION 2020 OR LATER).
4. NO DISCLAIMERS ON DRAWINGS WILL BE ACCEPTED.
5. UPON FINAL SUBMITTAL OF RECORD DRAWINGS, A GEOREFERENCED AUTOCAD FILE (VERSION 2020 OR LATER) AND AN ADOBE PDF 24"X36" FILE SHALL BE FURNISHED ON A CD/DVD DISK, THUMB DRIVE OR DOWNLOADABLE LINK EMAILED TO THE DISTRICT. ONLY (1) CAD FILE WITH ALL SHEETS OF RECORD DRAWINGS ALLOWED.

### REQUIRED INFORMATION ON RECORD DRAWINGS

#### GENERAL:

1. DRAWINGS ON 24" X 36" BOND PAPER THAT WILL REPRODUCE LEGIBLY.
2. LABEL EACH PLAN SHEET "RECORD DRAWINGS" WITH DATE, COMPLETED TITLE BLOCK WITH CURRENT FILE NAME, SIGNED & SEALED BY A FLORIDA LICENSED PROFESSIONAL LAND SURVEYOR.
3. ALL SEWER ITEMS SHALL BE CATEGORIZED AND ASSIGNED TO THE DRAWING LAYERS SUCH AS: AB-MANHOLES, AB-FORCEMAIN, AB-VALVE, AB-GRAVITY MAIN, ETC.
4. REDRAW ALL SEWER LINES AND INFRASTRUCTURE ON RECORD DRAWINGS AS CONSTRUCTED HORIZONTALLY & VERTICALLY, BOLD, OR HEAVY LINE WORK & TEXT CALL OUTS TO STAND OUT FROM REST OF DRAWING. USING ORIGINAL DESIGN LINEWORK & ONLY UPDATING THE CORRESPONDING TEXT CALLOUTS WILL NOT BE ACCEPTED AS RECORD DRAWINGS.
5. ALL ITEMS LISTED BELOW MUST BE CORRECTLY GEOREFERENCED WITH NORTHINGS/EASTINGS CLEARLY SHOWN. THE AS BUILTS SHALL BE GEOREFERENCED TO THE STATE PLANE COORDINATES IN NAD 83, FLORIDA EAST ZONE, WHILE THE VERTICAL DATUM SHALL BE NGVD 29.

#### GRAVITY SEWER:

1. AS-BUILT DISTANCE OF GRAVITY MAIN FROM CENTER LINE OF ROAD OR EASEMENT RIGHT- OF-WAY LINE, BUILDINGS, OR AS DETERMINED BY THE LOXAHATCHEE RIVER DISTRICT. EXTENSIONS OF AN IMAGINARY LINE WILL NOT BE ACCEPTABLE AS REFERENCED POINTS.
2. TYPE OF MATERIALS INSTALLED - MAINS AND SERVICES.
3. SHOW EACH SEWER SERVICE LATERAL INCLUDING THE CONNECTION TO THE MAIN AND PROVIDE THE NORTHING & EASTING POINTS FOR EACH CLEANOUT & INDICATE CLEANOUT DIAMETER & INVERT ELEVATION.
4. AS-BUILT LOCATIONS OF MANHOLES WITH A NORTHING & EASTING PROVIDED.
5. AS-BUILT ELEVATIONS, RIM ELEVATION, EACH INVERT AND PIPE SLOPE.
6. UPDATE LIFT STATION DETAILS/ELEVATIONS INCLUDING START UP DATA.
7. LIFT STATION AND UTILITY EASEMENTS, INCLUDING LOCATION OF F.P.&L. SERVICE TO CONTROL PANEL.

#### PRESSURE PIPE:

1. AS BUILT DISTANCE OF FORCE MAINS AT 100' INTERVALS FROM CENTER LINE OF ROAD, EASEMENT, RIGHT-OF-WAY LINE, BUILDINGS, SEWER MAINS OR AS DETERMINED BY THE LOXAHATCHEE RIVER DISTRICT. EXTENSIONS OF AN IMAGINARY LINE WILL NOT BE ACCEPTABLE AS REFERENCED POINTS.
2. SHOW ELEVATIONS, NORTHING/EASTING OF EACH VALVE, FITTING, AIR RELEASE VALVE, SERVICE LINE, TAP, ETC.
3. TYPE OF MATERIALS INSTALLED - PIPE AND APPURTENANCES. INDICATE ALL LOCATIONS OF CHANGE OF MATERIAL INCLUDING JOINT TYPE (M.J., SLIP, RESTRAINED).
4. VALVE TYPE (BUTTERFLY, GATE, PLUG) INCLUDING THE NORTHING & EASTING POINT.
5. AS BUILT LENGTH OF ALL JACK AND BORE CASINGS INDICATING DISTANCE FROM CENTER LINE OF PAVING TO EACH END OF CASING. THE AS BUILT INVERT ELEVATION OF EACH END OF CASING, (INCLUDING NORTHING/EASTING) AND AS BUILT DISTANCE FROM EACH END OF CASING TO LIMITS OF MECHANICAL JOINT PIPE IS ALSO REQUIRED.
6. AS BUILT ELEVATIONS AT 100' INTERVALS AS WELL AS ANY MAJOR CHANGES IN DIRECTION AND/OR ELEVATION. ELEVATIONS SHOWN AT THESE INTERVALS AND CHANGES MUST SHOW TOP OF PIPE ELEVATION, NORTHING/EASTING AND FINISHED GRADE ELEVATION AT THAT LOCATION. SHOW LOCATION OF EMS MARKERS.
7. UTILITY EASEMENTS SHALL BE CORRECTLY SHOWN AND DIMENSIONED WITH REFERENCED SEWER FACILITY.

## **LOXAHATCHEE RIVER DISTRICT**

N.T.S.

REVISION:  
AUG, 2022

# **RECORD DRAWING SUBMITTAL GUIDE**

**SD-29**

# SEPARATION REQUIREMENTS

62-555.314 F.A.C. AUGUST 28, 2003

1. HORIZONTAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES, AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.
  - A. NEW OR RELOCATED UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
  - B. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER.
  - C. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.
2. VERTICAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, AND RECLAIMED WATER PIPELINES.
  - A. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY- OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES, AND PREFERABLY 12 INCHES, ABOVE OR AT LEAST 12 INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
  - B. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESURE- TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATERMAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
  - C. AT THE UTILITY CROSSING DESCRIBED IN PARAGRAPHS (A) AND (B) ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSINGS, THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C., AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY- OR PRESSURE-TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.

\*REQUIRED BY: HRS, STATE OF FLORIDA, PALM BEACH COUNTY PUBLIC HEALTH UNIT

LOXAHATCHEE RIVER DISTRICT

## STANDARD WATER AND SEWER SEPARATION STATEMENT

SD-30

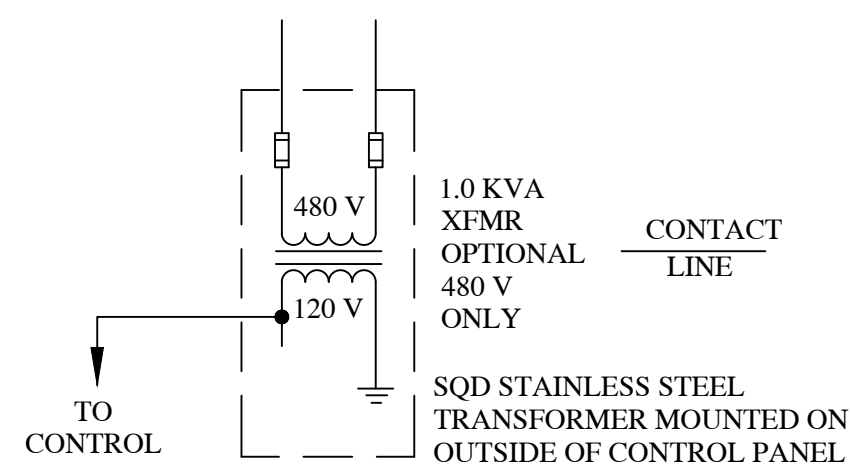
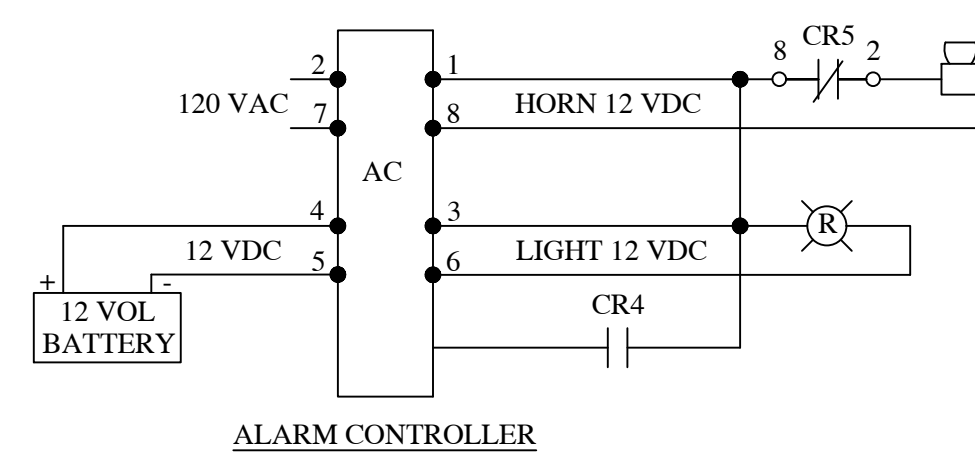
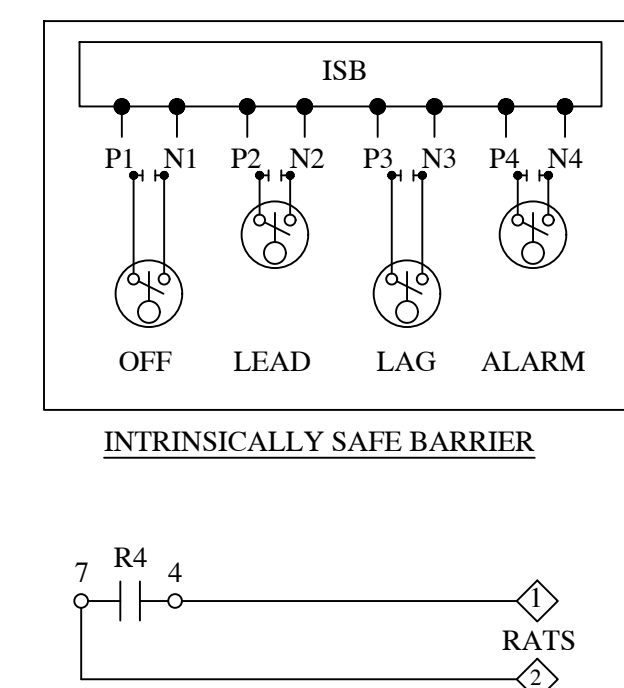
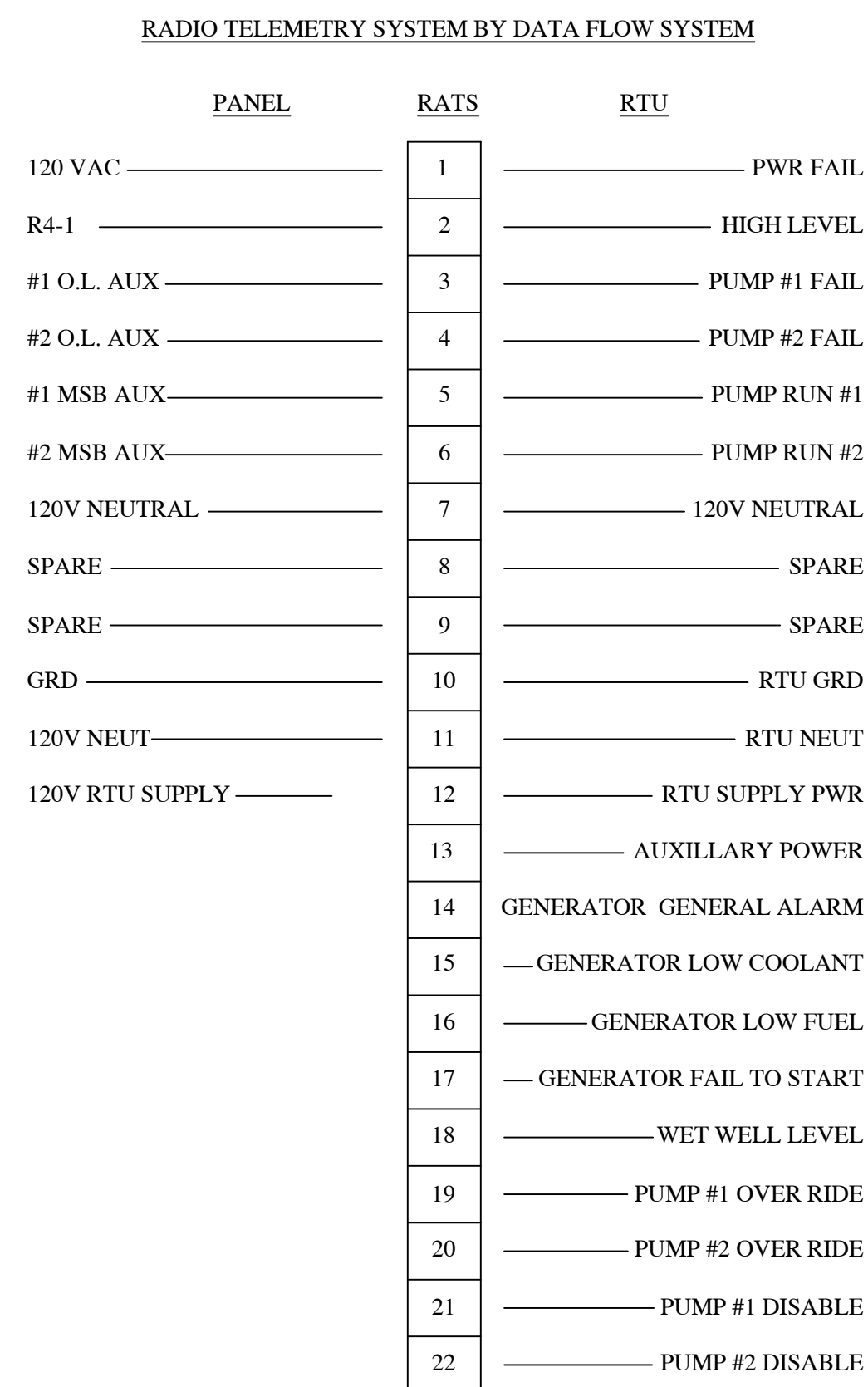
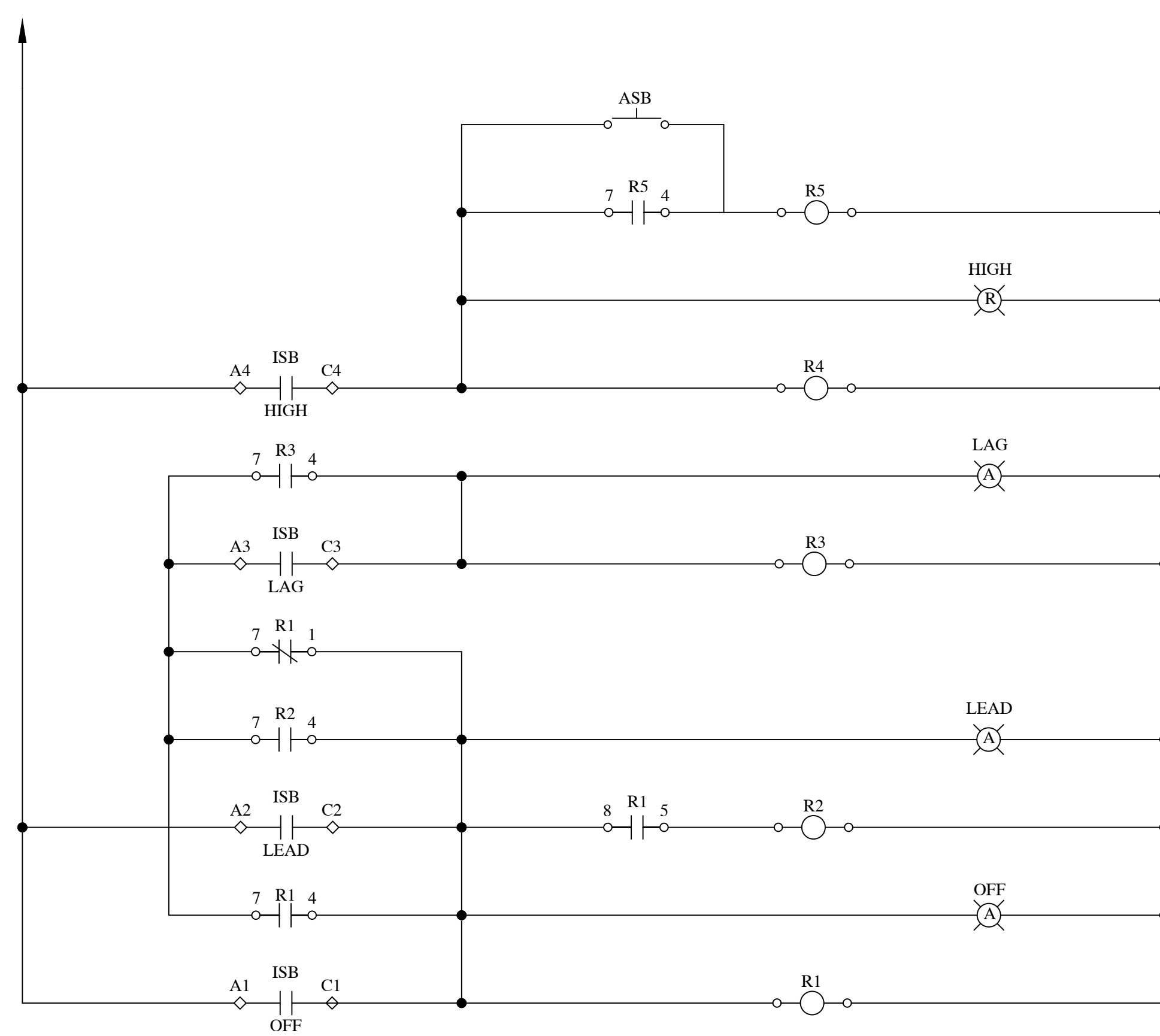
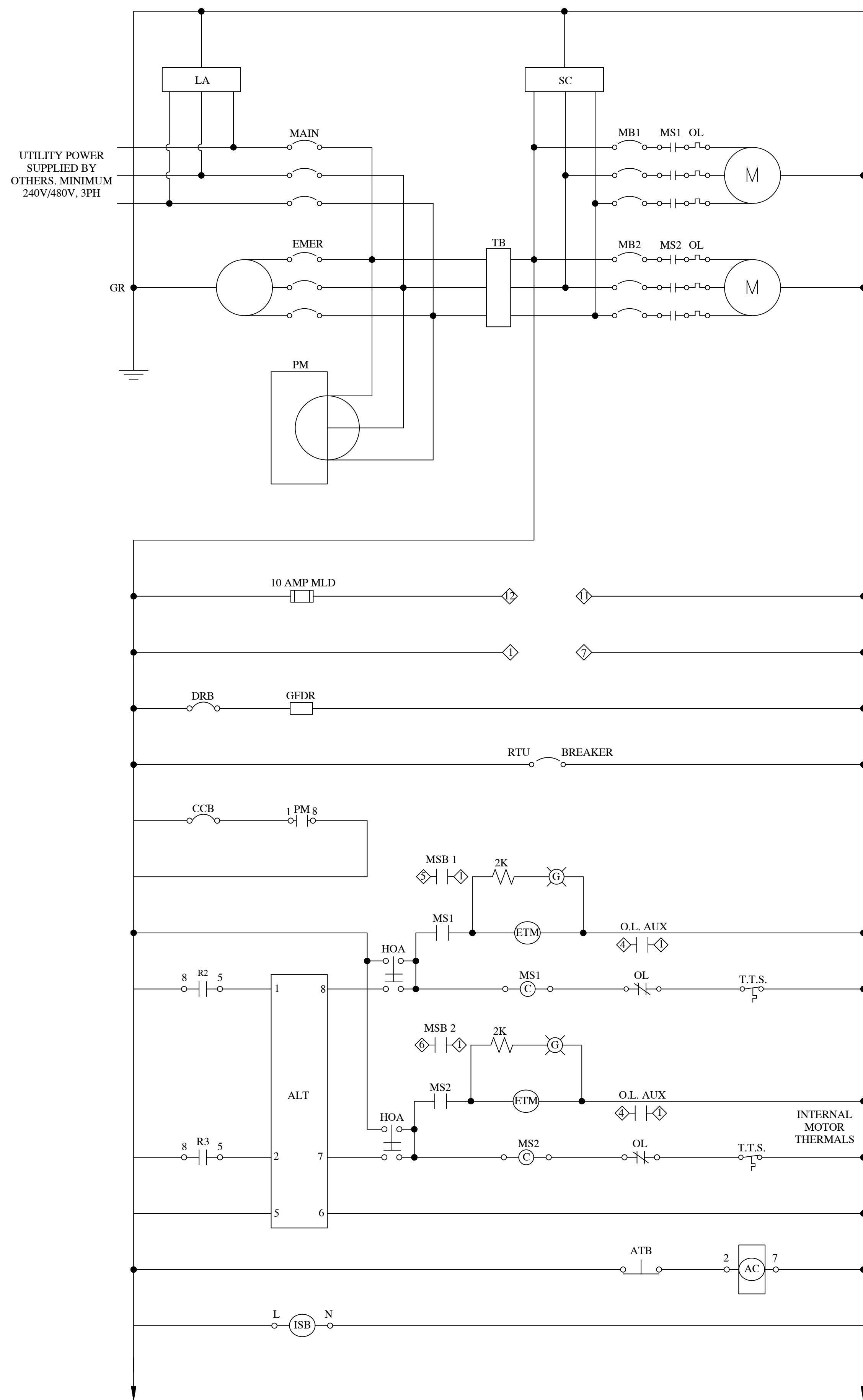
N.T.S.

REVISION:  
APRIL, 2012







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LOXAHATCHEE RIVER  
ENVIRONMENTAL CONTROL DISTRICT

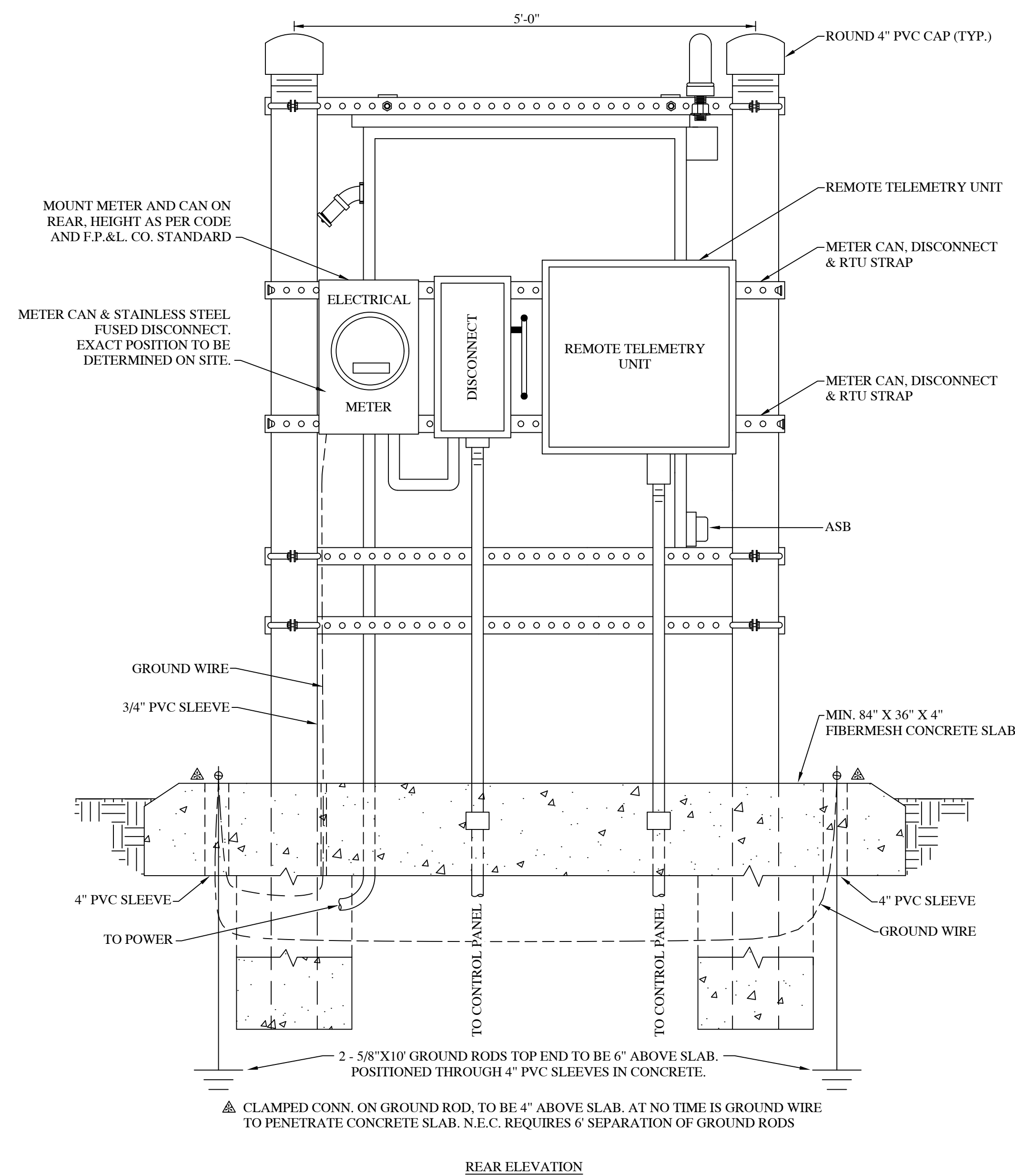
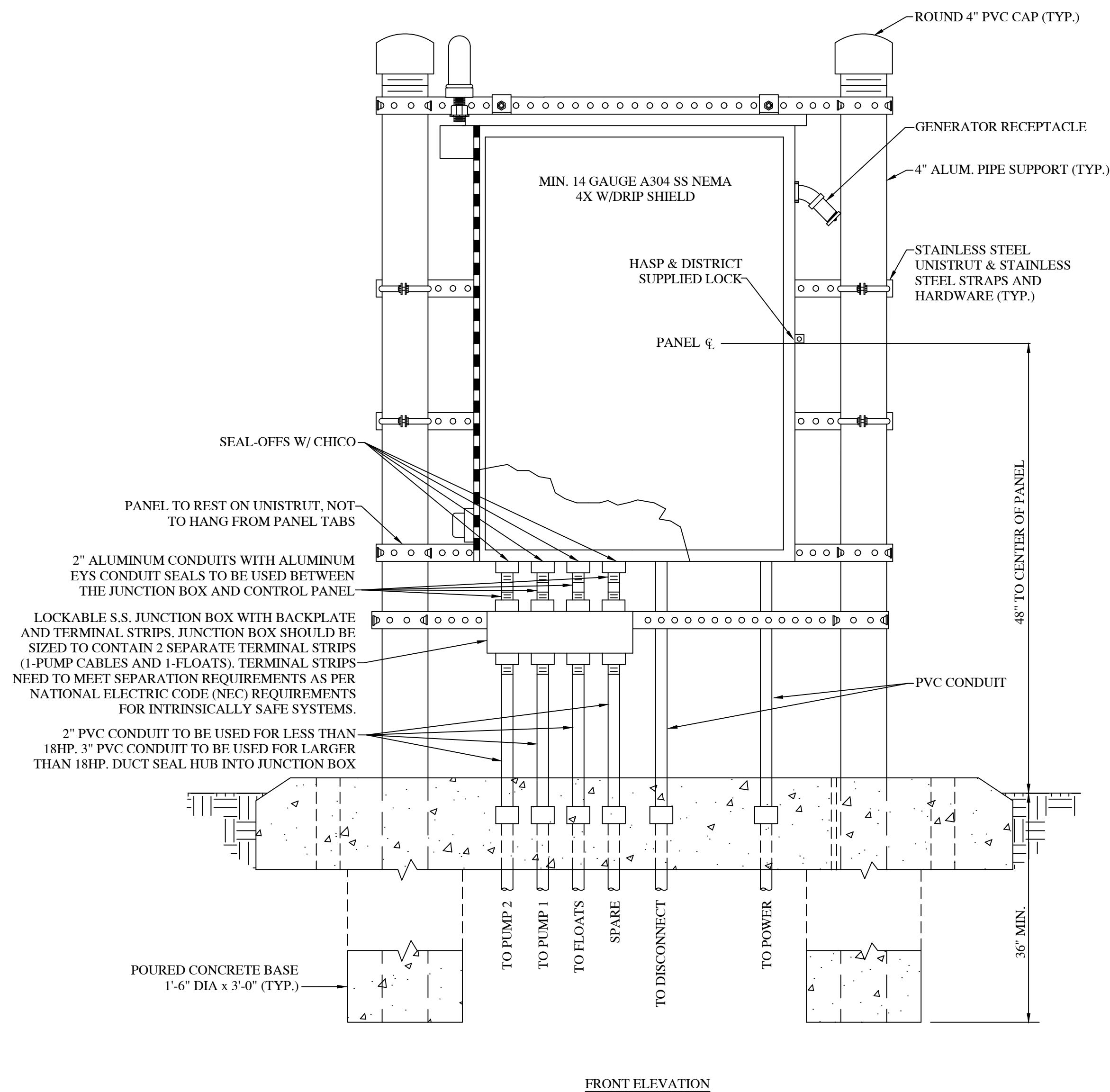
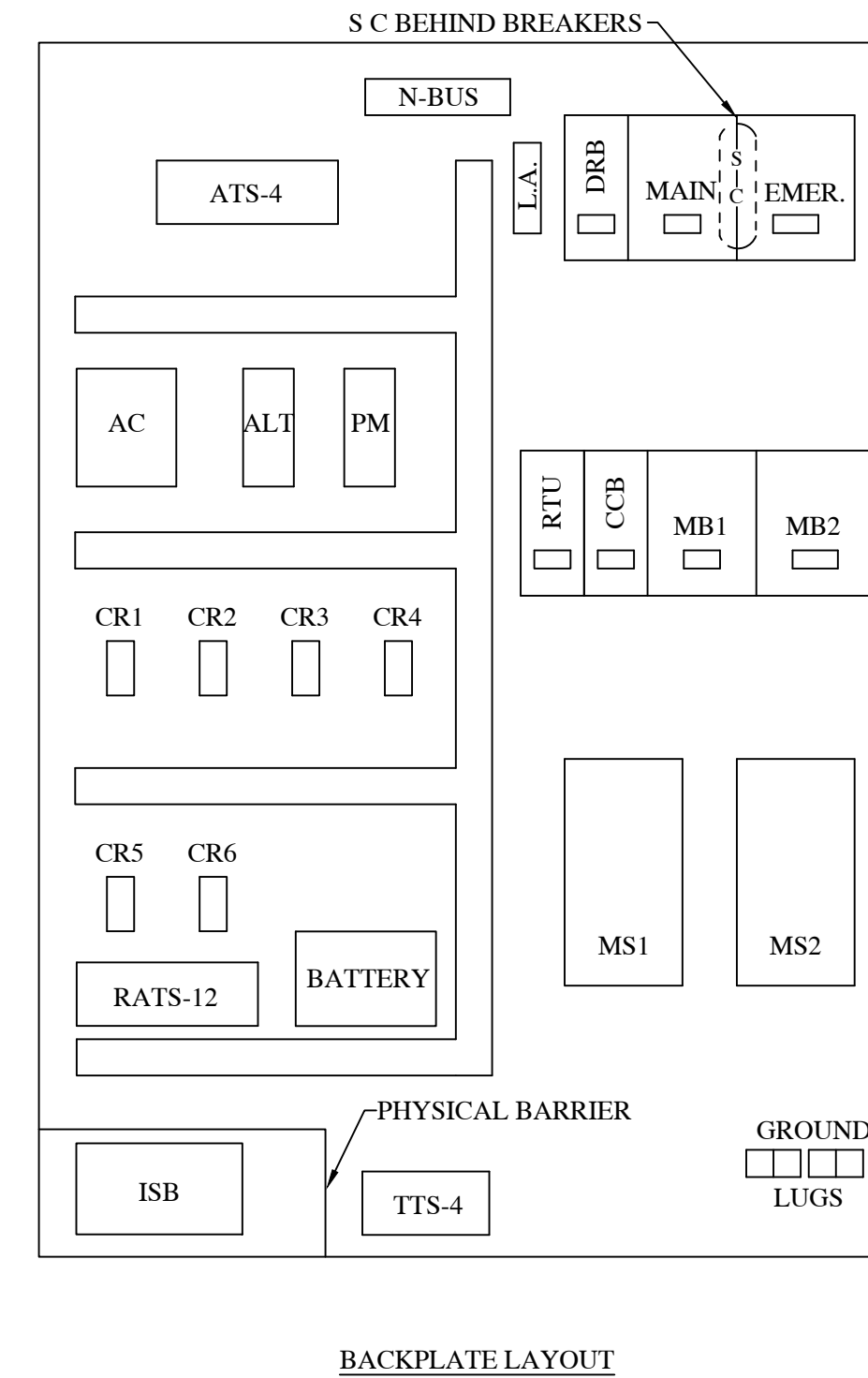
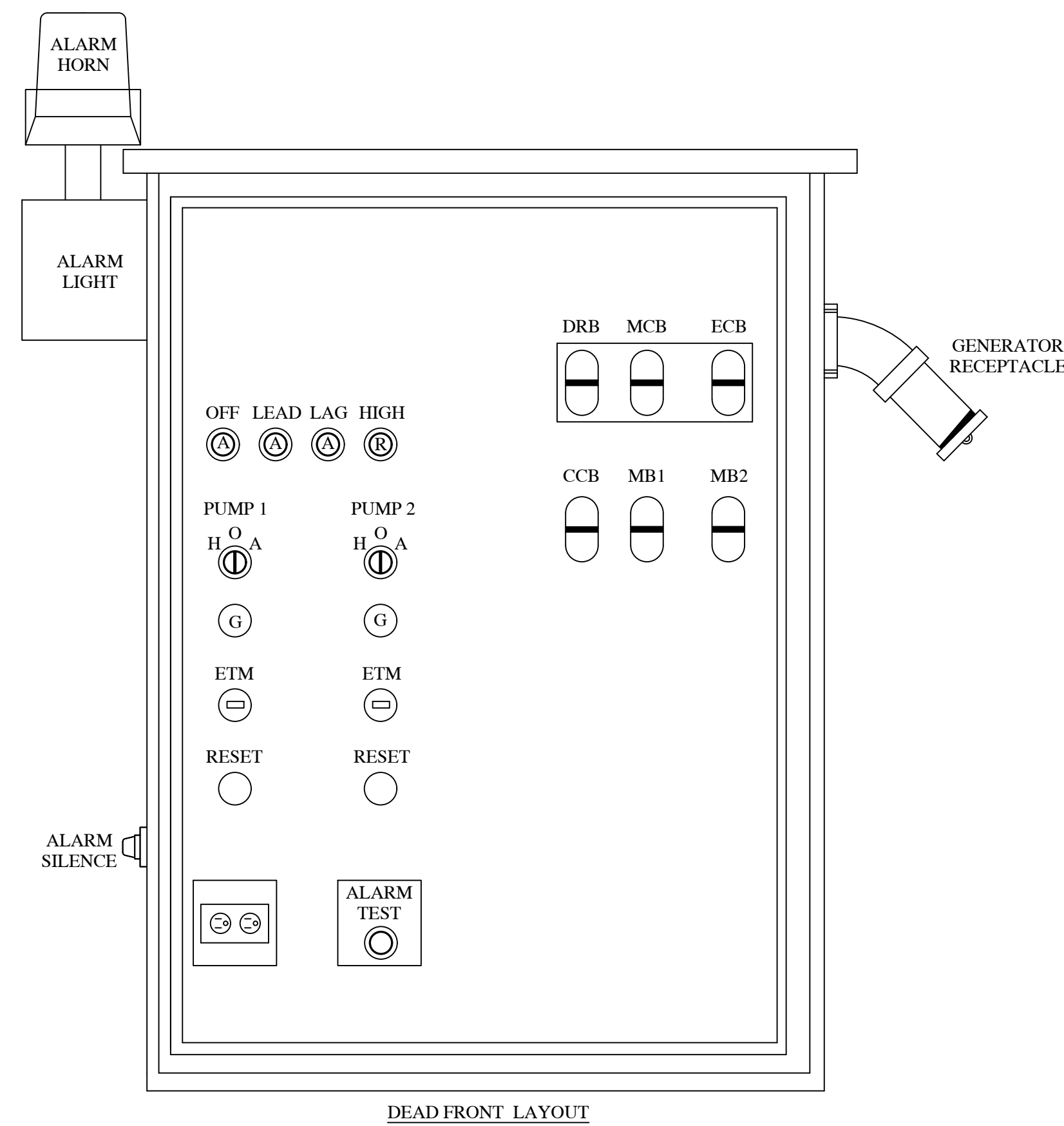
2500 JUPITER PARK DRIVE  
JUPITER, FL 33458-8964  
(561) 747-5700 MAIN  
(561) 747-9929 FAX  
[www.loxahatcheeriver.org](http://www.loxahatcheeriver.org)



# LIFT STATION ELECTRICAL CONTROL PANEL STANDARD DETAILS

Scale:	NTS
Date:	JUNE 2023

SD-32

[illegible]

2500 JUPITER PARK DRIVE  
JUPITER, FL 33458-8964  
(361) 747-5700 MAIN  
(361) 747-9929 FAX  
[www.loxahatcheeriver.org](http://www.loxahatcheeriver.org)



# LIFT STATION ELECTRICAL CONTROL PANEL STANDARD DETAILS

Scale:	NTS
Date:	JUNE 2023

SD-33





[illegible]















## **FORMS AND AGREEMENTS**



**LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT**  
**2500 JUPITER PARK DRIVE, JUPITER, FL 33458-8964**  
Phone: 561-747-5700 ext. 110; Fax: 561-747-9929; [www.loxahatcheeriver.org](http://www.loxahatcheeriver.org)  
Email: [info@lrecd.org](mailto:info@lrecd.org)

**APPLICATION FOR SERVICE – NEW CONSTRUCTION - RESIDENTIAL**

The undersigned applicant hereby applies for sewer service to be provided by the Loxahatchee River District (District), to the real property identified below. The undersigned applicant warrants, represents and agrees to the following:

1. The applicant is the fee simple owner of the property for which application is made.
2. The applicant will promptly pay all bills submitted to applicant for sewer service by the DISTRICT.
3. The applicant will abide by all rules and regulations of the DISTRICT as they have been and may be lawfully adopted.
4. The applicant will notify the DISTRICT when the sewer lateral is uncovered and ready for a connection inspection.
5. The applicant will promptly notify the DISTRICT of any change in mailing address, change in number of connected toilets, change in contact information, and when the subject property is transferred or conveyed.

Name of Applicant/Owner \_\_\_\_\_ Present Mailing Address \_\_\_\_\_ Telephone No. \_\_\_\_\_ Email Address \_\_\_\_\_

Address of Property \_\_\_\_\_ Lot/Blk. \_\_\_\_\_ County \_\_\_\_\_ Subdivision \_\_\_\_\_

Contractor \_\_\_\_\_ Telephone No. \_\_\_\_\_ Email Address \_\_\_\_\_

Plumber \_\_\_\_\_ Telephone No. \_\_\_\_\_ Email Address \_\_\_\_\_

Single Family \_\_\_\_\_ Multifamily \_\_\_\_\_ Addition \_\_\_\_\_

Upon construction completion, the total number of toilets will be? \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_  
Applicant/Owner

.....  
Number of E.C.'s \_\_\_\_\_

Engineering Approval \_\_\_\_\_

Plant Connection Charge (Ref. Rule 31.10) \$ \_\_\_\_\_

Administrative Fee \$ \_\_\_\_\_

Transmission Line Charge (Ref. Rule 31.10) \$ \_\_\_\_\_

CONNECTION FEE TOTAL \$ \_\_\_\_\_

Date Payment Received \_\_\_\_\_ By: \_\_\_\_\_

Comments: \_\_\_\_\_

(Revised ~~July-2023~~ February 2025)

ACCOUNT NO. \_\_\_\_\_



**LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT**  
**2500 JUPITER PARK DRIVE, JUPITER, FL 33458-8964**  
Phone: 561-747-5700 ext. 110; Fax: 561-747-9929; [www.loxahatcheeriver.org](http://www.loxahatcheeriver.org)  
Email: [info@lrecd.org](mailto:info@lrecd.org)

**APPLICATION FOR SERVICE – NEW CONSTRUCTION - COMMERCIAL**

The undersigned applicant hereby applies for sewer service to be provided by the Loxahatchee River District (District), to the real property identified below. The undersigned applicant warrants, represents and agrees to the following:

1. The applicant is the fee simple owner of the property for which application is made.
2. The applicant will promptly pay all bills submitted to applicant for sewer service by the DISTRICT.
3. The applicant will abide by all rules and regulations of the DISTRICT as they have been and may be lawfully adopted.
4. The applicant will notify the DISTRICT when the sewer lateral is uncovered and ready for a connection inspection.
5. The applicant will promptly notify the DISTRICT of any change in mailing address, change in number of connected toilets, change in contact information, and when the subject property is transferred or conveyed.

Applicant/Owner \_\_\_\_\_ Phone # \_\_\_\_\_ Email Address: \_\_\_\_\_

D/B/A/ \_\_\_\_\_ Billing Address \_\_\_\_\_

Address of Property \_\_\_\_\_ Lot/Blk/Unit No. \_\_\_\_\_ Development \_\_\_\_\_

Contractor \_\_\_\_\_ Phone# \_\_\_\_\_ Plumber \_\_\_\_\_ Phone# \_\_\_\_\_

Contractor \_\_\_\_\_ Telephone No. \_\_\_\_\_ Email Address \_\_\_\_\_

Plumber \_\_\_\_\_ Telephone No. \_\_\_\_\_ Email Address \_\_\_\_\_

Office Bldg. \_\_\_\_\_ (Sq. Ft.) \_\_\_\_\_ Restaurant \_\_\_\_\_ (Seating) \_\_\_\_\_ Other \_\_\_\_\_

Upon construction completion, the total number of toilets will be? \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_  
Applicant/Owner

.....  
\_\_\_\_\_ Number of E.C.'s \_\_\_\_\_

Engineering Approval

Plant Connection Charge (Ref. Rule 31.10) \$ \_\_\_\_\_

Administrative Fee \$ \_\_\_\_\_

Transmission Line Charge (Ref. Rule 31.10) \$ \_\_\_\_\_

CONNECTION FEE TOTAL \$ \_\_\_\_\_

Date Payment Received \_\_\_\_\_ By: \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_



LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT  
2500 JUPITER PARK DRIVE, JUPITER, FL 33458-8964  
Phone: 561-747-5700 ext. 110; Fax: 561-747-9929; [www.loxahatcheeriver.org](http://www.loxahatcheeriver.org)  
Email: [info@lrecd.org](mailto:info@lrecd.org)

### APPLICATION FOR SERVICE – EXISTING BUILDING

The undersigned applicant hereby applies for sewer service to be provided by the Loxahatchee River District (District), to the real property identified below. The undersigned applicant warrants, represents and agrees to the following:

1. The applicant is the fee simple owner of the property for which application is made.
2. The applicant will promptly pay all bills submitted to applicant for sewer service by the DISTRICT.
3. The applicant will abide by all rules and regulations of the DISTRICT as they have been and may be lawfully adopted.
4. The applicant will notify the DISTRICT when the sewer lateral is uncovered and ready for a connection inspection.
5. The applicant will promptly notify the DISTRICT of any change in mailing address, change in number of connected toilets, change in contact information, and when the subject property is transferred or conveyed.

Name of Applicant/Owner	Present Mailing Address	Telephone No.
-------------------------	-------------------------	---------------

Address of Property	Lot/Blk.	County	Subdivision
---------------------	----------	--------	-------------

Email Address

Upon construction completion, the total number of toilets will be? Residential \_\_\_\_\_ Commercial \_\_\_\_\_  
Year Building Constructed \_\_\_\_\_ Plumber \_\_\_\_\_ Telephone No. \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_  
Applicant/Owner

Number of E.C.'s \_\_\_\_\_

Plant Connection Charge (Ref. Rule 31.10)	\$ _____
Administrative Fee	\$ _____
Transmission Line Charge (Ref. Rule 31.10)	\$ _____

CONNECTION FEE TOTAL \$ \_\_\_\_\_

Date Payment Received \_\_\_\_\_ By: \_\_\_\_\_

Comments: \_\_\_\_\_

(Revised ~~July 2023~~ February 2025)

ACCOUNT NO. \_\_\_\_\_



LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT  
2500 JUPITER PARK DRIVE, JUPITER, FL 33458-8964  
Telephone: 561-747-5700 Option 2; Fax: 561-747-9929; [www.loxahatcheeriver.org](http://www.loxahatcheeriver.org)  
Email: [cindy.denton@loxahatcheeriver.org](mailto:cindy.denton@loxahatcheeriver.org)

## **Application To Abandon/Terminate Easement**

The undersigned hereby makes application to vacate, abandon, discontinue and close the Easement described below and to renounce and disclaim any easement to the District in and to any land in connection therewith.

The undersigned hereby certify:

1. That attached hereto, signed and sealed by a Florida registered land surveyor, is a legal description and sketch accurately drawn and legally describing the **easement** to be abandoned and showing boundaries of the underlying and abutting properties and existing improvements (Exhibit #1).
2. That title of interest of the District in and to the **easement** was acquired and is evidenced by **plat number** and **identification**, as recorded in Plat Book \_\_\_\_\_ Page(s) \_\_\_\_\_ through \_\_\_\_\_ **or other instrument recorded in the Official Record Book and Page** of the Public Records, of Palm Beach County or Martin County, Florida Original Record Book \_\_\_\_\_ Page(s) \_\_\_\_\_ .
3. That attached hereto is a location map which clearly and legibly identifies the location of the easement in relation to the nearest public right-of-way (Exhibit #2).
4. That the applicant's ownership and/or interest in and to the underlying property is evidenced by an instrument recorded in Official Record book \_\_\_\_\_ , Page \_\_\_\_\_ , of the Public records of Palm Beach County or Martin County, Florida. A certified copy of that source instrument is attached hereto (Exhibit #3).
5. That attached hereto and made a part hereof is an estoppel certificate for the District confirming all charges related to the underlying property have been paid (Exhibit #4).
6. That an application fee in the amount of \$ \_\_\_\_\_ has been paid in full. Attach receipt as Exhibit #5.
7. That the grounds and reasons in support of this application are as follows (Exhibit #6).
8. That the applicant will submit additional information upon request including but not limited to engineering plans and studies to assist the Engineering Services Department in their review and in support of the recommendation.

Date \_\_\_\_\_

\_\_\_\_\_  
Signature of Applicant

\_\_\_\_\_  
Name of Corporation

\_\_\_\_\_  
Print Applicant's Name

\_\_\_\_\_  
Address

\_\_\_\_\_  
Indicate position if Corporation

\_\_\_\_\_  
City, State, Zip

\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
Email Address





**LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT**  
**2500 JUPITER PARK DRIVE, JUPITER, FL 33458-8964**  
Phone: 561-747-5700 ext. 110; Fax: 561-747-9929; [www.loxahatcheeriver.org](http://www.loxahatcheeriver.org)  
Email: [info@lrecd.org](mailto:info@lrecd.org)

**GREASE INTERCEPTOR APPLICATION QUESTIONNAIRE**

1. Food Establishment Name: \_\_\_\_\_
2. Food Establishment Address: \_\_\_\_\_
3. Operator's Corporate Name: \_\_\_\_\_
4. Operator's Corporate Address: \_\_\_\_\_
5. Authorized Representative Name and Title: \_\_\_\_\_
6. Property Owner Name (if other than #3): \_\_\_\_\_
7. Property Owner Address (if other than #4): \_\_\_\_\_
8. Plaza Mgmt. Name & Contact Name/Number: \_\_\_\_\_
9. Business hours of operation: \_\_\_\_\_  
# Restaurant seats: \_\_\_\_\_ # bar seats: \_\_\_\_\_ # of toilets: \_\_\_\_\_ **\*attach menu**

Characterization of Planned or Active Business	Yes	No
Will there be any food preparation on site?*		
Will food be served on site?		
Will any of the following equipment be present on site?		
Dishwasher		
Fryer and/or Wok		
Griddle and/or stove top cooking surface		
Oven and/or range		
Soft serve dispenser		
Will all food & drink be served using disposable plates, cups and utensils?		
Will there be a salad bar?		
Will all salad dressings be pre-packaged in individual servings?		
Will soft serve dispenser chill and dispense ice cream?		
Have you submitted an Application for Service to LRD?		

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

\_\_\_\_\_  
Authorized Representative Signature

\_\_\_\_\_  
Print: Authorized Rep. Name / Title

\_\_\_\_\_  
Date



**LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT**  
**2500 JUPITER PARK DRIVE, JUPITER, FL 33458-8964**  
Phone: 561-747-5700 ext. 110; Fax: 561-747-9929; [www.loxahatcheeriver.org](http://www.loxahatcheeriver.org)  
Email: [info@lrecd.org](mailto:info@lrecd.org)

### **GREASE INTERCEPTOR EXEMPTION CRITERIA**

As per District Standards Section 122.04, There are instances where a food service establishment may not require a grease interceptor. In these instances an exemption from a grease interceptor may be allowed. In order to qualify for an exemption, the following minimum criteria must be met.

- No food preparation on-site.
- The following equipment is prohibited from being on-site: oven, dishwasher, stove top cooking surfaces/griddle, fryers, ranges, or any equipment used to cook food.
  - Only pre-made food may be allowed to be heated on-site using the following equipment: toasters, microwaves or sandwich presses.
- If serving food on-site, all food is served on paper/plastic plates using disposable utensils or in the pre-packaging it was brought on-site in.
- All condiments are pre-packaged in individual servings.

If the above criteria cannot be initially met or if it is found that after an exemption is given the above criteria are no longer being met, then a District-approved grease interceptor must be installed. Failure to do so will result in a violation of the District's Sewer Use Rule outlined in Chapter 31-13, Florida Administrative Code, which may result in fines against the property.

Any exemptions provided are permanent, so long as these requirements are met.

Grease Interceptor Exemptions require the following:

- Filled out Grease Interceptor Application Questionnaire. Attach menu, if applicable.
- Provide a letter, signed by a corporate officer of the food service establishment business, with the following items included:
  - Explanation of business model
  - Acknowledge the criteria for the exemption are met
  - Acknowledge the criteria must be met at all times to maintain exemption



For more information on LRD's Interceptor Management Program, please use the QR Code

LRECD - 109  
Prepared By and Return To:  
Kris Dean, P.E.  
Loxahatchee River Environmental  
Control District  
2500 Jupiter Park Drive  
Jupiter, Florida 33458-8964

Doc. Stamp Tax Exempt per Fla. Admin. Code  
12B-4.054, par. 24.

### SEWER EASEMENT DEED

THIS EASEMENT, made this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, between \_\_\_\_\_, hereinafter called the "Grantor", and the LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT, an Agency of the State of Florida, created by a Special Act of the Legislature, Chapter 71-822 as amended, of 2500 Jupiter Park Drive, Jupiter, Florida 33458-8964, its successors and assigns, herein called the "Grantee".

### WITNESSETH

That the Grantor, and all other persons claiming by, through or under Grantor, or either of them, their predecessors in title, or their heirs, assigns or legal representatives by virtue of any deeds of conveyances to the land described herein, for and in consideration of the promises, stipulations, agreements and covenants made by Grantee contained herein, the receipt and sufficiency of which is hereby acknowledged, has granted, bargained and sold to the Grantee, its successors and assigns, a permanent Easement, on the parcel of property described in Exhibit "A" attached hereto and made a part hereof for all purposes connected with the use, ingress, egress, construction, repair, replacement, installation, improvement, and maintenance of sewer facilities and facilities for the transport of reuse (I.Q.) water, or sewerage, including but not limited to transmission mains, force mains, manholes, lift stations, collection lines, pipes, pumps, connections, ditches, meters and all other related appurtenances having the capacity for use in connection with the collection or transmission of wastewater of any nature or originating from any source whether on or off the property of Grantor. Grantee shall maintain and repair Grantee's facilities as there shall be occasion from time to time hereafter, and Grantee shall restore the grass, sod, or pavement of Grantor (but not Improvements as set forth below) to the similar condition that was existent thereon prior to any entry or entries by Grantee pursuant to this Easement Deed.

"Improvements" shall mean anything other than grass, sod or asphalt pavement, including but not limited to any type of structure, wall, landscape berm, building, surfacing, landscaping (except grass or sod) and the like.

Grantor shall not make any Improvements to the property described herein without the prior written consent of Grantee which Grantee may withhold in its sole discretion. In the event an Improvement needs to be removed in the opinion of Grantee, or is removed or damaged by or on behalf of Grantee, in connection with Grantee's use of the Easement, Grantee shall not be liable for any such removal or damage of the Improvement. Any and all Improvements are at the sole risk and expense of Grantor. Any expense of Grantee caused by the existence of an Improvement shall be the responsibility of Grantor.

This Easement and the agreements contained herein are binding upon Grantor, its heirs, administrators, personal representatives, successors and/or assigns.

Grantor is seized in fee simple and in possession of lands described herein and does fully warrant title to said property and will defend the same against any lawful claims of all persons whomsoever.

IN WITNESS WHEREOF, the undersigned have executed this instrument the date and year first above written:

Signed, sealed and delivered  
in the presence of:

GRANTOR:

\_\_\_\_\_  
Witness Signature

By: \_\_\_\_\_

\_\_\_\_\_  
Printed Name

Print Name:

As:

\_\_\_\_\_  
Witness Signature

\_\_\_\_\_  
Printed Name

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_

I hereby certify that on this day, before me by means of \_\_\_ physical presence or \_\_\_ online notarization, an officer duly authorized to administer oaths and take acknowledgments, personally appeared \_\_\_\_\_ known to me to be the person(s) described in and who executed the foregoing instrument, who acknowledged before me that he/she executed the same, that the above named person is personally known to me or who produced \_\_\_\_\_ as identification.

Witness my hand and official seal in the County and State last aforesaid this \_\_\_\_\_ day of \_\_\_\_\_, A.D. \_\_\_\_\_.

[SEAL]

\_\_\_\_\_  
NOTARY SIGNATURE

EXHIBIT "A"

All roadways, rights-of-way, sewerage, drainage and utility  
easements as indicated on the plat of: \_\_\_\_\_

\_\_\_\_\_ as recorded in the

Official Records of Palm Beach/Martin County, Florida,

Book \_\_\_\_\_, Page (s) \_\_\_\_\_.

Prepared By and Return To:  
Kris Dean, P.E. Deputy Executive Director  
Loxahatchee River Environmental  
Control District  
2500 Jupiter Park Drive  
Jupiter, Florida 33458-8964

**[TERMINATION AND ABANDONMENT] or [PARTIAL TERMINATION  
AND ABANDONMENT] OF EASEMENT**

THIS **[TERMINATION AND ABANDONMENT]** OR **[PARTIAL TERMINATION AND  
ABANDONMENT]** OF EASEMENT ("AGREEMENT") is given this \_\_\_\_ day of  
\_\_\_\_, 20\_\_ by the LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL  
DISTRICT ("DISTRICT"), whose address is 2500 Jupiter Park Drive, Jupiter, Florida 33458 to  
\_\_\_\_ ("REQUESTOR"),

WITNESSETH:

1. WHEREAS REQUESTOR has requested a release to an easement or portion thereof as detailed below:

**[ADD LEGAL AND SKETCH, SIGNED AND SEALED BY A STATE OF  
FLORIDA PROFESSIONAL LAND SURVEYOR]**

2. WHEREAS REQUESTOR has submitted a complete application and paid application fees.
3. WHEREAS any improvements within the terminated or abandoned easement or portion thereof shall comply with the District's Manual of Minimum Construction Standards and Technical Specifications.
4. WHEREAS the termination and abandonment is not in violation of the District's Manual of Minimum Construction Standards or Federal, State or Local codes
5. WHEREAS the DISTRICT has evaluated the request, evaluated the easement or portion thereof, evaluated risks and benefits, evaluated conflicts, evaluated restraints and evaluated limitations in regards to the easement.
6. WHEREAS the DISTRICT has determined no future uses, no conflicts, no restraints and no limitations OR;
7. WHEREAS the DISTRICT has determined future uses, conflicts, restraints or limitations, REQUESTOR, will provide for future uses, resolve conflicts, and address restraints and limitations as detailed below.

**[ADD DETAIL OF PROVISIONS FOR FUTURE USE, RESOLUTION OF CONFLICTS  
AND METHODS TO ADDRESS RESTRAINTS AND LIMITATIONS.]**

8. WHEREAS the REQUESTOR has reimbursed the DISTRICT for the DISTRICT's cost of the easement in the amount of \$\_\_\_\_\_.

NOW, THEREFORE, in consideration of the promises, stipulations, agreements, and covenants made by Grantee contained herein, the receipt and adequacy of which is hereby acknowledged, DISTRICT does by this instrument terminate, abandon and release to REQUESTOR, their successors and assigns, the easement or portion thereof described in PARAGRAPH 1 above.

IN WITNESS WHEREOF, DISTRICT has signed and sealed these presents the day and year first above written.

Signed, sealed, and delivered  
in the presence of:

LOXAHATCHEE RIVER  
ENVIRONMENTAL  
CONTROL DISTRICT

\_\_\_\_\_  
Witness  
Print Name:

\_\_\_\_\_  
By: D. Albrey Arrington, Ph.D.  
Executive Director

\_\_\_\_\_  
Witness  
Print Name:

STATE OF FLORIDA  
COUNTY OF PALM BEACH

The foregoing instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_, by D. Albrey Arrington, Executive Director of the Loxahatchee River Environmental Control District, on behalf of the District, who is personally known to me or who has produced \_\_\_\_\_ as identification.

[SEAL]

\_\_\_\_\_  
Notary Public

\_\_\_\_\_  
Print Name  
Commission Number:  
My Commission Expires:

LRECD - 108  
Prepared By & Return To:  
Kris Dean, P.E., Deputy Executive Director  
Loxahatchee River District  
2500 Jupiter Park Drive  
Jupiter, Florida 33458  
(561) 747-5700

---

## BILL OF SALE

**Know All Men by These Presents**, That \_\_\_\_\_, as \_\_\_\_\_ of \_\_\_\_\_, of the city of \_\_\_\_\_, in the county of \_\_\_\_\_ and the State of \_\_\_\_\_, Party of the first part, for and in consideration of the promises, stipulations, agreements and covenants made by Grantee contained herein, the receipt and sufficiency of which is hereby acknowledged by Loxahatchee River Environmental Control District of Palm Beach and Martin Counties, Florida, Party of the second part, the receipt whereof is hereby acknowledged, has granted, bargained, sold, transferred and delivered, and by these presents does grant, bargain, sell, transfer and deliver unto the said party of the second part, its successors and assigns, the following goods and chattels:

The wastewater collection/transmission system serving the \_\_\_\_\_ development.

More particularly described as \_\_\_\_\_ as shown on plans by \_\_\_\_\_ of \_\_\_\_\_.

**To Have and to Hold** the same unto the said party of the second part, executors, administrators and assigns forever.

AND it does, for itself and its successors, heirs, executors and administrators, covenant to and with the said party of the second part, its successors, administrators and assigns, that it is the lawful owner of the said goods and chattels; that they are free from all encumbrances; that it has good right to sell the same aforesaid, and that it will warrant and defend the sale of the said property, goods and chattels hereby made, unto the said party of the second part its successors, administrators and assigns against the lawful claims and demands of all persons whomsoever.

**In Witness Whereof**, \_\_\_\_\_, as \_\_\_\_\_ of \_\_\_\_\_, has hereunto set his hand and seal this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

Signed, sealed and delivered in presence of us:

\_\_\_\_\_  
Printed Name:

\_\_\_\_\_  
Printed Name: (SEAL)  
Title:

\_\_\_\_\_  
Printed Name:



STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_

I hereby Certify that on this day, before me by means of \_\_ physical presence or \_\_ online notarization, an officer duly authorized to administer oaths and take acknowledgments, personally appeared \_\_\_\_\_, as \_\_\_\_\_ of \_\_\_\_\_, known to me to be the person(s) described in and who executed the foregoing instrument, who acknowledged before me that he/she executed same, that I relied upon the following form(s) of identification of the above-named person(s): \_\_\_\_\_ and that an oath (was) (was not) taken.

Witness my hand and official seal in the County and State last aforesaid this \_\_\_\_ day of \_\_\_\_\_, A.D. 20\_\_\_\_.

(NOTARY SEAL)

\_\_\_\_\_  
Notary Signature

\_\_\_\_\_  
Printed Notary Name  
Commission No:  
Expiration:

LRECD -  
Prepared By & Return To:  
Kris Dean, P.E., Deputy Executive Director  
Loxahatchee River District  
2500 Jupiter Park Drive  
Jupiter, FL 33458  
(561) 401-4024

### INDEMNITY AGREEMENT EASEMENT ENCROACHMENT

Agreement made \_\_\_\_\_, 20\_\_\_\_, between the Loxahatchee River Environmental Control District, a special district of the State of Florida, herein referred to as "District", and \_\_\_\_\_, at the address of \_\_\_\_\_ its successors, and assigns, herein referred to as "Property Owner".

For and in consideration of the promises, stipulations, agreements and covenants contained herein, the receipt and sufficiency of which is hereby acknowledged, it is hereby agreed:

1. Easement. District is the "Grantee" utilizing the Sewer Easement created by the Warranty Deed dated \_\_\_\_\_, recorded \_\_\_\_\_, in Official Record Book \_\_\_\_\_, Page \_\_\_\_\_ of the Public Records of **Palm Beach County/Martin County**, herein referred to as the "**Easement**", which is upon the property owned by Property Owner.

2. Installation Plan. Property Owner has requested the District permit Property Owner to install \_\_\_\_\_ (collectively the "**Installation**") in a portion of the Easement according to the specifications set forth in the "**Installation Plan**" attached hereto as Exhibit A. The District hereby grants Property Owner a revocable license to install the Installation in accordance with the Installation Plan, subject to the Property Owner having received all required governmental approvals for the Installation Plan. The District's and Property Owner's approval of the Installation Plan is only as to its proposed location and is not in any manner intended to be in lieu of the governmental approvals required for approval, construction, maintenance and repair.

3. Indemnification. Property Owner hereby covenants and agrees to indemnify, defend and hold harmless the District from any and all liability, loss or damage the District may suffer as a result of claims, demands, costs, reasonable attorneys' fees incurred, or judgments against it arising in connection with said Installation, Installation Plan, and Property Owner's operation thereof. The District assumes no liability to indemnitor for any loss, safety, damage or protection of the Installation, except as otherwise set forth below. The District may need to remove the Installation and alter the Installation to do maintenance or repair, or the Installation may be damaged from a failure in the District's system, or during maintenance or repair of the District's system. The District has no responsibility or duty to maintain, repair, replace or restore the Installation in the event of damage &/or removal, except to the extent due to the gross negligence or willful misconduct of The District, its employees, agents or contractors.

4. Revocable License. The District reserves the right to revoke and rescind permission to use the portion of the Easement for the Installation upon written notice to Property Owner. Upon revocation, Property Owner shall remove the Installation and all equipment installed therewith and restore the Installation area to the condition existing prior to the Installation, within 30 days of written notice.

5. Covenant. This Agreement shall be a covenant with the land, binding upon the Property Owner, and their successors and assigns.

6. Counterparts. This Agreement may be executed in one or more counterparts as may be convenient or required, and an executed copy of this Agreement delivered electronically by facsimile or e-mail shall have the effect of an original, executed instrument. All counterparts of this Agreement shall collectively constitute a single instrument; but, in making proof of this Agreement it shall not be necessary to produce or account for more than one such counterpart executed by each Party hereto.

IN WITNESS WHEREOF, the parties have executed this agreement as of the date first above written.

Property Owner:

By: \_\_\_\_\_  
Property Owner

As to Property Owner: [Property Owner legal name]

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_

I hereby Certify that on this day, before me, an officer duly authorized to administer oaths and take acknowledgments, personally appeared \_\_\_\_\_  
\_\_\_\_\_ known to me to be the person(s) described in and who executed the same, that I relied upon the following form(s) of identification of the above named person(s)\_\_\_\_\_  
\_\_\_\_\_. Witness my hand and official seal in the County and State last aforesaid this\_\_\_\_day of \_\_\_\_\_, 2024.

[NOTARY SEAL]

\_\_\_\_\_  
Notary Signature

\_\_\_\_\_  
Printed Notary Signature

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LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT:

By: \_\_\_\_\_  
District

As To District: LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT

STATE OF FLORIDA  
COUNTY OF PALM BEACH

I hereby Certify that on this day, before me, an officer duly authorized to administer oaths and take acknowledgments, personally appeared D. Albrey Arrington, Ph.D., Executive Director known to me to be the person described in and who executed the same, that I relied upon the following form(s) of identification of the above named person \_\_\_\_\_. Witness my hand and official seal in the County and State last aforesaid this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

[NOTARY SEAL]

\_\_\_\_\_  
Notary Signature

\_\_\_\_\_  
Printed Notary Signature

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## EXHIBIT A- INSTALLATION PLAN

LRECD-133 Dated 06-21-2024  
Prepared By & Return To:  
Kris Dean P.E., Deputy Executive Director  
Loxahatchee River Environmental Control District  
2500 Jupiter Park Drive  
Jupiter, Florida 33458

**LICENSE FOR MAINTENANCE of  
LOW PRESSURE SEWER SYSTEM PUMP STATION**

\_\_\_\_\_, and all  
co-owners, heirs, successors, grantees, and assigns, ("Owners") of the Property at the address of,  
\_\_\_\_\_ with a legal  
description attached hereto as Exhibit "A" ("Property"), have a simplex grinder low pressure pumping  
unit, control panel and valve box ("Pump Station") with appurtenant pipe and electrical apparatus ("Pipe"  
& "Electrical") of a type and in a manner approved by the Loxahatchee River District ("District").

Owners shall operate, maintain, repair and replace the Electrical. Owners, also, agree to pay for the  
replacement of the Pump Station and any parts associated with it, if the Pump Station is damaged as a  
result of Owners fault.

Owners understand and agree that the District will perform inspections, operation, maintenance and  
replacement of the Pump Station and Pipe as necessary. Owners, also, understand and agree that the  
District will provide maintenance service on the Pump Station and Pipe at no additional charge to the  
Owners.

In order to provide the District access to the Pump Station and Pipe, the Owners hereby grant a license to  
the District to go onto the Property during reasonable working hours.

WITNESSES:

OWNERS:

\_\_\_\_\_  
WITNESS SIGNATURE

Print Name: Address:

Address:

By: \_\_\_\_\_

Print Name:

\_\_\_\_\_  
WITNESS SIGNATURE

Print Name: Address:

Address:

By: \_\_\_\_\_

Print Name:

STATE OF FLORIDA

COUNTY OF \_\_\_\_\_

The foregoing instrument was acknowledged before me by means of \_\_\_\_ physical presence or  
\_\_\_\_ online notarization, this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by \_\_\_\_\_  
who is personally known to me or has/have produced \_\_\_\_\_ as identification.

[Notary Ink Stamp]

\_\_\_\_\_  
Notary Public, State of Florida

## COVER PAGE

Company Name:					
Name of responsible person on site at the facility authorized to represent the company in official dealings with the Sewer Authority and/or the City.			Name of alternative on site person familiar with the day to day operations, environmental permitting requirements, monitoring, record keeping, and data management.		
Title		Years with firm	Title		Years with firm
Phone #		Fax #	Phone #		Fax #
Physical street address of facility			Official mailing address, if different. Note if same.		
City		State	Zip	City	

The information provided by you on this questionnaire serves two functions:

1. The information is used to determine if your facility needs an Industrial User Pretreatment Permit (IUP) for the discharge of wastewater to the local sewer.
2. If an Industrial User Pretreatment Permit (IUP) is required, this survey serves as the application for an Industrial User Pretreatment Permit (IUP).



For more information on  
LRD's IPT Program,  
please use the QR Code

Requests for confidential treatment of information provided on this form shall be governed by procedures specified in 40 CFR Part 2. In accordance with Title 40 of the Code of Federal Regulations Part 403, Section 403.14 and the Local Sewer Use Ordinance (SUO), information and data provided in this questionnaire which identifies the content, volume and frequency of discharge shall be available to the public without restriction.

This is to be signed by an authorized official of your firm, as defined in the Local Sewer Use Ordinance or the \_\_\_\_\_ after completion of this form.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and/or imprisonment for knowing violations.

\_\_\_\_\_  
Signature of Authorized Representative  
listed above (seal if applicable)

\_\_\_\_\_  
Date

### Industrial User Wastewater Survey & Permit Application

## **PART 1      Facility Information**

1.      Provide a brief narrative description of the type of business, manufacturing processes, or service activities your firm conducts at this site.

---

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---

2.      List the primary products produced at this facility:

---

---

---

3.      List raw materials and process additives used:

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---

---

4.      Are biocides added to any water discharged to the POTW, if yes describe:

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---

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---

---

5.      Describe weekly production schedule, including shifts worked per day, employees per shift, and primary operation during shift.

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---



6.	Production process is:	Check, if all continuous	<input type="checkbox"/>
		Check, if all batch	<input type="checkbox"/>
	If both please enter, % continuous =	<input type="text"/> %	% Batch = <input type="text"/> %

7. Does production vary significantly (+- 20 %) by season? Describe.

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

8. Are any significant (+- 20 %) changes in production that will affect wastewater discharge expected in the next 5 years? If yes, please describe.

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

9. List all current waste haulers. Give name, address, phone numbers, volume and materials hauled off.

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10. Attach a copy of laboratory analyses performed in the last year on the wastewater discharge(s) from your facilities. Summarize data on the attached Data Summary Form.

11. Attach sketch or schematic showing sampling points and all connections to the sewer.

12. Complete the Wastewater Pollutants Checklist attached to this Survey.

13. Do you have, or have you ever applied for, been issued, or been denied an NPDES permit to discharge to the surface waters or storm sewers of Florida? If yes, list all other NPDES permits, permit numbers, dates, and names used to apply for them, or reason denied.

If yes: Permit , #, date, applicant name	Yes	<input type="text"/>
If yes: Permit , #, date, applicant name	No	<input type="text"/>

14. Do you have, or have you ever applied for or been issued an Industrial User Pretreatment Permit (IUP) to discharge wastewater to the sewer collection system. If yes, list all other IUP permits, permit numbers, dates, and names used to apply for them.

If yes: Permit , #, date, applicant name	Yes	<input type="text"/>
If yes: Permit , #, date, applicant name	No	<input type="text"/>

15. Do you have, or have you ever applied for or been issued any other Environmental Permits (for example; air, RCRA, groundwater, stormwater, general, Non-Discharge, septic tank, etc.). If yes, list all other permits, permit numbers, dates, and names used to apply for them.

If yes: Permit type, #, date, applicant name	Yes	<input type="text"/>
If yes: Permit type, #, date, applicant name	No	<input type="text"/>
If yes: Permit type, #, date, applicant name		<input type="text"/>

16. Is a Spill Prevention Control and Countermeasure (SPCC) Plan prepared for this facility?

Yes	<input type="text"/>
No	<input type="text"/>

17. Is a Spill /Slug Control Plan required by the POTW, prepared for this facility?

Yes	<input type="text"/>
No	<input type="text"/>

18. Do you have any underground storage tanks at your facility? If yes, list contents and volume of each tank.

Yes	<input type="text"/>
No	<input type="text"/>

19. Do you have any above ground storage tanks at your facility? If yes, for each tank, list the contents, volume, whether the tank has any spill prevention or containment devices, such as dikes, and procedures for draining any containment devices.

Yes	<input type="text"/>	# of Tanks	<input type="text"/>
No			<input type="text"/>

Water Used for:	Water Source(s)	Avg. gal/day	Max. gal/day	Measured	Estimated	Disposal Method(s)	Avg. gal/day	Max. gal/day	Measured	Estimated
	(see Source List below)					(see Disposal List below)				
1. Process water										
2. Washdown water										
3. Water into product										
4. Air Quality Permitted units										
5. Domestic - toilets, drinking, cafe										
6. Cooling water, Process Non-Contact										
7. Boiler / Cooling tower blowdown										
8. Cooling water, HVAC										
9. Other:										
	Totals =>			Totals =>						

1. City / Public supply
2. Private wells, drinking
3. Groundwater remediation wells
4. Private ponds
5. Surface waters of FL please identify
6. Include others if applicable

1. Sanitary sewer, with pretreatment
2. Sanitary sewer, without pretreatment
3. Storm sewer
4. Surface waters of FL
5. Evaporation
6. Land applied
7. To groundwater
8. Septic Tank
9. Waste Haulers (identify)
10. Water into Product
11. Include others, if applicable

## PART III Pretreatment Facilities:

Are there any pretreatment devices or processes used for treating wastewater before being discharged to the sewer? Check all that are present, and describe.

No pretreatment facilities =>

1. Flow equalization

Aerated equalization =>

NON-Aerated equalization =>

Total volume of equalization (million gal.) =>

2. Activated Carbon	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
3. Activated Sludge	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
4. Air Stripping	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
5. Centrifugation	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
6. Chemical Precipitation	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
7. Chlorination	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
8. Cyanide Destruction	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
9. Cyclone	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
10. Dissolved Air Floatation	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
11. Filtration	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
12. Flocculation	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
13. Grease Trap	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
14. Grit Removal	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
15. Ion Exchange	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
16. Neutralize, pH adjust	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
17. Other Biological Treatment	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
18. Ozonation	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
19. Reverse Osmosis	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
20. Screening	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
21. Sedimentation	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
22. Septic Tank	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
23. Silver Recovery	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
24. Solvent Separation	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
25. Spill protection	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>

Describe any, if present.

List any others.

## PART IV Categorical Information:

1. When were operations started at this facility Facility start up date

2. Is this site leased or rented

Yes

No

(If yes, please provide the name and address of the owner)

3. List all Standard Industrial Classification (SIC) codes for your facility.  
These may be found on State Unemployment forms, tax forms, accounting records, or from the Chamber of Commerce.

<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

4. Has this facility ever been considered a Categorical Industrial User (CIU) as described by the Code of Federal Regulations (40 CFR)?

If yes, give complete 40 CFR number =>

No

5. Are any other facilities owned and/or operated by your company permitted as Categorical Industrial Users (CIUs) as described by the Code of Federal Regulations (40 CFR)?

If yes please give name(s), location, and 40 CFR number.

Yes

No

5. Check any activities listed below that are performed at your facility:

Check below	40 CFR#	Industrial Activity	Check below	40 CFR#	Industrial Activity
	467	Aluminum Forming		425	Leather Tanning & Finishing
	427	Asbestos Manufacturing		432	Meat products
	461	Battery Manufacturing		433	Metal finishing
	431	Builders paper & board mills		464	Metal molding and casting
	407	Canned & preserved fruits & veg.		436	Mineral mining and processing
	408	Canned & preserved seafood		471	Nonferrous Metal, Form & Powders
	458	Carbon black Manufacturing		421	Nonferrous Metals Manufacturing
	411	Cement Manufacturing		414	OCPSF, Organic Chemicals, Plastics, & Synthetic Fiber Manufacturing
	437	Centralized Waste Treatment		435	Oil & gas extraction
	434	Coal Mining		440	Ore mining and dressing
	465	Coil Coating		446	Paint formulating
	444	Commercial Hazardous Waste Combustion		443	Paving and roofing materials Mfg.
	468	Copper Forming		455	Pesticide Manufacturing
	405	Dairy products processing		419	Petroleum Refining
	469	Electrical, electronic components		439	Pharmaceutical Manufacturing
	413	Electroplating		422	Phosphate Manufacturing
	457	Explosives Manufacturing		459	Photographic supplies
	412	Feedlots		463	Plastics molding and forming
	424	Ferro alloy Manufacturing		466	Porcelain enameling
	418	Fertilizer Manufacturing		430	Pulp, paper, and paperboard
	464	Foundries, Metal Mold & Casting		428	Rubber Manufacturing
	426	Glass Manufacturing		417	Soap & Detergent Manufacturing
	406	Grain mills		423	Steam Electric power Generation
	454	Gum & Wood Chemicals Mfg.		409	Sugar processing
	460	Hospitals		410	Textile Mills
	447	Ink formulating		429	Timber products processing
	415	Inorganic chemical Manufacturing		442	Transportation Equipment Cleaning
	420	Iron & Steel Manufacturing		Others	
	445	Landfill			

## Wastewater Pollutant Checklist

Chemical Name	EPA Storet Code	Check if Present at Facility	Check if Absent at Facility	Check if Present in Discharge	Check if Absent in Discharge	Concentration in Discharge, if Known (mg/l)
---------------	-----------------------	------------------------------------	-----------------------------------	-------------------------------------	------------------------------------	--

### Acid Extractable Organics

2-Chlorophenol	34586					
2,4-Dichlorophenol	34601					
2,4-Dimethylphenol	34606					
2,4-Dinitrophenol	34616					
2-Methyl-4,6-dinitrophenol	34657					
4-Chloro-3-methylphenol	34452					
2-Nitrophenol	34591					
4-Nitrophenol	34646					
Pentachlorophenol	39032					
Phenol	34694					
2,4,6-Trichlorophenol	34621					

### Base Neutral Organics

1,2,4-Trichlorobenzene	34551					
1,2-Dichlorobenzene	34536					
1,2-Diphenylhydrazine	34346					
1,3-Dichlorobenzene	34566					
1,4-Dichlorobenzene	34571					
2,4-Dinitrotoluene	34611					
2,6-Dinitrotoluene	34626					
2-Chloronaphthalene	34581					
3,3-Dichlorobenzidine	34631					
4-Bromophenyl phenyl ether	34636					
4-Chlorophenyl phenyl ether	34641					
Acenaphthene	03405					
Acenaphthylene	34200					
Anthracene	34220					
Benzidine	39120					
Benzo (a) anthracene	34526					
Benzo (a) pyrene	34247					
Benzo (b) fluoranthene	34230					
Benzo (ghi) perylene	34521					
Benzo (k) fluoranthene	34242					
Bis(2-chloroethoxy) methane	34278					
Bis(2-chloroethyl) ether	34273					
Bis(2-chloroisopropyl) ether	34283					
Bis(2-ethylhexyl) phthalate	39100					
Butyl benzyl phthalate	34292					
Chrysene	34320					
Di-n-butyl phthalate	39110					



## Wastewater Pollutant Checklist

Chemical Name	EPA Storet Code	Check if Present at Facility	Check if Absent at Facility	Check if Present in Discharge	Check if Absent in Discharge	Concentration in Discharge, if Known (mg/l)
---------------	-----------------------	------------------------------------	-----------------------------------	-------------------------------------	------------------------------------	--

### Base Neutral Organics (continued)

Di-n-octyl phthalate	34596					
Dibenzo (a,h) anthracene	34556					
Diethyl phthalate	34336					
Dimethyl phthalate	34341					
Fluoranthene	34376					
Fluorene	34381					
Hexachlorobenzene	39700					
Hexachlorobutadiene	34391					
Hexachlorocyclopentadiene	34386					
Hexachloroethane	34396					
Indeno(1,2,3-cd) pyrene	34403					
Isophorone	34408					
N-nitroso-di-n-propylamine	34428					
N-nitrosodimethylamine	34438					
N-nitrosodiphenylamine	34433					
Naphthalene	34696					
Nitrobenzene	34447					
Phenanthrene	34461					
Pyrene	34469					

### Metals

Aluminum	01104					
Antimony	01097					
Arsenic	01002					
Beryllium	01012					
Cadmium	01027					
Chromium	01034					
Copper	01042					
Lead	01051					
Mercury	71900					
Molybdenum	01062					
Nickel	01067					
Selenium	01147					
Silver	01077					
Thallium	00982					
Zinc	01092					

## Wastewater Pollutant Checklist

Chemical Name	EPA Storet Code	Check if Present at Facility	Check if Absent at Facility	Check if Present in Discharge	Check if Absent in Discharge	Concentration in Discharge, if Known (mg/l)
---------------	-----------------------	------------------------------------	-----------------------------------	-------------------------------------	------------------------------------	--

### Other Inorganics

Barium	01007					
Chloride	00940					
Cyanide	00720					
Fluoride	00951					

### Purgeable Volatile Organics

1,1,1-Trichloroethane	34506					
1,1,2,2-Tetrachloroethane	34516					
1,1,2-Trichloroethane	34511					
1,1-Dichloroethane	34496					
1,1-Dichloroethylene	34501					
1,2-Dichloroethane	34531					
1,2-Dichloropropane	34541					
2-Chloroethyl vinyl ether	34576					
Acrolein	34210					
Acrylonitrile	34215					
Benzene	34030					
Bromodichloromethane	32101					
Bromoform	32104					
Bromomethane	34413					
Carbon tetrachloride	32102					
Chlorobenzene	34301					
Chloroethane	34311					
Chloroform	32106					
Chloromethane	34418					
cis 1,3-Dichloropropene	34704					
Dibromochloromethane	32105					
Ethylbenzene	34371					
Methylene chloride	34423					
Tetrachloroethylene	34475					
Toluene	34010					
trans 1,3-Dichloropropene	34699					
trans-1,2-Dichloroethylene	34546					
Trichloroethylene	39180					
Trichlorofluoromethane	34488					
Vinyl chloride	39175					

### Others

Xylene						

## Data Summary Form

	<b>&lt;= Receiving POTW</b>
	<b>&lt;= Receiving NPDES #</b>
	<b>&lt;= Specific Sample Location!</b> i.e., Give IU Name, IUP#, and/or pipe#

						BOD	TSS	Ammonia			
Lab => Laboratory performing analysis =>											
MDL => Laboratory Method Detection Limits =>											
Notes => Notes =>											
Q = Flow											
Sample ID, or Count	Date Sample Collected	Notes about Sample	M = Metered			<?	Conc. Results from Lab mg/l	<?	Conc. Results from Lab mg/l	<?	Conc. Results from Lab mg/l
			E = Estimated	mgd	gal/day						
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
etc											

TNS =>	Total number of samples =>			
Max. value =>	Maximum data value (mg/l) =>			
Avg. (use 1/2 BDL) =>	Avg. data value, Include BDL values as 1/2 detection limit =>			

## Data Summary Form

	<b>&lt;= Receiving POTW</b>
	<b>&lt;= Receiving NPDES #</b>
	<b>&lt;= Specific Sample Location!</b> i.e., Give IU Name, IUP#, and/or pipe #

Sample ID or Count	Date Sample Collected	Arsenic		Copper		Chromium		Cadmium		COD		Copper	
		Lab =>		MDL =>		Notes =>							
		Conc. Results from Lab	mg/l	Conc. Results from Lab	mg/l	Conc. Results from Lab	mg/l	Conc. Results from Lab	mg/l	Conc. Results from Lab	mg/l	Conc. Results from Lab	mg/l
		<?		<?		<?		<?		<?		<?	
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
etc													

TNS =>						
Max. Value =>						
Avg. (use 1/2 BDL) =>						

## Data Summary Form

	<b>&lt;= Receiving POTW</b>
	<b>&lt;= Receiving NPDES #</b>
	<b>&lt;= Specific Sample Location!</b> i.e., Give IU Name, IUP#, and/or pipe #

Sample ID or Count	Date Sample Collected	Cyanide		Lead		Mercury		Nickel		Silver		Zinc	
		Lab =>		MDL =>		Notes =>							
		Conc. Results from Lab		Conc. Results from Lab		Conc. Results from Lab		Conc. Results from Lab		Conc. Results from Lab		Conc. Results from Lab	
		<?	mg/l	<?	mg/l	<?	mg/l	<?	mg/l	<?	mg/l	<?	mg/l
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
etc													

TNS =>						
Max. Value =>						
Avg. (use 1/2 BDL) =>						

## Data Summary Form

	<b>&lt;= Receiving POTW</b>
	<b>&lt;= Receiving NPDES #</b>
	<b>&lt;= Specific Sample Location!</b> i.e., Give IU Name, IUP#, and/or pipe #

Sample ID or Count	Date Sample Collected	Other		Other		Other		Other		Other		Other	
		Conc. Results from Lab		Conc. Results from Lab		Conc. Results from Lab		Conc. Results from Lab		Conc. Results from Lab		Conc. Results from Lab	
		<?	mg/l	<?	mg/l	<?	mg/l	<?	mg/l	<?	mg/l	<?	mg/l
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
etc													

TNS =>						
Max. Value =>						
Avg. (use 1/2 BDL) =>						

## Part V Waste Reduction Information :

Inventory current and projected waste reduction (pollution prevention) activities. The codes listed are standard EPA codes found on Toxic Release Inventory and other environmental forms. Please check all applicable codes for your facility related to wastewater discharge.

Current	Projected	Code	Description
		W13	Improved maintenance scheduling recordkeeping, or procedures
		W14	Changed production schedule to minimize equipment and feedstock changeovers
		W19	Other changes in operating practices (explain briefly in comments)
		W21	Instituted procedures to ensure that materials do not stay in inventory beyond shelf-life
		W22	Began to test outdated material-continue to use if still effective
		W23	Eliminated shelf-life requirements for stable materials
		W24	Instituted better labeling procedures
		W25	Instituted clearinghouse to exchange materials that would otherwise be discarded
		W29	Other changes in Inventory control (explain briefly in comments)
		W31	Improved storage or stacking procedures
		W32	Improved procedures for loading, unloading and transfer operations
		W33	Installed overflow alarms or automatic shutoff valves
		W34	Installed secondary containment
		W35	Installed vapor recovery systems
		W36	Implemented inspection or monitoring program of potential spill or leak sources
		W39	Other spill and leak prevention (explain briefly in comments)
		W41	Increased purity of raw materials
		W42	Substituted raw materials
		W49	Other raw material modifications (explain briefly in comments)
		W51	Instituted recirculation within a process

Current	Projected	Code	Description
		W52	Modified equipment, layout, or piping
		W53	Use of a different process catalyst
		W54	Instituted better controls on operating bulk containers to minimize discarding of empty containers
		W55	Changed from small volume containers to bulk containers to minimize discarding of empty containers
		W58	Other process modifications (explain briefly in comments)
		W59	Modified stripping / cleaning equipment
		W60	Changed to mechanical stripping / cleaning devices (from solvents or other materials)
		W61	Changed to aqueous cleaners ( from solvents or other materials)
		W62	Reduced the number of solvents used to make waste more amenable to recycling
		W63	Modified containment procedures for cleaning units
		W64	Improved draining procedures
		W65	Redesigned parts racks to reduce dragout
		W66	Modified or installed rinse systems
		W67	Improved rinse equipment design
		W68	Improved rinse equipment operation
		W71	Other cleaning and degreasing operation (explain briefly in comments)
		W72	Modified spray systems or equipment
		W73	Substituted coating materials used
		W74	Improved application techniques
		W75	Changed from spray to other system
		W78	Other surface preparation and finishing (explain briefly in comments)
		W81	Changed product specifications
		W82	Modified design or composition of product
		W83	Modified packaging
		W89	Other product modifications (explain briefly in comments)
		W99	Other (specify in comments )

**Comments (Please list corresponding code)**

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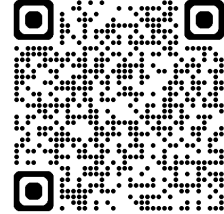
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**ONE-TIME COMPLIANCE REPORT FOR DENTAL DISCHARGERS**  
**Effluent Limitations Guidelines and Standards for the Dental Office Category**  
**to Comply with 40 CFR 441.50**

For more information on LRD's Dental  
Amalgam Program, please use the QR Code



**General Information**

Name of Facility					
Physical Address of Dental Facility					
City:		State:		Zip:	
Mailing Address					
City:		State:		Zip:	
Facility Contact					
Phone:		Email:			
Names of Owner(s):					
Names of Operator(s) if different from Owner(s):					

**Applicability: Please Select One of the Following**

<input type="checkbox"/>	This facility is a dental discharger subject to this rule ( <a href="#">40 CFR Part 441</a> ) and it places or removes dental amalgam. <i>Complete sections A, B, C, D, and E</i>
--------------------------	--

<input type="checkbox"/>	This facility is a dental discharger subject to this rule and (1) it does not place dental amalgam, and (2) it does not remove amalgam except in limited emergency or unplanned, unanticipated circumstances. <i>Complete section E only</i>
<b>(Also, select if applicable) Transfer of Ownership (<a href="#">§ 441.50(a)(4)</a>)</b>	
<input type="checkbox"/>	This facility is a dental discharger subject to this rule ( <a href="#">40 CFR Part 441</a> ), and it has previously submitted a one-time compliance report. This facility is submitting a new One Time Compliance Report because of a transfer of ownership as required by <a href="#">§ 441.50(a)(4)</a> .

## Section A

### Description of Facility

Total number of chairs:		
Total number of chairs at which amalgam may be present in the resulting wastewater (i.e., chairs where amalgam may be placed or removed):		
Description of any amalgam separator(s) or equivalent device(s) currently operated:		
YES <input type="checkbox"/>	NO <input type="checkbox"/>	The facility discharged amalgam process wastewater prior to July 14th, 2017 under any ownership.

## Section B

### Description of Amalgam Separator or Equivalent Device

<input type="checkbox"/>	The dental facility has installed one or more ISO 11143 (or ANSI/ADA 108-2009) compliant amalgam separators (or equivalent devices) that captures all amalgam containing waste at the following number of chairs at which amalgam placement or removal may occur:	<i>Chairs:</i>
<input type="checkbox"/>	The dental facility installed prior to June 14, 2017 one or more existing amalgam separators that do not meet the requirements of <a href="#">§ 441.30(a)(1)(i) and (ii)</a> at the following number of chairs at which amalgam placement or removal may occur:	<i>Chairs:</i>
	I understand that such separators must be replaced with one or more amalgam separators (or equivalent devices) that meet the requirements of <a href="#">§ 441.30(a)(1)</a> or <a href="#">§ 441.30(a)(2)</a> , after their useful life has ended, and no later than June 14, 2027, whichever is sooner.	
	<b>Make</b>	<b>Model</b>
		<b>Year of installation</b>

<input type="checkbox"/>	My facility operates an equivalent device.	
<b>Make</b>	<b>Model</b>	<b>Average removal efficiency of equivalent device, as determined per <a href="#">§ 441.30(a)(2)i- iii.</a></b>

### Section C

#### Design, Operation and Maintenance of Amalgam Separator/Equivalent Device

<input type="checkbox"/>	YES	I certify that the amalgam separator (or equivalent device) is designed and will be operated and maintained to meet the requirements in <a href="#">§ 441.30</a> or <a href="#">§ 441.40</a> .	
A third-party service provider is under contract with this facility to ensure proper operation and maintenance in accordance with <a href="#">§ 441.30</a> or <a href="#">§ 441.40</a> .			
<input type="checkbox"/>	YES	Name of third-party service provider (e.g. Company Name) that maintains the amalgam separator or equivalent device (if applicable):	
<input type="checkbox"/>	NO	If none, provide a description of the practices employed by the facility to ensure proper operation and maintenance in accordance with <a href="#">§ 441.30</a> or <a href="#">§ 441.40</a> .	

Describe practices:

## Section D

### Best Management Practices (BMP) Certifications

- ☐ The above named dental discharger is implementing the following BMPs as specified in [§ 441.30\(b\)](#) or [§ 441.40](#) and will continue to do so.
- Waste amalgam including, but not limited to, dental amalgam from chair-side traps, screens, vacuum pump filters, dental tools, cuspidors, or collection devices, must not be discharged to a publicly owned treatment works (e.g., municipal sewage system).
  - Dental unit water lines, chair-side traps, and vacuum lines that discharge amalgam process wastewater to a publicly owned treatment works (e.g., municipal sewage system) must not be cleaned with oxidizing or acidic cleaners, including but not limited to bleach, chlorine, iodine and peroxide that have a pH lower than 6 or greater than 8 (i.e. cleaners that may increase the dissolution of mercury).

## Section E

### Certification Statement

Per [§ 441.50\(a\)\(2\)](#), the One-Time Compliance Report must be signed and certified by a responsible corporate officer, a general partner or proprietor if the dental facility is a partnership or sole proprietorship, or a duly authorized representative in accordance with the requirements of [§ 403.12\(l\)](#).

*"I am a responsible corporate officer, a general partner or proprietor (if the facility is a partnership or sole proprietorship), or a duly authorized representative in accordance with the requirements of § 403.12(l) of the above named dental facility, and certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."*

Authorized Representative Name ( <i>print name</i> ):			
Phone:		Email:	
Authorized Representative Signature		Date	

**Retention Period; per [§ 441.50\(a\)\(5\)](#)**

As long as a Dental facility subject to this part is in operation, or until ownership is transferred, the Dental facility or an agent or representative of the dental facility must maintain this One Time Compliance Report and make it available for inspection in either physical or electronic form.



# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

TEL: (561) 747-5700

FAX: (561) 747-9929

D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

To: Albrey Arrington, Ph. D., Executive Director  
From: Bud Howard, Director of Information Services  
Date: February 12, 2025  
Subject: Policy Review and Update: Water Leak Credit for Non-Residential Customers

This is a request for the Board's 5-year review and approval of the District's policy to specify the principal of action for issuing a credit to non-residential customers that experience a significant water leak.

In March 2020 the Governing Board reviewed and approved updates to our original 2016 policy that specifies the procedure and criteria for customers to request a credit if they have experienced an increased bill due to a water leak.

This action is the scheduled 5-year review of the policy, the conversion to our newer policy layout, and contains one minor edit to reflect the management of data in our current customer information and billing system. The policy has proven to be functional for our customers and staff, and it is consistent with the Town of Jupiter's policy for issuing a leak credit.

Therefore, staff offers the following motion for consideration:


**"THAT THE DISTRICT GOVERNING BOARD approves the attached, revised Water Leak Credit for Non-Residential Customers Policy with an effective date of February 20, 2025."**

Gordon M. Boggie  
CHAIRMAN

Kevin L. Baker  
BOARD MEMBER

Stephen B. Rockoff  
BOARD MEMBER

Dr. Matt H. Rostock  
BOARD MEMBER

	LOXAHATCHEE RIVER DISTRICT	Doc No:	LRD-POL-IS-9.00
		Effective Date	September 2016
		Revision History:	9/1/2016, 3/19/2020, 2/20/2025
Author: Bud Howard, Albrey Arrington		Revision No.	3
		Expiration Date:	None
Issuing Department: Customer Service		Page:	Page 1 of 1

## WATER LEAK CREDIT FOR NON-RESIDENTIAL CUSTOMERS POLICY

### Purpose

To specify the principal of action for the conditions for credit to non-residential customers with a water leak.

### Policy

Most non-residential Quarterly Sewer Service Charges are computed based upon water usage (Rule 31-10.007). If a customer whose Quarterly Service Charge is based upon water usage experiences an increased sewer bill due to a water leak, the customer may be granted a credit on their Quarterly Sewer Services Charge according to the following criteria:

1. The Customer shall submit, in writing, a request for credit within 6 months of the due date of the abnormally high Quarterly Sewer Service charge.
2. The Customer shall provide clear evidence (e.g. plumbing repair bill, photographs, etc.) that documents the leak occurred and that the leak was repaired.
3. The Customer's water use patterns (e.g. water meter readings) indicate which months of usage are affected, and the leaked water use is at least two times the comparable monthly usage or greater than 10,000 gallons.
4. There are at least 12 months of historical and/or subsequent non-affected usage to compute a 12-month average water usage.
5. The credit is limited to one time within a two-year period.
6. The credit shall be computed in terms of gallons of leaked water by the most reasonable means available. Efforts to compute leaked water should address, when possible, seasonal patterns of water usage. The estimated gallons of leaked water will then be ~~entered as a Water Use Credit in the Commercial Billing Tool (or other deducted in the~~ data management system).

**Relevant Policies & Rules:** LRD Rules Chapter 31-10.009(9).

### Protest

The mechanism for an Owner to formally protest the outcome of this policy is LRD Rule 31-10.009(8) Administrative Credit and 31-1.008 Quasi-Judicial Hearing Procedures.

**Applicability:** Customer Service

**Policy Questions:** Questions regarding this policy should be directed to the author(s) listed above.

**Authority:** Chapter 31-10

**Date Approved by Governing Board:** 2/20/2025



# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

TEL: (561) 747-5700

FAX: (561) 747-9929

D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

TO: D. Albrey Arrington, Ph.D., Executive Director  
FROM: Kris Dean, P.E., Deputy Executive Director  
Courtney Jones, P.E., Director of Engineering  
DATE: February 20, 2025  
SUBJECT: Application to Abandon / Terminate Easement -18455 Limestone Creek Road  
(PCN 00-42-40-33-08-015-0010)

The District's Manual of Minimum Construction Standards and Technical Specifications outlines the policies and procedures for customers that desire to make application for the Board's consideration for abandonment / termination of a District easement.

The property owner at 18455 Limestone Creek Road (PCN 00-42-40-33-08-015-0010) has submitted an application to abandon / terminate the general utility easement across a portion of the subject property. The following supporting exhibits were provided by the applicant as part of the application process:

- Application to Abandon / Terminate Easement – 18455 Limestone Creek Road (PCN 00-42-40-33-08-015-0010)
- Exhibit #1 – Legal Sketch and Description of the requested easement abandonment location
- Exhibit #2 – Email Detailing Justification for this Request

The complete application submittal has been reviewed by the Engineering Services Department. The following outlines Engineering Services' review of the application as submitted:

1. Proposed site plan is in compliance with the District's Manual of Minimum Construction Standards and Technical Specifications.
2. Proposed site plan is in compliance with Federal, State and Local codes and regulations as they relate to the District's wastewater utility service. Other applicable agencies will be responsible for review and approval of the site plan presented in regards to the Federal, State and Local codes and regulations that pertain to their applicable jurisdictional authority.
3. Estoppel certificate has been obtained and evidence of charges paid is sufficient.
4. Evidence of title is sufficient.

Gordon M. Boggie  
CHAIRMAN

Kevin L. Baker  
BOARD MEMBER

Stephen B. Rockoff  
BOARD MEMBER

Dr. Matt H. Rostock  
BOARD MEMBER



5. Risk Assessment: No District risk identified as no existing or proposed District facilities are located within the non-exclusive utility easement.
6. Benefit Assessment: Benefit to the District to remove property rights / liability for a non-exclusive utility easement where no existing or proposed District facilities are located.
7. No reasonable future use identified for this non-exclusive utility easement.
8. No conflicts with existing District infrastructure have been identified.
9. No identification of restraints and limitations identified.
10. Easement was dedicated to the District by the developer for an amount of \$10.00.

Staff recommend the following motion:

**“THAT THE DISTRICT GOVERNING BOARD approve the Application to Abandon / Terminate Easement for 18455 Limestone Creek Road (PCN 00-42-40-33-08-015-0010).”**



LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT  
2500 JUPITER PARK DRIVE, JUPITER, FL 33458-8964  
Telephone: 561-747-5700 Option 2; Fax: 561-747-9929; [www.loxahatcheeriver.org](http://www.loxahatcheeriver.org)  
Email: [cindy.denton@loxahatcheeriver.org](mailto:cindy.denton@loxahatcheeriver.org)

### Application To Abandon/Terminate Easement

The undersigned hereby makes application to vacate, abandon, discontinue and close the Easement described below and to renounce and disclaim any easement to the District in and to any land in connection therewith.

The undersigned hereby certify:

1. That attached hereto, signed and sealed by a Florida registered land surveyor, is a legal description and sketch accurately drawn and legally describing the **easement** to be abandoned and showing boundaries of the underlying and abutting properties and existing improvements (Exhibit #1).
2. That title of interest of the District in and to the **easement** was acquired and is evidenced by **plat number** and **identification**, as recorded in Plat Book 133 Page(s) 66 through 70 or **other instrument recorded in the Official Record Book and Page** of the Public Records, of Palm Beach County or Martin County, Florida Original Record Book \_\_\_\_\_ Page(s) \_\_\_\_\_.
3. That attached hereto is a location map which clearly and legibly identifies the location of the easement in relation to the nearest public right-of-way (Exhibit #2).
4. That the applicant's ownership and/or interest in and to the underlying property is evidenced by an instrument recorded in Official Record book 133, Page 66 - 70, of the Public records of Palm Beach County or Martin County, Florida. A certified copy of that source instrument is attached hereto (Exhibit #3).
5. That attached hereto and made a part hereof is an estoppel certificate for the District confirming all charges related to the underlying property have been paid (Exhibit #4).
6. That an application fee in the amount of \$ \$561.02 has been paid in full. Attach receipt as Exhibit #5.
7. That the grounds and reasons in support of this application are as follows (Exhibit #6).
8. That the applicant will submit additional information upon request including but not limited to engineering plans and studies to assist the Engineering Services Department in their review and in support of the recommendation.

Date 1-16-2025

[Signature]  
Signature of Applicant

RAFAEL J. ROCA  
Print Applicant's Name

VICE PRESIDENT  
Indicate position if Corporation

DR Horton Inc  
Name of Corporation

18455 Limestone Creek Rd  
Address

Jupiter, FL  
City, State, Zip

(561) 504-6219  
Phone Number

R.MCLAREN@DAHorton.com  
Email Address

**LEGAL DESCRIPTION:**

ALL OF THE EXISTING UTILITY EASEMENT AS SHOWN ON THE PLAT OF RESERVE AT JUPITER, AS RECORDED IN PLAT BOOK 133, AT PAGE 66, OF THE PUBLIC RECORDS OF PALM BEACH COUNTY, FLORIDA, LYING WITHIN TRACT OS-9 OF SAID PLAT, AND SITUATE IN SECTION 33, TOWNSHIP 40 SOUTH, RANGE 42 EAST, PALM BEACH COUNTY, FLORIDA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHERNMOST SOUTHEAST CORNER OF SAID PLAT, THENCE NORTH 00°04'30" EAST, ALONG THE EASTERLY LINE OF SAID PLAT, A DISTANCE OF 158.00 FEET TO THE SOUTHEAST CORNER OF SAID TRACT OS-9; THENCE NORTH 89°56'37" WEST, ALONG THE SOUTH LINE OF SAID TRACT OS-9, A DISTANCE OF 8.00 FEET TO THE POINT OF BEGINNING; THENCE NORTH 89°56'37" WEST, CONTINUING ALONG SAID SOUTH LINE, A DISTANCE OF 12.50 FEET; THENCE DEPARTING SAID SOUTH LINE, NORTH 00°04'30" EAST, A DISTANCE OF 164.50 FEET TO THE NORTHWEST CORNER OF SAID TRACT OS-9; THENCE SOUTH 89°56'37" EAST, A DISTANCE OF 298.68 FEET TO A POINT ON THE EAST LINE OF SAID TRACT OS-9; THENCE SOUTH 00°01'05" WEST, ALONG SAID EAST LINE, A DISTANCE OF 15.00 FEET; THENCE DEPARTING SAID EAST LINE, NORTH 89°56'37" WEST, A DISTANCE OF 286.19 FEET; THENCE SOUTH 00°04'30" WEST, A DISTANCE OF 149.50 FEET TO THE POINT OF BEGINNING;

SAID LANDS CONTAIN 6,349.0 SQUARE FEET, MORE OR LESS.

**SURVEYOR'S NOTES:**

1. DATA SHOWN HEREON WAS COMPILED FROM OTHER INSTRUMENTS AND DOES NOT CONSTITUTE A FIELD SURVEY AS SUCH.
2. THE BEARINGS SHOWN HEREON ARE BASED ON GRID NORTH, AND ARE REFERENCED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM, EAST ZONE, NORTH AMERICAN DATUM OF 1983, 1990 ADJUSTMENT. THE BEARINGS SHOWN HEREON ARE BASED ON THE SOUTH LINE OF THE PLAT OF RESERVE AT JUPITER, AS RECORDED IN PLAT BOOK 133, AT PAGE 66, OF THE PUBLIC RECORDS OF PALM BEACH COUNTY, FLORIDA, HAVING A BEARING OF N89°56'37"W.
3. THE COORDINATES SHOWN HEREON ARE REFERENCED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM, EAST ZONE, NORTH AMERICAN DATUM OF 1983, 1990 ADJUSTMENT, BASED ON THE PLAT OF RESERVE AT JUPITER, AS RECORDED IN PLAT BOOK 133, AT PAGE 66, OF THE PUBLIC RECORDS OF PALM BEACH COUNTY, FLORIDA.

**LEGEND:**

ORB = OFFICIAL RECORDS BOOK  
PB = PLAT BOOK  
PG = PAGE  
POB = POINT OF BEGINNING  
POC = POINT OF COMMENCEMENT

**Eric Matthews**

Digitally signed by Eric  
Matthews  
Date: 2024.04.18 08:33:04  
-04'00'

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

ERIC R. MATTHEWS  
PROFESSIONAL SURVEYOR AND MAPPER  
FLORIDA LICENSE NO. 6717

(NOT A SURVEY-DESCRIPTION AND SKETCH ONLY)

PROJECT:  
**RESERVE AT JUPITER - PHASE 2**

TASK:  
**UTILITY EASEMENT ABANDONMENT**

PREPARED BY:

PHONE NO. 561.687.2220  
CERT NO. 33574  
LB NO. 7055



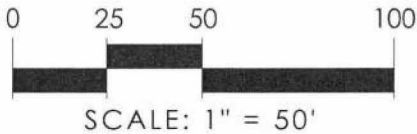
2035 VISTA PARKWAY  
WEST PALM BEACH, FL 33411

CAD 282010-SV-S&D UE ABANDONMENT.DWG

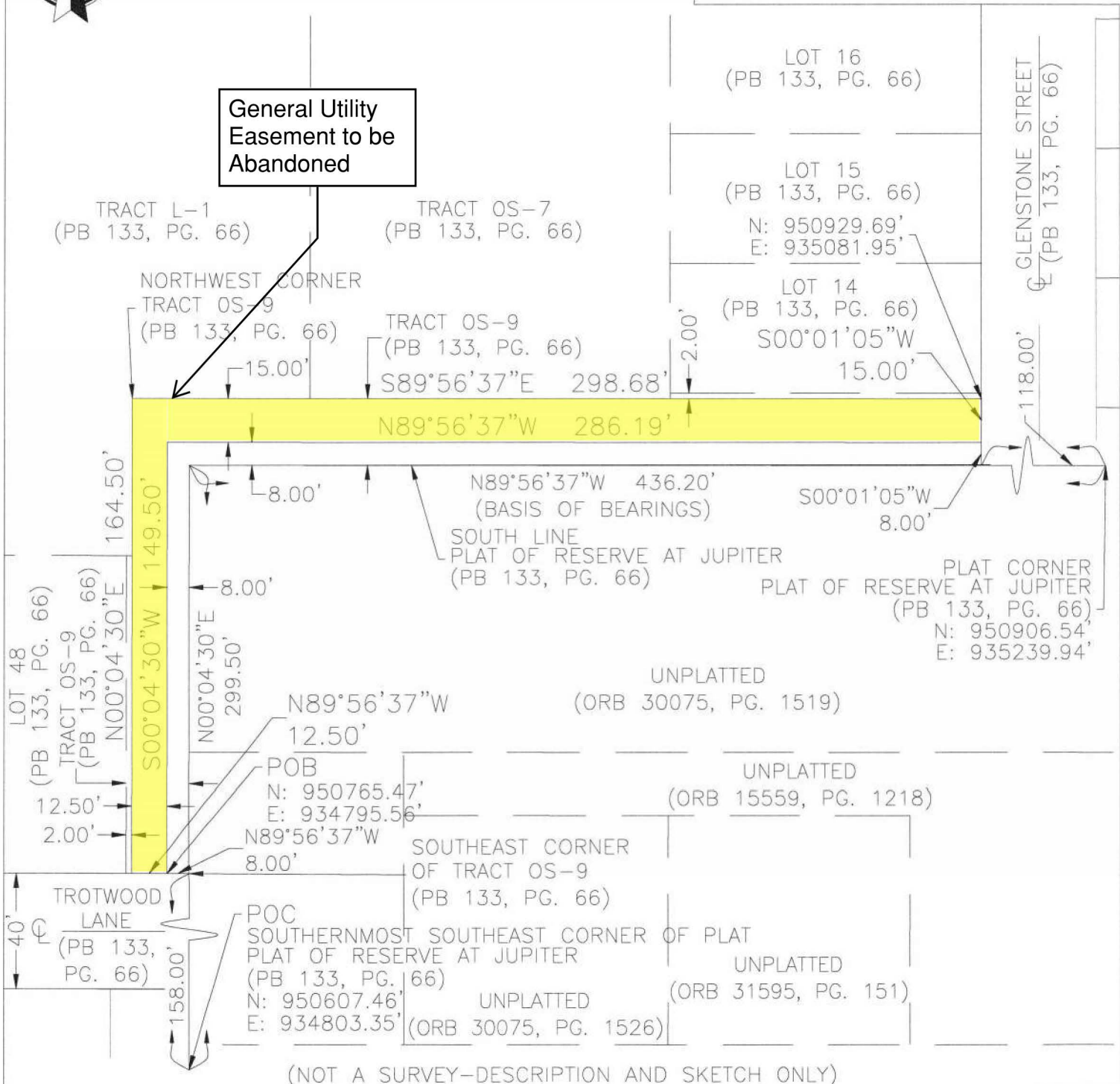
DRAWN/DESIGNED	ALEX L.
CHECKED/QC	ERIC M.
JOB NO.	2820.10
DATE	04/17/2024

**SHEET:**  
**1 of 2**





General Utility  
Easement to be  
Abandoned



(NOT A SURVEY-DESCRIPTION AND SKETCH ONLY)

PROJECT:  
RESERVE AT JUPITER - PHASE 2

TASK:  
UTILITY EASEMENT ABANDONMENT

PREPARED BY:

PHONE NO. 561.687.2220  
CERT NO. 33574  
LB NO. 7055

CAD 282010-SV-S&D UE ABANDONMENT.DWG



2035 VISTA PARKWAY  
WEST PALM BEACH, FL 33411

DRAWN/DESIGNED	ALEX L.
CHECKED/QC	ERIC M.
JOB NO.	2820.10
DATE	04/17/2024

SHEET:  
2 of 2

**Courtney Jones**

---

**From:** Chris Holmes <Chris.Holmes@wginc.com>  
**Sent:** Wednesday, January 8, 2025 11:54 AM  
**To:** Courtney Jones; Kris Dean; Cindy Denton; Linda Lunsford  
**Cc:** Anthony Russo; Yoan Machado; Lindsay Libes; Arianna Hilliard  
**Subject:** Reserve at Jupiter - Phase 2  
**Attachments:** Reserve at Jupiter - Easement abandonment Exhibit.pdf



**Chris Holmes, PE**  
Senior Project Manager  
2035 Vista Parkway  
West Palm Beach, FL 33411  
561.687.2220 (office) | 561.209.7775 (direct)



Good afternoon and Happy New Year!

I have taken over as the EOR for a project that we are working on with DR Horton. It is Phase 2 of the Reserve at Jupiter residential development, As you may recall, the developer's agreement for this project has been recorded and we will be preparing our initial plan submittal for LRD review

As part of this project, we are going to extend the existing water main from the Phase 1 development into Phase 2 area to serve the additional lots. This will require a portion of the existing water main within Phase 1 to be removed and the associated utility easement to be abandoned. Attached is a copy of our current water / sewer plan sheet the shows new water main layout The existing easement is dedicated to the Town of Jupiter for their water main.

The image below shows the limits of the easement to be abandoned on an aerial In addition, I have marked up the easement location on the attached Plat sheets



We are working with Palm Beach County to start the easement abandonment process. As you may now, the county requires letters of No Objection from utility providers

Therefore, we would like to request a letter of no objection from LRD

This is documentation we will need to start the abandonment process with Palm Beach County

Any assistance would be much appreciated.

Feel free to contact me with any questions



**Chris Holmes, PE**  
 Senior Project Manager  
 2035 Vista Parkway  
 West Palm Beach, FL 33411  
 561.687.2220 (office) | 561.209.7775 (direct)







# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

TEL: (561) 747-5700

FAX: (561) 747-9929

D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

TO: D. Albrey Arrington, Ph.D.  
FROM: Kris Dean, P.E., Deputy Executive Director  
DATE: February 11, 2025  
SUBJECT: Portable Generator Purchase: Award of Contract

The District maintains a fleet of 45 portable generators. These generators are a key component of the District's emergency response plan including hurricane response. As the fleet ages, Staff plan for the replacement of the oldest and/or least reliable generators in the fleet. Based on these criteria we have identified five (5) generators for replacement.

Staff propose to piggy-back on the existing Sourcewell Contract #092222-GNR with Genset Services, Inc. for 4-150 KVA and 1-250 KVA mobile diesel engine-driven generators. The below is a summary of the generators to be purchased.

(4) Generator MDG150	(150KW)	\$375,555.26
(1) Generator MDG250	(250KW)	\$111,436.02
Total:		\$486,991.28

Staff recommend the following motion:

**“THAT THE DISTRICT GOVERNING BOARD authorize the piggy-back of the Sourcewell Contract #092222-GNR with Genset Services, Inc for 4-150KVA and 1-250KVA mobile diesel engine-driven generators in accordance with their quotes dated February 5, 2025 in the amount of \$486,991.28”**

Gordon M. Boggie  
CHAIRMAN

Kevin L. Baker  
BOARD MEMBER

Stephen B. Rockoff  
BOARD MEMBER

Dr. Matt H. Rostock  
BOARD MEMBER

**Job Name:** Loxahatchee River District Portable - MDG150 - Sourcewell Contract #092222-GNR**Prepared For:** Loxahatchee River Environmental  
Control District**Project Rep:** Michael Bright**Phone:** 954-956-9252**Contact:** Jim Novak**Email:** mbright@gensetservices.com**We are pleased to offer the following proposal:**

Quantity 4 - Generac Mobile diesel engine-driven generator set MDG150DF4, consisting of the following features and accessories:

- Trailered Unit
- 150KVA Rating, 60Hz
- 4-Position Voltage Selector Switch
  - 277/480VAC Three Phase
  - 120/208VAC Three Phase
  - 120/240VAC Three Phase
  - 120/240VAC Single Phase
- Prime Duty Rating
- CSA
- Standard Alternator
- Variable Speed Cooling Fan
- 24 Hr Double Wall Tank
- Tandem Axle
- Electric Brakes
- 3 in. Pintle Ring Adjustable
- Trailer Adapter, Flat 4 to Round 7 Spade
- 10 Amp Battery Charger
- Lockable Battery Disconnect
- 50 Ethylene Glycol/50 Water
- Fuel and Fluid Containment
- Connection Lugs
- Convenience Receptacles
- PM Voltage Regulator
- MDG150DF4

Quantity 4 - Freight to Clients Yard

Quantity 4 - Startup and 1hr Load Bank, Training





Sales & Service for Standby Engine Generators

Proposal#: 57583

Proposal Date: 02/05/2025

Valid Until: 03/07/2025

Total investments for the above equipment (not including any taxes):

\$ 375,555.26

**Terms and Conditions:**

30% deposit with order, balance before shipping. Other payment terms need to be approved by the credit department before a purchase order is accepted. Payment obligations are not dependent or contingent upon the manner in which purchaser may receive.

In the event of significant delay or price increase of material occurring during the performance of the contract through no fault of Genset, the contract sum, time of performance, and contract requirements shall be equitably adjusted by change order in accordance with the procedures of the contract documents.

**Estimated Delivery:** 6-10wks

**FOB:** jobsite installation and offloading by others unless included in the above BOM

**Quoted Per:** email from Jim

**Exceptions to the specifications:**

**Job Name:** Loxahatchee River District Portable - MDG250 - Sourcewell Contract #092222-GNR

**Prepared For:** Loxahatchee River Environmental  
Control District

**Project Rep:** Michael Bright

**Phone:**

**Contact:** Jim Novak

**Email:**

**We are pleased to offer the following proposal:**

Quantity 1 - Generac Mobile diesel engine-driven generator set MDG250DF4, consisting of the following features and accessories:

- Trailered Unit
- 250KVA Rating, 60Hz
- 4-Position Voltage Selector Switch
  - 277/480VAC Three Phase
  - 120/208VAC Three Phase
  - 120/240VAC Three Phase
  - 120/240VAC Single Phase
- Prime Duty Rating
- CSA
- Standard Alternator
- Variable Speed Cooling Fan
- 24 Hr Double Wall Tank
- Tandem Axle
- Electric Brakes
- 3 in. Pintle Ring Adjustable
- Trailer Adapter, Flat 4 to Round 7 Spade
- 10 Amp Battery Charger
- Lockable Battery Disconnect
- 50 Ethylene Glycol/50 Water
- Fuel and Fluid Containment
- Connection Lugs
- Convenience Receptacles
- PM Voltage Regulator
- MDG250DF4

Quantity 1 - Freight to Districts Yard (Offloading by Others)

Quantity 1 - Startup and 1hr Load Bank, Training



Sales & Service for Standby Engine Generators

Proposal#: 57582

Proposal Date: 02/05/2025

Valid Until: 03/07/2025

Total investments for the above equipment (not including any taxes):

\$ 111,436.02

**Terms and Conditions:**

30% deposit with order, balance before shipping. Other payment terms need to be approved by the credit department before a purchase order is accepted. Payment obligations are not dependent or contingent upon the manner in which purchaser may receive.

In the event of significant delay or price increase of material occurring during the performance of the contract through no fault of Genset, the contract sum, time of performance, and contract requirements shall be equitably adjusted by change order in accordance with the procedures of the contract documents.

**Estimated Delivery:** 8-10wks

**FOB:** jobsite installation and offloading by others unless included in the above BOM

**Quoted Per:** email with specs

**Exceptions to the specifications:**



# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

TEL: (561) 747-5700

FAX: (561) 747-9929

D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

TO: D. Albrey Arrington, Ph.D.  
FROM: Kara Fraraccio, Director of Finance and Administration  
DATE: February 14, 2025  
SUBJECT: Disposal of Surplus Property

Whenever the District disposes of tangible personal property of a non-consumable nature, Florida Statutes and our Disposal of Surplus Tangible Personal Property Policy require Governing Board approval before any Surplus Tangible Personal Property can be disposed of. The following assets were aggregated with other assets or grouped as part of a project when purchased and we therefore do not have individualized asset information on each item; instead, a description of each asset is provided. Consistent with state statute and our policies and procedures, I request your authorization to dispose of the items listed below:

<u>Description</u>	<u>Serial Number</u>	<u>Condition</u>	<u>Estimated Value</u>
2 HP Barnes Pump	C818249-0801	Beyond Repair	\$50
2 HP Barnes Pump	C818250-0301	Beyond Repair	\$50
2 HP Barnes Pump	Z100406-0418	Beyond Repair	\$50
5 HP Flygt Pump	3102.180-8481015	Beyond Repair	\$100
5 HP Flygt Pump	3102.180-8481023	Beyond Repair	\$100

The items listed in the schedule above are no longer of use to the District and are considered Surplus. The assets will be disposed of in accordance with the District's Disposal of Surplus Tangible Personal Property Policy.

Items slated for disposal that have no remaining value will be recycled or otherwise disposed of in an environmentally conscious manner.

If you have any questions, please feel free to contact me.

I offer the following motion for your approval:

**"THAT THE GOVERNING BOARD authorize the Executive Director to dispose of the items listed in the schedule above in accordance with the District's Disposal of Surplus Tangible Personal Property Policy."**

Gordon M. Boggie  
CHAIRMAN

Kevin L. Baker  
BOARD MEMBER

Stephen B. Rockoff  
BOARD MEMBER

Dr. Matt H. Rostock  
BOARD MEMBER



# Change Orders

No Change Orders are presented  
for Board consideration this month.



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# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

TEL: (561) 747-5700

FAX: (561) 747-9929

D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

**TO:** D. Albrey Arrington, Ph.D., Executive Director  
**FROM:** Kris Dean, P.E., Deputy Executive Director  
**DATE:** February 10, 2025  
**SUBJECT:** Consultants Competitive Negotiation Act Acceptance of Qualified Firms – RFQ 25-002-00141/2500 Jupiter Park Drive Site Improvements – Phase 1

In compliance with the District's Purchasing Policies and Procedures and Florida Statute 287.055 the District engaged in the CCNA process with advertisement of Request For Qualifications 25-002-00141. Qualification Statements were received from 5 firms on January 14, 2025 for 2500 Jupiter Park Drive Site Improvements – Phase 1 to cover the attached Scope of Services.

Concluding February 4, 2025 the Selection Committee determined firms listed in the attached Final Qualification as qualified (average score > 3.75) to perform the Scope of Services.

Staff recommend the following motion:

**“THAT THE DISTRICT GOVERNING BOARD approve RFQ 25-002-00141 Final Qualification as follows:**

**Carty Architecture, LLC  
CPZ Architects, Inc.**

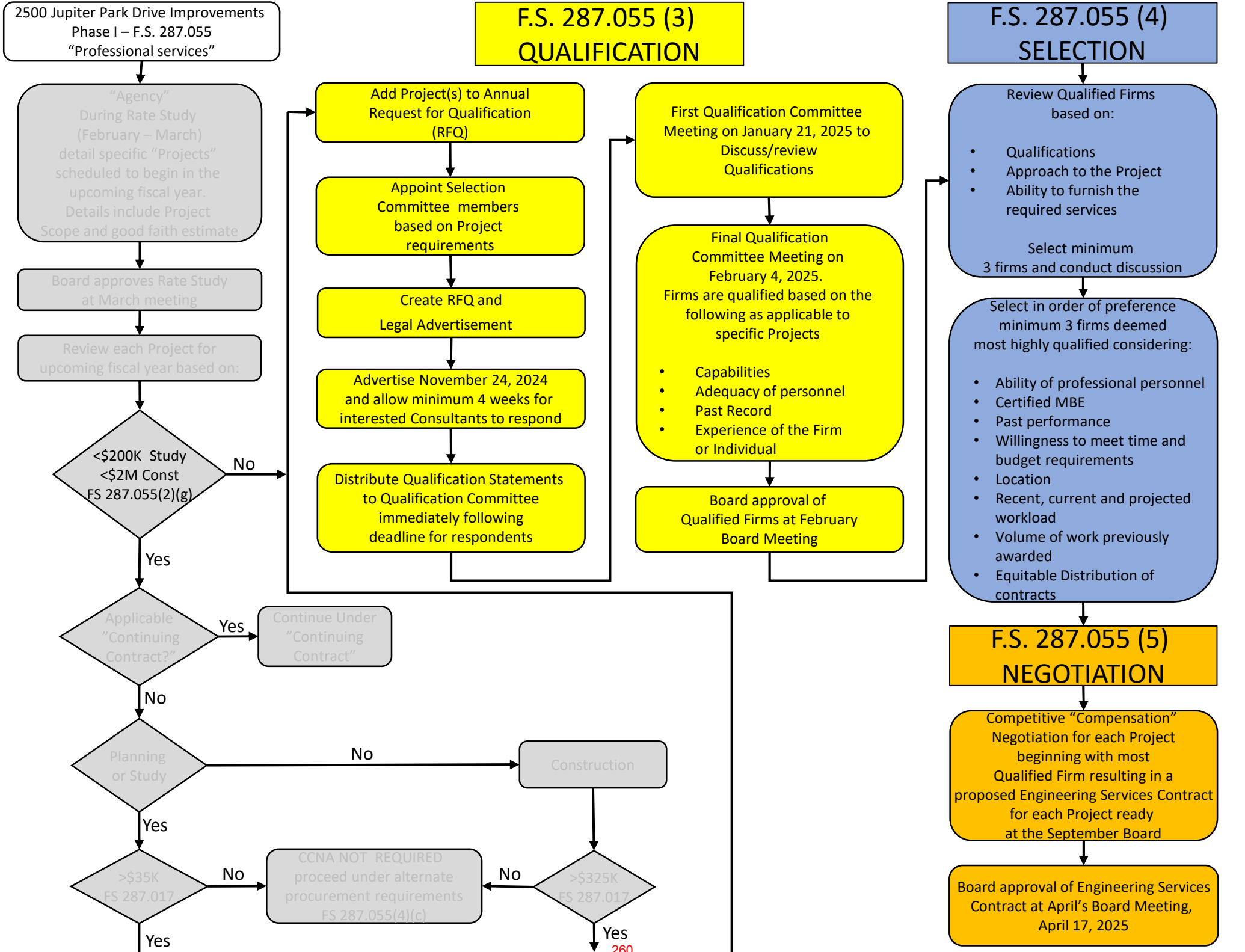
Please note, staff will return to the Board with a recommended engineering services contract with the most highly qualified firm with which we were successful with competitive compensation negotiation at a later date. Refer to attached CCNA process flow chart for reference.

**Gordon M. Boggie**  
CHAIRMAN

**Kevin L. Baker**  
BOARD MEMBER

**Stephen B. Rockoff**  
BOARD MEMBER

**Dr. Matt H. Rostock**  
BOARD MEMBER





## OBJECTIVE

The objective of this Request For Qualification is to select qualified consulting firms that can provide consulting services for design, permit, bidding, engineering services during construction and project management for an approximate 11,000 SF warehouse and secured yard, 10,700 SF maintenance facility, 6,000 SF Maintenance Laydown and Covered Storage, 6,000 SF Collection Department Storage Yard, 6,000 SF Construction Storage Yard, Fleet Parking and Security Fencing. The proposed facilities will be integrated into the existing site as noted on SP-101 an SEC-001 including in Attachment A.

## SCOPE OF SERVICES

Services to be provided under this CCNA selection process include but are not limited to the following.

1. Site boundary and topographic survey
2. Site subsurface survey
3. Geotechnical investigations and reports
4. Design
  - a. Site security
  - b. Landscape
  - c. Civil
  - d. Architectural
  - e. Structural
  - f. Mechanical
  - g. Electrical
5. Permitting
  - a. Palm Beach County
  - b. South Florida Water Management District
  - c. Florida Department of Environmental Protection
  - d. Town of Jupiter
6. Construction
  - a. Project Management
  - b. Engineer of Record
  - c. Resident Project Representative
7. Funding
  - a. Grant research, writing and assistance

Firm(s) submitting Qualification Statements shall be registered to provide engineering, surveying, landscape architect and hydrogeological services through the Florida Department of Business and Professional Regulation. Specific experience shall include surveying, geotechnical, security and the following engineering disciplines: civil, mechanical, structural, electrical, instrumentation & controls, and environmental.

RFQ 25-002-00141  
FINAL QUALIFICATION

1. 2500 Jupiter Park Drive Site Improvements – Phase 1: This project includes design, permit, bidding, engineering services during construction and project management for an approximate 11,000 SF warehouse and secured yard, 10,700 SF maintenance facility, 6,000 SF Maintenance Laydown and Covered Storage, 6,000 SF Collection Department Storage Yard, 6,000 SF Construction Storage Yard, Fleet Parking and Security Fencing.

**Carty Architecture, LLC**  
**CPZ Architects, Inc.**



# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

TEL: (561) 747-5700

FAX: (561) 747-9929

D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

To: Governing Board  
From: Kara Fraraccio, Director of Finance and Administration  
Date: February 14, 2025  
Subject: Audit for Fiscal Year 2024

A link to the draft Annual Financial Report for the fiscal year ended September 30, 2024, is provided for your review: [Fiscal Year 2024 Draft Audit Report](#).

I am proud to tell you we received an unmodified or 'clean' audit opinion with no recommendations to improve financial management from the auditors. As you read the audit, I suggest you pay particular attention to the "Management's Discussion and Analysis" (pages 4-10). This section is prepared by the District and provides an overview of the financial activities of the District for the fiscal year ended September 30, 2024, with comparative information for the prior two years.

The following reports are prepared by the auditors and are required by either Auditing Standards or Florida Statutes. These reports describe what is required by the auditors and detail any findings and conclusions.

- Independent Auditor's Report (pages 1-3)
- Independent Auditor's Report on Internal Control over Financial Reporting and on Compliance and Other Matters Based on and Audit of Finance Statements Performed in Accordance with *Government Auditing Standards* (pages 53-54)
- Management Letter in Accordance with the Rules of the Auditor General for the State of Florida (page 55-56)
- Independent Accountant's Report on Compliance Pursuant to Section 218.415, Florida Statutes (pages 57)

The audit firm will present the audit at our Board meeting this month. If no major concerns arise, a final report will be provided. If you have questions before the Board meeting, please feel free to call Mr. Moises D. Ariza directly (561-653-7300) or you can contact me.

Therefore, I recommend the following motion:

**"THAT THE GOVERNING BOARD receive the Annual Financial Report for the fiscal year ended September 30, 2024 as prepared and submitted by CBIZ CPAs P.C."**

Gordon M. Boggie  
CHAIRMAN

Kevin L. Baker  
BOARD MEMBER

Stephen B. Rockoff  
BOARD MEMBER

Dr. Matt H. Rostock  
BOARD MEMBER



# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

TEL: (561) 747-5700

FAX: (561) 747-9929

D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

**TO:** GOVERNING BOARD  
**FROM:** D. ALBREY ARRINGTON, Ph.D.  
**DATE:** FEBRUARY 13, 2025  
**SUBJECT:** RULE 31-10 RATES, FEES, & CHARGES – RATE STUDY

It is time to discuss our annual Rate Study in which LRD staff identifies future anticipated costs and drafts a rate structure to accommodate those expected expenditures. Fundamental drivers of this effort are major planned projects, projected cost increases (i.e., inflation), and projected revenue. This process is guided by our mutual objectives to achieve operational excellence (e.g., system reliability, satisfied customers, and engaged workforce) and maintain a reasonable rate structure.

The annual Rate Study Model is a spreadsheet model we use to assess and guide the long-term fiscal position of LRD. The model uses an annual time step and includes terms for customer growth (i.e., development and redevelopment), and the model has explicit terms for operational and capital revenues and expenses. The Rate Study Model provides useful estimates of future financial conditions and is the basis for proposed rates, fees, and charges. Our Rate Study Model was assessed in 2022 by Raftelis Financial Consultants, Inc. (Raftelis), and they concluded our model and associated processes are sound and effective.

On the following pages you will find a summary of the assumptions included in this year's Rate Study. The final page includes a high-level summary of the proposed FY2026 to FY2030 Capital Improvement Plan. Also, we have included proposed revisions to Chapter 31-10. The intent of providing this memorandum and the associated information to the Governing Board and the public is to facilitate an understanding of our current financial position, anticipated revenues and operating expenses, planned capital projects and costs, and anticipated impacts to our rates, fees, and charges.

Our ability to predict the future is limited; nonetheless, it is critical to put our best effort into developing these financial plans. Dwight D. Eisenhower surmised, *"plans are worthless, but planning is everything."* In a similar vein, our Rate Study, i.e., financial plan, is constrained by our inability to predict the future but it is indispensable to sound financial management.

No action is needed this month. I look forward to the Board's discussion of key elements of our Capital Improvement Plan and proposed rate increases. Next month, staff anticipate returning with necessary revisions to address comments and concerns raised by the Board, and a suggested motion for the Board will take action to approve revisions to Chapter 31-10 Rates, Fees, and Charges, which is attached.

**Gordon M. Boggie**  
CHAIRMAN

**Kevin L. Baker**  
BOARD MEMBER

**Stephen B. Rockoff**  
BOARD MEMBER

**Dr. Matt H. Rostock**  
BOARD MEMBER

This year, the Rate Study is based on the following general assumptions:

1. Revenue from Quarterly Service Charges – Given the lack of developable land in our service area, increases in quarterly sewer revenue are anticipated to be driven, not by growth in customers, but by rate increases. District Rule 31-10 currently includes scheduled rate increases of 3% for 2025, 2026 and 2027 and 2% for 2028. I propose leaving the rate increases as published in Chapter 31-10 and add a 3% rate increase for year 5 (effective April 1, 2029).
2. Revenue from New Development (Plant and Line Charges) – these revenues are paid by new customers (i.e., new development) and represent the proportional cost of existing infrastructure needed to serve new customers (i.e., a new home connecting to the sewer system pays for the tiny fraction of the wastewater treatment facility needed to accommodate their wastewater). In their review of our Rate Study, Raftelis recommended we tied these rates to the Engineering News Record Construction Cost Index published in the February edition of each year, which is 1.8% this year.
3. Service Availability Standby (SAS) Revenue – projected to continue a slow, gradual decline, which has been occurring as our service area nears built-out conditions.
4. IQ Water Revenue – our IQ revenues are relatively stable at \$2.5 million per year. Given constraints on the availability of reclaimed water, we do not anticipate entering into any new IQ Water contracts. Thus, increases in IQ Water revenues will be tied directly to rate increases, which would be affected by cost increases. Also, we have informed the Town of Jupiter that we do not want to renew the existing agreement that governs their nano concentrate, which we currently blend with our IQ Water or dispose of down our deep injection well when necessary. The current agreement expires on June 19, 2026.
5. Miscellaneous Revenues – over the past 5 years, we have averaged \$600,000 per year in miscellaneous revenues. These revenues originate from grant funds (e.g., LRPI grants), cell tower lease, estoppel fees, and sale of surplus equipment. We expect these revenues to remain relatively stable.
6. Interest Revenue – we receive two sources of interest revenue: (a) interest on assessments, which is fixed at the time the assessment is levied, and (b) interest on investments, which fluctuate with market conditions. As of 1/31/2025, our average weighted rate of return on investments is 4.19%. While many have been projecting a rapid decline in interest rates, it is my opinion that high interest rates will be more durable than previously expected. I am projecting interest rates paid on our investments will return to 3% in FY2030.
7. Operating Expenses – we anticipate a 3.5% increase in budgeted operating expenses over the next two fiscal years. Certain prices are declining, but services and the labor market have remained surprisingly tight, which impact our operating expenses. In FY2028 and subsequent years we anticipate inflationary pressures to hover around 3.0% per year.
8. Capital Improvement Projects – The remainder of this memo provides a categorical summary of the proposed Rate Study, which is based upon the FY2026 to FY2030 Capital Improvement Plan (see table below). This is intended to facilitate the Board's understanding of forthcoming

significant capital investments staff have identified as desired and/or needed. Below, my intent is to specifically discuss any single item or project that is expected to cost \$200,000 or more:

- A. Buildings – Over the next four years, nearly \$16.5 million is anticipated for design and construction of new maintenance and warehouse facilities and associated appurtenances, which were identified in our Conceptual Site Plan for 2500 Jupiter Park Drive. Both buildings are currently assumed to be tilt-wall concrete buildings rated for risk category IV (i.e., buildings and structures designated as essential facilities), which exceeds the recommended or required risk category for these structures. The current cost estimate comes from the conceptual site plan and will be refined over the coming year as we develop detailed engineering plans. Staff assume the actual costs for these facilities would be significantly less than the conceptual cost estimates if the Board is comfortable with a lower risk design (i.e., wind rating) for these structures.
- B. Infrastructure Improvements (not buildings) – Staff have included \$2.8 million over the next five fiscal years. These major projects include: \$800,000 in FY2026 for remediation of the 20 acres. These funds are budgeted under Treatment and Disposal, because the remediation is occurring as a consequence of using this property as the effluent disposal point from 1975 through 1986; \$495,000 for rehabilitation of the headworks liner; \$385,000 for upgrades to our existing vacuum truck dump facility; \$375,000 for comprehensive rehabilitation of A Structure and B Structure. Both are key structures involved in management of reclaimed water flowing to our storage lakes.
- C. Machinery and Equipment – Spending in this category is projected to average \$1.37 million per year over the next five years. These funds are targeted to replace and improve a diversity of critical tools used by District staff, including IT security improvements, heavy equipment (replacement front end loader), lift station pumps, IQ Water pumps and motors, portable generators, aeration basin fine bubble diffusers, aeration basin blowers, and programmable logic controllers. It should be noted that the current \$1.37 million cost projection does not include approximately \$1 million of portable generators, which staff anticipate bringing to the Board next month (March) for purchase.
- D. Vehicles – rehabilitating vehicles is anticipated to cost an average of \$372,000 per year over the next 5 years. We anticipate replacing one vacuum truck, our most expensive vehicle with an anticipated cost of \$500,000, in FY2029. F550 crane trucks are estimated to cost \$195,000, and we anticipate replacing three over the next 5 years.
- E. Public Education – For the 5-year period of this rate study, we have included \$300,000 for demo and renovations of Unit H (summer camp house) at Bureau of Land Management's Jupiter Inlet Lighthouse Outstanding Natural Area, and \$250,000 for construction of parking facilities, a chickee hut and nature trails at the 20 acres.
- F. Neighborhood Sewering – With the completion of our scheduled neighborhood sewerage projects, the Rate Study only includes minimal funds necessary to address sewerage of remnant areas as they become available. Should the Board desire to initiate



neighborhood sewerage of unscheduled areas, i.e., west of I-95, we would need to revamp these projections.

- G. Lift Stations – We are projecting two major capital projects to improve our lift stations over the next 5 years. The first is projected to cost \$875,000 per year and will result in systematic rehabilitation of our lift stations. This work is driven by ongoing lift station assessments, and each budget year our efforts will be focused on those stations deemed most in need of renewal. The second project will comprehensively replace the control panel and associated appurtenances and add telemetry at 34 lift stations at a cost of \$4.4 million, which will be spread over the next three years.
- H. Gravity System – We anticipate approximately \$2.8 million per year over the next 5 years as we continue to rehabilitate our aging collection system (gravity laterals, gravity mains, and manholes). This includes \$1.5 million for lining of gravity mains, \$9 million for lining service laterals, and \$2 million for rehabilitation of the gravity system serving the master lift station. Staff are confident that these systematic investments in system reliability will decrease long term costs by minimizing very costly emergency point repairs.
- I. Force Main – Over the next 5 years, staff have projected an average expenditure of \$3.15 million per year to upgrade and improve resiliency of our wastewater transmission system (i.e., force mains). Such efforts include minimizing the number of pump stations that re-pump wastewater, adding redundancy (where feasible) to our force main network, testing, and rehabilitating aging force main infrastructure. Specific projects include (A) replace the asbestos cement (AC) force main associated with Lift Station 90 (\$1.5 million); (B) evaluate the force main that parallels Old Dixie Highway (\$325,000) because we believe the north and south extensions of the proposed new Loxahatchee River subaqueous crossing may have similar issues to the subaqueous force main which was taken out of service; (C) rehabilitation of valves (\$625,000), and other small-scale, routine rehabilitation projects.
- J. Permanent Generators – We have anticipated \$1.8 million over 5 years to continue to add permanent generators at critical sewage pumping stations and rehabilitate aging permanent generators at lift stations.
- K. Treatment and Disposal – Over the next 5 years, staff anticipate an average expenditure of approximately \$1.8 million to rehabilitate various systems in our water reclamation facility (e.g., electrical system upgrades, replacement of fine bubble diffusers, and replacement of deep bed filter media).
- L. Reuse – The primary major planned project over the next five years is to rehabilitate our major IQ Water pumping station in Abacoa (IQ 518), which is projected to cost \$1.4 million.
- M. Biosolids – See the discussion below regarding our joint venture with SWA's Biosolids Processing Facility, which anticipates \$2.75 million in costs to rehabilitate and improve our share of the Biosolids Processing Facility, which would likely be incurred beginning FY2030 through FY2032. In addition, staff anticipate spending \$1.5 million in engineering

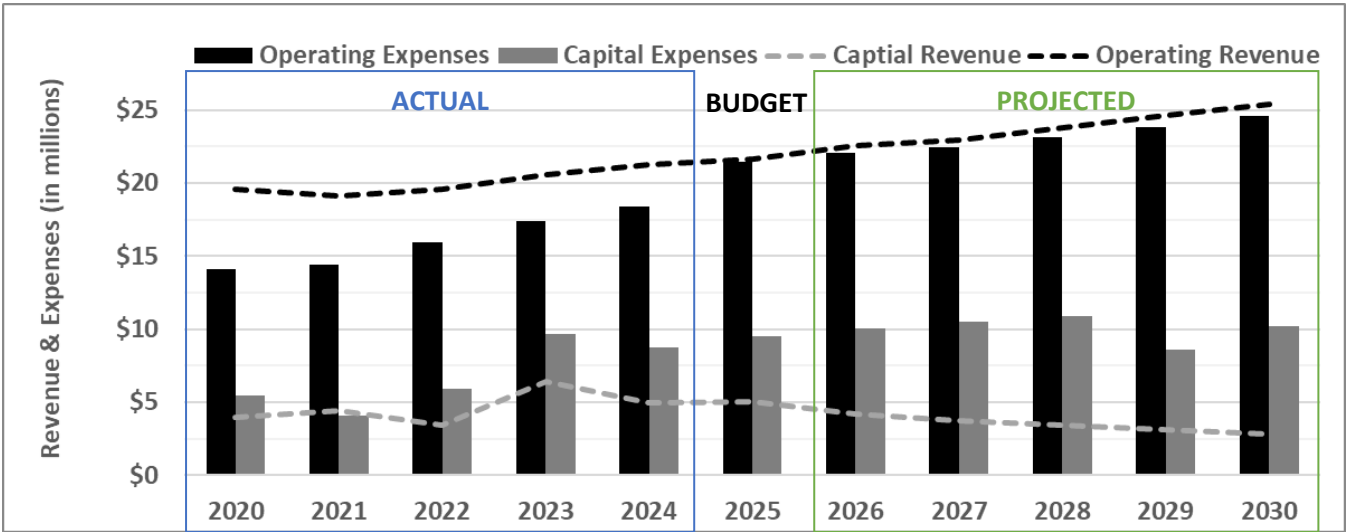
design, permitting, bidding, and contracting fees for a comprehensive reconstruction of our on-site biosolids processing facilities beginning in FY2028 (after the maintenance and warehouse facilities have been constructed and placed into operation).

In addition to the items currently in our draft 5-Year Capital Improvement Plan, staff have identified the following large cost items that potentially could be incorporated into our planned capital projects. Mr. Dean has developed technical reports providing a technical assessment of each project. Here, we provide our assumption regarding incorporation of these projects into the Rate Study as planned capital projects. These projects include:

- I. **Biosolids Processing and Recycling Facility** – In 2005, the District entered into an interlocal agreement with the Solid Waste Authority (SWA) to fund a portion of the cost to design, build, and operate the SWA Biosolids Processing and Recycling Facility (BPF). The District owns 8.96% of the facility's total capacity. The District's capital costs to date for the facility equal \$3,470,172. The interlocal agreement terminates on August 9, 2029, and the agreement stipulates that at least five years before the termination date the partners must agree to continue operating the facility (capital costs to rehabilitate and upgrade the facility) or decommission the facility (costs to demo the facility and costs to design, permit, construct, and startup a new facility). We have responded to the SWA confirming our desire to continue operation of the BPF beyond August 9, 2029, as this appears to be our best, most cost-effective option. Therefore, LRD staff have included in the Rate Study \$2.75 million in capital costs spread across FY2030, FY2031, and FY2032 associated with continued operation of the BPF, which will include renewing existing equipment and facilities and constructing new facilities. There are significant uncertainties and assumptions that are inherent to these cost estimates, but maintaining a reliable and effective disposal mechanism for our biosolids is an absolute necessity. LRD staff will be engaged throughout the life of this project protecting our customers' interests.
- II. **New Deep Injection Well or Aquifer Storage and Recovery (ASR) Well** - Recent assessments of our existing injection well show no meaningful signs of degradation or lack of performance. We perform these permit-required technical assessments every 2.5 years, and staff believe it is reasonable and prudent to schedule design, permitting, and construction of a New Deep Injection Well 6 to 8 years into the future. Staff will evaluate this schedule annually using data collected from our ongoing monitoring of the Deep Injection Well System (e.g., wellhead pressures) and each subsequent permit-required assessment (e.g., 2028). As soon as the mechanical integrity of the Deep Injection Well System comes into question, staff will begin the replacement process, which will likely take 5 years to have a new, fully functional well in service. The outcome of all this, relative to the Rate Study, is that the deep injection well funds have been reassigned to meet other capital cost demands in the near term. Staff assume we will borrow funds to complete construction of a new deep injection well when necessary, which will result in future rate payers contributing the majority of the replacement costs for this long-lived, critical asset.



Debt – The District does not have any debt at this time; however, as we move forward with some of the larger projects in the rate study it is entirely conceivable that the District will need to take on some debt in the future to finance some of these major projects.

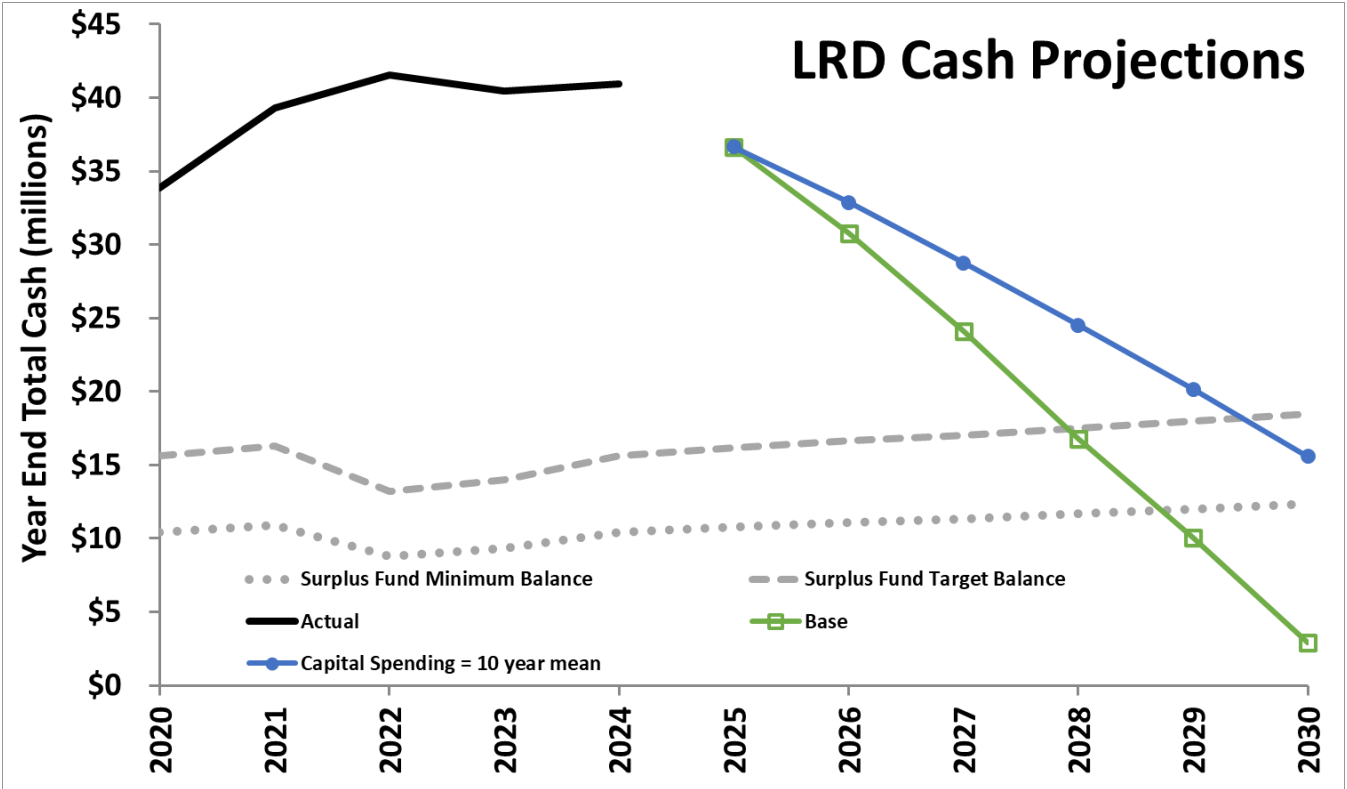


The chart above shows total annual operating and capital revenues and expenses by fiscal year. This chart shows we have done a good job of maintaining operating revenues above operating expenses, but capital revenues have often lagged below capital expenses and they are projected to do so for the foreseeable future. This is partially the result of new construction coming to a halt within our service area. Over the coming year, as we work on updating our strategic plan, we will have to grapple with how to strategically position our rates, fees, and charges to adequately provide for long-term fiscal stability as we make necessary and sizeable investments in our aging infrastructure. Of course, no immediate action is needed because the cash we have accumulated serves as a buffer to these anticipated capital expenditures (e.g., see Kara’s finance memo).

Historically, the Rate Study and Budget are relatively conservative documents, i.e., we often underspend relative to what was projected in the Rate Study and Budget for a given year. If we improve our ability to execute anticipated major capital projects in a timely manner, we will likely see a significant decline in our available cash (see chart on following page). Alternatively, if our planned expenditures occur at a rate slower than projected (as they have across our recent history), we will see our available cash balance sustained for longer than projected in the chart on the following page.

The attached draft of Chapter 31-10 Schedule of Rates, Fees, and Charges maintains our existing rate increases and appends an additional year of 3% rate increases for the fifth year. Plant Connection Charges, Regional Transmission System Line Charges, and Administrative Charges shall increase (or decrease) based upon the annual increase (or decrease) in the Engineering News Record Construction Cost Index published in the February edition of each

year, which equals 1.8% for February 2025. Also, all Subregional Line Charges shall be adjusted each April 1st based on the 10-Year Treasury Rate published by the US Department of Treasury on February 1st, which was 4.54% on 2/3/2025 (the first business day following 2/1/2025).



The chart above is the simplistic outcome from our Rate Study Model. It shows the actual cash on hand at the end of the prior five fiscal years and the projected cash on hand at the end of the current budget year and the future five years in the Rate Study planning horizon. The green line is the base case and models the conditions described in the text provided on the prior pages of this memo. Because of the conservatism within the Rate Study Model, I do not believe the green line should cause serious alarm. There are very large uncertainties in several cost projections within the Rate Study. The blue line shows our cash projections if our capital spending is slower than currently anticipated but equal to the mean capital expenditures over the past ten years. Also, the Rate Study does not include any major grant funds, which theoretically should be available to the District as we work to construct some of the planned major improvements.

The dotted and dashed lines in the chart above are from our Board-approved Cash Reserve Policy, which stipulates the District will maintain a minimum cash reserve in the Surplus Fund Account. The Surplus Fund Account Minimum Balance is the sum of the Operating Reserve (4 months of budgeted operating expenses), the Renewal and Replacement Reserve (1.5% of gross depreciable assets), and 100% of the current year portion of debt service requirements including both interest and principal (zero because we have no debt). The Surplus Fund Account Target Balance is 150% of the Surplus Fund Account Minimum Balance.

## Loxahatchee River District's FY2026 – FY2030 Capital Improvement Plan

	FY2026	FY2027	FY2028	FY2029	FY2030
80% of Total Capital is used in Rate Study Cash Projection Model (due to conservative nature of projected capital costs)	\$10,168,000	\$10,490,000	\$10,880,000	\$ 10,038,400	\$ 10,229,200
<b>Total Projected Capital Costs =</b>	<b>\$12,710,000</b>	<b>\$13,112,500</b>	<b>\$13,600,000</b>	<b>\$ 12,548,000</b>	<b>\$ 12,786,500</b>
<b>Contingency</b>	\$0	\$0	\$0	\$0	\$0
<b>Land</b>	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
<b>Buildings</b>	\$1,760,000	\$5,050,000	\$5,550,000	\$3,550,000	\$0
<b>Infrastructure Improvements (not buildings)</b>	\$2,170,000	\$230,000	\$230,000	\$90,000	\$90,000
<b>Machinery and Equipment</b>	\$880,000	\$1,537,500	\$1,235,000	\$1,738,000	\$1,461,500
<b>Vehicles</b>	\$405,000	\$275,000	\$165,000	\$500,000	\$515,000
<b>Construction in Progress</b>	<b>\$7,485,000</b>	<b>\$6,010,000</b>	<b>\$6,410,000</b>	<b>\$6,660,000</b>	<b>\$10,710,000</b>
CIP - Exec/Finance/Lab/Cust Svc/IT/Const	\$0	\$0	\$0	\$0	\$0
CIP - Public Education	\$300,000	\$0	\$0	\$0	\$0
CIP - Master Planning	\$0	\$50,000	\$50,000	\$50,000	\$50,000
CIP - General Collection & Transmission	\$0	\$0	\$0	\$0	\$0
CIP - Neighborhood Sewering	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
CIP - Lift Station	\$2,025,000	\$2,700,000	\$2,700,000	\$2,000,000	\$1,000,000
CIP - Gravity System	\$350,000	\$2,050,000	\$1,800,000	\$3,300,000	\$6,550,000
CIP - Force Mains	\$2,030,000	\$505,000	\$205,000	\$205,000	\$205,000
CIP - LPSS	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
CIP - Permanent Generators	\$300,000	\$100,000	\$350,000	\$250,000	\$800,000
CIP - Telemetry	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000
CIP - Operations Planning Studies	\$0	\$0	\$0	\$0	\$0
CIP - Operations General Site Improvements	\$100,000	\$0	\$0	\$0	\$0
CIP - Treatment & Disposal	\$725,000	\$225,000	\$425,000	\$225,000	\$225,000
CIP - Reuse General	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
CIP - Reuse Pumping Stations	\$1,425,000	\$0	\$0	\$0	\$0
CIP - Reuse Mains	\$0	\$0	\$0	\$0	\$0
CIP - Reuse Telemetry/Metering/Controls	\$100,000	\$250,000	\$250,000	\$0	\$0
CIP - Biosolids	\$0	\$0	\$500,000	\$500,000	\$1,750,000

RULES  
OF THE  
LOXAHATCHEE RIVER  
ENVIRONMENTAL CONTROL DISTRICT  
CHAPTER 31-10  
SCHEDULE OF RATES, FEES AND CHARGES  
FOR THE USERS OF THE REGIONAL WASTEWATER SYSTEM

31-10.001	Definitions.
31-10.002	Residential Equivalent Connections.
31-10.003	Non-Residential Equivalent Connections.
31-10.004	Application for Sewer Service.
31-10.005	Plant Connection Charges, Regional Transmission System Line Charges, Administrative Charges, and Subregional Line Charges for Residential and Non-Residential Units.
31-10.006	Special Assessments
31-10.007	Quarterly Service Charges for Sewer Service.
31-10.008	Determination of Equivalent Connections.
31-10.009	Responsibility for Payment and Enforcement of Collections.
31-10.010	Payment of Certain Rates, Fees and Charges; Developer Agreement.
31-10.011	Connection to Sewer Required. (Repealed)
31-10.012	Exceptions to the Payment of Connection Charges.
31-10.013	Irrigation Quality Water User; Rates, Fees and Charges for Irrigation Quality Water Services; Irrigation Quality Water Agreements.
31-10.014	Low Pressure Pump Unit Delivery Procedures & Delivery Charge.
31-10.015	Termination/Abandonment of Easements – Application Fee.

### **31-10.001 Definitions.**

When used in this Chapter the following terms are defined as follows.

(1) “Account” is the account for each property connected to the District’s sewer system established by the District. No more than one (1) account will be established per unique Property Control Number (PCN) as established by either Martin County or Palm Beach County, whichever is applicable.

(2) “Administrative Charge” is the charge paid for each Equivalent Connection to the Regional Wastewater System, to pay for administrative, legal, engineering, and inspection expenses associated with each new connection to the system. The Administrative Charge is due and payable before connection is made to the system and is not transferable or refundable.

(3) “Capital Cost” means the construction cost of regional transmission facilities plus an allowance for associated cost. Construction costs include, but are not limited to, the cost of installation of pipelines, special fittings, valves, pumps, appurtenances, and the cost of acquiring permanent and construction rights-of-way and easements. Allowances for associated costs include engineering services, legal, fiscal, contingencies, and administrative cost. In no event will the allowance for associated cost exceed twenty percent (25%) of the construction cost.

(4) “Delinquent Quarterly Service Charge for Sewer Service” is delinquent if not paid during the service period.

(5) “District” means the Loxahatchee River Environmental Control District, a separate local agency of government operating in accordance with Chapter 2021-249, Laws of Florida.

(6) “Equivalent Connections” or “E.C.” is a multiple factor determined by the amount of toilets (water closets) per individual residential and non-residential unit, the estimated public usage or average flow of wastewater per day, or a combination of the above which may be connected with or used by each parcel of land which may be connected with or used by the Regional Wastewater System, as more particularly set forth in Rules 31-10.002 and 31-10.003.

(7) “Estoppel Fee” means the charge to offset administrative and legal expenses associated with providing information to parties requesting the status in writing for justifiable reliance purposes as to rates, fees, and charges due to the District for a specific property. An Estoppel Fee is determined at \$30.00 per Estoppel letter provided by the District and may be changed from time to time in accordance with the law.

(8) “Governing Board” means the Governing Board of the Loxahatchee River Environmental Control District.

(9) “G.P.D.” means gallons per day.

(10) “Non-residential Unit” is a non-residential building or structure connected to the Regional Wastewater System including, but not limited to, hotels, motels and boarding houses, wholesale and retail businesses, professional offices, schools, warehouses (including each individual bay) and without limitation all other buildings and structures of a commercial, public, or quasi-public nature.

(11) “Owner” means the legal owner or owners of a property served by the District. By accepting sewage service from the District, all of the property owners of each parcel shall be jointly and severally liable to the District for all charges, rates, and fees incurred for each parcel. If requested by the Owner in writing, the District will submit its bills and other communications to an agent of the Owner such as a property owners or homeowners association manager, property manager, or other legally authorized representative of the Owner.

(12) “Plant Connection Charge” is the charge paid for each Equivalent Connection to the Regional Wastewater System, and credit for which shall run with and be appurtenant to the land. The Plant Connection Charge is due and payable before connection is made to the system and is not transferable. Excess Plant Connection Charge(s) may be refunded if owner demonstrates, in accordance with objective determinations of the District, that fully paid Plant Connection Charges will not be used. In no case shall Plant Connection Charge be refunded for a Residential or Non-residential Unit not connected within one (1) year of sewer being declared Available. Plant Connection Charges are determined as set forth in this rule and may be changed from time to time in accordance with the law.

(13) “Quarterly Service Availability Standby Charge” is the periodic charge for each Equivalent Connection, commencing upon the signing of a Standard Developer Agreement, and is computed at the rate of sixty-eight percent (68%) of the Quarterly Service Charge per Equivalent Connection as established by the Governing Board and amended from time to time.

(14) “Quarterly Service Charge” is the periodic charge for each Equivalent Connection when it is connected to the Regional Wastewater System or within one (1) year of the time the connection is Available, whichever occurs first, and shall be billed in advance. Quarterly Service Charges are established by the Governing Board and amended from time to time.

(15) “Regional Transmission Facility” means transmission lines, force mains, gravity interceptors, lift stations or pump stations that collect wastewater from two or more sub-regions and transport the wastewater to the District treatment plant. The size and location of the Regional Transmission Facility are described in the latest Transmission System Master Plan as amended.

(16) “Regional Transmission System Line Charge” is the charge paid for each Equivalent Connection to the Regional Wastewater System, and credit for which shall run with and be appurtenant to the land. The Regional Transmission System Line Charge is due and payable before connection is made to the system and is not transferable. Regional Transmission System Line Charge may be refunded if owner demonstrates, in accordance with objective determinations of the District, that fully paid Regional Transmission System Line Charge will not be used.

(17) “Regional Wastewater System” means any plant, facility or property; and additional extensions and improvements having the capacity for current or future use in connection with the collection, transmission, treatment, purification or disposal of sewage of any nature or originating from any source, including industrial wastes resulting from any processes of industry, manufacture, trade or business, or from the development of any natural resources. The Regional Wastewater System includes but is not limited to: treatment plants, pumping stations, lift stations, valves, force mains, intercepting sewers, laterals, pressure lines, mains and all necessary appurtenances and equipment; all sewer mains and laterals for the reception and collection of sewage; any interest in real and personal property; rights, easements and franchises of any nature whatsoever relating to the District.

(18) “Reserve Service Availability” is the right of an Owner to receive sewer service in the Regional Wastewater System upon reasonable demand.

(19) “Residential Unit” is a residential living unit or structure directly or indirectly connected to the Regional Wastewater System including but not limited to single family dwelling, detached living structure with toilet ~~or sink~~, and each separate living unit of duplexes, apartments, townhouses, condominiums, and cooperative apartments.

(20) “Special Assessments” are assessments approved, set, and levied by the Governing Board for properties benefitted by the construction, acquisition, extension and operation of the Regional Wastewater System on the basis of the total cost to the District of construction, reconstruction, labor, materials, acquisition, property rights, surveys, design, engineering, legal, administration, operation, maintenance, and all other expenses necessary or incidental to completion of the specially assessed improvements.

(21) “Subregional Collection Facilities” means neighborhood gravity collection lines, collection manholes, force mains, lift stations and pump stations intended primarily to collect and transport wastewater from the subregional system to the regional transmission facility.

(22) “Transmission System Master Plan” means the report on “Wastewater Collection System Master Plan” for the District dated February 1981 or the latest updated version of the report

approved by the Governing Board. The report contains maps and describes those transmission mains, pump stations, lift stations, gravity collectors and interceptors, which constitute the facilities of the regional transmission system.

Specific Authority Chapter 2021-249, Laws of Florida. Law Implemented Chapter 2021-249, Section 6(6), (8), (9), (11), (12), and (27), and Section 8. History – New 12-9-76, Amended 9-26-78, 5-21-81, 3-15-2012, 3-20-2014, 3-19-2015, 6-18-2015, 3-17-2016, 3-21-2019, 3-17-22. Formerly 31-10.01.

### **31-10.002 Residential Equivalent Connections.**

The District will use the following amounts to determine Plant Connection Charges, Regional Transmission System Line Charges, Administrative Charges, Quarterly Service Availability Standby Charges, and Quarterly Service Charges, and other purposes in connection with sewer service provided by the District:

- 1) Residential Equivalent Connections are calculated as:
  - (a) One (1) toilet (water closet) equals 1.000 Equivalent Connection.
  - (b) Two (2) toilets (water closets) equals 1.250 Equivalent Connections.
  - (c) Three (3) toilets (water closets) equals 1.500 Equivalent Connections.
  - (d) Four (4) or more toilets (water closets) equals 1.750 Equivalent Connections.
- 2) Nurseries/Day Care Centers are calculated as 1.0 residential Equivalent Connection per 550 square feet of gross space.
- 3) Live/Work Units (as such zoning designation is approved and defined by the local zoning authority) are calculated based upon two components:
  - (a) The Residential (“Live”) component is calculated as provided in subsection (1) above; plus
  - (b) The Limited Non-Residential (“Limited Work Unit”), defined as a total gross floor area 500 square feet or less, adds 0.50 Equivalent Connection, or the Standard Non-Residential (“Standard Work Unit”), defined as a total gross floor area more than 500 square feet, adds 1.0 Equivalent Connection.



TYPE OF USE	EQUIVALENT CONNECTIONS
Residential Unit with 1 toilet	1.0
Residential Unit with 2 toilets	1.25
Residential Unit with 3 toilets	1.50
Residential Unit with 4 or more toilets	1.75
Nurseries/Day Care	1.0 per 550 square feet of gross space
Limited Live/Work Unit (500 sq. ft. or less of work use) as designated by zoning authority	0.5 per unit plus applicable Residential E.C.
Standard Live/Work Unit (more than 500 sq. ft. of work use) as designated by zoning authority	1.0 per unit plus applicable Residential E.C.

Specific Authority Chapter 2021-249, Laws of Florida. Law Implemented Chapter 2021-249, Laws of Florida, Section 6(6), (8), (9), (11), and (19), and Section 8. History-New 12-9-76, Amended 9-26-78, 5-21-81, 6-30-85, 11-1-98, Formerly 31-10.02. Amended 3-17-2005, 3-16-2006, 3-15-2012, 3-20-2014, 6-18-2015, 3-17-22.

### **31-10.003 Non-Residential Equivalent Connections.**

(1) The District will use the highest number of Equivalent Connects to determine Plant Connection Charges, Regional Transmission System Line Charges, Administrative Charges, Quarterly Service Availability Standby Charges, and Quarterly Service Charges, and other purposes in connection with sewer service provided by the District:

- (a) A minimum of one (1) Equivalent Connection per non-residential unit, as defined herein; or
- (b) One (1) Equivalent Connection per toilet (water closet); or
- (c) Equivalent Connections in accordance with the following non-residential businesses, occupations and uses, based upon the maximum occupancy per fire code design where applicable:

TYPE OF USE	EQUIVALENT CONNECTIONS
Tavern (Bar)	.04 per seat
Restaurant (regular)	.06 per seat
Restaurant (24 hours)	.10 per seat
Trailer Park and Mobile Home Park	1 per space
Hotel/Motel (no Bar or Restaurant)	1.0 per unit + 1.0 per common area and/or employee toilet Bar/Restaurant calculated separately
Hospital	.80 per bed + 1.0 per common area and/or employee toilet
Nursing/Rest Home	.40 per bed + 1.0 per common area and/or employee toilet
Assisted Living Facility / Adult Congregate Living Facility	.575 per bed + 1.0 per common area and/or employee toilet
High School and Middle School	.08 per pupil
Elementary School and Pre-School	.06 per pupil
Office Buildings	.75 per 1000 sq. ft. (gross building area) or 1.0 per toilet whichever is greatest
Large Single Use Retail (>20,000 sq. ft.)	.50 per 1000 sq. ft. (gross building area) or 1.0 per toilet whichever is greatest
Laundromats	1.1 per washing machine
Recreational Vehicle (RV) Park	0.75 per recreational vehicle space + 1.0 per common area and/or employee toilet
Swimming Pool Backwash Discharge	0.1 per 3,000 gallons
Elevator Sump	0.5 per sump
Marina pump out station	1.0 per pump out station
Public toilets in parks	1.0 per toilet
Quasi-public toilets e.g., community recreation areas	1.0 per toilet

or,

(d) As may be designated by the Governing Board upon presentation of good and sufficient evidence to merit other specific determination.

Specific Authority Chapter 2021-249, Laws of Florida. Law Implemented Chapter 2021-249, Sections 6(6), (8), (9), (11), and (19), and Section 8, and Sections 6(9), (12) and (27). History- New 12-9-76, Amended 6-25-78, 9-26-78, 5-21-81, 4-25-84, 6-30-85. Formerly 31-10.03. Amended 3-23-00, 3-17-05, 3-16-06, 03-18-10, 3-20-2014, 6-18-2015, 3-17-2016, 3-17-22.

#### **31-10.004 Application for Sewer Service.**

Before any Owner receives sewer service from the District, the Owner shall:

1. if a new customer, submit an application form as provided on the District website (“Application for Sewer Service”) to the District’s Customer Service Department in person;
2. provide proper personal identification and proof of ownership of the property at which sewer service is desired. The District may accept telephone or electronic orders for utility service from existing customers with an active District account provided that the Owner provides the District proper personal identification (driver's license number or state identification card number) that matches the previous information in the Owner’s record and proof of ownership of the property at which service is desired; and
3. pay all outstanding fees and charges owed to the District for the subject property, including any delinquent fees and/or charges.

An Application for Sewer Service shall not be deemed complete unless the above three (3) requirements are met.

The Fair and Accurate Credit Transaction Act of 2003, 15 United States Code, Chapter 41, Section 1681, which can be found at <https://www.ftc.gov/enforcement/statutes/fair-accurate-credit-transactions-act-2003>, requires that the District obtain positive identification from the Owner requesting utility service. The receipt of an application by the District does not constitute a guarantee of sewer service.

Specific Authority Chapter 2021-249, Laws of Florida. Law Implemented Chapter 2021-249, Laws of Florida, Section 6(6), (9), (11) and (19), and Section 8. History - New 12-9-76. Repealed 12-12-78, Formerly 31-10.04. New 3-19-2015 as to Application for Sewer Service, Amended 3-17-22.

#### **31-10.005 Plant Connection Charges, Regional Transmission System Line Charges and Subregional Line Charges for Residential and Non-Residential Units.**

(1) Before connecting, directly or indirectly, to the Regional Wastewater System, an Owner shall pay all applicable Plant Connection Charges, Regional Transmission System Line Charges, Administrative Charges, and Subregional Line Charges.

(2) Effective April 1, 1981, all residential and non-residential Plant Connection Charges, Regional Transmission System Line Charges, and Administrative Charges shall be based on the schedules in effect at the time the District and Owner execute a developer agreement as listed below:

Effective ~~9-20-2024~~ 4-01-2025

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## PLANT CONNECTION CHARGES

April 1, 2024 thru March 31, 2025 @ \$~~1,976.00~~~~1,918.00~~ per E.C.

## REGIONAL TRANSMISSION SYSTEM LINE CHARGES

April 1, 2024 thru 31 March 31, 2025 @ \$~~1,283.00~~~~1,246.00~~ per E.C.

## ADMINISTRATIVE CHARGES

April 1, 2024 thru March 31, 2025 @ \$~~185.56~~~~180.16~~ per E.C.

Commencing April 1, 2024 and thereafter, Plant Connection Charges, Regional Transmission System Line Charges, and Administrative Charges shall increase (or decrease) based upon the annual increase (or decrease) in the Engineering News Record Construction Cost Index published in the February edition of each year.

The District shall not execute a contract committing to provide service that exceeds the total capacity limitations set by the Governing Board. The full amount of the Regional Transmission System Line Charges and Administrative Charges shall be due and payable in U.S. funds (dollars) or by contract to provide Capital Costs and to construct certain portions of the Regional Transmission System at the time commitment of service is made.

(3) Notwithstanding Section 31-10.005(2) above, effective April 1, 1995, those properties having (or which previously had) buildings or structures having certificates of occupancy prior to April 1, 1981, shall pay the full Plant Connection Charge established in Section 31-10.005(2) less a subsidy of Five Hundred Dollars (\$500.00), provided they are paid for and connected to the Regional Sewer System within one (1) year of the time that lines serving said property are formally declared Available by the Governing Board. Notwithstanding Section 31-10.005(2) above, the Plant Connection Charge, Regional Transmission System Line Charges, and Administrative Charges for those buildings or structures having certificates of occupancy prior to notice of sewer availability, can be financed using the District's Installment Agreement method of collection up to five (5) years at a fixed interest rate equal to the current Wall Street Journal Prime Rate plus two percent (2.0%), but not to exceed eight percent (8%), existing at the time of execution of the Installment Agreement, with no prepayment penalty. Should any structure or building not be paid for or financed using the District's Installment Agreement and connected to the District's system within one (1) year of the time that the line serving said property is formally declared Available by the Governing Board, it will at the time of connection pay full Plant Connection Charges, Regional Transmission System Line Charges, and Administrative Charges as are

applicable to new construction at time that connection is made regardless of the date of certificate of occupancy.

(4) Owners with existing contracts for service with the District shall pay Plant Connection Charges, Regional Transmission System Line Charges, and Administrative Charges as indicated in those contracts, and such charges shall not be subject to increase.

(5) Subregional Line Charges. From time to time the District constructs and extends Subregional Collection Facilities to existing Residential and/or Non-residential Units. The District shall collect the costs of extending the Subregional Collection Facilities through the apportionment of these costs to each of the benefited properties. Such charges shall be payable commencing when the Equivalent Connection is connected to the Regional Wastewater System of the District, or within one (1) year of the time the connection is Available, whichever occurs first. All Subregional Line Charges shall be adjusted each April 1<sup>st</sup> based on the 10-Year Treasury Rate published by the US Department of Treasury on February 1<sup>st</sup>.

(5)(a) Western Indiantown Road Subregional Collection Facilities: Subregional Transmission System Line Charges for the Western Indiantown Road Subregional Collection Facilities shall be ~~\$2,092.802,001.91~~ per Equivalent Connection. Commitment of service shall not exceed those total capacity limitations as authorized for commitment by the Governing Board. The full amount of the Subregional Line Charges shall be due and payable at the time commitment of service is made. Those buildings or structures having certificates of occupancy prior to January 20, 2012, the date this transmission system line was deemed Available, may finance this Subregional Line Charge over twenty (20) years at a fixed interest rate equal to the current Wall Street Journal Prime Rate plus two (2.0%) percent, but not to exceed 8%, existing at the time commitment of service is made, with no prepayment penalty, to be collected by non-ad Valorem tax roll.

5(b) Inlet Village Subregional Line Charge for Inlet Village Subregional Collection Facilities. The rate of the Inlet Village Subregional Line Charge shall be ~~\$2,482.202,374.40~~ per Equivalent Connection. Commitment of service shall not exceed those total capacity limitations as authorized for commitment by the Governing Board. The full amount of the Subregional Line Charges shall be due and payable at the time commitment of service is made, except those buildings or structures having certificates of occupancy prior to the date this transmission system line is deemed Available, may finance this Subregional Line Charge over twenty (20)

years at a fixed interest rate equal to the current Wall Street Journal Prime Rate plus two (2.0%) percent, but not to exceed 8%, existing at the time commitment of service is made, with no prepayment penalty, to be collected by non-ad valorem tax roll.

5(c) Rocking Horse Lane Subregional Line Charge for Rocking Horse Lane Subregional Collection Facilities. The rate of the Rocking Horse Lane Subregional Line Charge shall be \$~~692.07~~~~662.01~~ per Equivalent Connection. Commitment of service shall not exceed those total capacity limitations as authorized for commitment by the Governing Board. The full amount of the Subregional Line Charges shall be due and payable at the time commitment of service is made, except those buildings or structures having certificates of occupancy prior to the date this transmission system line is deemed Available, may finance this Subregional Line Charge over twenty (20) years at a fixed interest rate equal to the current Wall Street Journal Prime Rate plus two (2.0%) percent, but not to exceed 8%, existing at the time commitment of service is made, with no prepayment penalty, to be collected by non-ad valorem tax roll.

5(d) 66th Terrace Phase 1 Subregional Line Charge for 66th Terrace Phase 1 Subregional Collection Facilities. The rate of the 66th Terrace Phase 1 Subregional Line Charge shall be \$~~698.33~~~~668.00~~ per Equivalent Connection. Commitment of service shall not exceed those total capacity limitations as authorized for commitment by the Governing Board of the District. The full amount of the Subregional Line Charges shall be due and payable at the time commitment of service is made, except those buildings or structures having certificates of occupancy prior to the date this transmission system line is deemed available, may finance this Subregional Line Charge over twenty (20) years at a fixed interest rate equal to the current Wall Street Journal Prime Rate plus two (2.0%) percent, but not to exceed 8%, existing at the time commitment of service is made, with no prepayment penalty, to be collected by Non-Ad Valorem tax roll.

5(e) Jamaica Drive Phase 1 Subregional Line Charge for Jamaica Drive Phase 1 Subregional Collection Facilities. The rate of the Jamaica Drive Phase 1 Subregional Line Charge shall be \$~~1,015.86~~~~971.74~~ per Equivalent Connection. Commitment of service shall not exceed those total capacity limitations as authorized for commitment by the Governing Board of the District. The full amount of the Subregional Line Charges shall be due and payable at the time commitment of service is made, except those buildings or structures having certificates of occupancy

prior to the date this transmission system line is deemed available, may finance this Subregional Line Charge over twenty (20) years at a fixed interest rate equal to the current Wall Street Journal Prime Rate plus two (2.0%) percent, but not to exceed 8%, existing at the time commitment of service is made, with no prepayment penalty, to be collected by Non-Ad Valorem tax roll.

5(f) 69th Terrace Phase 1 Subregional Line Charge for 69th Terrace Phase 1 Subregional Collection Facilities. The rate of the 69th Terrace Phase 1 Subregional Line Charge shall be \$~~1,221.66~~~~1,168.61~~ per Equivalent Connection. Commitment of service shall not exceed those total capacity limitations as authorized for commitment by the Governing Board of the District. The full amount of the Subregional Line Charges shall be due and payable at the time commitment of service is made, except those buildings or structures having certificates of occupancy prior to the date this transmission system line is deemed available, may finance this Subregional Line Charge over twenty (20) years at a fixed interest rate equal to the current Wall Street Journal Prime Rate plus two (2.0%) percent, but not to exceed 8%, existing at the time commitment of service is made, with no prepayment penalty, to be collected by Non-Ad Valorem tax roll.

5(g) SE Island Way Martin County Parcel ID 28-40-42-000-000-00020-5 Subregional Line Charge for SE Island Way Martin County Parcel ID 28-40-42-000-000-00020-5 Subregional Collection Facilities. The rate of the SE Island Way Martin County Parcel ID 28-40-42-000-000-00020-5 Subregional Line Charge shall be \$~~5858.55~~~~5,604.12~~ per Equivalent Connection. Commitment of service shall not exceed those total capacity limitations as authorized for commitment by the Governing Board of the District. The full amount of the Subregional Line Charges shall be due and payable at the time commitment of service is made, except those buildings or structures having certificates of occupancy prior to the date this transmission system line is deemed available, may finance this Subregional Line Charge over twenty (20) years at a fixed interest rate equal to the current Wall Street Journal Prime Rate plus two (2.0%) percent, but not to exceed 8%, existing at the time commitment of service is made, with no prepayment penalty, to be collected by Non-Ad Valorem tax roll.

(h) Jamaica Drive Phase 2 Subregional Line Charge for Jamaica Drive Phase 2 Subregional Collection Facilities. The rate of the Jamaica Drive Phase 2 Subregional



Line Charge shall be \$820.00 per Equivalent Connection. Commitment of service shall not exceed those total capacity limitations as authorized for commitment by the Governing Board of the District. The full amount of the Subregional Line Charges shall be due and payable at the time commitment of service is made, except those buildings or structures having certificates of occupancy prior to the date this facility is deemed available, may finance this Subregional Line Charge over twenty (20) years at a fixed interest rate equal to the current Wall Street Journal Prime Rate plus two (2.0%) percent, but not to exceed 8%, existing at the time commitment of service is made, with no prepayment penalty, to be collected by Non-Ad Valorem tax roll.

Specific Authority Chapter 2021-249, Laws of Florida, and Section 381.00655, Florida Statutes. Law Implemented Chapter 2021-249, Laws of Florida, Section 6(6), (9), (11), (12), and (19), and Section 8. History - New 12-9-76, Amended, 9-26-78, 12-12-78, 5-21-81, 5-24-82, 4-24-83, 4-25-84, 6-30-85, Formerly 31-10.05. Amended 6-30-86, 5-4-87, 4-17-88, 5-3-89, 5-13-90, 5-7-92, 5-9-93, 5-9-94, 5-19-96, 7-14-97, 11-1-98, 6-22-99, 3-23-00, 3-15-01, 3-21-02, 3-20-03, 3-18-04, 3-17-05, 3-16-06, 3-15-07, 3-20-08, 3-19-09, 3-18-10, 3-17-11, 3-15-2012, 6-21-2012, 3-21-2013, 3-20-2014, 3-19-2015, 3-17-2016, 3-16-2017, 3-21-2019, 10-15-2020, 3-17-22, 3-17-23, 10-20-23, 12-15-23, 3-21-2024, 9-19-2024, 3-20-2025.

### **31-10.006 Special Assessments.**

Special Assessments are due and payable with interest at the time of transfer of the underlying real property for consideration as an at-arms-length transaction unless transferred to the real estate tax bill for the property as a continuing obligation of the property until paid in full.

Specific Authority Chapter 2021-249, Laws of Florida, Section 6(10), (12), (19) and (27). Law Implemented Chapter 2021-249, Laws of Florida, Section 6(10), (12), (19), and (27). History - New 12-9-76, Amended, 9-26-78, 12-12-78, 5-21-81, 5-24-82, 4-24-83, 4-25-84, 6-30-85, Formerly 31-10.05. Amended 6-30-86, 5-4-87, 4-17-88, 5-3-89, 5-13-90, 5-7-92, 5-9-93, 5-9-94, 5-19-96, 7-14-97, 11-1-98, 6-22-99, 3-23-00, 3-15-01, 3-21-02, 3-20-03, 3-18-04, 3-17-05, 3-16-06, 3-15-07, 3-20-08, 3-19-09, 3-18-10, 3-17-11, 3-15-2012, 3-17-22.

### **31-10.007 Quarterly Service Charges for Sewer Service.**

(1) Quarterly Service Charges shall be payable by the Owner commencing when the Equivalent Connection is connected to the Regional Wastewater System of the District, or within one (1) year of the time the connection is Available, whichever occurs first, and shall be billed in advance. Notwithstanding any other provision of this section, an Owner that has established a tenant as the bill recipient for the Quarterly Service Charge prior to April 1, 2015 may continue to have the established tenant listed as the bill recipient for the Quarterly Service Charge until such time as that tenant relationship changes (e.g., new Owner(s) or new tenant(s)). The Owner is required to notify the District within fifteen (15) days of the tenant relationship change.



(a) The Quarterly Service Charge for Residential Units shall be:

~~For the period of April 1, 2024 thru March 31, 2025 @ \$58.50 per E.C.~~

For the period of April 1, 2025 thru March 31, 2026 @ \$60.26 per E.C.

For the period of April 1, 2026 thru March 31, 2027 @ \$62.06 per E.C.

For the period of April 1, 2027 thru March 31, 2028 @ \$63.92 per E.C.

For the period of April 1, 2028 thru March 31, 2029 @ \$65.20 per E.C.

For the period of April 1, 2029 thru March 31, 2030 @ \$67.16 per E.C.

(b) The Quarterly Service Charge for Non-residential Units shall be as follows:

~~For the period of April 1, 2024 thru March 31, 2025 @ \$6.68 per thousand gallons  
of metered potable water usage;~~

For the period of April 1, 2025 thru March 31, 2026 @ \$6.88 per thousand gallons  
of metered potable water usage;

For the period of April 1, 2026 thru March 31, 2027 @ \$7.09 per thousand gallons  
of metered potable water usage;

For the period of April 1, 2027 thru March 31, 2028 @ \$7.30 per thousand gallons  
of metered potable water usage;

For the period of April 1, 2028 thru March 31, 2029 @ \$7.45 per thousand gallons  
of metered potable water usage;

For the period of April 1, 2029 thru March 31, 2030 @ \$7.67 per thousand gallons  
of metered potable water usage;

provided that the minimum Quarterly Service Charge for Non-residential Units shall  
be as follows:

~~For the period of April 1, 2024 thru March 31, 2025 @ \$80.06~~

For the period of April 1, 2025 thru March 31, 2026 @ \$82.46

For the period of April 1, 2026 thru March 31, 2027 @ \$84.94

For the period of April 1, 2027 thru March 31, 2028 @ \$87.48

For the period of April 1, 2028 thru March 31, 2029 @ \$89.23

For the period of April 1, 2029 thru March 31, 2030 @ \$91.91.

For Non-residential Units that do not have a metered water supply or that have not established a minimum of one (1) month of water use history, and certain other uses (e.g., elevator sump; pool backwash; public toilets in parks; marina pump out station) the Quarterly Service Charge shall be a flat rate of:

~~For the period of April 1, 2024 thru March 31, 2025 @ \$80.06 per E.C.~~

For the period of April 1, 2025 thru March 31, 2026 @ \$82.46 per E.C.

For the period of April 1, 2026 thru March 31, 2027 @ \$84.94 per E.C.

For the period of April 1, 2027 thru March 31, 2028 @ \$87.48 per E.C.

For the period of April 1, 2028 thru March 31, 2029 @ \$89.23 per E.C.

For the period of April 1, 2029 thru March 31, 2030 @ \$91.91 per E.C.

(2) Temporary Disconnection of Sewer Service – The District may temporarily suspend Quarterly Service Charges when sewer service is disconnected as provided below. If temporarily suspended, quarterly sewer service charges will cease on the first day of the quarter following verification and approval by the District. Quarterly sewer service charges will resume on the first day of the quarter following reconnection to the sewer (e.g., upon receipt of a Certificate of Occupancy). Failure to notify the District of reconnection to the sewer system will result in the District back-billing quarterly sewer service charges to the date reconnection to the sewer was made. Circumstances warranting suspension of quarterly sewer service charges of an existing Residential Unit or Non-residential Unit connected to the District’s sewer system include:

- (a) sewer disconnection in coordination with the District’s Engineering Department and according to District standards, or
- (b) proof of designation as uninhabitable by a municipal authority (e.g., fire official, building official).

(3) The Quarterly Service Availability Standby Charge shall be due and payable for each Equivalent Connection reserving service availability, commencing upon the reserving of service availability and shall continue to be owing for each quarter and paid promptly upon billing in the manner as provided for the Quarterly Service Charge thereafter until payment of the Plant Connection Charge. The amount of the Quarterly Service Availability Standby Charge shall be sixty-eight percent (68%) of the Quarterly Service Charge which is set based upon the fixed expenses incurred by the District in operating the plant and the Regional Wastewater System excluding the variable costs related to the amount of sewerage processed.

- (a) A prepayment of twelve (12) months Service Availability Standby Charges will be required commencing upon the reserving of service availability in addition to the Quarterly Service Availability Standby Charge which shall be prepaid quarterly.
- (b) At the time Plant Connection Charges become due and payable ten and one half (10.5) months of the twelve (12) months of prepaid Service Availability Standby Charges shall be credited to the Plant Connection Charges.

Specific Authority Chapter 2021-249, Laws of Florida. Law Implemented Chapter 2021-249, Laws of Florida Section 6(6) (8), (9), (11), (19), and (27), and Section 8. History - New 12-9-76, Amended 6-25-78, 9-26-78, 12-12-78, 11-28-79, 5-21-81, 5-24-82, 10-12-82, 4-24-83, 5-24-84, 6-30-85, Formerly 31-10.07. Amended, 6-30-86, 5-4-87, 4-17-88, 5-3-89, 5-13-90, 5-12-91, 5-7-92, 5-10-93, 5-7-94, 5-7-95, 5-19-96, 7-14-97, 11-1-98, 6-22-99, 3-23-00, 3-15-01, 3-21-02, 3-20-03, 3-18-04, 3-17-05, 3-16-06, 3-15-07, 3-20-08, 3-19-09, 3-18-10, 3-17-11, 3-15-2012, 3-21-2013, 3-20-2014, 3-19-2015, 6-18-2015, 3-17-2016, 3-16-2017, 3-21-2019, 3-17-22, 3-17-23, 3-21-2024, 3-20-2025.

### **31-10.008 Determination of Equivalent Connections.**

Each Owner of each lot or parcel of land which may be connected to the Regional Wastewater System shall provide proof of the number of Equivalent Connections for each lot or parcel owned. If the Owner does not produce proof of the number of Equivalent Connections, the District will charge the Owner up to the maximum rates, fees and charges of the District based upon 1.75 E.C. per lot or parcel based upon the best information practically Available to the District.

Specific Authority Chapter 2021-249, Laws of Florida. Law Implemented Chapter 2021-249, Laws of Florida, Section 6(6) and (9), and Section 8. History - New 12-9-76. Amended 9-26-78, Formerly 31-10.08, Amended 3-15-2012, 3-19-2015, 3-17-22.

### **31-10.009 Responsibility for Payment and Enforcement of Collections and Foreclosure of Liens.**

(1) Responsibility. The District shall hold the Owner of the property being served with sewage service primarily responsible for all charges for sewage service to the property, without regard to the fact that a tenant, licensee, customer or other party was actually utilizing the sewage service and may be paying for same directly to the District.

(2) Payment. All payments to the District shall be made using U.S. funds (dollars). Payment may be made in cash, check, electronic check, money order, electronic bill pay, direct debit, a Master Card or Visa debit card, or credit card or a Discover credit card. All checks shall be in a form that complies with the standards for cash items adopted by the Federal Reserve System to facilitate the sorting, routing, and mechanized processing of such items. Payment made using debit card or credit card is limited to a maximum of \$5,000.00 per account per month.

(3) Delinquent Quarterly Service Charge for Sewer Service. Quarterly Service Charge for Sewer Service shall be delinquent if not paid during the service period. The District will apply a delinquent fee equal to ten percent (10%) of the delinquent Quarterly Service Charge for Sewer Service to accounts with a delinquent balance of \$20.00 or more.

(4) Default. If any fees, rates, or charges for sewage service are not paid when due and are unpaid for thirty (30) days or more, the Owner shall be in default, and the District may seek recovery of the amounts due from the Owner through any or all available legal remedies.

(5) Enforcement. When the fees, rates, or charges for the services and facilities of any system are not paid when due and are in default as set forth above, the District shall provide written notice to the Owner that the District may discontinue and shut-off the supply of services and facilities to the property until all fees, rates, or charges, including interest at twelve percent (12%) per annum, plus all penalties and charges for the shutting off and discontinuance and the restoration of such services or facilities are fully paid. If the fees or charges remain unpaid for thirty (30) days after being due, such delinquent fees, rates, or charges shall bear interest at the rate of twelve percent (12%) per annum computed from the date when originally due, until paid and the District may discontinue the supply of service and facilities to the property. The District may file suit in a court of competent jurisdiction to recover any delinquent fees or charges, together with legal interest, penalties, and charges for the shutting off and discontinuance and the restoration of such services or facilities and all other costs and other expenses, including court costs and reasonable attorney's fees.

(6) Foreclosure of Liens. The District shall have a lien on all lands and premises served by it for all charges and fees, until paid, for services provided to such lands or premises by the District, or connection fees associated therewith, which lien shall be prior to all other liens, except that such lien shall be on parity with the lien of state, county, and municipal taxes, and any lien for charges for services created pursuant to Section 159.17, Florida Statutes. Such lien shall be perfected by the District by recording in the official records of the county in which the lands or premises are located a claim of lien in form substantially as provided in Section 713.08, Florida Statutes. A copy of the claim of lien shall be served as provided in Section 713.18, Florida Statutes, within ten (10) days after the claim of lien is recorded. If thirty (30) days after service has been made, liens created under this Rule remain delinquent, such liens may be foreclosed by the District in the manner provided by the laws of Florida for the foreclosure of mortgages on real property, and the District shall be entitled to 12% interest per annum, attorney's fees, and other court costs.

(7) No Service Free. No sewage disposal service shall be furnished or rendered free of charge to any Owner, person, firm, corporation, agency or organization whatsoever, and the District

and each and every Owner, person, firm, corporation, agency or organization that uses or is required to use such service shall pay the rates, fees, and charges established by the Governing Board.

(8) Administrative Credits. The Executive Director, or his or her designee, may authorize a credit or refund to an account in certain situations, including billing errors, clerical errors, excessive payments by the customer, meter adjustments, and application of grant funds. In each case, the affected customer must provide a signed written request for refund that quantifies the requested refund, documents the justification for the refund, and states whether the refund should be provided as a credit to the customer's account unless the customer specifically requests a refund check at the same time the customer requests the refund. In no circumstance shall such credit or refund exceed \$10,000 without prior authorization of the Governing Board.

Specific Authority Chapter 2021-249, Laws of Florida. Law Implemented Chapter 2021-249, Laws of Florida, Section 6(6),(8), (9), (11), and (19), and Section 8. History - New 12-9-76. Formerly 31-3.16, 31-3.18 and 31-10.09. Rules 31-3.016 & 31-3.018 moved, consolidated and renumbered 31-10.009(4), (5) and (6) by amendment on 6-15-2000. Amended 9-26-78, 10-11-80, 3-23-00, 6-15-00, 3-15-2012, 3-19-2015, 3-17-2016, 3-17-22.

### **31-10.010 Payment of Certain Rates, Fees and Charges; Developer Agreement.**

(1) Applicants for service requiring less than ten (10) E.C.s must execute an Application for Sewer Service appropriate for the use and shall pay all Connection Charges at the time of application. Applications for Sewer Service forms are provided on the District's website at <https://loxahatcheeriver.org> and may be obtained from the District office.

(2) Applicants desiring to reserve service availability for 10 Equivalent Connections or more must execute a standard developer agreement, as developed and provided by the District ("Standard Developer Agreement"), which is provided on the District's website at <https://loxahatcheeriver.org> and also may be obtained from the District office, and pay all charges and fees required by the agreement. Applicants must also provide plans and specifications with sufficient detail to calculate the number of Equivalent Connections contemplated on the lot or parcel of land.

The following matters are addressed in the Standard Developer Agreement:

- (a) The reservation of the agreed service availability in the Regional Wastewater System on the subject property in terms of Equivalent Connections.
- (b) Payment required to reserve sewer service availability.
- (c) Construction of off-site facilities under certain conditions.
- (d) Dedication of facilities and land to the District.

- (e) Describing the reservation of service availability in terms of the equivalent connections as non-assignable, non-transferable, and running with the land, and describing exceptions.
- (f) Requiring payment of a Quarterly Service Availability Standby Charge and prepayment of twelve (12) months thereof.
- (g) Describing payment and obligations and providing for recovery of costs and attorney's fees.
- (h) Subject the Owner to the rates, fees and charges of the District as established from time to time but fixing the rate for the Regional Transmission System Line Charge, Administrative Charge, and Plant Connection Charge.

(2) Applicants desiring to reserve service availability for concurrency in the Regional Wastewater System must sign a "Concurrency Reservation Agreement," which is provided on the District's website at <https://loxahatcheeriver.org> ("Concurrency Reservation Agreement") and also may be obtained from the District office, and make all payments required by the agreement. Applicants must also provide plans and specifications with sufficient detail to calculate the number of Equivalent Connections contemplated on the lot or parcel of land. The following matters are addressed in the Concurrency Reservation Agreement:

- (a) The reservation of the agreed service availability in the regional wastewater system on the subject property in terms of equivalent connections.
- (b) Requiring payment of a Quarterly Service Availability Standby Charge and prepayment of twelve (12) months thereof.
- (c) Providing a duration of the shorter of twelve (12) months or thirty (30) days after applicant obtains a development order.
- (d) Providing for the unexpired portion of the prepaid Quarterly Service Availability Standby Charge to be refunded to the applicant if the development order is denied, or credited to the Service Availability Standby Charge if a Standard Developer's Agreement is entered into by the applicant within thirty (30) days of the development order.
- (e) Describing the reservation of service availability in terms of the equivalent connections as non-assignable, non-transferable, and running with the land, and describing exceptions.
- (f) Describing payment, including rates, fees, and charges of the District, and obligations and providing for recovery of costs and attorney's fees.

Specific Authority Chapter 2021-249, Laws of Florida. Law Implemented Chapter 2021-249, Laws of Florida, Section 6(6),(8), (9), (11), and (19), and Section 8. History-New 12-9-76. Amended, 9-26-78, 5-21-81, 5-24-84. Formerly 31-10.10. Amended 5-10-93, 3-20-08, 3-19-09, 3-18-10, 3-15-2012, 3-17-22.

**31-10.012 Exceptions to the Payment of Connection Charges.**

(1) Connection Charges shall not apply to those residential and non-residential buildings and structures referred to in the Agreement for Sale between the Village of Tequesta and the District, dated May 23, 1973.

(2) Those residential and non-residential buildings and structures which have escrowed, paid or committed capital improvement charges and have executed legally binding agreements where capital improvement charges are referred to in such agreements, said agreements shall be enforced according to their tenor, except that the capital improvement charges shall be treated as Plant Connection Charges, and except that where capital improvement charges may be increased or subjected to assessment and reassessment from time to time, there shall be no increase over the amount of capital improvement charges as stated in said agreements, and said provision providing for assessment and reassessment of capital improvement charges shall not be enforced.

Specific Authority Chapter 2021-249, Laws of Florida. Law Implemented Chapter 2021-249, Laws of Florida, Section 6(6), (8), (9) (11), (12), and (27), and Section 8. History - New 12-12-79. Formerly 31-10.12, Amended 3-15-2012.

**31-10.013 Irrigation Quality Water User; Rates, Fees and Charges for Irrigation Quality Water Service; Irrigation Quality Water Agreements.**

(1) “I.Q. Water” is defined as Irrigation Quality Water provided by the District, regardless of the original source of the I.Q. Water. I.Q. Water also may be referred to as “reuse water” or “reclaimed water”, which is further defined in Chapter 62-610, Florida Administrative Code.

(2) “Wholesale I.Q. User” is defined as user of I.Q. Water, for which the I.Q. Water is pumped by the District to a storage facility, such as ponds, lakes, or tanks, at an off-site location. The I.Q. Water is then pumped by a party other than the District, into the lines that irrigate the User’s property.

(3) “Retail I.Q. User” is defined as a user of I.Q. Water, for which the I.Q. Water is pumped by the District, to a storage facility, such as ponds, lakes or tanks, at an off-site location. The I.Q. Water is then pumped by the District from the storage facility, into the lines that deliver I.Q. Water to the User’s property for further distribution and irrigation by the User.



(4) “Nano I.Q. User” is defined as a user of I.Q. Water, where the I.Q. Water was originally made available by blending the Town of Jupiter’s nanofiltration concentrate and for which the I.Q. Water is pumped by the District, to a storage facility, such as ponds, lakes, or tanks, at an off-site location. The I.Q. Water is then pumped by a party other than the District, into the lines that irrigate the User’s property.

(5) Rates, Fees and Charges for Wholesale, Retail, and Nano I.Q. Water Rates are those rates, fees and charges approved, set, and levied by the Governing Board based on the total cost to the District of construction, reconstruction, labor, materials, equipment, acquisition, property rights, surveys, design, engineering, legal, administration, operation, maintenance, and all other expenses necessary or incidental to construction, operation, and improvement of the I.Q. Water system and provision of I.Q. Water.

(6) The District’s rate for I.Q. Water are:

(a) Wholesale I.Q. Users shall pay the following rates for their requested G.P.D.

~~For the period of April 1, 2024 thru March 31, 2025 \$0.4856 per 1,000 gallons.~~

For the period of April 1, 2025 thru March 31, 2026 \$0.5002 per 1,000 gallons.

For the period of April 1, 2026 thru March 31, 2027 \$0.5152 per 1,000 gallons.

For the period of April 1, 2027 thru March 31, 2028 \$0.5307 per 1,000 gallons.

For the period of April 1, 2028 thru March 31, 2029 \$0.5466 per 1,000 gallons.

For the period of April 1, 2029 thru March 31, 2030 \$0.5630 per 1,000 gallons.

(b) Retail I.Q. Users shall pay the following rates for their requested G.P.D.

~~For the period of April 1, 2024 thru March 31, 2025 \$0.6569 per 1,000 gallons.~~

For the period of April 1, 2025 thru March 31, 2026 \$0.6766 per 1,000 gallons.

For the period of April 1, 2026 thru March 31, 2027 \$0.6969 per 1,000 gallons.

For the period of April 1, 2027 thru March 31, 2028 \$0.7178 per 1,000 gallons.

For the period of April 1, 2028 thru March 31, 2029 \$0.7393 per 1,000 gallons.

For the period of April 1, 2029 thru March 31, 2030 \$0.7615 per 1,000 gallons.

(c) Nano I.Q. Users shall pay the following rates for their requested G.P.D.

~~For the period of April 1, 2024 thru March 31, 2025 \$0.8766 per 1,000 gallons.~~

For the period of April 1, 2025 thru March 31, 2026 \$0.9204 per 1,000 gallons.

For the period of April 1, 2026 thru March 31, 2027 \$0.9480 per 1,000 gallons.

The District may revise its schedule of rates, fees, and charges in accordance with the Loxahatchee River Environmental Control District Act codified in Chapter 2021-249, Laws of



Florida, all applicable District rules, and all relevant laws. It is the District's intention to evaluate the sufficiency of I.Q. Water rates during the annual Rate Study, which typically occurs in February and March with potential rate adjustments implemented April 1<sup>st</sup>. The I.Q. Rate shall be billed monthly or such other billing cycle period as the District may determine.

(7) The Start Up Fee of the District for Retail I.Q. Users shall be the greater of (a) six (6) months of charges at the Retail I.Q. Rate for the requested gallons per day, or (b) \$3,500.00. The Application Fee of the District for Wholesale I.Q. Users shall be the greater of (a) six (6) months of charges at the I.Q. Rate for the requested gallons per day, or (b) \$18,000.00.

(8) All persons, firms and corporations (hereinafter called "Applicant") desiring to reserve service availability in the regional I.Q. Water system of the District where said I.Q. Water is Available or is proposed to be Available, as determined by the District, prior to receiving District approval, shall sign a Standard Irrigation Quality Water Agreement and pay the charges and fees specified therein.

Specific Authority Chapter 2101-249, Laws of Florida. Law Implemented Chapter 2021-249, Laws of Florida, Sections 6(6), (8), (9), (11), (12), and (27), and Section 8; History-New 7-23-97, Amended 11-1-98, 3-16-06, 3-18-10, 3-21-2013, 3-19-2015, 3-21-2019, 2-20-2020, 3-17-22, 3-17-23, 3-21-2024, 3-20-2025.

#### **31-10.014 Low Pressure Pump Unit Delivery Procedures & Delivery Charge.**

(1) All Owners in an area serviced by a low pressure sanitary sewer system, shall be responsible for taking possession of the Low Pressure Pump Unit ("**Pump Unit**") upon notification the Pump Unit is available for pick up at the District. A Property Owner that does not pick up the Pump Unit shall be subject to the following delivery procedures and delivery charge. The First Delivery Notice to the Owner shall provide:

- (a) Owner is delinquent with installation of the low pressure pumping system for their wastewater service.
- (b) The District has been holding their Pump Unit since the completion of the sewer project.
- (c) The Pump Unit was included in their assessment and is their responsibility to install.
- (d) The District will no longer hold the Pump Unit for their pick up and installation.
- (e) If not picked up within thirty (30) days, the Pump Unit will be delivered at an additional Delivery Charge of \$300.00 to the Owner (the "Delivery Charge").
- (f) The Pumping Unit will be delivered in good working order, suitable for District's future maintenance.

- (g) If the Owner fails to have the Pump Unit installed within forty-five (45) days and there is damage to the Pump Unit components, the Owner will be responsible for the cost to provide a Pump Unit in good working order for District maintenance in the future.
2. If the Pump Unit is not picked up within thirty (30) days after the First Delivery Notice, the Second Delivery Notice shall be sent to the Owner which shall provide:
- (a) Pump Delivery will be made on a date and time certain.
  - (b) The Pump Unit and appurtenances will be delivered to the most accessible location on the Property or a mutually convenient location as discussed with Owner.
  - (c) A written report will be made of each delivery with photographs of the Pump Unit placement at time of delivery and condition of surrounding area. The District will request written receipt from the Owner for the Pump Unit, however it is not mandatory for the Property Owner to provide or for the District to obtain.
  - (d) The written report shall be signed by two District personnel, witnessed and notarized, and made part of the District's records.
3. After delivery, the Owner will be provided written notification that their Pump Unit has been delivered and an Invoice will be provided for the Delivery Charge.
4. All correspondence to be provided by certified mail with return receipt and regular mail.

Specific Authority Chapter 2021-249, Laws of Florida. Law Implemented Chapter 2021-249, Laws of Florida, Sections 6(6), (8), (9), (10), and (19), and Section 8. History-New 3-15-2012. Amended 3-17-22.

**31-10.015 Termination/Abandonment of Easements – Application Fee.**

- (1) Property Owners may request a Termination/Abandonment of easement. Requests shall be accompanied by an application and application fee in the amount of ~~\$571.12~~\$61.02.
- (2) The application fee for termination/abandonment of easements shall increase (or decrease) based upon the annual increase (or decrease) in the Engineering News Record Construction Cost Index published in the February edition of each year.

Specific Authority Chapter 2021-249, Laws of Florida. Law Implemented Chapter 2021-249, Laws of Florida, Sections 6(9). History-New 10-20-2023, 3-21-2024, 3-20-2025.



# Loxahatchee River District

Neighborhood Sewering Schedule - Revised January 2025												
Rank #	Area Description	# Lots	Activity	Original Target Date	Revised Target Start Date	Heads Up Notice	Sewer Options	Notice Of Intent	Preliminary Assessment	Notice To Connect	Final Assessment	Boundry Interlocal / Legislative
11	Jupiter Farms (East)	708		TBD	TBD							Legislative
11	PB Country Estates	1547		TBD	TBD							Legislative
21	SE Indian Hills Drive	12	Property Records Review Determined Lots Abut US1 Right Of Way		Oct. 2024	Jan.2016	Mar. 2024	Jun. 2024				Legislative
Remnant Area												
Rank #	Area Description	# Lots	Activity	Original Target Date	Revised Target Start Date	Heads Up Notice	Sewer Options	Notice Of Intent	Preliminary Assessment	Notice To Connect	Final Assessment	Boundry Interlocal / Legislative
	605+607 Military Trl (LPPS)	2		2022		Jun.2020		Jan.2021				Legislative
	18030 69 <sup>th</sup> Terrace	1	Application for developer project made; Comments on plans being addressed by applicant					Jun. 2024				Legislative
	7985 SE Island Way	2	Construction Complete; Final Assessment July 2024					Aug. 2022	Jun. 2024	Mar. 2024	Jul. 2024	Legislative
	2966 Jamaica Drive	1	Statutory Way Provision – April 2024 (1 lot)					Aug. 2024				Interlocal
	19999 SE County Line Road	1										Legislative
Private Road Areas												
Rank #	Area Description	# Lots	Activity	Original Target Date	Revised Target Start Date	Heads Up Notice	Sewer Options	Notice Of Intent	Preliminary Assessment	Notice To Connect	Final Assessment	Boundry Interlocal / Legislative
AA	Peninsular Road	3	Partial construction complete - June 2013 Soliciting easements for remainder of project	2010	AEO			Feb. 2010				Legislative
BB	Rivers Edge Road (Martin Co.)	35	Private Road-Easements Solicited - May 2014 Project Delayed	2013	AEO	Aug. 2010		Feb. 2014				Legislative
CC	171 <sup>st</sup> Street (Martin Co.)	7	Private Road - In House Design Easement rec'd from Church – April 2017 Grant received	2014	AEO	Oct. 2012						Legislative
D	Loggerhead Park (institutional)	6 EC's	Need Easements from County - No database	2014	AEO							Legislative
DD	Taylor Road	38		2015	AEO	Sept. 2011						Legislative
FF	North A1A	3	Postponed-Town activities in area - No database	2012	AEO							Legislative
GG	815 S US 1	9 EC's		2016	AEO	Nov. 2014						Legislative
GG	Rockinghorse (north of Roebuck Road)	11		2018	AEO	Jan. 2013						Legislative
GG	SE Castle Rd	5		2018	AEO	Jan. 2013						Legislative
GG	SE Jupiter Rd	4		2018	AEO	Jan. 2013						Legislative
HH	19485 Harbor Rd. S	6	Statutory Way Provision – May 2023 (1 lot)	2017	AEO	Jan. 2014		May 2024				Legislative
16	Limestone Creek Road West	49		2018	TBD	Jan. 2013						Legislative
	109 Old Jupiter Beach Road	1	Construction Complete			Sept. 2021 July 2022		Jun.2024		Aug.2024		Legislative
	182 <sup>nd</sup> Road North	12	Sewering Pricing Request by 50% of Owners Conceptual Design/Cost Est. - provided June 2023									Legislative
	6604 N 195th Place	1	Statutory Way Provision – Mar. 2024		295			May 2024				Legislative

CURTIS L. SHENKMAN  
*Board Certified*  
*Real Estate Attorney*  
HUNTER SHENKMAN  
*Attorney*

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**LEGAL ASSISTANTS**  
**REAL ESTATE**  
BONNIE HARRIS  
CAROLINA INMAN  
DENISE B. PAOLUCCI

February 10, 2025

Loxahatchee River Environmental Control District  
D. Albrey Arrington, Exec. Dir. and Board Members (sent by email to S. Patel)  
2500 Jupiter Park Drive  
Jupiter, FL 33458

**RE: PENDING LITIGATION STATUS REPORT**

Dear Dr. Arrington and Board Members:

We are enclosing herewith a brief status report relating to the litigation in which the Loxahatchee River Environmental Control District is involved with our law firm as the attorney of record, and/or monitoring the attorney of record. This status report updates the last monthly status report previously submitted and consists of a summary of the record proceedings which have occurred in each of the pending cases since last month. The amount in controversy for materiality is \$40,000.00 or more.

**Two (2) matters of potential pending litigation are reported under "Other Litigation".** There is no analysis of the pending cases included, as the inclusion of such items might constitute a waiver of any attorney/client privilege that exists between our firm and the District. Therefore, if you would like to discuss the particulars of any specific case in more detail or would like to obtain more information concerning the strategy, status, or settlement posture of any of the individual cases, please feel free to contact me.

As always, we are available at any time to discuss any of these lawsuits with each individual Board Member by telephone or by conference, if there are any questions.

Respectfully submitted,

***CURTIS L. SHENKMAN***

CURTIS L. SHENKMAN

Attachment

## **OTHER LITIGATION**

### **LRD- manhole & gravity main line re-routing by Coastal Property Concepts (“Coastal”) real estate developer of new home under construction at 844 Oceanside Drive, Juno Beach, FL 33480.**

**Current Status.** Legal Counsel, Engineering and Executive Staff met on November 6 to evaluate strategies to proceed with District enforcement of the violation with the goal of the District Asset being protected, safe and secure and the District being made whole in the process. Engineering and legal work are being conducted in the meantime with a target goal of February 2025 for the next conference meeting to make sure proper preparations are in place for effective communications for resolving the dispute.

#### **History:**

**Oct 12, 2022,** LRD Attorney Legal Opinion existing Manhole & gravity main line installed by developer in 2005 serving the Oceanside project development permits a reasonably sized home to be designed and constructed in accordance with the District’s Construction Standards.

**Balance of 2022 and most of 2023:** LRD Engineering Department and Developers Engineer communicate as to two (2) quotes the Developer’s Engineer received to install a new manhole and sewer line to bypass and abandon in place the existing manhole and existing line, in order that Developer’s planned construction meets the District’s construction Standards. LRD Engineering led to believe Developer was having this done as part of the construction.

**October 2023.** LRD Engineering discovers the Developer has progressed with the foundation and start of construction of the home WITHOUT installing the new manhole and sewer line.

**Oct 26, 2023,** LRD Attorney advising attorney for Coastal the home under construction is being built in violation of the District’s Construction Standards, must be addressed by home improvements relocated/reconstructed or new manhole and gravity main line so as not to be in violation of the District’s Construction Standards.

**Oct 2023** Juno Beach Zoning Director advising LRD Engineering Juno Beach will withhold issuing the certificate of occupancy (“CO”) until LRD and Developer resolve the manhole violation.

**Oct 2023-Jan 2024** LRD Attorney & Coastal Attorney in communications for resolution.

**Jan 31, 2024,** Coastal letter to Town of Juno Beach requesting extension of Building Permit #21-9596 seeking extension of Permit expiring blaming delay on manhole alleged not located properly by the District and requesting February 28, 2024, Town Council meeting to address the extension.

**Feb 1, 2024,** LRD Deputy Director official letter providing response to Town of Juno Beach addressing the manhole and gravity main line facts and circumstances.

**Feb 28, 2024,** Town of Juno Beach granted extension of Building Permit to June 1, 2024.

**March 13, 2024,** LRD Attorney communication to Attorney for Coastal of the representation made to Town of Juno Beach to get the extension by Coastal that Coastal is working with LRD to resolve the manhole issue.

**March 27, 2024,** Coastal Attorney confirmation in contact with Clark Cryer Engineer regarding preparing plans for new manholes to replace manhole in violation of District standards.

**April 2024** Coastal Attorney email reporting Clark Cryer Engineer not communicating.

**June 1, 2024,** Building Permit expired with the Town of Juno Beach and not extended.

**June 7, 2024,** LRD response to Estoppel letter request sending copy of the Feb 1, 2024, Deputy Director letter to the Town of Juno Beach addressing the manhole and gravity main line facts and circumstances.

**July 2, 2024** LRD cooperates with Owner's request for Encroachments of Pool and Gas Line for Pool Heater into the Utility Easement, and reiterating the VIOLATION of the home built on top of the Manhole and Sewer transmission lines must be CURED in order for District to approve as condition prior to Town of Juno Beach issuing a Certificate of Occupancy for the home.

**August 5, 2024,** No Change in status. Owner's Building Permit expired.

**August 8, 2024:** LRD Attorney comprehensive Legal Demand letter to the Town of Juno Beach Attorney Len Rubin to set forth the legal justifications the Town of Juno Beach is entitled to not issue the final Certificate of Occupancy due to the health, safety and welfare violations of the 844 Owner in building new home improvements on top of existing manhole and gravity main serving multiple properties.

**September 13, 2024.** The Town of Juno Beach Attorney email to District's attorney regarding the Town recognizes the District's assertion the developer failed to adhere to the District's construction standards. However, the Town did not have an independent basis to not issue the Certificate of Occupancy and the Town did want to be exposed to liability from the developer for not issuing the Certificate of Occupancy when Town's position is its Building Inspector inspected the home and determined the home was connected to the sewer system and met all the building code provisions. Town's position is the District has other alternatives to enforce the violation of its construction standards.

**Sept 18, 2024.** Coastal Deeds property to Joseph Paul and Kathleen Paul for \$4,675,000.00.

Coastal took no action to correct the violation and Joseph and Kathleen Paul are the current owners of the Property that is in violation of the District's construction standards.

**LRD vs. YComm, IDD, NextCity, Enegiz. \$42,021.74 Damage to LS134-FM02**

**Current Status:** Late Jan 2025, CNA adjustor made \$20K offer. LRD Attorney rejected and replied to include the attorney for NextCity and Ycomm to make up the \$20,021.74 difference. Awaiting reply.

**History:**

**November 20, 2023, Date of Loss.**

**June 28, 2024,** LRD Attorney Demand Letter to 6 defendants with Joint & Several liabilities demanding \$42,021.74 damage claim be paid to LRD.

**July 22, 2024,** Communications with YComm's attorney that YComm takes responsibility and put in a claim to IDD's insurance policy, and NextCity's attorney (a division of FPL) that will make sure LRD gets paid.

**August 2024** LRD Attorney communications with the CNA Insurance Claims adjustor, and preparation of LRD Attorney demand letter to the Defendant's c/o the CNA Claims adjustor Jake Hart to comprehensively set up the Claim for Damages.

**November 2024.** CNA Claims Adjustor continuing to investigate the Claim.

**December 20, 2024,** CNA's independent Claims Adjustor, Jerry Balester of Crawford & Company, met with Ryan Chernekoff to escort Balester to the location and viewing of the site of the damages to take photos, understand how the damage may have occurred to the LRD's sewer line, and make a report to CNA so Claim can be finalized. The Report has been submitted to CNA so the Claim can be finalized.

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LIEN FORECLOSURES

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**NONE**

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**MORTGAGE OR LIEN FORECLOSURES / LRD COUNTERCLAIMS/CROSSCLAIMS**

**NONE**





# Director's Report

- |                               |            |
|-------------------------------|------------|
| ➤ Admin. & Fiscal Report      | attach. #1 |
| ➤ Engineering Report          | attach. #2 |
| ➤ Operations Report           | attach. #3 |
| ➤ Information Services Report | attach. #4 |
| ➤ Environmental Education     | attach. #5 |
| ➤ Safety Report               | attach. #6 |
| ➤ Other Matters (as needed)   | attach. #7 |







# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

TEL: (561) 747-5700

FAX: (561) 747-9929

D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

To: Governing Board  
From: Kara Fraraccio, Director of Finance and Administration  
Date: February 14, 2025  
Subject: Monthly Financial Report

### Cash and Investments Balance

Balance as of January 31, 2025

Institution	Rate	Book Value	Monthly Change in Investment	Market Value
<b>U.S. Treasuries:</b>				
U.S. Treasuries - Due 05/01/25	4.44%	\$ 5,530,140	\$ 20,483	\$ 5,592,789
<b>Subtotal</b>		<b>\$ 5,530,140</b>	<b>\$ 20,483</b>	<b>\$ 5,592,789</b>
<b>Investment Accounts:</b>				
Florida Prime - SBA	4.57%		\$ 37,203	\$ 13,173,142
Florida FIT - Preferred Cash Pool	4.26%		26,567	7,945,453
Florida FIT - Cash Pool	4.52%		8,874	6,508,874
Bank United - Public Funds Reserve	3.87%		7,292	2,220,118
<b>Subtotal</b>			<b>\$ 79,936</b>	<b>\$ 29,847,587</b>
<b>Cash Account:</b>				
Truist-Hybrid Business Account	2.70%		\$ 13,994	\$ 5,616,890
<b>Subtotal</b>			<b>\$ 13,994</b>	<b>\$ 5,616,890</b>
<b>Total</b>			<b>\$ 114,413</b>	<b>\$ 41,057,266</b>

### Investment Policy Compliance

#### **Performance Measurements**

Average weighted rate of return on investments is: 4.19%. As of 1/31/25, 3-month U.S. Treasuries were 4.31% and the 1-month Federal Fund Rate was 4.33%. The District's average weighted rate of return on investment of 4.19% is lower than our benchmark because we have \$5.6 million in our business checking account, which earns less than 3%.

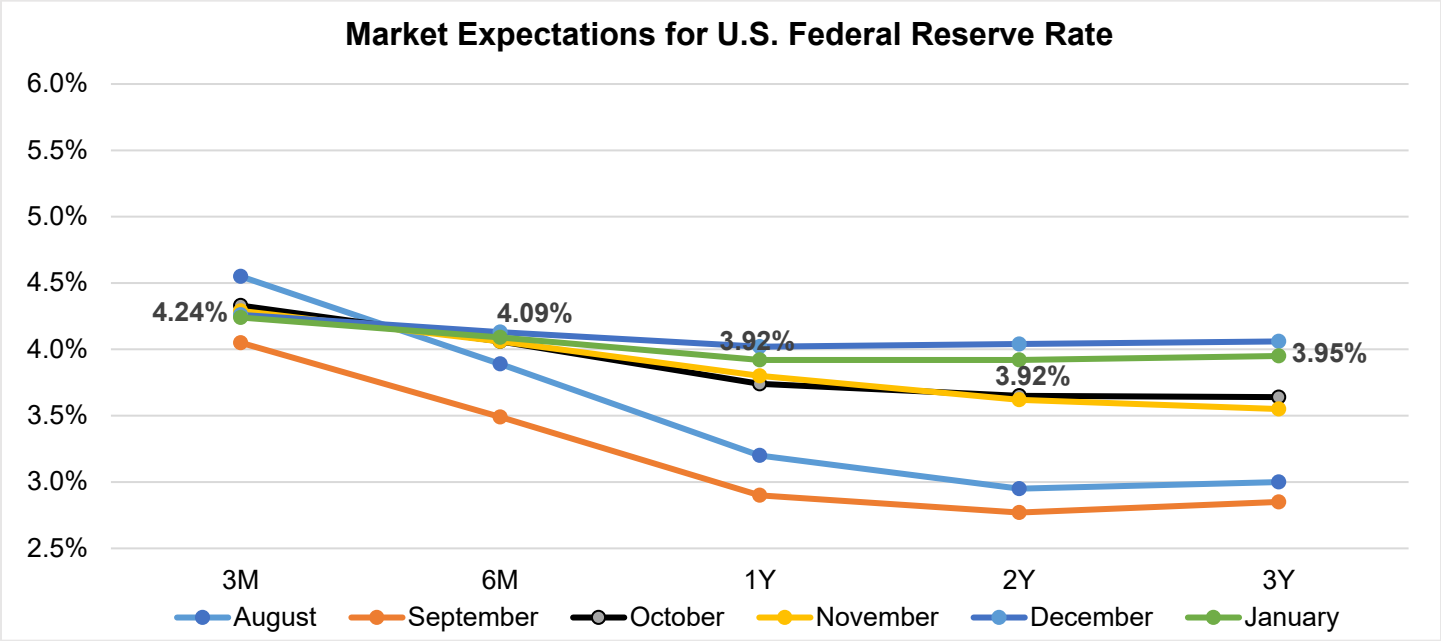
Gordon M. Boggie  
CHAIRMAN

Kevin L. Baker  
BOARD MEMBER

Stephen B. Rockoff  
BOARD MEMBER

Dr. Matt H. Rostock  
BOARD MEMBER

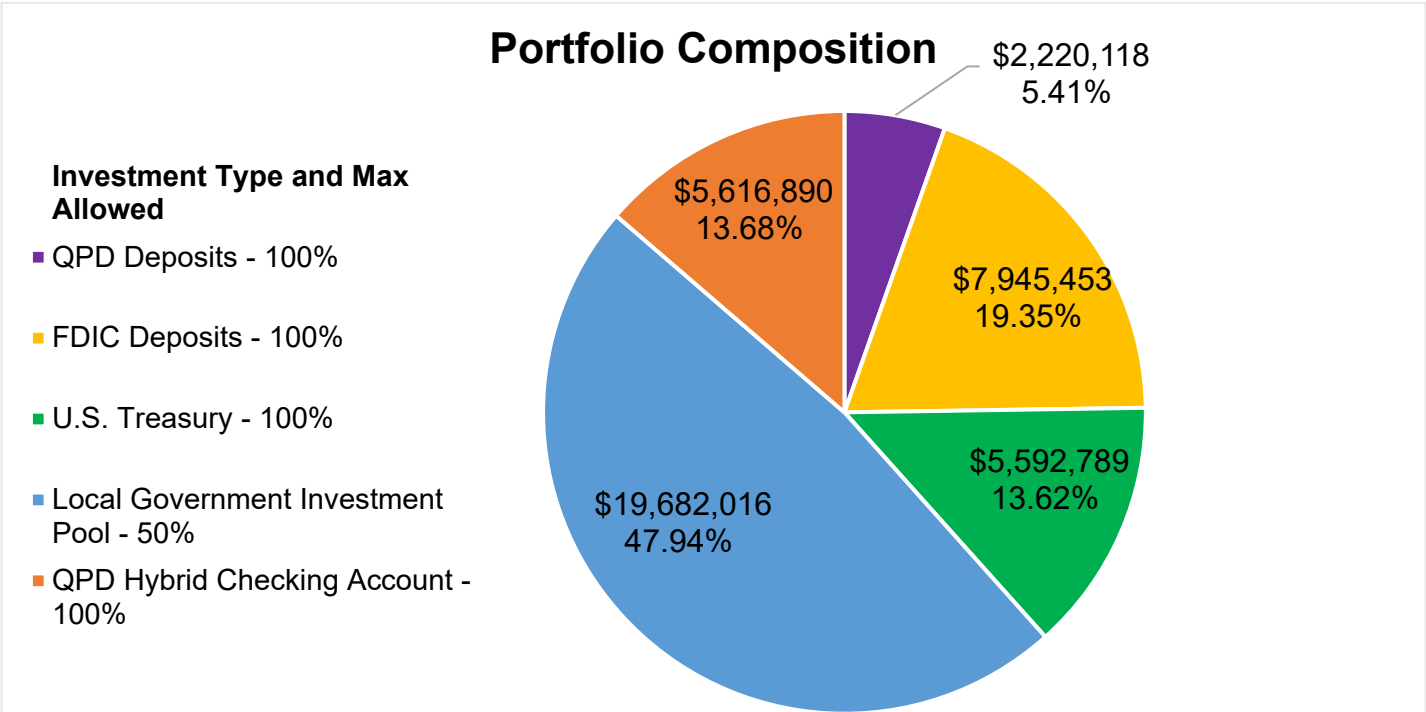
In September and December, the Fed lowered rates by 0.50% and 0.25%, respectively, and as illustrated in the chart below, the yield curve is now nearly flat. With these aggressive cuts, there is an arbitrage with what we can earn by investing in our Local Government Surplus Funds versus reinvesting in Treasury bills. The arbitrage exists because of the 50-day weighted average maturity within the Local Government Surplus Funds. This gap will likely close within the next few months, assuming the Fed lowers rates at a slower pace in 2025. We intend to maximize our yield by investing in Local Government Surplus Funds to the extent our investment policy allows for the next several months, while continuing to monitor rates and the yield curve and reassess our options as conditions evolve.



\*Data as of January 31, 2025.

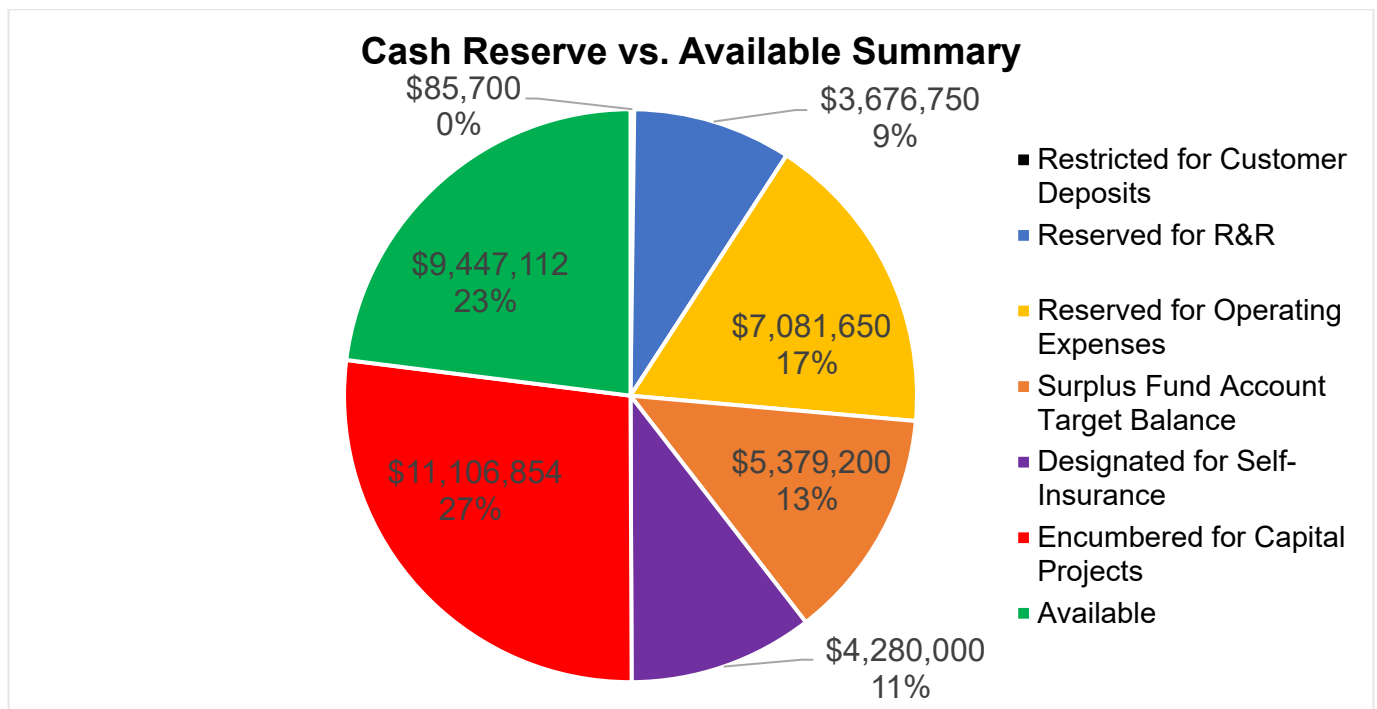
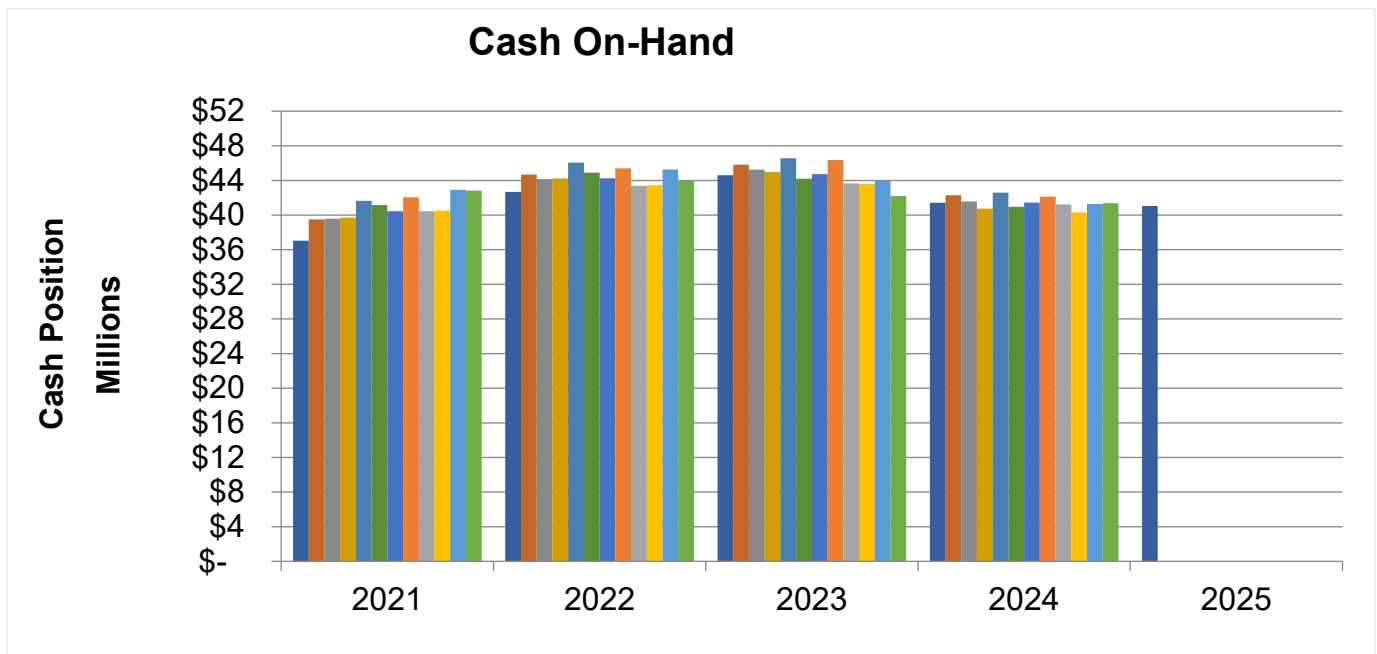
**Portfolio Composition**

The percentage allocation for investment types is presented below. The percentage allocation requirement for investment types is calculated based on the market value at the time of purchase. All investments percentages are in compliance with the District’s Investment Policy.



## Cash Position

Cash position for January 2024 was \$41,429,932. Current Cash position is down by \$372,666.



## Financial Information

- Legal fees billed in January were \$10,735. The fiscal year-to-date total is \$28,855.
- Estoppel fees collected in January totaled \$6,600. The fiscal year-to-date total is \$20,520.
- There was no septage billing in January.
- Developer's Agreement – There were no new Developer Agreements in January.
- I.Q. Water Agreements – Jupiter Town Park is past due for January.

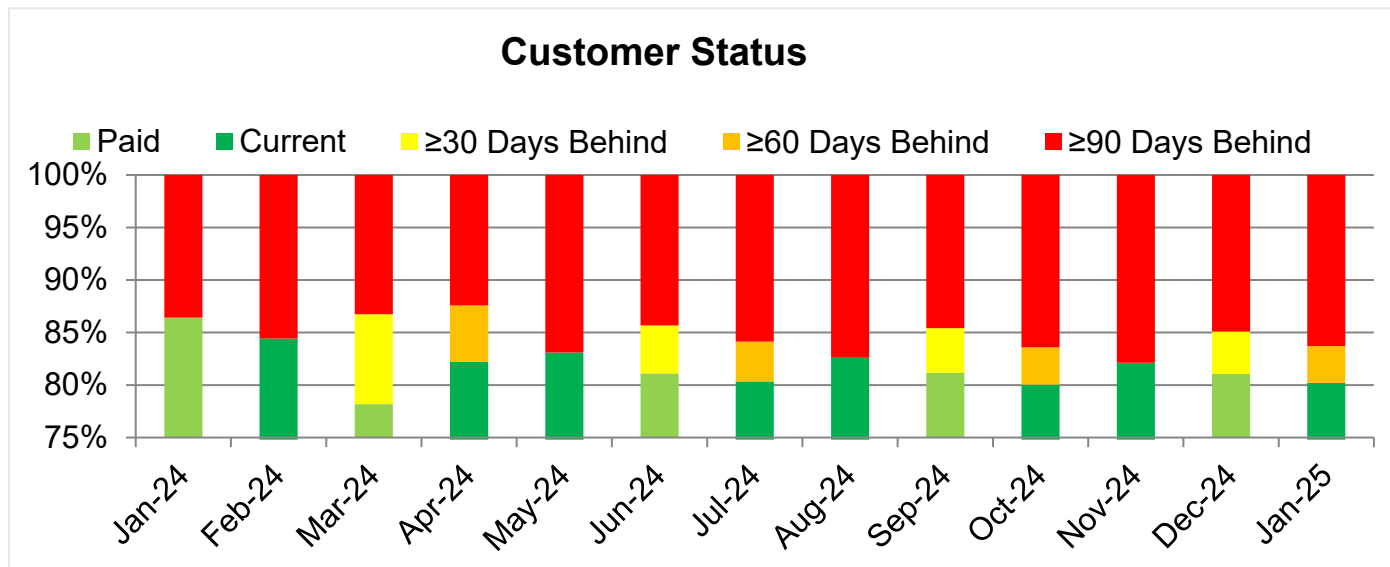
## Summary of Budget vs. Actual

<i>Budget Benchmark</i> 33.33%	<b>Jan-25</b> <b>Actual</b>	<b>YTD</b> <b>Actual</b>	<b>FY 25</b> <b>Budget</b>	<b>Favorable</b> <b>(Unfavorable)</b>	<b>Budget</b> <b>Expended</b>	<b>Jan-24</b> <b>YTD</b>
<b>Revenues</b>						
<b>Operating Revenues</b>						
Regional Sewer Service	\$ 1,561,116	\$ 6,235,570	\$19,029,455	\$ (12,793,885)	32.77%	\$6,246,158
Standby Sewer Service	9,674	40,247	100,000	(59,753)	40.25%	39,293
IQ Water Charges	206,229	822,806	2,500,000	(1,677,194)	32.91%	801,359
Admin. and Engineering Fees	1,306	5,423	50,000	(44,577)	10.85%	4,877
Other Revenue	84,247	184,956	500,000	(315,044)	36.99%	168,047
<b>Subtotal Operating Revenues</b>	<b>1,862,572</b>	<b>7,289,002</b>	<b>22,179,455</b>	<b>(14,890,453)</b>	<b>32.86%</b>	<b>7,259,734</b>
<b>Capital Revenues</b>						
Assessments	\$ 32,093	\$ 670,004	1,068,000	(397,996)	62.73%	791,630
Line Charges	10,786	40,093	400,000	(359,907)	10.02%	34,841
Plant Charges	39,764	139,132	600,000	(460,868)	23.19%	121,400
Capital Contributions						
<b>Subtotal Capital Revenues</b>	<b>82,643</b>	<b>849,229</b>	<b>2,068,000</b>	<b>(1,218,771)</b>	<b>41.07%</b>	<b>947,871</b>
<b>Other Revenues</b>						
Grants		3,000	200,000	(197,000)	1.50%	
Interest Income	398,443	975,338	2,242,100	(1,266,762)	43.50%	1,179,832
<b>Subtotal Other Revenues</b>	<b>398,443</b>	<b>978,338</b>	<b>2,442,100</b>	<b>(1,463,762)</b>	<b>40.06%</b>	<b>1,179,832</b>
<b>Total Revenues</b>	<b>\$ 2,343,658</b>	<b>\$ 9,116,569</b>	<b>\$ 26,689,555</b>	<b>\$ (17,572,986)</b>	<b>34.16%</b>	<b>\$ 9,387,437</b>
<b>Expenses</b>						
Salaries and Wages	\$ 621,504	\$ 2,494,627	\$8,457,300	\$ 5,962,673	29.50%	\$2,292,623
Payroll Taxes	45,465	175,731	600,800	425,069	29.25%	161,258
Retirement Contributions	109,877	387,589	1,258,300	870,711	30.80%	359,630
Employee Health Insurance	139,573	527,911	1,891,200	1,363,289	27.91%	543,102
Workers Compensation Insurance		56,145	64,500	8,355	87.05%	64,135
General Insurance	1,031	440,477	570,250	129,773	77.24%	481,625
Supplies and Expenses	116,340	440,656	1,234,920	794,264	35.68%	427,339
Utilities	139,478	502,819	1,816,020	1,313,201	27.69%	501,797
Chemicals	82,847	208,036	474,000	265,964	43.89%	162,148
Repairs and Maintenance	186,673	1,058,490	2,491,980	1,433,490	42.48%	801,204
Outside Services	224,944	809,006	2,375,280	1,566,274	34.06%	759,201
Contingency			225,000	225,000	0.00%	
<b>Subtotal Operating Expenses</b>	<b>1,667,732</b>	<b>7,101,487</b>	<b>21,459,550</b>	<b>14,358,063</b>	<b>33.09%</b>	<b>6,554,062</b>
<b>Capital</b>						
Capital Improvements	\$ 588,367	\$ 1,559,109	12,917,642	11,358,533	12.07%	2,133,125
<b>Subtotal Capital</b>	<b>588,367</b>	<b>1,559,109</b>	<b>12,917,642</b>	<b>11,358,533</b>	<b>12.07%</b>	<b>2,133,125</b>
<b>Total Expenses</b>	<b>\$ 2,256,099</b>	<b>\$ 8,660,596</b>	<b>\$ 34,377,192</b>	<b>\$ 25,716,596</b>	<b>25.19%</b>	<b>\$ 8,687,187</b>
<b>Excess Revenues</b>						
<b>Over (Under) Expenses</b>	<b>\$ 87,559</b>	<b>\$ 455,973</b>	<b>\$ (7,687,637)</b>	<b>\$ 8,143,610</b>		<b>\$ 700,250</b>

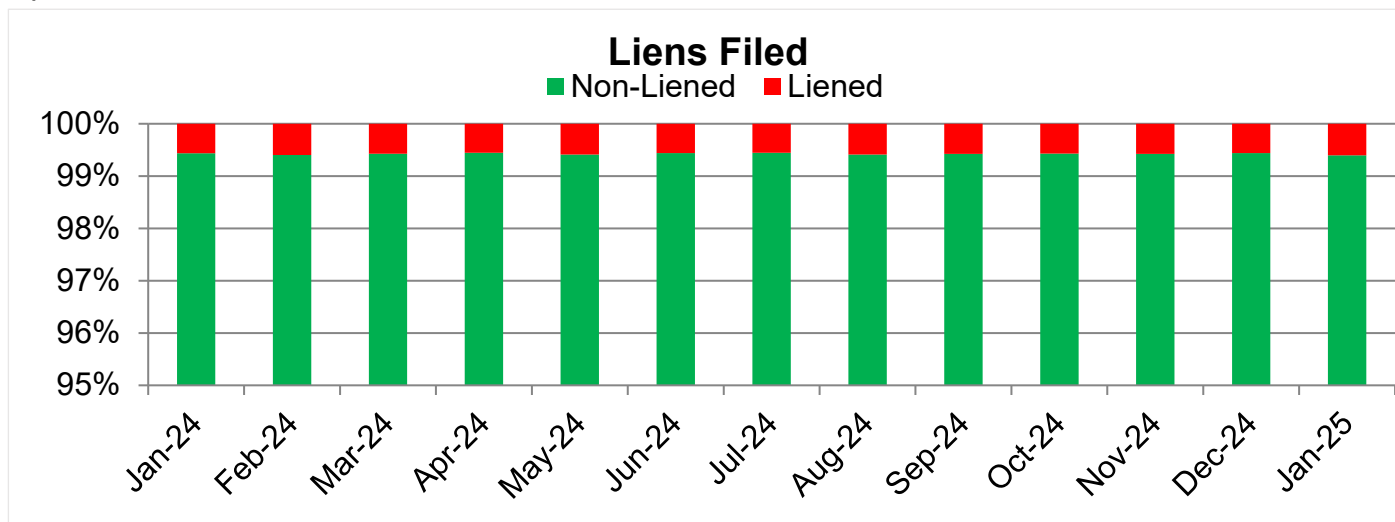
Total Capital expenses incurred and encumbered totalled \$11,683,447 or 90.45% of the capital budget. This includes funds encumbered in a prior fiscal year for projects that stretch across multiple fiscal years.

## Accounts Receivable

The District's fourth quarter billing was \$4,684,050, of this amount \$3,756,706 represents customer balances that are either paid or current. The chart below illustrates customers' receivable status as a percentage of quarterly sewer billing. Paid or current balances represent approximately 80.0% billing.



The District serves approximately 33,459 customers. Currently, the District has 202 liens filed which represent less than 1.0% of our customers.



## Pending/Threatened Litigation

- No pending or threatened litigation.

## Awards and Recognition

I am proud to report that our annual budget document for fiscal year 2025, that we submitted to the Government Finance Officers Association (GFOA) was awarded the Distinguished Budget Presentation Award! This award is the highest form of recognition in governmental budgeting; it's attainment represents a significant achievement by the District. In order to receive the budget award, the budget document has to satisfy nationally recognized guidelines for effective budget presentation.

These guidelines are designed to assess how well an entity's budget serves as:

- A policy document
- A financial plan
- An operations guide
- A communications device

Budget documents must be rated "proficient" in all four categories, and in fourteen other mandatory criteria within those categories, to receive the award. The District's budget document was reviewed by a panel of three independent reviewers who use a scoring system to grade each criteria (1 = Information not present, 2 = Does not satisfy Criterion, 3 = Proficient, 4 = Outstanding). I am happy to report that the District received above "Proficient" in all four criteria listed above.

Below, you will see a copy of the Government Finance Officers Association's Distinguished Budget Presentation Award.



GOVERNMENT FINANCE OFFICERS ASSOCIATION

*Distinguished  
Budget Presentation  
Award*

PRESENTED TO

**Loxahatchee River Environmental Control District  
Florida**

For the Fiscal Year Beginning

**October 01, 2024**

*Christopher P. Morrell*

Executive Director



# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

TEL: (561) 747-5700

FAX: (561) 747-9929

D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

**TO:** D. Albrey Arrington, Ph.D., Executive Director  
**FROM:** Kris Dean, P.E., Deputy Executive Director  
**DATE:** February 12, 2025  
**SUBJECT:** Capital Program Report

**Capital Projects:** This month we continue with the revised Capital Projects Dashboard. Revisions, noted below are:

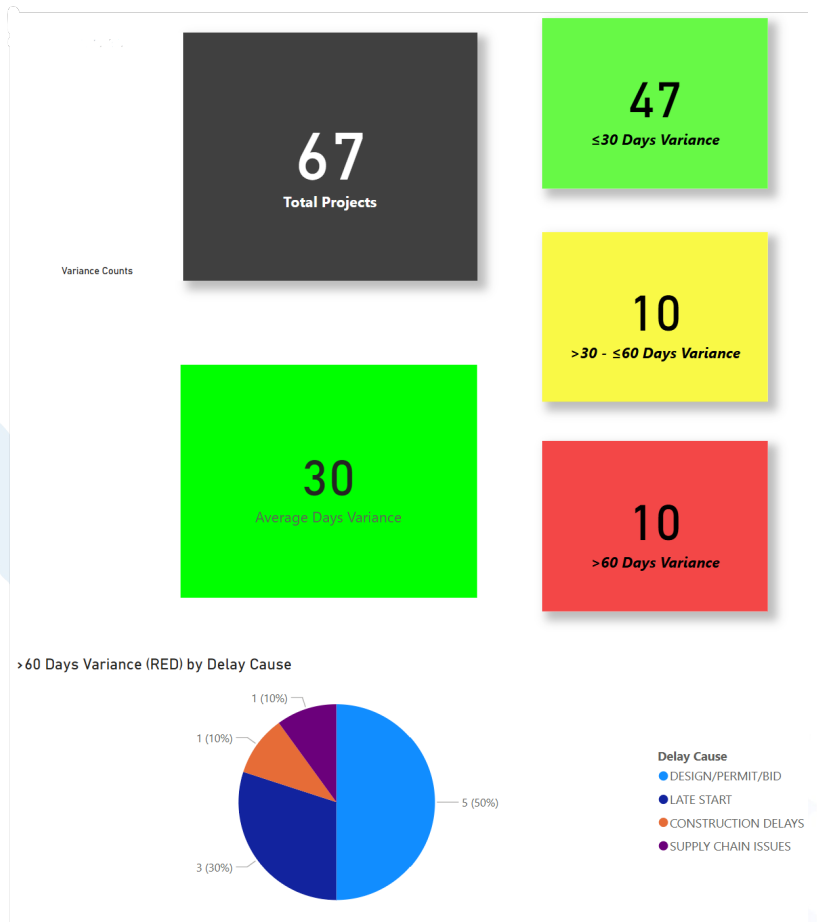
**Total Projects:** The total number of projects active in the capital program. This total number includes all projects regardless of dollar value.

**Average % Complete:** % complete of each project averaged over the overall # of projects.

**Days Variance:** Variance on the planned Finish Date of the project. Positive Variance means the project is late, Negative Variance means the project is ahead of schedule.

**Average Days Variance:** Average Days Variance for all Capital Projects.

**Delay Cause:** The general cause of delays for projects more than 60 days behind schedule.



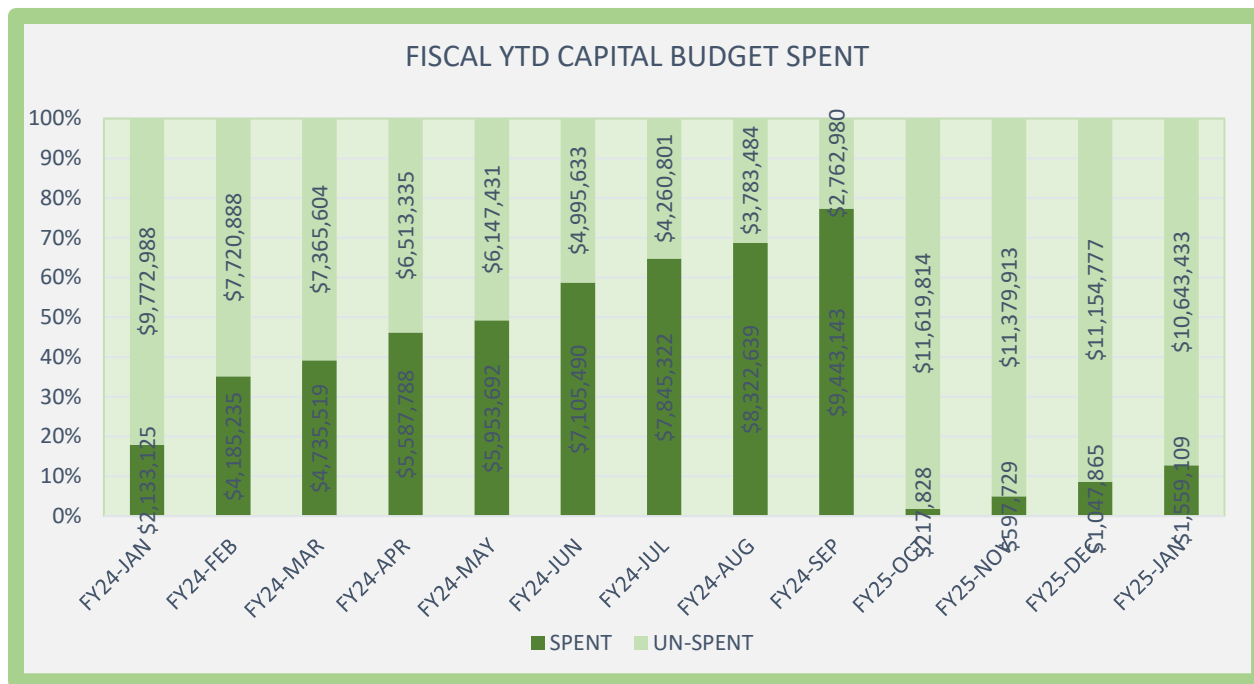
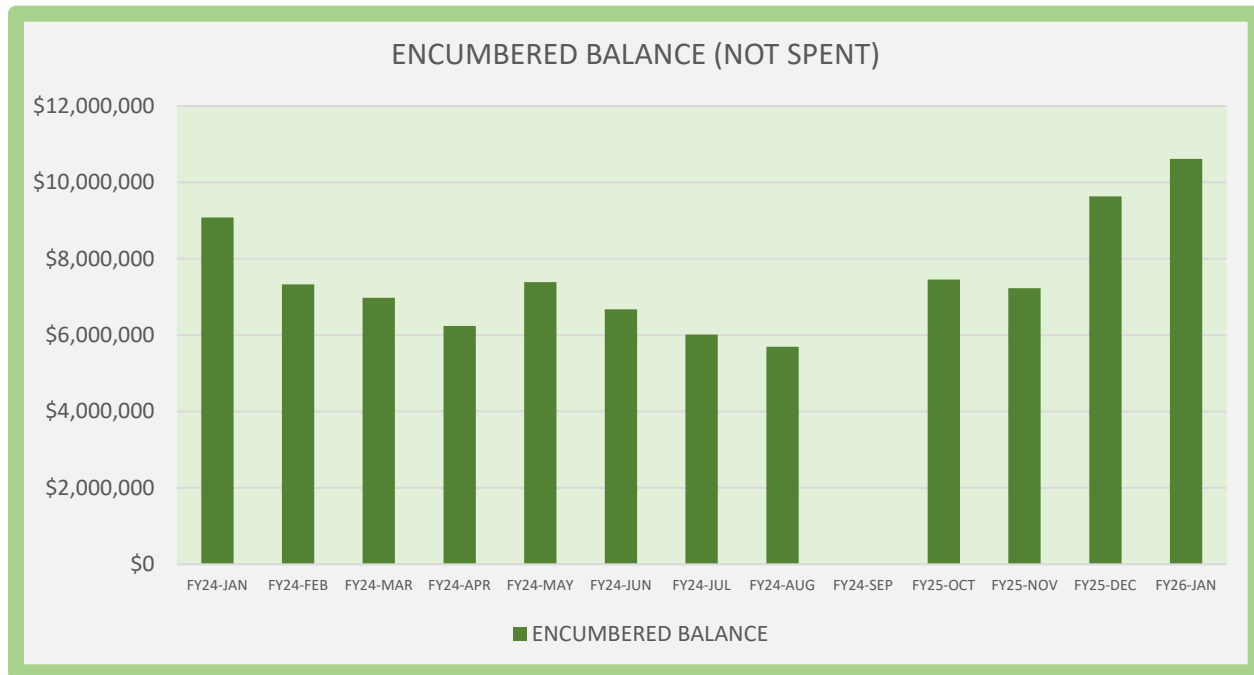
Gordon M. Boggie  
BOARD MEMBER

Kevin L. Baker  
BOARD MEMBER

Dr. Matt H. Rostock  
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Stephen B. Rockoff  
BOARD MEMBER

## **Capital Budget**







Company	Project Name	PM	% Complete	Finish Variance	Finish Date	Upcoming Task/Submittal
	2966 Jamaica Drive	CJ	100	0	1/21/2025	COMPLETE
	Administration and Operations Fire System	JP	68	363	9/13/2025	Quotes received from two qualified vendors on 11/22/24. Requested quotes from 3 vendors. Review of quotes in process.
	Administration Bathroom Renovation	JP	100	0	2/7/2025	Project to be delayed until completion of Anaerobic Selector project on 7/9/26. Updated project start date to 8/3/26.
	Aeration Basin Fine Bubble Diffuser Replacement	JP	0	0	3/30/2027	Project to be delayed until completion of Anaerobic Selector project on 7/9/26. Updated project start date to 8/3/26.
	Aeration Basin Influent Gate Operator	JP	70	275	7/2/2025	Initial quote received from gate manufacturer on 1/30/25 and final quote on 2/4/25. PO issued 2/7/25 with 12-14 week lead. Estimated ship date of 5/16/25.
	Australian and Palm Garden Manhole Adjustments	CJ	61	49	5/18/2025	Pre-construction meeting held with Felix on 1/28/25
	Blower Building Intake Louver Replacement	JP	52	426	9/29/2025	No progress this month. J. Pugsley to create a set of bid documents to solicit bids via Demand Star
	Clarifier 4 Rehabilitation	JP	25	48	3/22/2026	Ovivo proposal approved at January 2025 Board meeting. Contract execution, including District Rider, pending.
	Data Sonde	BH	64	-31	3/30/2025	Finalize asset assimilation.
	Disaster Recovery Site Setup	JC	16	222	2/23/2025	Pre-planning with Bud 2/21. Meeting with Senior Staff 2/28 to discuss DR Strategy
	Door Access Control Replacements	JC	66	57	1/30/2025	DBF and ER13 to be completed by 2/28
	Emergency Notification System	JP	68	-92	4/30/2025	Installation of interior devices complete. Week of 2/3/25, Joe Chung met with low voltage contractor to review pricing for installation of exterior devices.
	Engineering Services Offices	CJ	18	57	1/21/2026	Defined scope with preliminary floor plans delayed due to Courtney being out on FMLA. Waiting on HGI to provide price / complete electrical work. Discussed with Kris moving \$ to FY26 for this project.
	Front End Loader Replacement	JP	100	0	1/17/2025	COMPLETE
	Headworks H2S Monitor - Odor Control System Improvements	JP	65	17	4/15/2025	PO issued 1/24/25. Lead time estimated at 2-3 weeks or 2/14/25
	Indian Hills Low Pressure Sewer System	CJ	43	47	7/19/2025	Martin County will not issue permit without approved MOT in place. Proceeding with issuing PO to Lazarus.
	IQ518 Pump Rebuilds	JN	52	0	6/9/2025	Schedule reinstallation of IQ518-P5.



Company	Project Name	PM	% Complete	Finish Variance	Finish Date	Upcoming Task/Submittal
	JILNOA FPL Pole Removal	KD	100	-142	4/9/2025	FPL approval of FPL design followed by payment of fees to FPL by the District .
	Lift Station 050 Collection System Rehabilitation	CJ	100	0	1/28/2025	FPL approval of FPL design followed by payment of fees to FPL by the District .
	Lift Station 081 Rehabilitation	CJ	54	15	4/28/2025	Project under construction. Awaiting FPL to reconnect power.
	Lift Station 148 Rehabilitation	CJ	43	23	5/22/2025	PO issued. Submittals in process with Hinterland.
	Lift Station 152 Rehabilitation	CJ	98	0	3/6/2025	Substantial Completion reached. Coordinating for project closeout.
	Lift Station 167 Rehabilitation	CJ	56	0	5/14/2025	NTP issued; Substantial Completion scheduled for 3/10/25
	Lift Station 177 Power and Control Panel	CJ	34	167	12/15/2025	Re-scoping project to include an upgraded VFD panel converting single phase line power to 3-phase pump circuits due to limitations on pump availability in a single-phase option. 3 quotes received on 2/7/25
	Lift Station 230 Rehabilitation	CJ	97	0	2/18/2025	Project complete. Coordinating with Contractor for final payment.
	LP1260 Rehabilitation	CJ	14	0	4/29/2025	
	Main Generator 1 Enclosure Replacement	JP	14	0		Project rescheduled with 2500 Jupiter Park Drive Site Improvements - Phase 1
	Mini Excavator	CJ	98	-133	2/14/2025	Excavator has been received and payment completed. PM/asset creation in EAM is complete for excavator. Awaiting Vehicle Manager to provide tag for trailer. Per discussion with Vehicle Manager, he will be visiting DMV tomorrow (2/12).
	Network Hardware Replacement - LS001, LS200, IQ518	JC	40	-208	12/18/2025	Received MLS. Awaiting LS200, and IQ 518
	New Ford Transit - Reuse	JP	86	0	4/25/2025	Delivery of vehicle pending.
	Plant Lift Station 001 Control Panel Replacement	JP	45	83	9/30/2025	Ward in the process of preparing work scope to secure proposal from Hinterland for installation services. Schedule updated (+83 days) based on completion of installation prior to 9/30/25 end of FY25.
	Portable Equipment Anchoring	CJ	100	0	1/16/2025	COMPLETE
	Portable Generator Replacement	JN	26	35	9/19/2025	See Tab 5F of the February 2025 Notebook
	Portable Pump Replacement	JN	21	0	11/2/2025	PO Issued on January 6, 2025.



Company	Project Name	PM	% Complete	Finish Variance	Finish Date	Upcoming Task/Submittal
	River Center Passenger Van	JP	39	0	10/18/2025	Delivery date provided by vendor. Delivery scheduled for September 2025.
	San Palermo IQ Point of Connection	CJ	10	119	2/11/2026	Final design and invoice submittal from FPL for electric service.
	Science Center at JILONA	KD	19	0	7/7/2026	Demolition, Electrical, Plumbing and Mechanical Sheets.
	Server Life Cycle Replacement	JC	74	185	3/14/2025	Migrate RiverKeeper and Hach WIMS databases
	Sludge Polymer Make Up System	JP	42	13	8/12/2025	PO Issued 1/9/25. Shop drawing review completed 1/31/25. Estimated lead time of 10 weeks or 4/11/25.
	Sludge Storage Tank Fine Bubble Diffuser Replacement	JP	0	0	2/3/2027	Project to be delayed until completion of Anaerobic Selector project on 7/9/26. Updated project start date to 8/3/26.
	Trailer Caddy	JP	55	-117	5/29/2025	JP and NJ reviewed at St. John's facility. RFP on Demand Star 2/7/25 with quotes due 2/14/25. Anticipate PO issuance 2/18/25. 10 week lead time = 4/29/25
	Unit 14 Replacement - Construction	JP	82	0	4/24/2025	Delivery of vehicle pending.
	Unit 21 Replacement - Wild Pine Lab	JP	100	0	11/21/2024	COMPLETE
	Unit 24 Replacement - Engineering	JP	100	0	12/20/2024	COMPLETE
	Unit 25 Replacement - Ops Admin	JP	100	0	11/28/2024	COMPLETE
	Unit 26 Replacement - Collections	JP	95	163	3/12/2025	Vehicle delivered 2/10/25. Asset assimilation in process.
	Unit 27 Replacement - Reuse	JP	29	0	1/7/2026	Delivery date provided by vendor. Delivery scheduled for December 2025.
	Unit 29 Replacement - Collections	JP	29	0	1/6/2026	PO issued 11/25/24. Delivery of vehicle pending.
	Unit 63 - New F550 Crane - Construction	JP	34	0	12/24/2025	Delivery date provided by vendor. Delivery scheduled for November 2025.
	WWTP Electrical Upgrades - Phase 1	JP	89	268	3/25/2025	Quotes previously requested from Hinterland. Submission of quote is delayed. Schedule adjusted assuming quote submitted by 3/2/25 and presentation at March 2025 Board meeting.





# LOXAHATCHEE RIVER DISTRICT

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D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

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## MEMORANDUM

TO: D. Albrey Arrington, Ph.D., Executive Director  
FROM: Kris Dean, P.E., Deputy Executive Director  
Courtney Jones, P.E., Director of Engineering  
DATE: February 20, 2025  
SUBJECT: Engineering Services Report

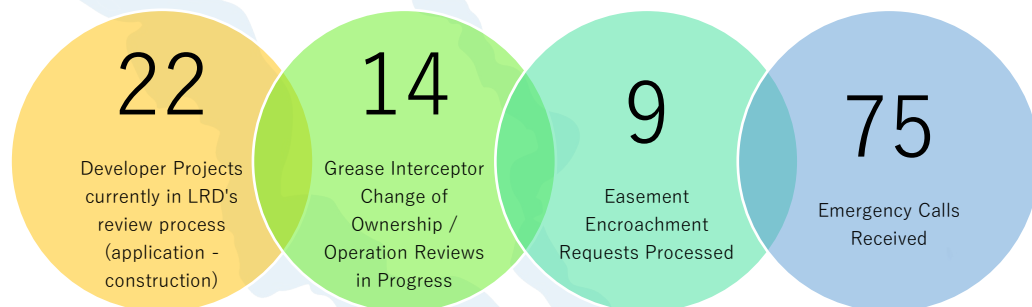
### Engineering Administration:

Engineering Admin (ENG ADMIN) staff engage on a daily basis with customers and developers on the following District functions:

- Plan Review Process (from pre-application through Construction)
- Grease Interceptor Application / Change of Ownership or Operation
- Easement Encroachment Requests
- Emergency Calls

Engineering's goal is to respond to developer's requests within 5 business days at all stages of the review process.

Developer Response Time	
Month-Year	Average Response Time (Days)
January-24	1.42
February-24	1.19
March-24	1.50
April-24	1.52
May-24	1.46
June-24	1.68
July-24	1.48
August-24	1.29
September-24	1.71
October-24	Not Available
November-24	Not Available
December-24	Not Available
January-25	2.48
12-MONTH AVERAGE	1.57



January 2025

#### KPI Metrics:

≤ 5 WORKING DAYS
5 < # WORKING DAYS ≤ 7
> 7 WORKING DAYS

Gordon M. Boggie  
CHAIRMAN

Kevin L. Baker  
BOARD MEMBER

Stephen B. Rockoff  
BOARD MEMBER

Dr. Matt H. Rostock  
BOARD MEMBER

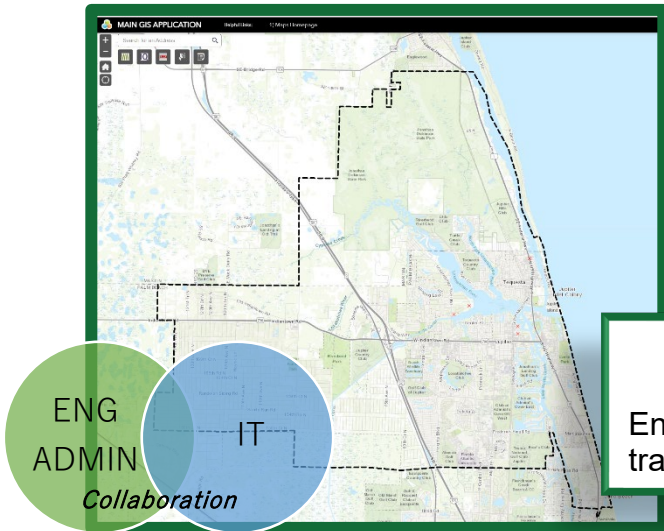
Water Reclamation – Environmental Education – River Restoration

Additionally, Engineering Admin also functions as the record keepers of the District through maintenance of record drawings and the Geographic Information Systems (GIS) map. All assets are generated and updated first by Engineering and then disseminated through a workflow to the District's asset management system. District staff are encouraged to complete redlines to the map for any discrepancies / updates that are needed based on field observation.

GIS Redlines	
Month-Year	# of Redlines Processed
January-24	52
February-24	68
March-24	73
April-24	59
May-24	86
June-24	30
July-24	65
August-24	36
September-24	29
October-24	64
November-24	29
December-24	30
January-25	21
<b>12-MONTH AVERAGE</b>	<b>49</b>

**KPI Metrics:**

≥ 20
15 < REDLINES ≤ 19
> 15 REDLINES



**Project Highlight**

Engineering is working with Information Services (IT) to transfer the GIS database and map to new servers.

Engineering Inspections:

Engineering Inspections (ENG INSP) staff are responsible for protection of existing District facilities and ensuring new facilities are constructed in compliance with the District's Manual of Minimum Construction Standards and Technical Specifications (see Tab 5C included in this month's notebook).

For compliance with Underground Facility Damage Prevention and Safety Act, Chapter 556, Florida Statutes, Engineering must respond to standard locate tickets within 2 full business days (metric is set to 2.75 days to account for tickets that come in after business hours).

811 Locates		
Month-Year	# of Locate Tickets Completed	Average Time to Locate (Days)
January-24	801	0.69
February-24	607	0.71
March-24	721	0.70
April-24	724	0.78
May-24	776	0.71
June-24	768	0.88
July-24	770	0.75
August-24	842	0.61
September-24	712	0.65
October-24	732	0.53
November-24	724	0.86
December-24	685	0.78
January-25	756	0.64
<b>12-MONTH AVERAGE</b>	<b>740</b>	<b>0.72</b>

**KPI Metrics:**

< 2.75 days
≤ 2.9 days
> 2.9 days



## Engineering Construction:

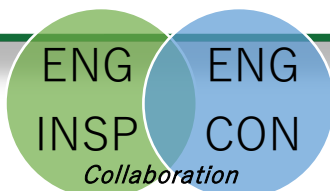
Engineering Construction (ENG CON) staff are responsible for supporting Collections, Reuse and Operations with necessary repairs and rehabilitations of their respective assets. The District has a Construction Foreman who oversees three 2-person construction crews as approved in the FY25 budget for completing in-house corrective maintenance work orders. As of January 2025, the Construction Department is now fully staffed with the new crew members approved in the FY25 budget. Additionally, in January 2025, Construction received a new mini excavator and trailer under Capital Project #R25007 included in the FY25 budget.

The Engineering Department also oversees general services construction contracts (low-pressure, lift station, wastewater/IQ, and lining).



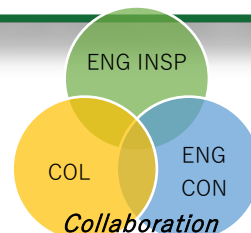
### ***Project Highlight***

Engineering utilized general services contractor, Felix Civil, to perform a manhole repair on W. Indiantown between Military Trail and Loxahatchee Drive. The repair has been completed and is awaiting final paving restoration in 30 days.



### ***Project Highlight***

Engineering utilized general services contractor, Hinterland Group, Inc., to perform rehabilitation of Lift Station No. 152.



## Collections / Transmission & Reuse / Distribution:

Collections and Transmission (COL) staff are responsible for the District's collection and transmission system, which collects and transmits raw wastewater to the District's Wastewater Treatment Facility (WWTF) for treatment. Collections staff routinely perform preventative maintenance on the various assets of the collections system and respond to emergency calls.

Reuse staff are responsible for the effective and efficient operation and maintenance of the District's reuse distribution facilities. Reuse staff routinely perform preventative maintenance on the various assets of the distribution system and coordinate with both wholesale and retail customers for effective delivery of reuse water.

### ***Project Highlight***

Reuse staff are currently collecting the required data for installation of arc flash labels on the required reuse assets.

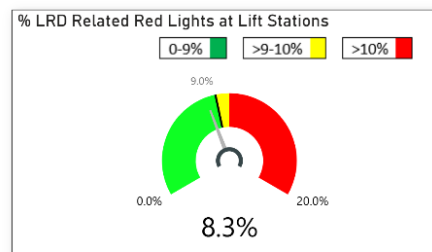


### ***Red Lights / Emergency Call Response:***

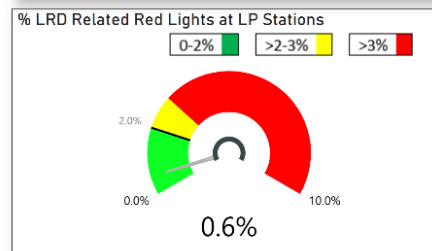
This month the wastewater collections / transmission system experienced 36 total red lights. 14 lift station red lights (with 4 stations experiencing multiple red light events) and 11 low pressure red lights (with 1 station experiencing multiple red light events).

Work Order counts due to red lights exclude red lights due to FP&L power failure since staff have no mechanism to impact FP&L performance during inclement weather or other power outages. Staff continue to include FP&L power outages in the 3-month rolling average for repeat stations and work order counts to facilitate FP&L coordination on problem areas and potential use of portable standby power to ensure continuity of service.

### **Red Light Emergency Call Work Orders Dashboard** January 2025



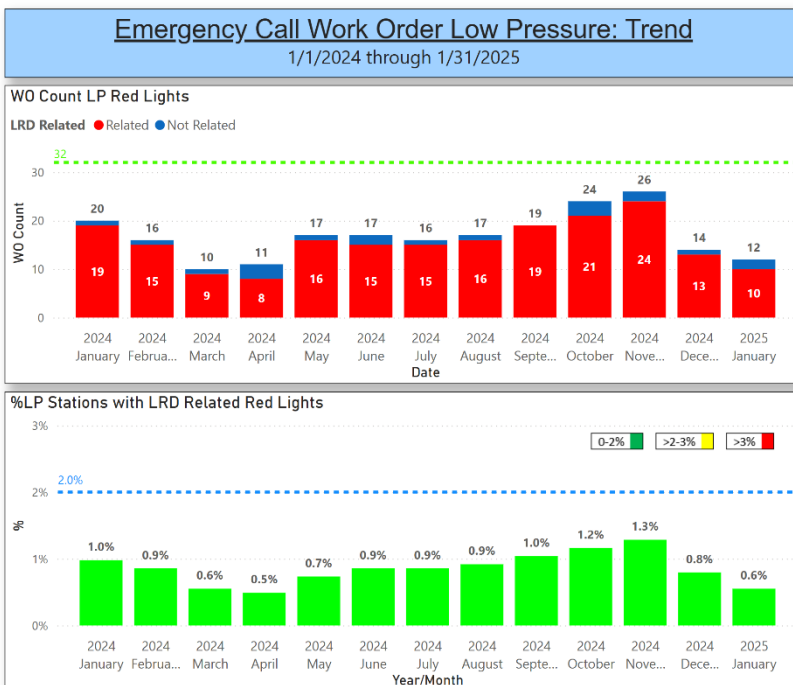
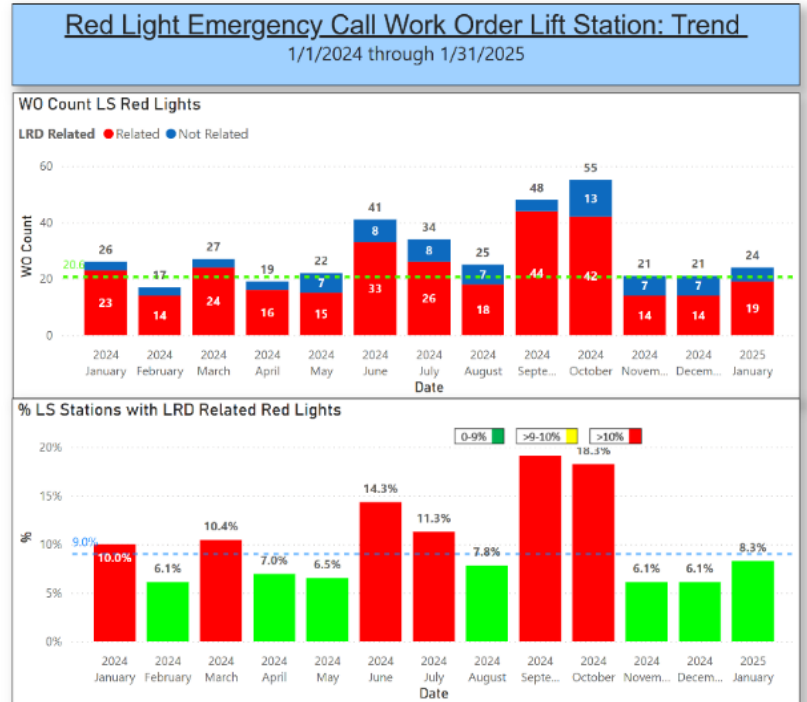
24 # WO for LS Red Lights	14 # LS Red Lights
216 # LS w/ No Red Light Alarm	4 # LS w/ Multiple Occurrences



12 # WO for LP Red Lights	11 # LP Red Lights
1623 # LP w/ No Red Light Alarm	1 # LP w/ Multiple Occurrences

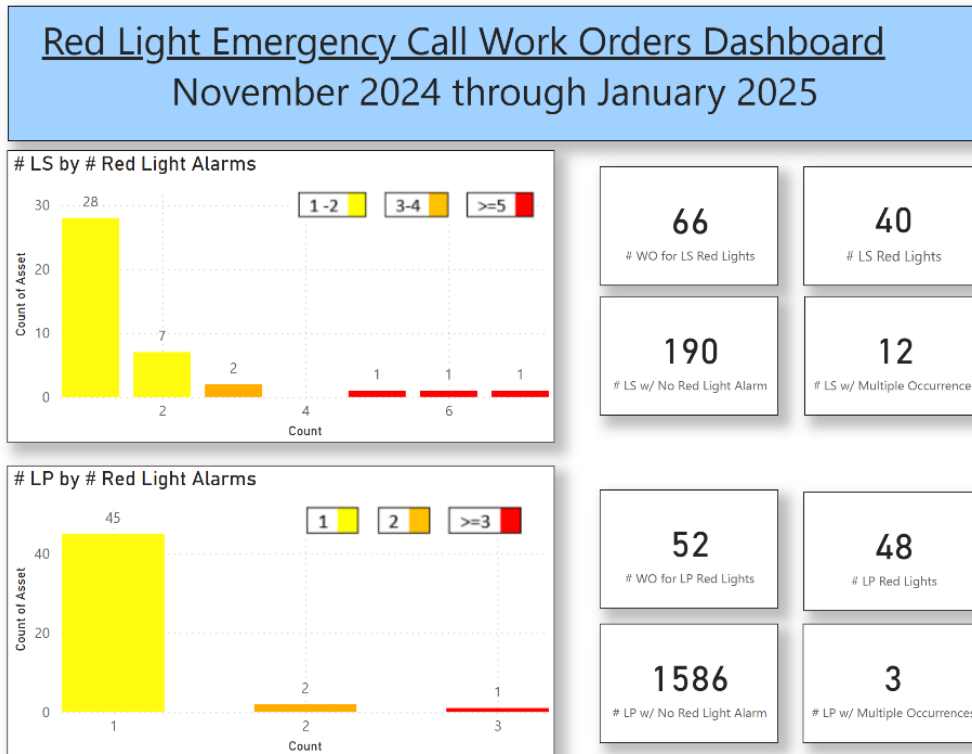


Of the wastewater lift stations within the District's service area, 8.3% of these lift stations experienced a LRD related red light in January 2025 as compared to 10.0% in January 2024.

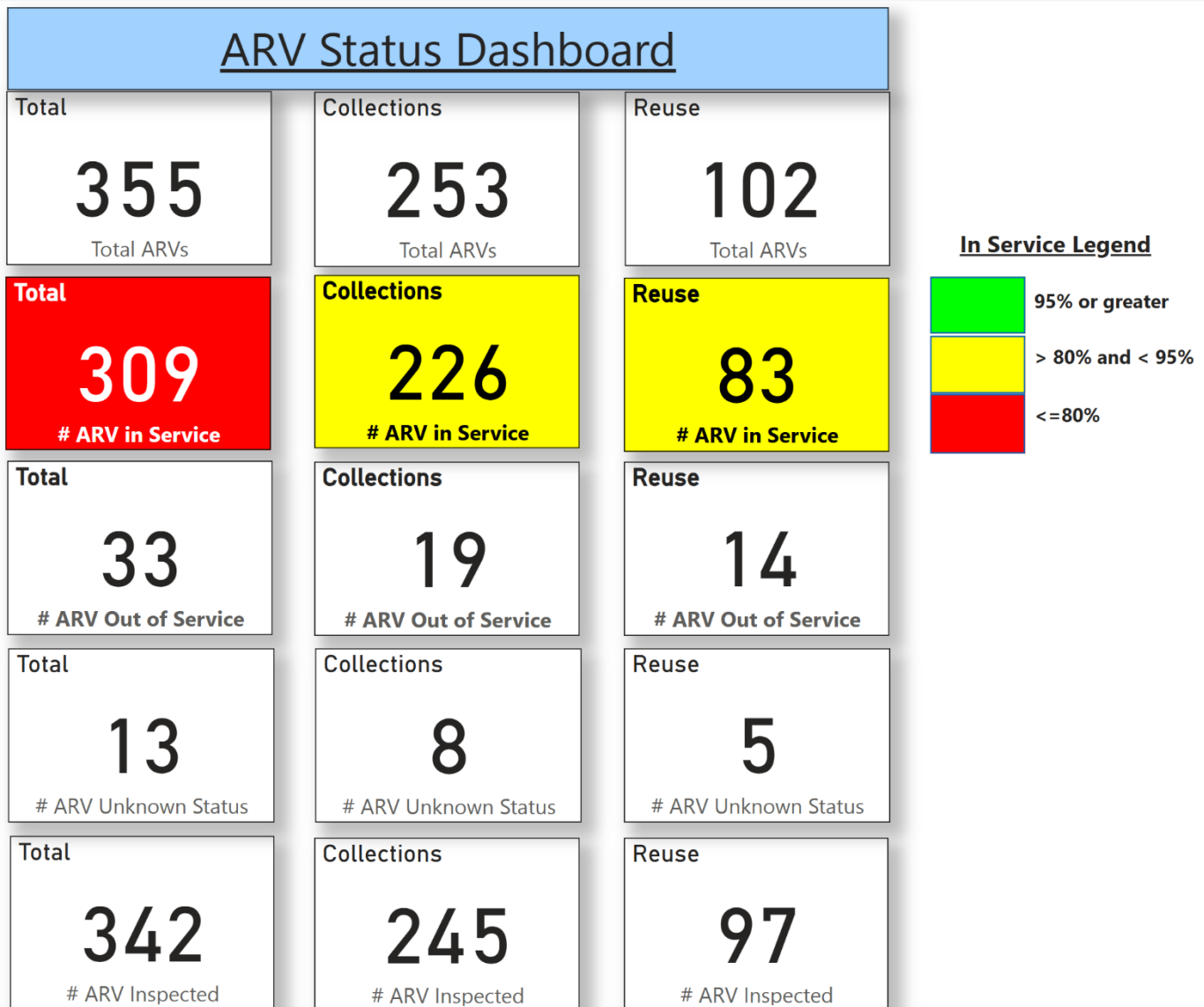


Of the low-pressure stations within the District's service area, 0.6% of these low-pressure stations experienced a LRD related red light in January 2025 as compared to 1.0% in January 2024.

Over the past 3 month period, there were 40 lift station red lights in total with 12 lift stations experiencing multiple red lights and 190 lift stations experiencing 0 red lights. Additionally, there were 48 low-pressure station red lights with 3 low-pressure stations experiencing multiple red lights and 1,586 low-pressure stations experiencing 0 red lights.



*Air Release Valve Preventative / Corrective Maintenance:* Collections staff are completing preventative maintenance on all ARVs and coordinating with Construction for necessary repairs on ARVs that are out of service.



**Lift Station Wet Well Preventative Maintenance:** Collections staff are completing preventative maintenance on lift station wet wells and adjusting frequency of cleaning based on findings to efficiently utilize staff time / resources.

## Wet Well Cleaning Schedule: KPI

January 2025 through January 2025

5 # LS WW PM Monthly	1 # Wells	1 # Wells	3 # Wells	<div>Wet Well Cleaning Schedule Legend</div> <div><div></div>Potential Under Cleaning</div> <div><div></div>Cleaning Schedule Ideal</div> <div><div></div>Potential Over Cleaning</div> <div><b>Score Calculation</b> Grease, Sand/Grit, and Rags scoring aggregate where: Light = 1 Medium = 5 Heavy = 9  Green: 7-11 Red &gt; 11 Yellow &lt;7</div>
5 # PMs Completed				
6 # LS WW PM Bi-Monthly	1 # Wells	2 # Wells	3 # Wells	
6 # PMs Completed				
6 # LS WW PM Quarterly	2 # Wells	1 # Wells	3 # Wells	
6 # PMs Completed				
0 # LS WW PM Semi-Annually	0 # Wells	0 # Wells	0 # Wells	
0 # PMs Completed				
0 # LS WW PM Annually	0 # Wells	0 # Wells	0 # Wells	
0 # PMs Completed				
17 # PMs Completed	4 # Wells	4 # Wells	9 # Wells	

**Unauthorized Discharges:** There were 3 unauthorized discharges in the collection-transmission & reuse-distribution system this month. A total of 57 gallons resulted from all 3 discharges combined and there were no impacts to surface waters.

- 01 - LP0148-V1 50 gal damaged brass check valve Elsa Road 01-11-2025
- 02 - LP0589-ETAP-V2 5 gal failed 1.25 inch pvc threaded cap Basin St 01-15-2025
- 03 - LS250-VLA01 2 gal failed arv seat University Blvd 01-17-2025

### Unauthorized Discharge FIELD : KPI

Date	Occurrences	Total Gallons	Impacting Surface Waters
January 2024	2	25	0
February 2024	5	2,405	1
March 2024	2	50	0
April 2024	1	2,858	0
May 2024	2	30	0
June 2024	1	20	0
July 2024	5	150	0
August 2024	5	2,270	0
September 2024	4	70	0
October 2024	3	69	0
November 2024	6	81	0
December 2024	3	60	0
January 2025	3	57	0
<b>Total</b>	<b>42</b>	<b>8,145</b>	<b>1</b>

Date	Occurrences	Total Gallons	Impacting Surface Waters
January 2024	0	0	0
February 2024	1	900	1
March 2024	0	0	0
April 2024	0	0	0
May 2024	1	1	0
June 2024	1	238	0
July 2024	0	0	0
August 2024	0	0	0
September 2024	0	0	0
October 2024	1	200	0
November 2024	0	0	0
December 2024	1	2	0
January 2025	0	0	0
<b>Total</b>	<b>5</b>	<b>1,341</b>	<b>1</b>

**Conditional Formatting**  
 Green: Total Gallons < 704 AND Impacting Surface Waters = 0  
 Yellow: Total Gallons <= 1500 AND Impacting Surface Waters = 0  
 Red: Total Gallons > 1500 OR Impacting Surface Waters >= 1



# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

TEL: (561) 747-5700

FAX: (561) 747-9929

D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

TO: Albrey Arrington, Ph.D., Executive Director

FROM: Jason A. Pugsley, P.E., Operations – Plant Manager

DATE: February 14, 2025

SUBJECT: January 2025 Operations Department Monthly Report

### Treatment Plant Monthly Performance Summary

Overall, the month of January was productive with all monthly reports prepared and submitted on time. There were no permit exceedances this month. The wastewater treatment plant performed well this month, but there were multiple process challenges during the month. The challenges were primarily related to high influent organic and solids input loading, which required Staff to make relatively frequent adjustments to lower the solids retention time (SRT). Lowering the SRT prevents excessive sludge accumulation, optimizes biological process performance, assists with managing the proliferation of filamentous organisms and enhances nutrient removal. Despite these challenges, the plant continued to operate effectively and met all effluent treatment standards. The influent flow to the plant was on the same magnitude as the previous month.



**Gordon M. Boggie**  
CHAIRMAN

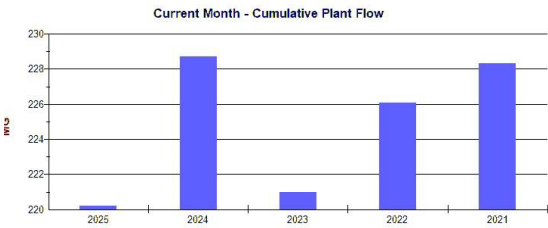
**Kevin L. Baker**  
BOARD MEMBER

**Stephen B. Rockoff**  
BOARD MEMBER

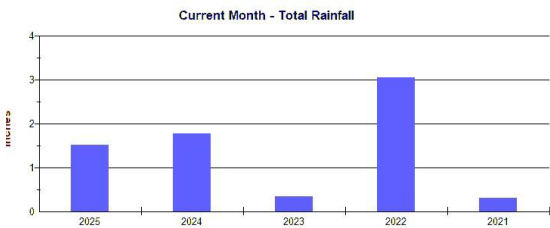
**Dr. Matt H. Rostock**  
BOARD MEMBER

**Water Reclamation – Environmental Education – River Restoration**

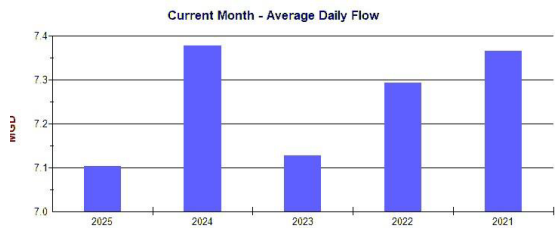
Graphical summaries of the plant flows and rainfall during the month of January, including comparisons with plant flows during the previous month (i.e., December 2024), are presented below.



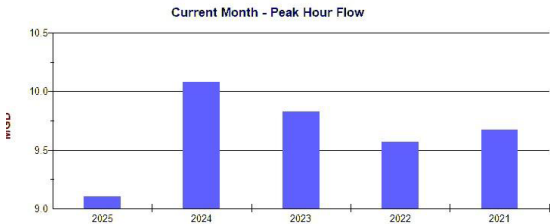
The Cumulative Influent Flow to the plant for the month of January was 220.22 million gallons. This is greater than the December flow of 214.67 million gallons.



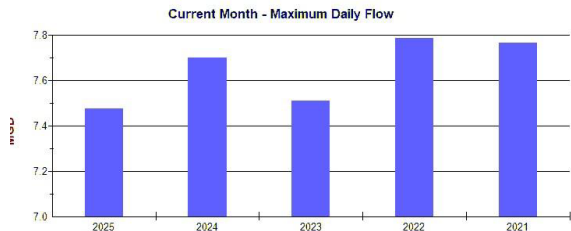
1.51 inches of total rainfall was recorded at the plant site during the month of January. This is nearly identical to the December rainfall recorded of 1.48 inches.



The Average Daily Flow (ADF) for the month of January was recorded at 7.10 MGD which is greater than the ADF recorded during the month of December of 6.92 MGD and less than the January 2024 ADF of 7.38 MGD.

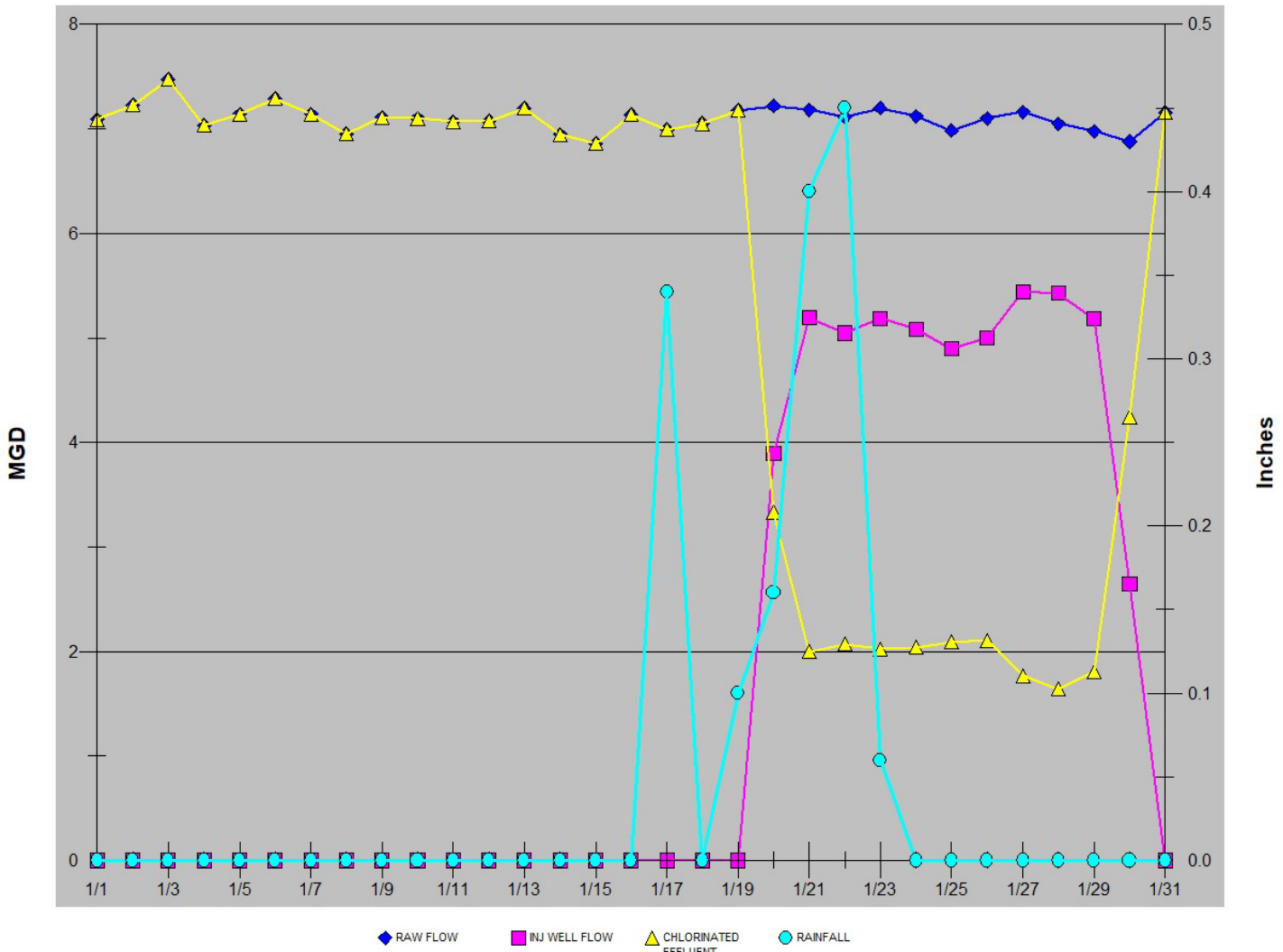


The Peak Hour Flow (PHF) for January was 6,319 GPM which equates to an equivalent daily rate of 9.10 MGD. This is on the same order of magnitude of the PHF for December of 6,597 GPM (9.50 MGD).



The Maximum Daily Flow (MDF) in January was 7.48 MGD. This is slightly less than the MDF for December of 7.56 MGD.

For the month of January, 76.00% or 167.36 MG of the cumulative influent flow to the plant was sent to the IQ storage system where it was distributed, as needed, to the various golf courses and the Abacoa development sites. A total of 52.99 MG of blended effluent was diverted to the deep injection well for disposal. The plant delivered a total of approximately 182.78 million gallons of IQ water to the reuse customers during the month of January.




Year to date (i.e., Calendar Year 2025), approximately 76.00% of all influent flow to the plant was treated and available for reuse as IQ water. The total volume of IQ water distributed to reuse customers, year to date, is 182.78 million gallons.

The Operations Dashboard for the month of January is provided below for review. The Dashboard provides a snapshot of the health and performance of the wastewater treatment plant over the monthly period and provides explanations for all metrics which are reported beyond or outside of the respective optimal range.



# LOXAHATCHEE RIVER DISTRICT OPERATIONS DASHBOARD



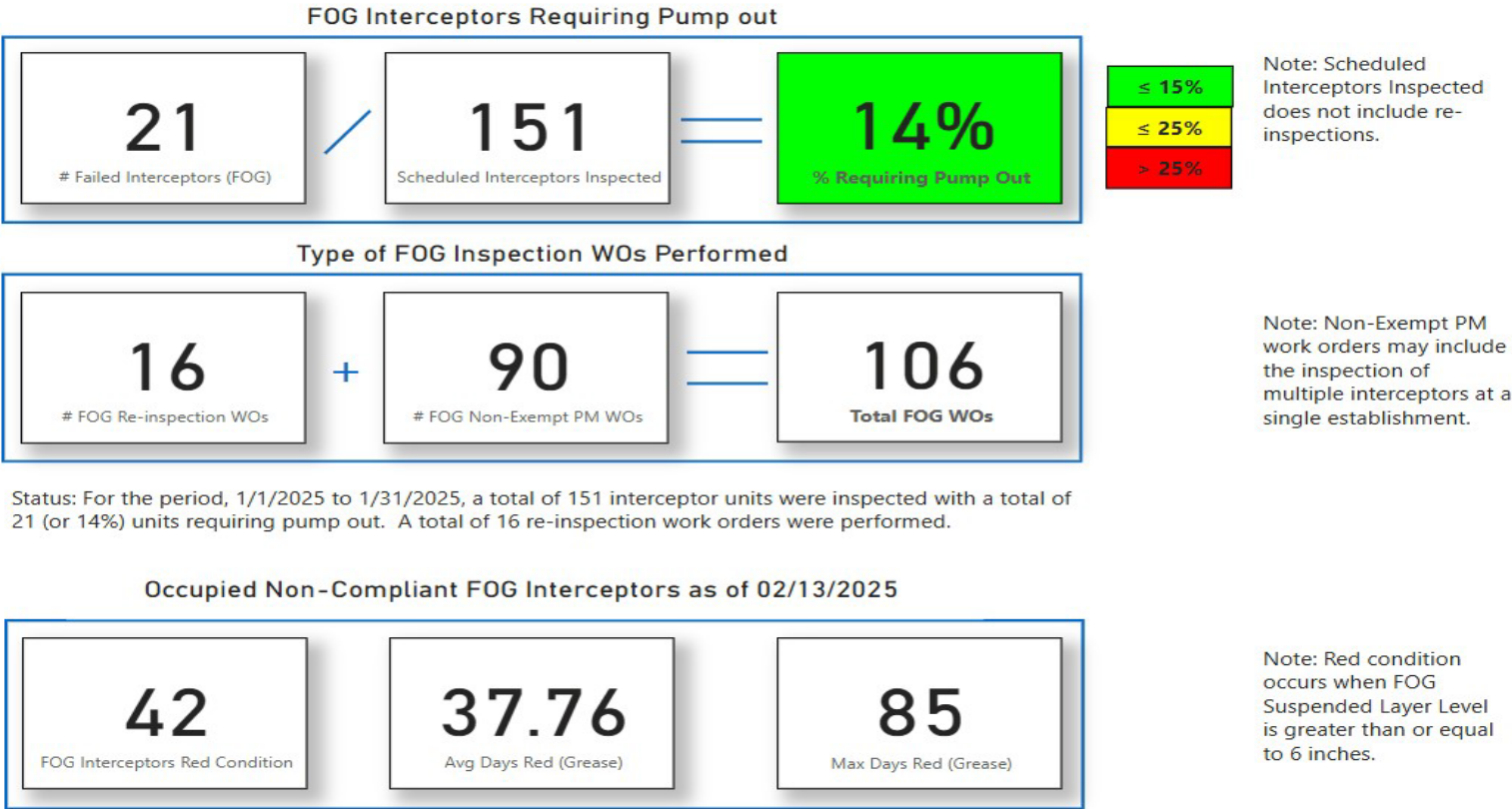
		Plant									Pre-Treatment	IQ	
		Percent of Plant Capacity	SRT, MAvg	Aerbay NH3, MAvg	Sludge Yield, MAvg	Sludge Volume Index, MAvg	Secondary Treatment Performance	Permit Exceedance	CE CL2 Usage, MAvg	Dewatered Biosolids Cake, MAvg	IQ511 WW LSI	Grease Interceptor Inspections	NANO Blend
Benchmark / Customer Expectation		Mean Daily Incoming Flow	day(s)	% Reduction	lbs WAS/lbs cBOD	mL/g	Mean Clarifier TSS	# days	lbs CL2/MG	% Solids	Index	% requiring pump out	Max Specific Conductance (umhos/cm)
Green Level		≤ 70%	≥0.9 - ≤1.1	≥30 - ≤40	≥0.3 - ≤0.8	≤ 200	< 10	Zero	≤ 85	≥14.5	≥-0.3 - ≤0.3	<15	<1298
Yellow		≤ 80%	≥0.8 - ≤1.2	≥25 - ≤45	≥0.2 - ≤1.0	≤ 250	< 15		≤ 100	≥13.5	≥-0.6 - ≤0.6	≤25	≤1578
Red		> 80%	<0.8 - >1.2	<25 - >45	<0.2 - >1.0	> 250	≥ 15	≥ 1	> 100	<13.5	<-0.6 - >0.6	>25	>1578
2022 Baseline		64.54%	0.95	33.08	1.08	209	8.3	0.00	77.41	14.68	0.13	16	1294
2023 Baseline		62.90%	0.92	33.78	0.98	246	8.5	0.00	76.54	15.57	0.52	13	1296
2024 Baseline		63.39%	0.94	31.56	0.80	253	7.8	0	79.40	15.59	0.38	14	1136
2024	Jan	66.32%	0.90	28.68	0.80	233	8.7	0	98.10	16.17	0.12	14	1209
	Feb	67.47%	0.85	28.50	0.73	216	10.6	0	76.68	15.68	0.64	15	1239
	Mar	67.24%	0.91	35.32	0.71	195	10.1	0	67.38	15.29	0.41	17	1101
	Apr	65.92%	0.89	35.98	0.74	193	9.6	0	54.74	15.68	0.41	15	1133
	May	63.14%	0.89	35.57	0.76	239	7.7	0	60.63	15.39	0.76	14	1146
	Jun	60.33%	0.96	34.67	0.82	269	6.4	0	62.36	15.47	0.22	9	1173
	Jul	58.50%	0.99	32.35	0.86	324	6.8	0	66.34	15.70	0.21	10	1075
	Aug	58.50%	1.01	24.19	1.04	244	5.8	0	86.86	15.40	0.31	14	1098
	Sept	60.07%	1.02	27.00	1.03	263	4.8	0	116.06	15.37	0.60	14	1082
	Oct	63.80%	1.05	30.12	0.89	307	6.7	0	118.83	16.15	0.72	12	1159
	Nov	64.74%	0.99	36.49	0.63	275	6.6	0	67.86	15.36	-0.10	14	1089
	Dec	64.68%	0.87	29.79	0.60	277	10.3	0	76.99	15.37	0.21	18	1130
2025	Jan	63.51%	0.83	25.55	0.84	232	10.6	0	103.65	15.60	-0.09	14	1127
Consecutive Months at Green		128	0	0	0	0	0	45	0	25	3	1	20
Metric Owner													

Metric	Explanation
SRT	Plant operators continued lowering the solids retention time (SRT), in an effort to maintain a desired mixed liquor suspended solids (MLSS) in the aeration basin. The MLSS had begun to increase with higher seasonal flows and loadings which is typical this time of year. High MLSS can lead to poor settleability, and detrimental downstream effects if not controlled.
NH3	Ammonia (NH3) conversion trended unfavorably due to an increase in influent loadings. Additionally taking clarifier number four offline and brining clarifier number three online added to a reduction in NH3 conversion.
Sludge Yield	Sludge yield directly correlates to SVI. There is an inverse relationship between the two parameters. As SVI increases, which indicates poorer sludge settleability, sludge yields will correspondingly decrease.
SVI	The higher than desired SVI reported this month was due to periods of increased loadings entering the treatment plant. Improvement was shown from last month, due to operators lowering the SRT by increasing the amount of waste activated sludge (WAS) which removes solids under treatment, to reduce the MLSS. The increased loading also brought on an increase in filamentous organisms. Filamentous bacteria form thread like mats which result in sludge bulking which reduces sludge settleability. The most effective means to address the development and propagation of filamentous organisms with the current treatment process used at the District's WWTP is to chlorinate the return activated sludge (RAS) prior to reintroduction of the RAS into the aeration basins. This chlorination process results in the significant degradation or eradication of these organisms and therefore improves sludge settleability. Operators applied chlorine to the RAS four times during the month which caused the SVI to improve after dosing.
TSS	Secondary clarifier total suspended solids (TSS) trended unfavorably due to decreased NH3 conversion, higher than desired SVI, and switching clarifier number four offline while brining clarifier number three online. Operators continue to monitor these variables and are seeing improvements with increased RAS chlorination, reducing the SRT, and maintaining stable NH3 conversion.
CL2 lbs/MG	This month, 52.9 million gallons of the influent flow to the WWTP was treated to secondary treatment standards and diverted to the deep injection well (DIW) for disposal. When disposing of effluent to the DIW, the plant is only producing 2 million gallons per day (MGD) of IQ water for plant process water purposes. At this reduced flow rate, the amount of chlorine applied per MG is increased because the detention time in the contact basin goes up considerably. Depending on process conditions, the approximate chlorine feed (i.e., application) rate during these periods fluctuates between 200 to 250 lbs./day which is equivalent to 100 to 125 lbs./per million gallons. During the periods the plant was producing 100% flow to IQ storage the chlorine dose averaged 77 lbs./per million gallons.

**Industrial Pretreatment – Interceptor Management Program Update**

The Industrial Pretreatment (IPT) Program provides for the regulation of wastewater discharges into the District’s sanitary sewer collection system for industrial and specific commercial establishments. One of the most significant functions performed by the IPT program is the regular inspection of interceptor units. Interceptors are generally required for food establishments, car washes or similar facilities which have the potential to discharge oily water and linen maintenance establishments.

**Dashboard for Fats, Oils & Grease (FOG) Interceptor Suspended Layer Levels  
from 1/1/2025 to 1/31/2025**



### **Treatment Plant:**

Operations Staff continued to work diligently to perform routine monitoring, sampling and general maintenance of equipment and structures. Staff also completed and/or supervised Contractor work for special projects during the month including removing Clarifier No. 4 from service to facilitate the completion of mechanical and structural repairs by an outside contractor to address deficiencies identified during a recent condition assessment performed by one of the District's consultants. Concurrently, Operations had to bring Clarifier No. 3 back online. Significant thought and care need to be given during the changeover of secondary clarifier units to mitigate the potential for process upset and unauthorized discharges. To this end, Operations first filled Clarifier No. 3 with reclaimed water prior to diverting process flow to the clarifier. Filling the clarifier with water ensures that the introduction of process flows does not create hydraulic imbalances which would be detrimental to the quality of secondary effluent conveyed to the tertiary filter units. When emptying a secondary clarifier unit, significant volumes of water need to be removed using temporary pumps, piping and fittings. Failure to properly plan this work creates a higher potential for an unauthorized discharge. Operations Staff used a temporary, dry-prime diesel engine driven pump and heavy duty, temporary hoses. Containment pans were placed beneath all connections to eliminate the potential for any drip leaks to contact the ground. The pump conveyed the water to a plant lift station where it was pumped back to the plant process for treatment. Overall, the process worked well, and Clarifier No. 4 was emptied two days ahead of schedule and there was no need to utilize the vac-con unit to remove settled solids from the base of the unit.



**Clarifier No. 4 – Draining and Cleaning**



During the month of January, a representative of the Florida Department of Environmental Protection (FDEP), Underground Injection Control (UIC) program performed a bi-annual evaluation of the District's deep injection well (DIW) system. As part of the evaluation, the representative completed a physical condition assessment of the injection well pump station, DIW and associated monitoring wells (MW-1 and MW-2). The intent of the inspection was to confirm that the District is operating and maintaining the DIW system in accordance with the FDEP issued UIC permit, as well as State of Florida rules and regulations. The results of the inspection indicated that the District is fully compliant with only minor deficiencies noted. The deficiencies were related to minor, localized surficial rust spots at the base of the injection well surface casing and along the DIW pump discharge head. These deficiencies were promptly addressed by the Maintenance Team within 24-hours.



## FLORIDA DEPARTMENT OF Environmental Protection

Southeast District Office  
3301 Gun Club Road, MSC 7210-1  
West Palm Beach, FL 33406  
561-681-6600

Ron DeSantis  
Governor

Jeanette Nuñez  
Lt. Governor

Alexis A. Lambert  
Secretary

February 10, 2025

D. Albrey Arrington, Ph.D., Executive Director  
Loxahatchee River District  
2500 Jupiter Drive  
Jupiter, Florida 33458  
E-mail: [albrey@LRECD.org](mailto:albrey@LRECD.org)

Re: Loxahatchee River District Wastewater Treatment Plant  
WACS ID #: 65873; UIC Permit File #: 0324728-002-UO/1X  
Palm Beach County

Dear Dr. Arrington:

Department personnel conducted a bi-annual compliance evaluation inspection of the above-referenced injection well system on January 22, 2025. Based on the information provided during the inspection and subsequent information provided by facility staff after the inspection up to February 3, 2025, the injection well system was determined to be in-compliance. A copy of the inspection report is attached for your records.

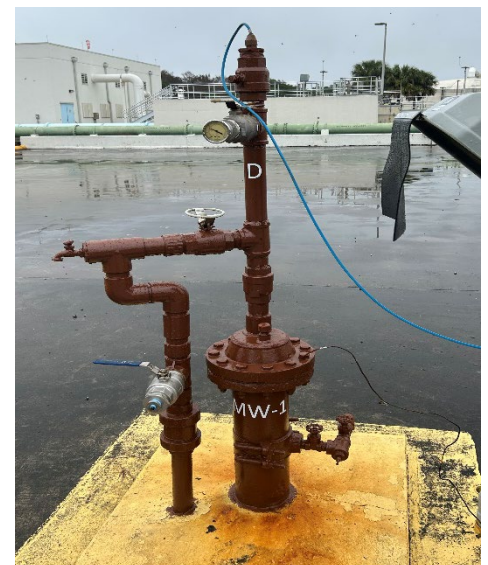
The Department appreciates your efforts to maintain this injection well system in compliance with state and federal rules. Should you have any questions or comments, please contact Adam Ullery at (561) 681-6642, or via e-mail at: [Adam.Ullery@FloridaDEP.gov](mailto:Adam.Ullery@FloridaDEP.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Jonathan Odjo".

Jonathan Odjo  
Environmental Manager  
Compliance Assurance Program  
Southeast District  
Florida Department of Environmental Protection

### FDEP Bi-Annual Compliance Inspection Letter



### DIW-1 and MW-2

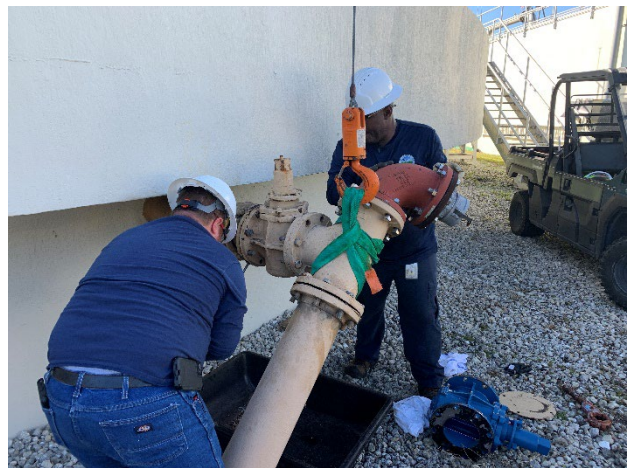
## **Maintenance Department:**

The Maintenance Department continued to efficiently perform planned maintenance (PM) tasks over the last monthly period. In addition to the completion of standard PM tasks, the Maintenance Department addressed non-routine maintenance items as well as “special projects.” A few examples of these types of projects are presented below.

During the month, Maintenance Team members replaced the isolation plug valve on the drain line for the scum trough at Clarifier No. 3. Clarifiers are critical components at a wastewater treatment plant because they are designed to remove settled solids and suspended scum. The scum is skimmed from the water surface into a scum trough which in turn directs the scum to the plant gravity drain system and eventually to one of four plant lift stations, where it is pumped back to the headworks structure for additional treatment. The plug valve on the drain line for the scum trough allows for the isolation of the trough from the gravity drain system for maintenance purposes. Over time, plug valves wear out due to limited use, corrosion, and/or clogging, necessitating their replacement to maintain proper operation.



**Clarifier No. 3 – Scum Trough**



**Scum Trough Drain Valve Replacement**



**Scum Trough Drain Valve Replacement**



Lastly this month, the Maintenance Team also coordinated the clean-up and disposal of floating vegetation within the irrigation quality (IQ) storage lakes. Due to the nutrient rich water, it is not unusual for an undesirable quantity of floating aquatic vegetation to grow within the lakes. To facilitate cleaning of the lakes, Staff contracted with a speciality contractor, Weedoo Greenboat, Inc., which uses a specialized boat to harvest and remove aquatic vegetation from the lakes. The use of the specialized boat enabled the removal of additional weeds which were further away from the bank that would not otherwise be capturable from the lake banks. All aquatic vegetation was placed on the banks and disposed of by the Maintenance Team.



**IQ Lake No. 1 – West Bank Pre-Cleaning**



**IQ Lake No. 1 – West Bank Post-Cleaning**



**IQ Lake Cleaning – Vegetation Removal**



**IQ Lake Cleaning – Vegetation Removal**



# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

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FAX: (561) 747-9929

D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

TO: Albrey Arrington, Ph.D., Executive Director  
FROM: Bud Howard, Director of Information Services  
DATE: February 12, 2025  
SUBJECT: Information Services Monthly Governing Board Update for January 2025

### WildPine Ecological Laboratory

#### Riverkeeper Project

In January, the lab staff and our partners collected 155 water quality samples from 28 monitoring stations throughout the watershed. A total of 71 fecal indicator bacteria samples were analysed in support of additional testing for the weekly bacteria monitoring program and the additional monthly testing in Jones and Sims Creeks.

The overall water quality score for January 2025 was “Good” with 85% of all samples meeting the EPA/DEP water quality criteria for each site, an improvement over last month’s lower “Good” score of 81%, and last year’s January “Fair” score of 79% (see score card below). In the midst of the dry season the phosphorus and bacteria scores improved as rainfall and stormwater flows to the river have decreased.

For the core parameters, *total nitrogen* scored “Good” during January with 100% of sites meeting the water quality criteria. This was higher than last month’s “Good” score of 96% and last year’s January score of 85%.

*Total phosphorus* results scored “Good” in December with 93% of sites meeting the water quality criteria. This was an improvement over last month’s “Good” score of 84% and last year’s “Fair” score of 79%.

*Chlorophyll* results scored “Fair” for the month of January, with 64% of sites meeting the stringent water quality criteria, which was better than last month’s score of 56%, and last year’s January score of 61%.

For the combined *fecal indicator bacteria* (fecal coliforms in all waters, enterococci in marine and brackish waters, and *E. coli* in fresh waters), January results scored “Good” with 85% of sites meeting the water quality criteria, slightly better than last month’s score of 83%, and last year’s January score of 82%.

Stephen B. Rockoff  
CHAIRMAN

Kevin L. Baker  
BOARD MEMBER

Gordon M. Boggie  
BOARD MEMBER

Dr. Matt H. Rostock  
BOARD MEMBER

Clinton R. Yerkes  
BOARD MEMBER



SamDate

1/1/2024

1/30/2025

# Loxahatchee River District Water Quality Scorecard

Results scored to FDEP/EPA Water Quality Criteria

Green - Good: 80% - 100%  
Yellow - Fair: 60% - 79.9%  
Red - Poor: < 60%

## Monthly Water Quality Score

January  
2025

85%

Overall

155

Total Samples

TN: Total Nitrogen, TP: Total Phosphorus, CLA: Chlorophyll a, BAC: Enterococci and E. coli bacteria

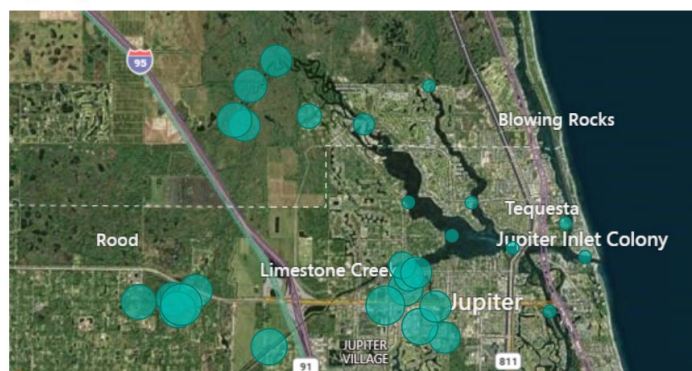
Year	Month	# Samples	Overall Score	# TN Samples	Total Nitrogen Percent Good	# TP Samples	Total Phosphorus Percent Good	# CLA Samples	Chlorophyll Percent Good	# BAC Samples	Bacteria Percent Good
2025	January	155	85%	28	100%	28	93%	28	64%	71	85%
2024	December	145	81%	25	96%	25	84%	25	56%	70	83%
2024	November	179	72%	34	82%	34	74%	34	53%	77	74%
2024	October	171	61%	33	82%	33	48%	33	55%	72	61%
2024	September	144	60%	25	88%	25	72%	25	48%	69	51%
2024	August	176	70%	33	79%	33	61%	33	55%	77	77%
2024	July	179	73%	32	97%	32	72%	32	44%	83	75%
2024	June	144	58%	25	88%	25	48%	25	40%	69	57%
2024	May	158	77%	30	87%	30	77%	30	50%	68	85%
2024	April	165	80%	32	97%	32	81%	32	50%	69	86%
2024	March	143	80%	25	92%	25	80%	25	44%	68	88%
2024	February	172	80%	32	91%	32	84%	32	56%	76	83%
2024	January	179	79%	33	85%	33	79%	33	61%	80	84%
Total		2110	74%	387	89%	387	73%	387	52%	949	76%

## Spatial Distribution of Water Quality Results

In January, *Total Nitrogen* scored “good” at all 28 sites (100%) tested in January. The average nitrogen concentration across all the Jones Creek stations improved again this month from 0.9 mg/L to 0.8 mg/L, which is well below the NNC water quality standard of 1.3 mg/L.

Total Nitrogen (mg/L)

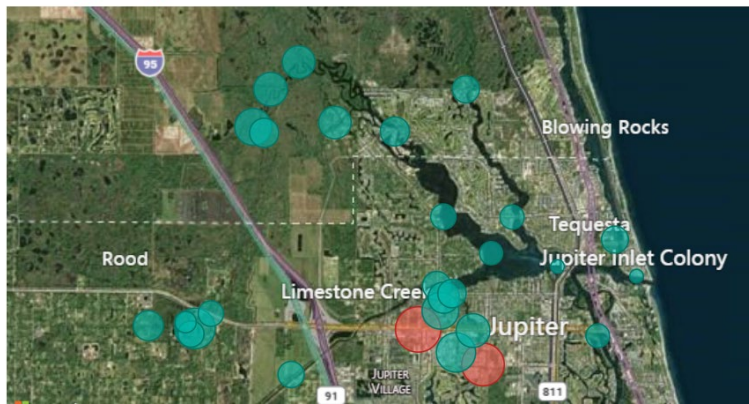
TN\_Score ● GOOD





Total Phosphorus (mg/L)

TP\_Score ● GOOD ● POOR

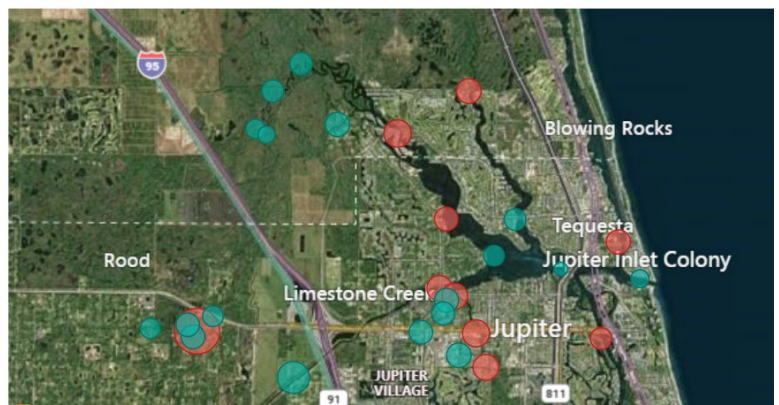


decreased again this month to 0.06 mg/L, which was below the NNC of 0.075 mg/L, compared to last month's average of 0.09 mg/L.

*Chlorophyll* results met the water quality criteria at 18 of 28 sites (64%). Eight out of nine freshwater stations were below the EPA/DEP Numeric Nutrient Criteria of 20 µg/L and scored "good". The District's 20-acre Lake had the highest chlorophyll value at 38 µg/L. Nine of nineteen marine and brackish stations scored "poor", which have stricter water quality criteria than the freshwater stations. Island Way Bridge (Station 62) in the brackish portion of the Northwest Fork had the highest chlorophyll result at 8 µg/L. Results across all the Jones

Chlorophyll a (ug/L)

CHL\_Score ● GOOD ● POOR



Creek stations improved again with average chlorophyll concentrations this month down to 6 µg/L, just over the Numeric Nutrient Criteria (NNC) of 5.5 ug/L, compared to last month's average of 17 µg/L. For January 2025, LRD staff and Town of Jupiter partners returned to the quarterly monitoring frequency like we conducted prior to the trimming study period. In January, Staff sampled the key nutrients and will sample on a quarterly basis from here on. While the chlorophyll results are encouraging, we will continue monitoring to see if the results are simply seasonal variation or if the improved water quality is correlated with the vegetation trimming project.

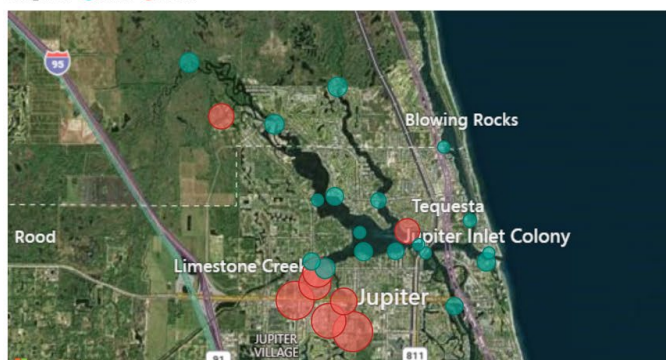
The overall *Bacteria* result scored "good" at 60 out of 71 sites (85%) in January. For Enterococci bacteria (map below, left), the state's preferred indicator bacteria for salt and brackish waters, eight stations scored "poor" when compared to the water quality standard of 130 MPN/100mL. All stations in Jones Creek and Sims Creek scored "poor" except Station 71 in the mouth of Jones Creek. The Toney Penna Footbridge site in Jones Creek (TPJ) had the highest enterococci concentration at 932 MPN/100mL. Altogether, the stations in Jones Creek averaged 473 MPN/100mL, a noticeable improvement from last month's 2,512 MPN/100 mL, and down from the peak of 6,272 MPN/100mL in September.

*Total Phosphorus* scored "good" at 26 of 28 sites (93%) tested in January. Results improved throughout the watershed this month. One site in Sims Creek and one site in Jones Creek scored "poor". The downstream weir at Indiantown Road and Sims Creek (74DW) had the highest phosphorus concentration at 0.11 mg/L. And the Toney Penna Footbridge (TPJ) site in Jones Creek had the next highest phosphorus concentration at 0.09 mg/L. The average phosphorus concentration across all the Jones Creek stations

For fecal coliform bacteria (see map below, right), three stations scored “poor” when compared to the water quality standard of 800 MPN/100mL. The “poor” stations were all located in Sims Creek. Sims Canal (Station 74) had the highest concentration at 1,259 MPN/100mL. The mobile home community on Sims Creek (735) and the Indiantown Road weir downstream side (74DW) had 1,119 and 862 MPN/100 mL, respectively. Altogether, the stations in Jones Creek averaged 367 MPN/100 mL fecal coliform, another improvement from last month’s 920 MPN/100 mL and below the DEP Water Quality Standard.

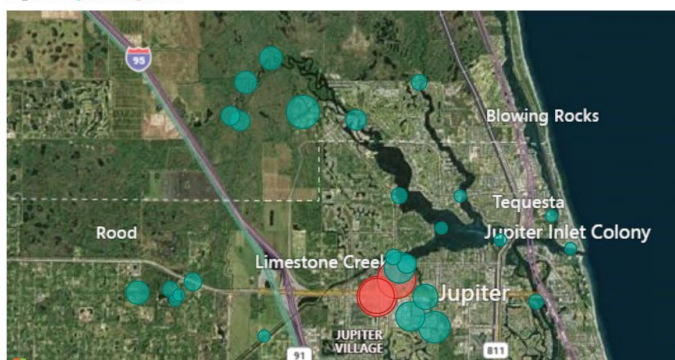
Enterococci Bacteria - Criteria: 130 MPN/100mL

ENT\_Score ● GOOD ● POOR

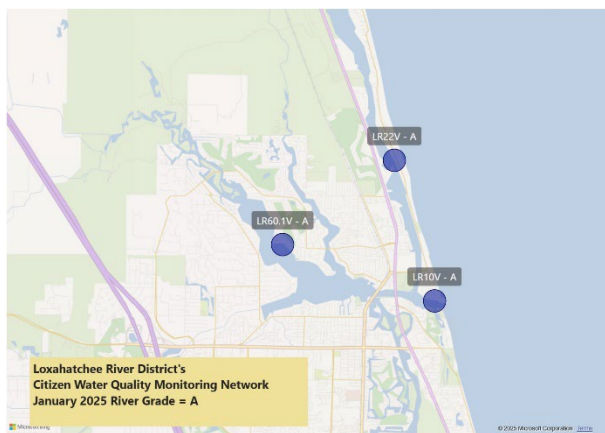


Fecal Coliform Bacteria - Criteria: 800 MPN/100mL

FC\_Score ● GOOD ● POOR



## Volunteer Water Quality



The Loxahatchee River Citizen Volunteer Water Quality Grade for the month of January remained at an “A”. However, turbulent surf conditions hampered the water visibility (clarity) at the Jupiter Inlet site (LR10V) and the uppermost site (LR60.1V). All other parameters at each site were evaluated to be in the “Good” range for the month of January.

Averaged results for the Month								Monthly Cumulative Grades						Overall	
Site	Temp (°C)	Secchi	Salinity	pH	DO	DO%	Color	Vis	Salt	pH	DO	DO%	Color	Score	Grade
LR10V	20.0	1.2	33.7	N/A	7.0	93.6	1.0	D	A	N/A	A	A	A	87.5	A
LR22V	23.0	0.6	36.0	8.4	6.6	94.6	1.0	A	A	A	A	A	A	100.0	A
LR60.1V	17.0	0.8	32.3	8.0	6.1	76.8	1.0	C	A	A	A	A	A	88.2	A
Average	20.0													90.6	A

DO (Dissolved Oxygen)

ND (No Data)

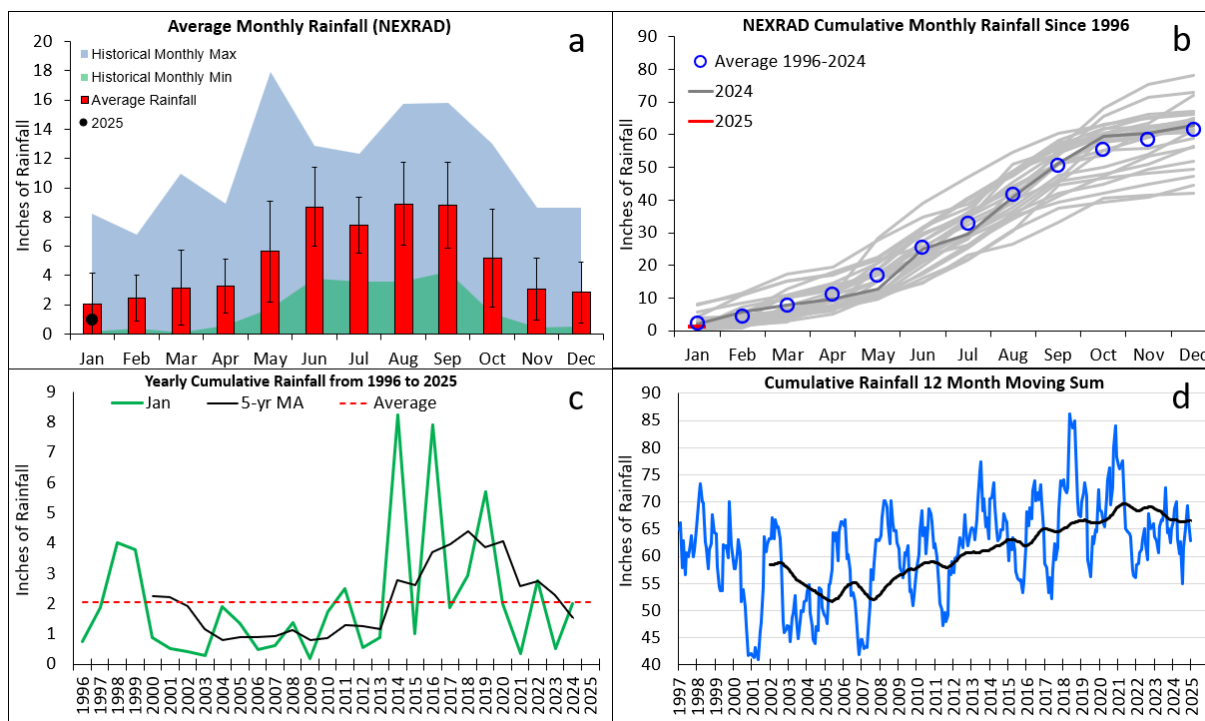
### Grade Scale

81.25	100	A
62.5	81.25	B
43.75	62.5	C
25	43.75	D
0	25	F

## Hydrologic Monitoring

In January, the watershed received an average rainfall of only 1.0", which was approximately half the historical monthly average of 2.1" and the 2.0" recorded in January 2024 (see panel 'a'). Rainfall was observed on 8 out of 31 days, with the highest daily total of 0.3" on January 22. As we begin a new year, we reset our cumulative rainfall statistics shown in panel 'b'.

Cumulative trends indicate a general decline in annual rainfall since its peak in 2018, following a decade of increased January rainfall. The 5-year moving average has also been decreasing (see panel 'c'). The 12-month moving sum through January was 61.8", slightly below the year-over-year moving sum of 66.5" (see panel 'd'). Long-term trends show that total rainfall within the watershed has generally increased since 2012 but has leveled off and slightly declined since peaking in 2021.



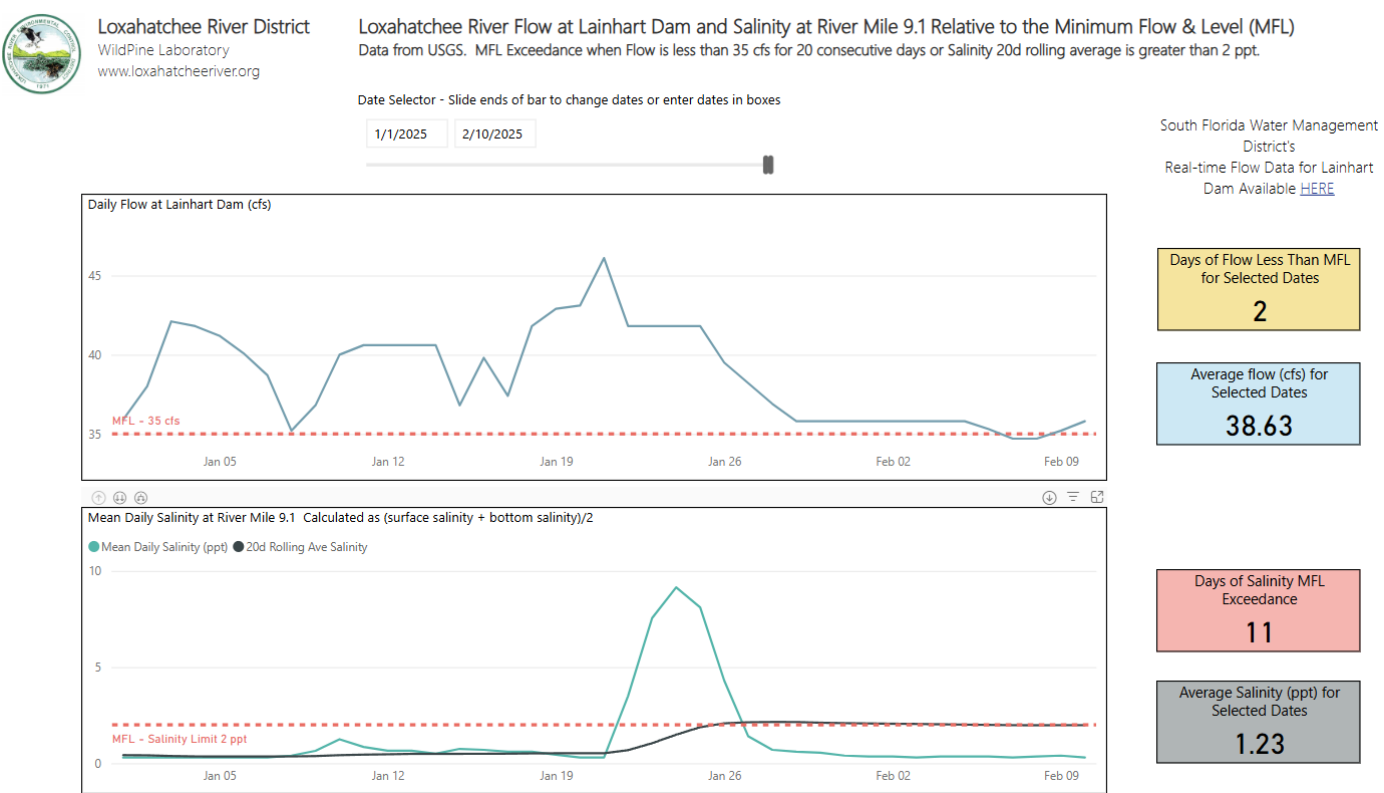
Figures above display various measures of rainfall. Panel (a) shows average monthly rainfall from 1996 to 2024 (red bars; error bars indicate  $\pm 1$  sd). Black dots indicate monthly rainfall for the current year. The blue and green shaded areas show the maximum and minimum rainfall ever recorded for each month. Panel (b) shows monthly cumulative rainfall for each year since 1998. Red line indicates cumulative rainfall during 2025; dark grey line indicates rainfall during 2024. Blue circles are monthly cumulative average rainfall measured between 1996-2024. Panel (c) shows cumulative annual rainfall using NEXRAD radar-based data. Green line indicates cumulative rainfall through indicated month for each year since 1996, when the radar-based rainfall measurements began. Black line is the 5-year moving average across all years and red dashed line shows cumulative average through indicated month. Panel (d) shows cumulative 12-month moving sum of monthly rainfall (blue line) along with the five-year moving average (black line).

# River Flows and Salinity

Due to below-average rainfall at the start of the dry season and no significant rainfall events in January, river flows in the Northwest Fork have stabilized just above the Minimum Flow and Level (MFL) target of 35 cfs, averaging 40 cfs and ranging between 35 to 46 cfs (see top panel in the figure below).

Low river flows have allowed saline waters to creep far upstream, reaching the USGS station at River Mile 9.1. On January 21, the average daily average salinity exceeded the 2 ppt threshold, peaking at 9.2 ppt on January 24 before dropping below the threshold on January 27. While upstream water storage has been sufficient to maintain river flows above the 35 cfs threshold, the significant spike in salinity caused the 20-day rolling average salinity MFL criteria exceedance for 11 days this year.

The District’s online Minimum Flow and Level (MFL) data visualization tool is updated daily and available [HERE](#).





Oyster Spat Monitoring

The 24-day period ending January 13 concluded the 2024 oyster spat monitoring season, with minimal oyster settlement activity as expected. In the Northwest Fork, the average oyster spat density was 55 spat/m<sup>2</sup>, with all settlement occurring at the downstream site. Similarly, the Southwest Fork exhibited low settlement activity, with an average density of 44 spat/m<sup>2</sup>, and approximately 63% of this activity at the downstream site. Low settlement activity is typical during the winter months. (see figure below).

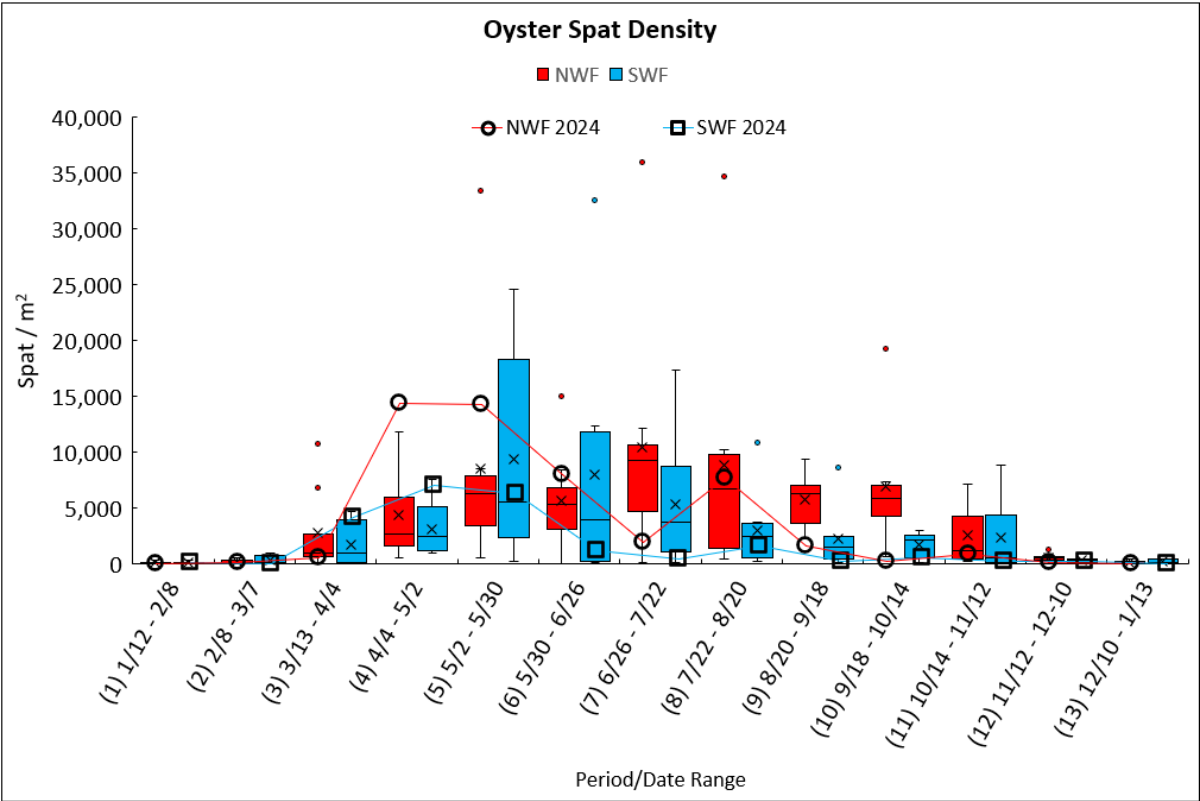


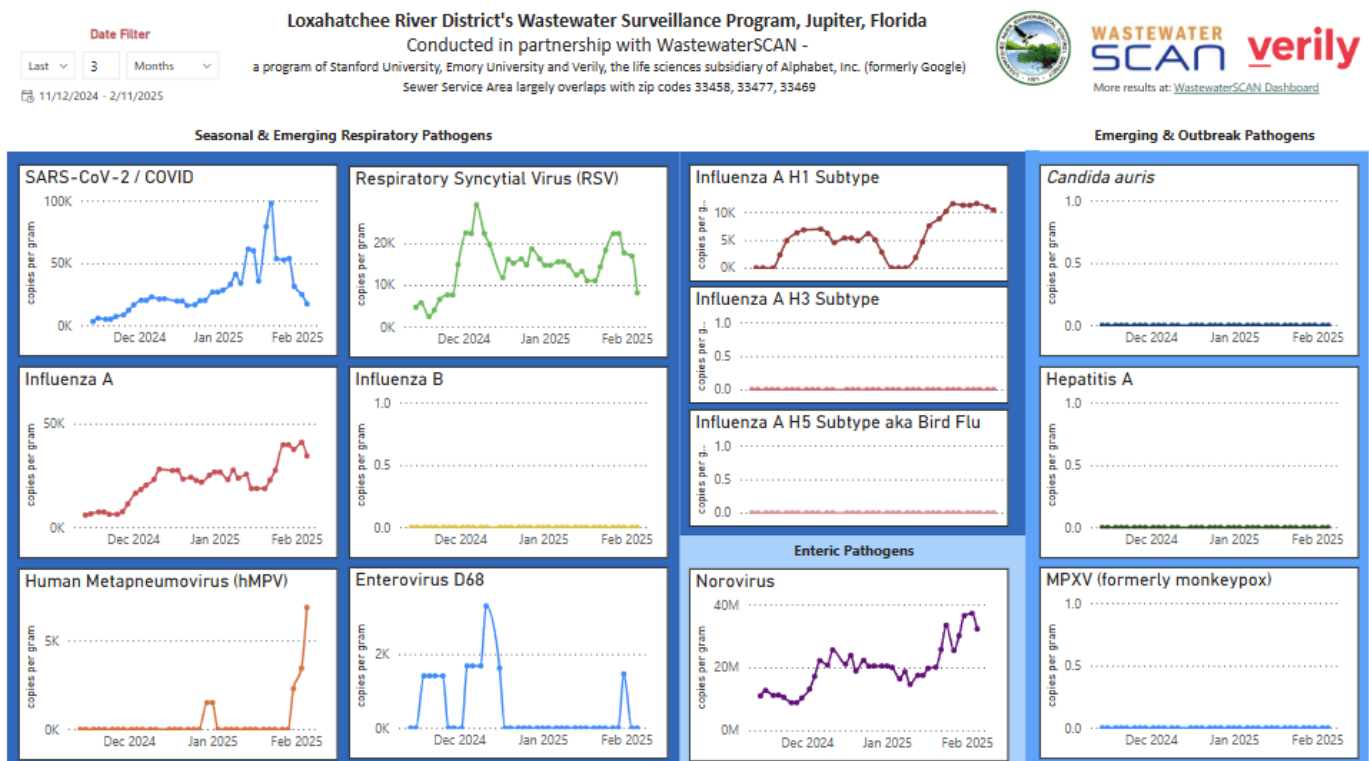
Figure: Box and whisker plot showing interquartile range (IQR) of oyster spat density (spat / m<sup>2</sup>) for each period in the Northwest Fork (red) and Southwest Fork (blue) of the Loxahatchee River between 2016-2023. The "X" indicates period mean. Superimposed on the IQR are the 2024 period means for both the Northwest Fork (circle/red line) and Southwest Fork (square/blue line).

## Wastewater Surveillance

The District's Wastewater Surveillance program, monitoring 10 pathogens and now 3 Influenza A subtypes through the WastewaterSCAN program, showed a peak in COVID of 100K copies on January 22, then a noticeable decline over the past several weeks. Influenza A, RSV, Human Metapneumovirus (hMPV) and Norovirus concentrations showed notable activity during January.

In December, the program began monitoring for three subtypes of Influenza A – H1, H3 and H5, replacing one of the rarely detected enteric pathogens, and are now presented on our web charts. The H5 subtype, also known as avian influenza or bird flu, is widespread in birds worldwide and is causing outbreaks in poultry and dairy cows. There have been some recent human cases with serious illness, primarily in poultry and dairy workers, but none detected in our area. The CDC is watching the situation carefully, which is why it was added to the National Wastewater Surveillance System.

Results from the WastewaterSCAN programs are automatically uploaded to our website at <https://loxahatcheeriver.org/wastewater-surveillance/>.



## Customer Service

### Billing & Payments

The distribution of the first quarter 2025 bills began on January 10. Staff were busy processing over 13,600 payments totalling \$1.8M from our quick paying customers. Interestingly, this was the greatest number of payments received during the first month of the billing quarter to date, beating our previous high in July 2024 by nearly 16%. The Q1-2025 bills are due February 12.

### Improved Payments Portal

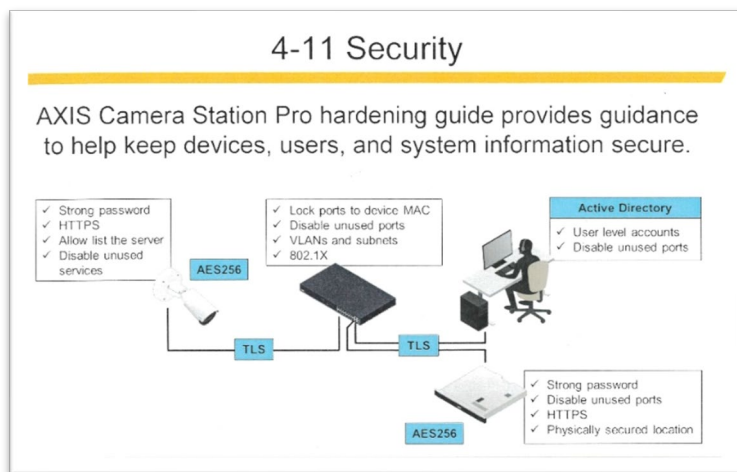
Our provider continues to refine and rigorously test the rebuild of our online payments portal. The provider believes they will go live sometime in the next few weeks, which should have us positioned well for our 2<sup>nd</sup> Quarter Billing.

## Information Technology (IT)

### Training

In January, several Staff attended two days of vendor training for both our Video Management System (VMS) and Network Audio Notification System. The training covered concepts related to managing these systems, as well as several hands-on exercises using Axis software and hardware.

We are already putting this training to good use as we are currently deploying the new Network Audio Notification System that will be used for emergency notifications and important announcements to District staff.





# Loxahatchee River Environmental Center

February 2025

## River Center Summary Statistics



## LRD'S ENVIRONMENTAL STEWARDSHIP DASHBOARD



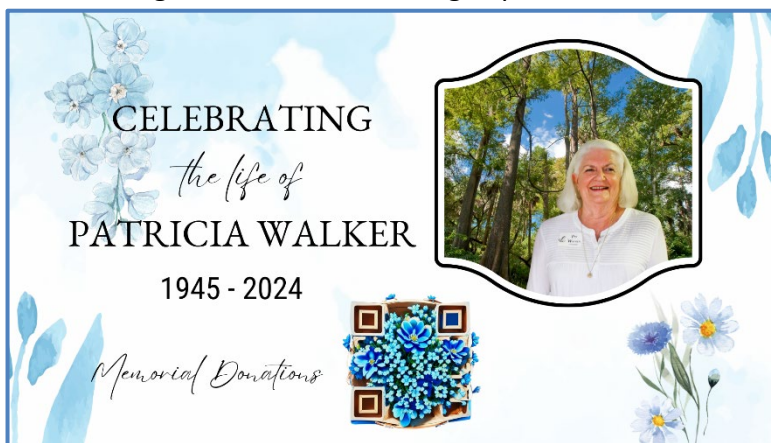
		Total Visitors (incl. Visitors, Field Trips, Onsite Programs)	1st Time Visitors	Average Program Participation [Actual participants/Capacity of Program]	Volunteer Hours	Visitor Satisfaction	Staff Overall Program Assessment	Expenses	Revenue
Benchmark / Customer Expectation		Total	Total	% of Capacity	Total	Rating Average [Max Rating is 5]	Rating Average [Max Rating is 9]	% within budget	% of Target
Green Level		≥ 90%	≥ 90%	≥ 85%	≥ 90%	≥ 4	≥ 7	≥ 85% but ≤ 105%	≥ 90%
Yellow		≥ 75%	≥ 75%	≥ 70%	≥ 75%	≥ 3	≥ 5	≥ 80%	≥ 75%
Red		<75%	<75%	<70%	<75%	<3	<5	< 80% or > 105%	<75%
2022 Baseline		1,322	101	111%	240	4.6	7.9	91%	107%
2023 Baseline		1,462	110	93%	297	4.7	7.8	83%	86%
2024 Baseline		1,437	100	99%	454	4.7	7.9	98%	104%
2024	Jan	1,178	84	89%	115	4.7	8.3	99%	81%
	Feb	1,689	185	105%	264	4.9	8.2	104%	94%
	Mar	1,697	128	90%	198	4.7	8.0	103%	112%
	Apr	1,162	93	88%	91	4.7	8.0	106%	112%
	May	1,153	87	117%	200	4.9	8.1	117%	106%
	June	2,870	127	111%	719	4.8	7.5	96%	86%
	July	2,120	166	93%	1,132	4.8	8.0	94%	109%
	Aug	1,258	80	141%	346	4.8	7.2	92%	101%
	Sept	1,024	62	100%	221	4.5	7.5	91%	97%
	Oct	1,250	71	91%	238	4.6	7.6	96%	130%
	Nov	1,007	59	82%	217	4.8	8.1	101%	114%
	Dec	841	58	86%	138	4.7	8.2	104%	143%
2025	Jan	1,363	103	90%	194	4.9	8.1	96%	142%
Consecutive Months at Green		1	1	2	9	13	13	8	7
Metric Owner		O'Neill	O'Neill	Duggan/Warwick	Patterson	O'Neill	O'Neill	O'Neill	O'Neill

Metric	Explanation

## River Center General

### Patricia Walker Memorial Event [February 1, 2025]

We hosted the Memorial Event for the family of Patricia (Pat) Walker at the River Center. She spent her career at the South Florida Water Management District working to preserve our natural resources and she always loved the Loxahatchee River. After her retirement, she became involved in the Friends of the Loxahatchee River here at the River Center as the president. She served in that role for several years and was involved with the fundraising efforts and supporting our environmental education programs. The family requested that all gifts be directed to the River Center to continue the support of our programs.



## River Center Special Programs

### Lecture Series [Friday, January 3rd]

This month's Lecture was given by Stacey Matrazzo, executive director of the Florida Wildflower Foundation. Stacey introduced 20 easy-to-grow wildflower species that can be used in a variety of soils, sunlight and moisture conditions. She discussed how to select, plant, and maintain these flowers, and highlighted the butterflies, bees and other pollinators they attract. We had a great time learning how to integrate these delightful native plants into our own outdoor living spaces, and the joy and beauty they will bring to your landscape while also providing food for wildlife.



### Blooming in the Garden [Saturday, January 4th]



The theme for this month's Blooming in the Garden program was Snails! We started by having students make their own snail suncatcher, then used these as props while reading an interactive story about a snail named Escargot. We talked about how there are many different species of snails, and students got the chance to meet one of the marine snails from our touch tank. We went out into the garden for a scavenger hunt searching for snail shells and snail trails. Guests also had the opportunity to plant native seeds to take home for their gardens! The Blooming in the Garden program is designed for children and families ages 3-6.



### Nature Hike – Pine Glades Natural Area [Friday, January 10<sup>th</sup>]



This January we hiked at Pine Glades Natural Area. This natural area is located west in Jupiter Farms and is a popular birding spot. Along our leisurely hike we saw a ton of animals! We started out with various bird species like great blue herons, great egrets, sandhill cranes, and red-winged blackbirds. We also saw common buckeye butterflies, peacock butterflies, gulf fritillaries, and black swallowtails. The

highlight of the day was finding various amounts of animal tracks around the Flag Fish Loop. It was such a beautiful day, and we cannot wait to see what we encounter on our next nature hike.



### Science with Sam – Shifting Sands [Tuesday, January 14<sup>th</sup>]



Science with Sam taught a lesson on Shifting Sands highlighting the importance of sand to the planet and to us as humans. Students learned what defines sand, where it comes from, how it moves around the planet, and how we benefit and rely on sand. Students looked

at sand grains under microscopes, played with hydrophobic sand, tested sand experiments and watched an erosion demo with our topographical land model.



### Afterschool Book Club – Make a Little Wave [Wednesday, January 15<sup>th</sup>]



Our middle grade afterschool book club meeting this month was inspiring! Our students were so excited for a surprise in-person visit from the author of *Make a Little Wave*. They asked great questions about the book writing process, sharks, and activism. After our discussion, the students got creative and made their own “messages in a bottle” detailing how they plan to make a difference in their community. We ended the meeting with a book signing and photo opportunity with the author, and everyone left feeling uplifted!



### **Tots on Trails – Leaf Rubbings [ Wednesday, January 22<sup>nd</sup>]**



This month our Tots on Trails was moved indoors due to significant rain. Our guests made the best of the bad weather by going on a “paddle” adventure through the River Center. We visited every aquarium to learn about the animals of the Loxahatchee River. Students also spent some time in our classroom to learn about native plants via leaf rubbing. The students also enjoyed a touch tank experience where they had the chance to interact with marine snails and sea urchins. We were happy to have our guests join us despite the weather and look forward to our next chance to get outdoors in February!

### **Riverbend Outreach – Loxahatchee River Battlefield Education Day [Friday, January 24<sup>th</sup>]**

On Friday, January 24th the River Center participated in Riverbend Park’s education day in conjunction with their annual battlefield re-enactment. This event brought out students from various schools in Palm Beach County, and homeschool groups, to learn all about the events that took place in Riverbend so long ago. At our River Center table, we discussed the river, how the natives would rely on it, the animals that rely on it, and how we rely on the river as well. It was a beautiful day to be outside and we saw about 130 students at our table.



### **Archery 101 [Saturday, January 25<sup>th</sup>]**



The River Center hosted our Archery 101 class at our 20 Acre property. Our Archery Program provides participants with a safe and educational way to learn the skills of outdoor archery. This program motivates students to get outside and practice a skill. This program encourages them to be active outdoors, further connecting them to nature. The class teaches parts of the bows used, proper steps for shooting a bow, range and bow safety, how to be mindful about shooting outdoors, the history of archery, basic shooting skills, and range practice. We

had a full class of 16 students of all ages! All equipment was purchased through a grant from the Florida Fish and Wildlife Conservation Commission (FWC). Connections are made to LRD through ownership of the land as well as our conservation efforts to protect the river that is adjacent to the property.

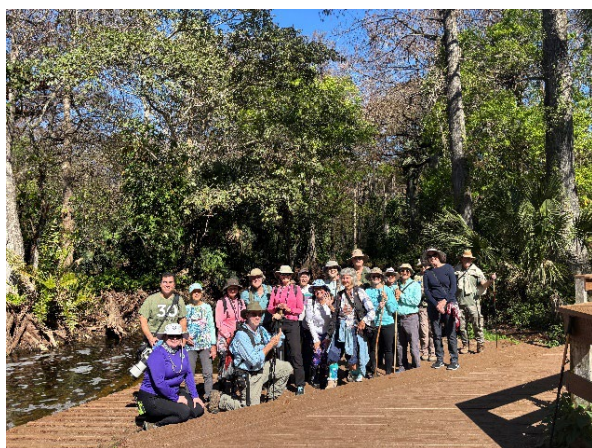
### **Homeschool Workshop – Fish Morphology [Wednesday, January 29<sup>th</sup>]**

The River Center conducted a homeschool workshop for students ages 7-10. This month's workshop was Fish Morphology. Students learned about how "form fits function", looking at fin shape, mouth shape, eye placement, coloration, and other physical features in a variety of fish species. They were given fish models to identify, and then went into the center to observe our aquarium fish. Finally, students used their new knowledge to design and create their own fish species using recycled materials.



### **Nature Hike – Masten Dam Hike [Friday, January 31<sup>st</sup>]**

On January 31st the River Center lead a nature hike to the Masten Dam along the Loxahatchee River to celebrate National River's Day. The hike was started in Riverbend Park where we connected to the Ocean to Lake Trail, went under the critter crossing and then connected to the



Pantano Trail. Along the way we saw unique plants such as Strap Fern, Cypress Trees, Sweet Acacia, and Florida Pennyroyal. The trail led us to the Masten Dam where we were able to take in the river and appreciate our beautiful river system. On the hike back we went a slightly different path down the Old Italian Farms trail which boasted wild orange trees! Participants really enjoyed this hike and enjoyed learning that instead of just kayaking they can also hike to the river.

### **Volunteer of the Month**

Our January Volunteer of the Month is Darcy Miller. We are thrilled to recognize Darcy as our Volunteer of the Month for her outstanding dedication and hard work in animal care. Since joining our team, Darcy has consistently gone above and beyond to ensure that the animals receive the best care possible. Her compassion, attention to detail, and willingness to take on any task, no matter how big or small, has made a significant impact on the well-being of the animals in our care. We are incredibly grateful for Darcy's unwavering commitment to our animals and to The River Center. Thank you, Darcy for your exceptional work and dedication!

### **Volunteer Appreciation**

We appreciate all our volunteers. This month we celebrate our volunteers who have been with us for 100 hours and 200 hours. Reaching 100 and 200 hours of service is an impressive achievement. It signifies a volunteer's unwavering dedication to The River Center and making a difference in our community. We applaud their generosity and recognize their wonderful dedication to The River Center. As a





token of our appreciation, we gifted them with a sweatshirt for 200 hours and a t shirt for 100 hours. We are thankful for all our volunteers.

- **100 Hour Recipients:** Timothy Scharkopf, Madison Jaffe, Taylor Penrose, Ethan Lyn, Larry Altman, Jonathan Oliver, Kyla Carroll, Bohdan Dutkewych, Prerna Khire, Isabelle Haire, Anna Pegler, Mattias Skantze, Avrey Johns, Camille Lyn
- **200 Hour Recipients:** Jackie Cole, Lily Langbert, Ben Dayko, Toussaint Joseph, Keira O'Neill
- We also have a monthly raffle for our amazing volunteers. The winner for December was Mia Cooke and January was Jackie Cole. We appreciate our amazing volunteers.



### **Rachel Chazotte – Former River Center Volunteer**

We recently received an email from a former volunteer, Rachel Chazotte.

"I just wanted to reach out to you all to show you what I was up to last semester. I was an intern for the Creekside Environmental Education for Kids program through ACT (Alachua Conservation Trust) and I got to bring Title I fourth graders on fieldtrips to a nature park each week! We would host stations that focused on plant identification, bird species, bug adaptations, and the aquatic wildlife in the creek. While I was helping the students dipnet, I was reminded of my time at the touch tank and wanted to say hello and

thank you for everything. I used my time as a volunteer at the River Center as a large part of my cover letter for this internship and think it gave me the perfect experience to have gotten this role. Now I am a year and a half away from getting my degree in environmental science! I hope everything is going well and that Igor is still swimming happily! :)" <https://www.alachuaconservationtrust.org/fall-2024npo-2>

## **UPCOMING EVENTS**

RSVP at [www.lrdrivercenter.org/events-calendar](http://www.lrdrivercenter.org/events-calendar)  
[rivercenter@lrecd.org](mailto:rivercenter@lrecd.org) or 561-743-7123

**Every Thursday, 9:30 a.m. – 10 a.m. – Story time:** Join the River Center for Story Time. Families are welcome as we read stories and have an animal encounter.

**February 20, 8:00 a.m. – 10:00 a.m.: Birding at the Loxahatchee River District:** Come explore with us! Join Audubon Everglades for a bird watching walk through the Loxahatchee River District's reclaimed water storage lakes. Walk along the guided paths and immerse yourself in this behind-the-scenes tour. Interested participants should wear closed toed shoes, sunscreen, hat, sunglasses, and bring plenty of water. Please make sure to register to attend.

**February 21, 6:00 p.m. – 7:00 p.m.: Evening Lecture [Why Should We Care About Parasites?]: Using Parasites as Indicators of Conservation & Ecological Restoration Success.** Join our speaker, Christopher Moore (Postdoctoral Researcher at the University of Florida) to learn more about this topic. Parasite diversity is one indicator of a healthy ecosystem. Many parasites require multiple types of hosts (invertebrates and vertebrates alike) to complete their lifecycles – if the hosts aren't there, then the parasites that need those hosts won't be there either. Come hear about parasite diversity in the Indian River Lagoon! How does parasite diversity in the IRL compare to other estuaries and coastal systems worldwide?

**February 25, 10:00 a.m. – 12:00 p.m.: Nature Hike [Frenchman’s Forest]:** Come explore with us! Tie up your hiking boots and join the River Center for our nature walk through Frenchman’s Forest. Walk along the guided paths and immerse yourself in this local natural area. We will explore a path inside this natural area with uneven terrain. Interested participants should wear closed toed shoes, long pants (recommended), a walking stick, comfortable clothing and bring plenty of water. Bug spray is highly recommended. Please RSVP to attend. Space is limited. If the “Register” button gives you an error message, please join our Waitlist!

**March 1, 10:00 a.m. – 1:00 p.m.: Atala Butterfly Festival:** Flutter on over to the River Center’s 6th Atala Butterfly Festival! On Saturday, March 1st we are celebrating the Atala butterfly! Once thought to be extinct, this beautiful butterfly is local and thriving right in our own backyards. Join us for our exciting event which will include:

- Butterfly arts and crafts
- Native Plant seed harvesting
- Native Plant Sale
- Tours of the River Center migratory bird and butterfly garden

Please register to attend tickets are limited. This free event is from 10:00 am – 1:00 pm. Registration is required to attend. Plant Sale, Crafts, Seed plantings, and host plant activity are all on-going throughout the event or until supplies run out.

**March 5, 10:30 a.m. – 12:00 p.m.: Homeschool Workshop [Powerful Pollinators]:** Flutter by the vibrant world of pollinators at our homeschool workshop! Students will explore the crucial roles of bees, butterflies, and other pollinators in our ecosystems. Students will explore the River Center garden and learn how these creatures contribute to our natural world. Ages 7-10.

**March 7, 12:00 p.m. – 1:00 p.m.: Lecture [Invasive Species in Florida]:** Our March speaker is Eric Suarez, Invasive Species Research Coordinator. This lecture will delve into the critical topic of invasive species in South Florida, with a particular focus on reptiles. Participants will explore the differences between nonnative and native reptiles, gaining a deeper understanding of how invasive species impact local ecosystems. The presentation will also cover invasive reptile management strategies and highlight practical steps individuals can take to help mitigate their spread. Attendees will learn how to accurately identify invasive reptiles and be provided with guidance on how to report sightings effectively. Registration is required to attend. This event is not recommended for children under the age of 14.

**March 8, 1:00 p.m. – 2:00 p.m.: New Volunteer Workshop:** Join us for a new volunteer workshop at the River Center! In this workshop, we’ll cover everything you need to know about becoming a River Center volunteer, including roles, responsibilities, and training opportunities. Whether you’re passionate about the environment or eager to support community events, this workshop will help you understand how you can make a difference. Please RSVP to attend. For more information about volunteering at the River Center, please contact our Volunteer Coordinator Rebecca Patterson at [Volunteer@Lrecd.org](mailto:Volunteer@Lrecd.org)

**March 11, 10:00 a.m. – 12:00 p.m.: Nature Hike [Jupiter Ridge Natural Area]:** Come explore with us! Tie up your hiking boots and join the River Center for our Nature Walk through Jupiter Ridge. Walk along the guided paths and immerse yourself in this local natural area. We will explore a path inside this natural area with uneven terrain. Interested participants should wear closed toed shoes, long pants (recommended), a walking stick, comfortable clothing, and bring plenty of water. Bug spray is highly recommended. Make sure to RSVP to this event! Space is limited. If the “Register” button gives you an error message, please join our Waitlist!

**March 12, 4:30 p.m. – 6:30 p.m.: Book Club [The Enchanted Life of Valentina Mejia]:** Calling all nature-loving readers! Join us on Wednesday, March 12th from 4:30 to 6pm for our next afterschool book club for kids in grades 3-8. This month’s book will be THE ENCHANTED LIFE OF VALENTINA MEJIA by



Alexandra Alessandri. To save their father's life, a brother and sister must journey across a land full of mythical creatures and find the most powerful and dangerous of them all: the madremonte. Follow Valentina and Julián in an epic adventure best described as "Encanto meets The Chronicles of Narnia" by way of Colombian folklore. At our book club meeting, we will have a chance to virtually meet the author to discuss the book, as well as create some of our own artwork inspired by the Colombian jungle! You can find THE ENCHANTED LIFE OF VALENTINA MEJIA at our local library or at a bookseller of your choice. Readers should finish the book before the meeting.

**March 15, 8:00 a.m. – 4:00 p.m.: Boat America Class [Boating Safely]:** Cost: \$10 to register; refunded when class is completed. The River Center continues to collaborate with the US Coast Guard Auxiliary "Flotilla 52" to provide a series of Boating Safely Classes targeted specifically to young boaters in our community. These classes are provided through a generous sponsorship by the AustinBlu Foundation, a not-for-profit dedicated to raising awareness and promoting educational programs to improve boater safety. Recommended for children 12 years and up, but all ages are welcome.

**March 15, 8:30 a.m. – 12:30 a.m.: Girl Scout Workshop [Trail Adventure]:** Have you ever wanted to go on an adventure outdoors but don't know where to start? Well tie up your hiking boots and join the River Center for our Girl Scout Trail Adventure workshop! Juniors & Cadettes will learn all about what it takes to plan for an adventure, prepare their gear, and will get to go on their own trail adventure during the workshop.

What to Bring:

- Closed toe, closed heel shoes (like sneakers) as well as socks
- Refillable Water Bottle
- Snack
- Sunscreen, Hat/Sunglasses
- Drawstring Backpack to carry belongings
- Bug Spray

Adult Supervision: Adult Supervision is required for this program. Tagalongs are NOT permitted for this event.

**March 18, 4:00 p.m. – 5:00 p.m.: After School Science with Sam [Fantastic Fungi]:** Join our Scientist Sam for different science activities! In this lesson, students and families will learn what fungi and lichen are, and how they benefit humans and nature. Students will experiment with a few mushrooms and lichen in our fungi lab! There is no cost for this program but please RSVP to attend. Space is limited. Registration will open February 18<sup>th</sup>. If the "Register" button gives you an error message, please join our Waitlist!

**March 19, 10:00 a.m. – 12:00 p.m.: Sensory Friendly Exploration:** During our Sensory Friendly Exploration, we open our center early just for our visitors who need a low sensory experience. We will offer two separate sessions during the morning to reduce noise and prevent crowding. The following offerings will also be available for our guests during their visit:

- Sensory bags for checkout which include noise-cancelling headphones, sunglasses, fidgets, and communication boards
- Interactive stations with biofacts and coloring
- Short-form documentary showing in our classroom
- Designated quiet space
- Interactive stations in our native plant garden
- Social story of visit expectations sent out prior to your visit
- Staff will be available to assist with the touch tank and answer questions as needed.

If you have any requests for specific accommodations, please let us know! Please RSVP to attend, this program has strict space limitations.

**March 20, 3:00 p.m. – 4:30 p.m.: Nature Journaling [Frenchman’s Forest Natural Area]: *Forest Karaoke*:**

Students describe bird songs in their journals using writing, drawing, diagramming and numbers. Are you interested in Nature Journaling and don’t know how to start? We have the class for you! Nature Journaling is a great way to slow down to discover and explore the nature around us. We will teach observation, writing, measurement and recording skills. You do not need to be an “artist” to be a nature journalist. You just need a little curiosity. This is a monthly class with a different theme and skill each month. Cost is \$5 per person. Purchase the starter kit for an additional \$5 per person.

**March 21, 6:00 p.m. – 7:00 p.m.: Evening Lecture [Everything You Never Knew About Tropical Cyclones]:**

Here in Florida, we all know what a hurricane is, but how much do you really know about them? This talk with Michael Jenkins, PhD, PE, will delve into the world of tropical cyclones: the science, the history, and the interesting facets of this world-wide weather powerhouse. This talk will provide you with a greater understanding of what we know (and don’t know) about hurricanes and how they have shaped the world, state and region we live in. Space is limited. Please RSVP to attend.

**March 22, 10:00 a.m. – 12:00 p.m.: Archery 101 [20 Acres]:**

Join the River Center for our Archery 101 Beginners workshop! Learn about the complex history of archery, safety, and basic skills. All equipment will be provided. Closed toe shoes are required; Participants should bring comfortable clothing, water and sunscreen. Cost: \$10 per person. For ages 10 and up. Registration is required to attend. Space is limited. This is not a drop off program.

**March 25, 9:30 a.m. – 12:30 p.m.: Kayak 101 [Intro to Kayaking]:**

Join the River Center for our Intro to Kayaking: Kayak 101 workshops! Participants in these workshops will learn basic kayak strokes, safety tips and how to be a proficient paddler on the water. This course will be conducted by a Level 2 Kayak instructor and all equipment will be provided. Registered participants need to bring water, water shoes, and comfortable clothing that can get wet. Registration is required to attend. Space is limited. Children 13 and under must be accompanied by an adult.

**March 26, 10:00 a.m. – 11:00 a.m.: Tots on Trails [Frenchman’s Forest Natural Area]:**

Let’s get outside! Join the River Center for our Tots on Trails program, designed for children ages 2-6! Each month, we’ll explore a new natural area in the Jupiter/Tequesta area. This month, we’ll be at **Frenchman’s Forest Natural Area**. **\*\*THIS IS AN OFF-SITE PROGRAM!\*\*** We will meet in the natural area parking lot at 10:00 am. Together, we’ll walk the trail, observe plants and animals with our magnifying glasses & binoculars, and explore nature. Adults and children should come prepared to be outside for an hour. This includes comfortable clothing, closed to shoes, hats, sunscreen, bug spray, and water bottles. Limited to 20 children (+ their accompanying adults). Siblings of all ages are welcome, just include them in your registration! This program is free of charge. Please RSVP to attend. Registration Opens on December 18<sup>th</sup>.

**March 28, 10:00 a.m. – 12:00 p.m.: Nature Hike [Cypress Creek South Natural Area]:**

Come explore with us! Tie up your hiking boots and join the River Center for our walk-through Cypress Creek South. Walk along the guided paths and immerse yourself in this local natural area. We will explore a path inside this natural area with uneven terrain. Interested participants should wear closed toed shoes, long pants (recommended), a walking stick, comfortable clothing, and bring plenty of water. Bug spray is highly recommended. Make sure to RSVP to this event! Space is limited. If the “Register” button gives you an error message, please join our Waitlist!

**March 29, 9:00 a.m. – 12:00 p.m.: Family Fishing Clinic:**

Don’t miss out on this exciting fishing opportunity with the River Center. Fishing clinics are a great way for kids to learn the basics of fishing methods and tactics! Make sure to join us for an engaging overview that includes knot tying, fish identification, and of course fishing! Parents are encouraged to accompany their kids and participate in the clinic. The cost is \$10 per child. Interested participants should bring water, sunscreen, a hat, and sunglasses. Registration is required to attend. Space is limited. This is not a drop off program. If the “Register” button gives you an error message, please join our Waitlist!



# LOXAHATCHEE RIVER DISTRICT

2500 JUPITER PARK DRIVE, JUPITER, FLORIDA 33458

TEL: (561) 747-5700

FAX: (561) 747-9929

D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

**To:** D. Albrey Arrington, Ph.D., Executive Director  
**From:** Ed Horchar Safety Officer  
**Date:** February 12, 2025  
**Subject:** District Safety Report for January 2025

### Safety Metrics: January 2025

OSHA recordable injuries: Zero

Lost time injuries: Zero

**Actual TRIR: 1.3** [Goal < 1.5]

TRIR = Total Recordable Incident Rate

**Safety is a Core Value at LRD** – *Our conduct is shaped by a personal commitment to protect the health and safety of ourselves and our colleagues. Safety is driven through education, training, planning, protective equipment, and individual accountability.*

**OSHA Recordable Incidents/MVA's:** The LRD experienced zero (0) OSHA Recordable Injuries in January. The District has a rolling twelve-month Total Recordable Incident Rate (TRIR) of **1.3**. This is less than the District goal of 1.5. District employees have now worked eight months in a row of injury free months. The next milestone is to work injury free through May, which will tally 12 months of injury free work and a TRIR of 0.0.

The District experienced zero (0) Motor Vehicle Accidents (MVA) in January. With two MVA's in the last 12-month period, the MVA incident rate is at 2.2. Equal to the LRD MVA goal of 2.2.

**Sustainment:** The Power BI tracked Job Hazard Assessment (JHA) activity indicates a January JHA generation of 1590, very close to the 12-month rolling average of 1,587 per month. Current Power BI data now accurately captures multiple JHA's on one work order. Although not fully integrated into EAM, the Wild Pine Lab and River Center continue to utilize the JHAs and are included in the overall data. The following is an assessment of December JHAs performed per employee in each department:

Reuse:	38 JHA / employee	Construction:	12 JHA / employee
Operations:	42 JHA / employee	Inspection:	32 JHA / employee
Collections:	38 JHA / employee	Wild Pine Lab	6 JHA / employee
Maintenance:	38 JHA / employee	River Center	2 JHA / employee

Stephen B. Rockoff  
CHAIRMAN

Kevin L. Baker  
BOARD MEMBER

Gordon M. Boggie  
BOARD MEMBER

Dr. Matt H. Rostock  
BOARD MEMBER

Clinton R. Yerkes  
BOARD MEMBER

**JHA and Work Orders:** In January approximately 98% of the applicable Work Orders (WO) included a JHA. This represents twenty-six (26) months in a row in which the District expectation of 95% was exceeded. The following is a District comparison for the percentage of January EAM applicable Work Orders generated for which an electronic JHA was completed:

Reuse:	100 %	Construction:	92 %
Operations:	99 %	Inspection:	97 %
Collections:	100 %	Wild Pine Lab	0 Electronic JHA's
Maintenance:	97 %	River Center	0 Electronic JHA

**Lockout / tagout (LOTO):** LOTO continues to be tracked in similar fashion to the JHA's. The machine-specific LOTO form is what an "Authorized" LOTO employee must complete prior to placing the machine / system in a locked-out condition. Any District employee working on the system/equipment being locked-out must affix their own personalized lockout lock and tag to the equipment. This process ensures the system/equipment is configured so there is zero hazardous energy associated with the equipment prior to employees performing any maintenance on the equipment. 206 machine-specific LOTO forms were completed by District employees in January. Current data indicates the LOTO compliance rate to be at 89% of applicable work orders, which is less than the November data and far below the District expectations of at least 95%. The following is a District comparison for the percentage of January EAM applicable Work Orders generated for which a LOTO form was completed:

Reuse:	100 %	Construction:	0 %
Operations:	0 %	Inspection:	14 %
Collections:	98 %	Wild Pine Lab	NA
Maintenance:	93 %	River Center	NA

The District initiated tracking the LOTO completions in 2023. The average completions were 71%, which increased to 88% in 2024. Although a sizable increase was realized, this performance is not acceptable. As we continue to track the LOTO to work order compliance, the expectation is for this number to increase. The District will not be satisfied until the LOTO percentage is sustained at 100%.

**Near Miss Reporting:** There were 8 Near Miss reports initiated in January which is slightly above the 12-month rolling average. The Maintenance Department submitted a total of four reports, the Construction Department, Operations, Customer Service, and the Inspection Department each submitted one report. Two slip, trip and fall, one health hazard (chemical exposure), two fall hazards, one chlorine valve related, one cut-by risk, and one vehicle equipment related near miss were reported. The Near Miss Reporting Standard Operating Procedure has been enhanced to increase the efficiency of implementing corrective actions. There have been 86 Near Miss Reports submitted in calendar year 2024. 67 Near Miss reports have work orders assigning action to be taken to resolve the respective near miss. Upon receiving the Near Miss report, the reporting employee's direct supervisor initiates the review of

the concern with the reporting employee and the Safety Officer creates a work order to track the near miss progress, including closure. All District employees should continue to report potential safety issues, including unsafe or unhealthy conditions, potential pollution sources or events, and suggestions to improve safety processes, via Near Miss Reporting.

**Training:** The District Safety training in January included a two-hour classroom New Employee Onboarding Safety Training for one Collections employee and two Construction Department employees. This New Hire Orientation training is conducted by the Safety Officer and consists of a high-level review of District Safety Rules, the Safety Manual and the various Safety Programs implemented by the District. Computer Based Training (CBT) for all new hires is standardized for Human Resources, Information Technologies and Safety, and is automatically distributed to new hires on their respective first day of work. The following are standard safety-related CBT provided to new employees: New Employee Safety Orientation, PPE Awareness, Bloodborne Pathogens, Hazard Communication, Chlorine Awareness, Heat Stress Safety, and Hydrogen Sulfide (H<sub>2</sub>S) Awareness. Additional safety-related training for the Collections and Construction Department employees included: Lockout-tagout Authorized, Confined Space Entrant and Confined Space Attendant classroom training. The overall training completion for November was at 98% which is above the District's expectations of 100%.

Also in January, Fork Truck Operator training was conducted for four Construction employees, four Collections employees and one Maintenance employees. The training consisted of 2-hour classroom training and then practical training for each employee measuring the proficiency of operating a fork truck. Scissors Lift and Aerial Lift Certification training was also conducted for two Maintenance employees. Similar to fork truck training, the Scissors Lift and Aerial Lift training consisted of classroom training followed by a practical proficiency period while operating the equipment. Fall protection and harness classroom and computer-based training is scheduled to be conducted in February for approximately ten District employees. Intermediate Management of Traffic Certification has been scheduled for February 11<sup>th</sup> and 12<sup>th</sup> for 12 District employees. Chainsaw safety, operations and maintenance is scheduled for February 19<sup>th</sup> for eleven District employees. Seven employees with initial training and four with four-year refresher training. The training is conducted by members of the Florida Forrest Service.

**Summary:** Working safely at the District IS the standard. Let's reinforce the dedication to work smart and safely. Please visit with any questions or ideas you may have. And do not forget to utilize the near miss reporting system. Let's help each other stay safe and reach beyond our goals.



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D. Albrey Arrington, Ph.D. EXECUTIVE DIRECTOR

[loxahatcheeriver.org](http://loxahatcheeriver.org)

## MEMORANDUM

TO: Governing Board  
FROM: Administration Staff  
DATE: February 13, 2025  
SUBJECT: Consultant Payments

The following amounts have been reviewed and approved for payment to our consultants for work performed during the prior month.

Consultant	Prior Month	Fiscal YTD
Attorneys	\$ 2,177.50	\$ 33,866.57
Baxter & Woodman	\$ 20,836.64	\$ 27,974.52
Carollo	\$ 27,322.62	\$ 78,839.02
Holtz	\$ 13,615.15	\$ 49,761.91
KCI	\$ 4,121.00	\$ 23,508.60
Kimley-Horn & Associates, Inc.	\$ 15,223.50	\$ 66,033.50

Should you have any questions regarding these items, please contact Kara Fraraccio concerning the attorney invoices, and Kris Dean concerning the engineer invoices.

**Gordon M. Boggie**  
CHAIRMAN

**Kevin L. Baker**  
BOARD MEMBER

**Stephen B. Rockoff**  
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**Dr. Matt H. Rostock**  
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## MEMORANDUM

TO: GOVERNING BOARD  
FROM: D. ALBREY ARRINGTON, Ph.D.  
DATE: JANUARY 30, 2025  
SUBJECT: EXECUTIVE DIRECTOR'S 2025 GOALS

I have worked with Chairman Boggie to draft my goals for 2025. My goals include broad categories, which are listed on the following page, and first page includes general goals and the second page includes specific goals, which fall into three elements (i) update our strategic plan; (ii) continue to improve our application of and use of technology, e.g., artificial intelligence, and (iii) all the metrics listed in our Annual Dashboard. I look forward to receiving your input on these goals.

**Gordon M. Boggie**  
CHAIRMAN

**Dr. Matt H. Rostock**  
BOARD MEMBER

**Kevin L. Baker**  
BOARD MEMBER

**Stephen B. Rockoff**  
BOARD MEMBER

**Water Reclamation – Environmental Education – River Restoration**



## 2025 – Performance Assessment Categories for Dr. Arrington

**Organizational Leadership.** Does the Executive Director provide strong, visionary leadership to the organization? How well does the Executive Director motivate and energize the organization in pursuit of our mission? Does Executive Director build and model the desired organizational culture and core values?

**Effective relationship with Board.** How well does Executive Director communicate and interact with the LRD Governing Board? Is the relationship characterized by transparency, candor, open & effective communication? Is the Governing Board kept informed, in a clear and timely manner, regarding all relevant aspects of the District?

**Strategic Plan.** Are prioritized elements from the Strategic Plan being implemented? Is the organization aligned to the Mission, Vision, and Core Values?

**People management.** Does the Executive Director recruit and maintain qualified, effective, and productive staff? Are the right people in the right jobs, especially in management positions? Are staff turnover and succession managed effectively?

**Operating metrics.** Are metrics on the Executive Dashboard (e.g., revenues, expenses, safety, environmental education, customer satisfaction) indicative of a well-run organization?

**Governance.** Does the Executive Director implement procedures to ensure Governing Board actions and policies are effectively administered? Are District Rules and policies reviewed periodically?

**Financial performance.** Did the organization achieve a clean audit, which is the product of establishing and implementing effective financial procedures and internal controls? Did the Executive Director produce a timely and quality Rate Study and Budget? Was a budget amendment necessary?

**Effective decision making.** Does the Executive Director make recommendations and decisions that show sound judgment, clear thinking, and are designed to ensure effective use of organizational resources.


**Compliance with legal and regulatory standards.** Did the organization operate in compliance with relevant laws and governmental regulations? Did Executive Director respond appropriately to regulatory agency comments and recommendations.

**Litigation.** Did the organization experience any costly, avoidable litigation?

**Relationships with external constituencies.** How well does the Executive Director engage with sister agencies, regulatory agencies, state and federal policy makers, and other stakeholders? Is the organization respected within the community?

## Albrey's 2025 Specific Goals (specific, measurable, achievable, and time-bound)

1. Initiate an update of LRD's Strategic Plan, which was last conducted in 2018.
2. Explore, evaluate, and implement technologies, with particular interest in potential applications of artificial intelligence, to improve efficiency, consistency, or otherwise drive value for our customers.
3. The metrics defined in LRD's [Annual Dashboard](#), which include the following:

	<b>LOXAHATCHEE RIVER DISTRICT'S ANNUAL DASHBOARD</b>				
Goal	Performance Measure	Units	Standards		
Regulatory Compliance	Regulatory Compliance	% of days in full compliance	100%	<100%	<99%
	Unauthorized Discharge of Sewage	gallons spilled per million gallons handled	<3.4	≥3.4	>6.8
	Max 3-month Mean Daily Influent Flow	% of permitted capacity	≤75%	>75%	>90%
	Industrial Pretreatment Inspections	% of inspections completed ontime	≥95%	<95%	<90%
Water Reuse	Water Reuse Efficiency	# of days treated effluent not available to be recycled	≤9	>9	>18
Customer Service	Customer Service	# blockages with damage in home per 10,000 customers	≤1	>1	>2.1
	Timely Engineering Plan Review	average response time (# business days)	≤5	>5	>7
Asset Management	Planned vs. Unplanned Maintenance	planned maintenance (# of work orders) ÷ total maintenance (# of work orders)	≥60%	<60%	<50%
	Wastewater Treatment Plant (WWTP) Rehabilitation Rate	WWTP renewal & replacement expenditures as a proportion of total WWTP asset value, based on 5-year moving average	≥1.7%	<1.7%	<0.7%
	Wastewater Pump Stations Rehabilitation Rate	pump station renewal & replacement expenditures as a proportion of total pump station value, based on 5-year moving average	≥2.0%	<2.0%	<1.9%
	Gravity Sewer System Condition	% of gravity lines and manholes inspected and in good condition (SL-RAT score ≥7), based on most recent 5-years	≥90%	<90%	<80%
Financial Stability	Affordability of Wastewater Fees	Percentile of Surveyed Wastewater Rates	<50 <sup>th</sup>	≥50 <sup>th</sup>	≥75 <sup>th</sup>
	Revenue <sup>†</sup>	% of budget	≥95%	<95%	<90%
	Operating Expenses	% of budget	≥90%	<90%	<80% or >100%
Public Engagement	Annual Audit	annual comprehensive financial report completed and posted in a timely manner	Yes	-	No
	People Educated by LRD	number of people	≥17,000	<17,000	<15,000
Workforce	Effective Staffing	% of employee turnover	<10%	≥10%	≥20%
	Employee Safety	total recordable injury rate (TRIR)	≤1.8	>1.8	>3.5
Accessible Environmental Data	WildPine Lab NELAC Certification	certified for non-potable water: general chemistry and microbiology	Yes	-	No
	Conduct, analyze, and report on environmental sampling	% of all relevant data accessible online through data visualizations and interactive reports	≥95%	<95%	<80%
<sup>†</sup> excludes revenue from assessments and capital contributions					



# Future Business

## General:

- Rate Study

## Future Contracts:

- Chapter 31-10 Rates, Fees, and Charges - Harbor Road South Phase 1 Sub-Regional Line Charge
- Maintenance Facility – Professional Engineering Services - Approval of Ranked Firms And Work Authorization
- Warehouse Facility – Professional Engineering Services - Approval of Ranked Firms And Work Authorization
- Generator Operations & Maintenance - Award General Services Contract
- Lift Station 050 Collection System - Gravity System Repairs